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Paper 32
Entered: April 10, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LYFT, INC.,
Petitioner,

v.

RIDESHARE DISPLAYS, INC.,
Patent Owner.

IPR2021-01598
Patent 9,892,637 B2

Before THOMAS L. GIANNETTI, LYNNE E. PETTIGREW, and JOHN D. HAMANN, *Administrative Patent Judges.*

GIANNETTI, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

ORDER
Granting In Part Motion to Amend
37 C.F.R. § 42.121
Denying Motion to Exclude
37 C.F.R § 4.64

I. INTRODUCTION

Lyft, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–9 and 11–20 (the "challenged claims") of U.S. Patent No. 9,892,637 B2 (Ex. 1001, "the '637 patent"). Patent Owner, Rideshare Displays, Inc., filed a Preliminary Response (Paper 6, "Prelim. Resp."). We determined that Petitioner has established a reasonable likelihood that it would prevail with respect to at least one claim. We, therefore, instituted *inter partes* review as to all of the challenged claims of the '637 patent and all of the asserted grounds of unpatentability in the Petition. Paper 7 ("Institution Dec.").

Following institution, Patent Owner filed a Response. Paper 13 ("PO Resp."). Subsequently, Petitioner filed a Reply (Paper 18, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 22, "PO Sur-reply").

After institution, Petitioner filed a contingent Motion to Amend (Paper 12, "Mot. Amend") and requested that we provide preliminary guidance in accordance with the Board's pilot program concerning motion to amend practice and procedures. Mot. Amend 1; *see* Notice Regarding a New Pilot Program Concerning Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board, 84 Fed. Reg. 9,497 (Mar. 15, 2019) ("Notice"). *See* Section IV, *infra.* In addition, Patent Owner filed a Motion to Exclude Evidence (Paper 27) and Petitioner filed an Opposition (Paper 28). *See infra*, Section V.

On January 10, 2023, we held a consolidated oral hearing with four related cases.[1] A transcript of the hearing is included in the record. Paper 31 ("Hearing Tr.").

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision issued pursuant to 35 U.S.C. § 318(a). For the reasons we discuss below, we determine that Petitioner has proven by a preponderance of the evidence that claims 1–9 and 11–20 of the '637 patent are unpatentable.

In addition, because we determine that Petitioner has failed to establish by a preponderance of the evidence that proposed substitute claims 29, 31, and 32 of Patent Owner's contingent Motion to Amend are unpatentable, we grant the Motion to Amend as to those claims.

II. BACKGROUND

A. Related Matters

The parties identify the following district court proceeding involving the '637 patent: *Rideshare Displays, Inc. v. Lyft, Inc.*, 20-cv-01629-RGA-JLH (D. Del.). Pet. 1; Paper 5, 2.

The parties also identify several petitions for *inter partes* review of patents related to the '637 patent: IPR2021-01599, IPR2021-01600, IPR2021-01601, and IPR2021-01602. Pet. 1; Paper 5, 2.

B. Real Parties-in-Interest

Petitioner identifies Lyft, Inc. as the only real party-in-interest. Pet. 1. Patent Owner identifies Rideshare Displays, Inc. as the only real party-in-interest. Paper 5, 2.

[1] Those cases are IPR2021-01599, IPR2021-01600, IPR2021-00691, and IPR2021-01602.

C. The '637 Patent (Ex. 1001)

The '637 patent is titled "Vehicle Identification System." Ex. 1001, (54). The patent describes a system for providing an indicator on a mobile communication device of a user having requested a ride service to allow the user to identify a vehicle prior to boarding the vehicle. *Id.* at 1:21–25. According to the patent, "[a] continuing need exists for systems and methods adapted for use by transportation services to ensure rider and driver security." *Id.* at 1:56–58.

Two separate embodiments of the invention are shown in Figures 1A and 1B, following:

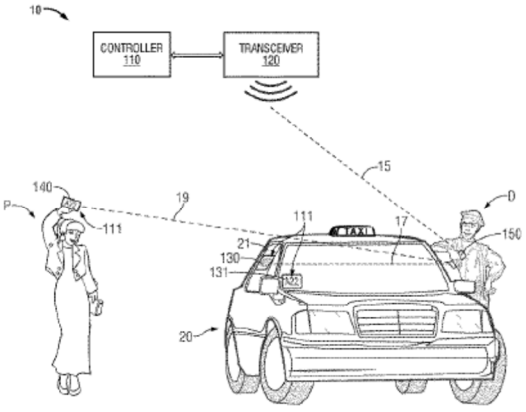


Fig. 1A

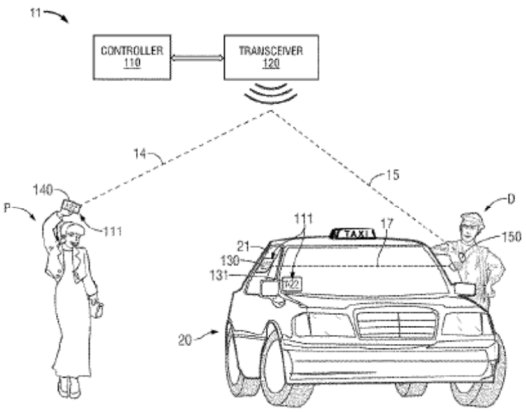


Fig. 1B

Figures 1A and 1B illustrate two embodiments of a vehicle identification system in accordance with the '637 patent. *Id.* at 2:35–40. Referring first to Figure 1A, vehicle identification system 10 includes controller 110, transceiver 120, and one or more displays associated with motor vehicle 20. *Id.* at 3:54–56. First display 130 is associated with passenger side rear window 21 of motor vehicle 20, and second display 131 is associated with the front windshield of motor vehicle 20. *Id.* at 3:57–60. Vehicle identification system 10 can generate one or more signals representing an

indicator, which may be displayable as a "code" (e.g., a text string or an alphanumeric string), an icon, or other identifier, on display 130 and on mobile communication device 140 associated with user P to enable the user to identify the vehicle that he or she has requested for a ride service. *Id.* at 4:4–10.

Figure 3 is a flowchart illustrating a method of identifying a vehicle in accordance with the '637 patent. Ex. 1001, 2:44–46. Figure 3 follows:

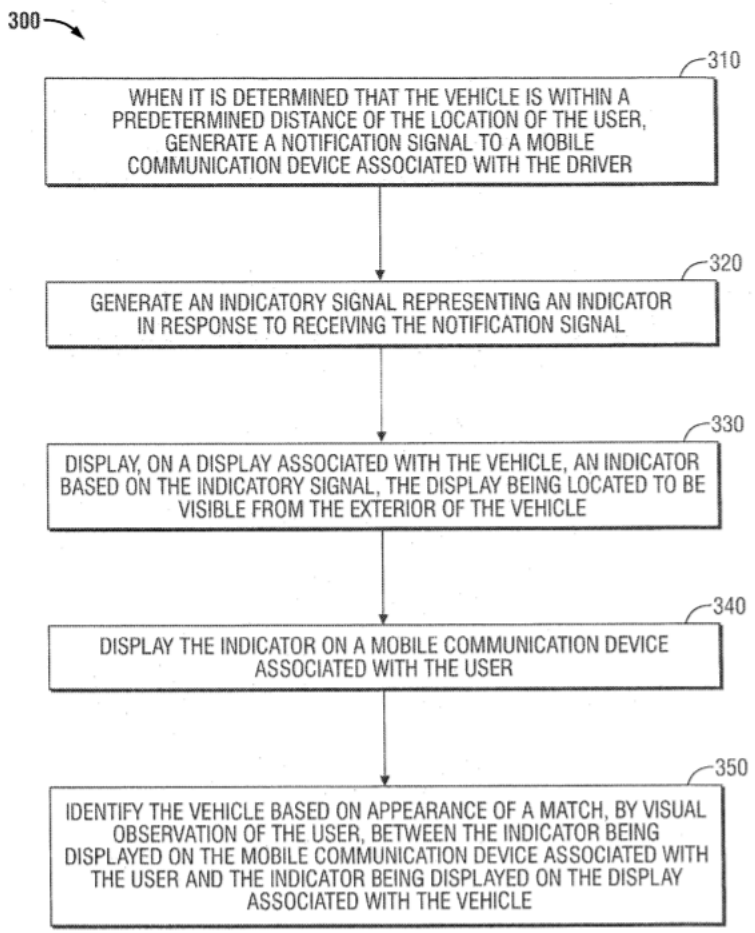


Figure 3 illustrates a method of identifying a vehicle being dispatched to a location of a user having requested a ride from a transportation service. *Id.* at 6:62–6:64. When it is determined that motor vehicle 20 is within a predetermined distance of the location of user P, notification signal 15 is

generated to mobile communication device 150 associated with driver D. *Id.* at Fig 3, block 310. Indicatory signal 17 representing indicator 111 is generated in response to receiving notification signal 15. *Id.* at Fig. 3, block 320. Indicator 111 based on indicatory signal 17 is displayed on display 130 associated with vehicle 20. *Id.* at Fig. 3, block 330. Display 130 is located to be visible on the exterior of vehicle 20. *Id.* at 7:8–9.

Indicator 111 is also displayed on mobile communication device 140 associated with user P. *Id.* at Fig. 3, block 340. Motor vehicle 20 is identified based on appearance of a match, by visual observation of user P, comparing the indicator being displayed on the mobile communication device associated with user P and the indicator being displayed on the display associated with vehicle 20. *Id.* at Fig. 3, block 350.

In the embodiment of Figure 1A, the mobile communication device associated with driver D generates a second signal representing an indicator that is transmitted to mobile communication device 140 associated with user P. *Id.* at 5:28–33. In the embodiment of Figure 1B, vehicle identification system 11 generates indicatory signal 14 transmitted to the mobile communication device associated with user P and notification signal 15 to be transmitted to the mobile communication device associated with driver D. *Id.* at 5:40–45. In this embodiment, the driver's mobile communication device does not communicate with the user's mobile communication device. *Id.* at 5:45–50.

D. Illustrative Claim

The '637 patent has 20 claims. As noted, claims 1–9 and 11–20 are challenged in the Petition. Pet. 7. Claims 1, 9, and 13 are independent

claims. Claim 1 is illustrative of the claimed subject matter and is reproduced below:[2]

> 1. [Preamble] A vehicle identification system, comprising:
>
> [1A] at least one display associated with a vehicle, wherein the at least one display is located to be visible from an exterior of the vehicle by a rider;
>
> [1B] a transceiver, and
>
> [1C] a controller communicatively coupled to the transceiver,
>
> [1D] wherein the controller is adapted to generate a first signal to be transmitted by the transceiver to a mobile communication device associated with a driver of the vehicle when it is determined that the vehicle is within a predetermined distance of a specific location,
>
> [1E] wherein the mobile communication device associated with the driver is adapted to generate a second signal to be transmitted to the at least one display, the second signal representing an indicator.

Ex. 1001, 7:28–42.

E. Prior Art References and Other Evidence

Petitioner relies on the following references (Pet. 7):

1. U.S. Patent Pub. 2015/0332425 A1 (Jan. 23, 2015) (Ex. 1006, "Kalanick");

2. U.S. Patent No. 9,494,938 B1 (Apr. 3, 2014) (Ex. 1008, "Kemler");

3. U.S. Patent Pub. 2012/0137256 A1 (May 31, 2012) (Ex. 1009, "Lalancette").

In addition to these references, Petitioner relies on three Declarations of David Hilliard Williams. Ex. 1003 ("Williams I Decl."); Ex. 1027

[2] Paragraph references in brackets were added tracking Petitioner's analysis.

("Williams II Decl."); Ex. 1030 ("Williams III Decl."). Patent Owner has submitted a first Declaration of Dr. Matthew Valenti with the Preliminary Response (Ex. 2001 "Valenti I Decl."), and thereafter, second and third declarations of Dr. Valenti (Ex. 2021, "Valenti II Decl."; Ex. 2023, "Valenti III Decl."). In addition, the parties have submitted deposition transcripts for those witnesses.[3]

E. The Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability. Pet. 7.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/ Basis[4]
1–9, 11–20	103	Kalanick, Kemler
1–9, 11–20	103	Lalancette, Kemler

III. ANALYSIS OF THE CHALLENGED CLAIMS

A. Obviousness

A claim is unpatentable as obvious under 35 U.S.C. § 103 "if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the

[3] Ex. 1029 ("Valenti Dep."); Ex. 2022 ("Williams Dep."),

[4] Petitioner's obviousness challenges additionally refer to the "knowledge of a [person of ordinary skill in the art]." Pet. 7. While we do not list such knowledge separately, we consider it as part of our obviousness analysis. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) ("As *KSR* established, the knowledge of such an artisan is part of the store of public knowledge that must be consulted when considering whether a claimed invention would have been obvious.").

art to which the claimed invention pertains." 35 U.S.C. § 103 (2011). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) so-called "secondary considerations," including commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Neither party has presented any evidence on the fourth *Graham* factor and we therefore do not consider it in our analysis.

B. Level of Ordinary Skill in the Art

According to Petitioner, a person of ordinary skill in the pertinent art "would have had at least a bachelor's degree in electrical or computer engineering, or a similar field with at least two years of experience in the field of vehicle location and tracking systems or related technologies." Pet. 11. Petitioner adds that "[a] person with less education but more relevant practical experience may also meet this standard. The prior art also evidences the level of skill in the art." *Id.* (citing Williams I Decl. ¶ 44).

Patent Owner provided a slightly different formulation. According to Patent Owner, a person of ordinary skill at the relevant time would have:

> i) at least a bachelor's degree in electrical or computer engineering, or a similar field;
>
> ii) at least two years of experience in wireless cellular network protocols, including location and tracking/positioning, and having an understanding of signal timing and reliability issues in such wireless cellular network protocols; and
>
> iii) knowledge of issues with respect to data privacy and database storage systems. Regarding data privacy, the [person of ordinary skill] need not have extensive knowledge in, e.g.

> data encryption methodologies, but would have experience with data privacy policies and protection models.

Prelim. Resp. 5. At the institution stage, we adopted Petitioner's more general formulation, with a qualification. We stated "[w]e would also expect a person of ordinary skill to also have at least some experience in wireless cellular network protocols, as suggested by Patent Owner." Institution Dec. 16. We reasoned that our review of the '637 patent and the cited prior art does not suggest that specific experience with data privacy policies and protection models would be required, given the focus of the '637 patent on more general principles of cellular communications and signaling. *Id.* However, we observed that the arguments presented by the parties did not depend on the definition of the person or ordinary skill, and, therefore, our decision would be the same under either formulation. *Id.* at 16–17.

Patent Owner responds that it "disagrees" with our formulation because "the ['637] patent is not directed to a vehicle tracking system." PO Resp. 4. Patent Owner explains that "[i]t is directed to a communication system between a rider and driver, albeit using location based services in some aspects of this system, and thus a [person of ordinary skill] would be a person who is skilled in the field of communication systems along cellular networks." *Id.*

We agree that the patented technology involves cellular communications, and this is adequately reflected in our formulation, where we stated "[w]e would also expect a person of ordinary skill to also have at least some experience in wireless cellular network protocols, as suggested by Patent Owner." Institution Dec. 16. But Patent Owner continues that "a [person of ordinary skill] should have knowledge of wireless

communications protocols and some general experience with data privacy issues and protection models, in addition to the education level in electrical or computer engineering identified by the parties." PO Resp. 4–5. Patent Owner cites no authority for this proposal, which we rejected in our Institution Decision based on our review of the patent and the prior art. Institution Dec. 16. We, therefore, maintain our formulation of the person of ordinary skill from our Institution Decision.

Patent Owner segues from discussing the scope of knowledge of a person of ordinary skill to an attack on Mr. Williams's testimony. PO Resp. 5–6. We are not persuaded by Patent Owner's citations to Mr. Williams's testimony, or by Patent Owner's attempt to discredit Mr. Williams's opinions on the pertinent art as "overreach." *Id.* None of the testimony cited by Patent Owner relates to the Kalanick, Lalancette, or Kemler references. Nor do we agree that Mr. Williams's testimony concerning background technology "infects each argument that Petitioner makes with respect to the knowledge of a [person of ordinary skill]," as Patent Owner alleges. *Id.* at 6. Patent Owner does not point to any specific arguments that would be so "infected." We find, instead, as we stated in our Institution Decision, that "the arguments presented by the parties do not depend on the definition of the person or ordinary skill, and therefore, our decision would be the same under either formulation." *See* Institution Dec. 16–17.

C. Claim Construction

For this *inter partes* review, the Board applies the same claim construction standard as that applied in federal courts. *See* 37 C.F.R. § 42.100(b) (2019). Under this standard, claim terms "are generally given their ordinary and customary meaning" as understood by a person of

ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317.

Petitioner prefaced its claim construction discussion by stating "Petitioner interprets all claim terms in accordance with their ordinary and customary meaning *unless otherwise stated below*." Pet. 12 (emphasis added). Petitioner then proceeded to criticize three constructions proposed by Patent Owner in district court: "first signal/indicatory signal," "indicator," and "indicatory signal." *Id.* at 12–13. Petitioner claimed that Patent Owner's proposed construction of these terms "requires something to be 'actively formulated' by the controller." *Id.* at 13. Petitioner disagreed with those constructions, observing that "[t]he term 'actively formulated' is not used anywhere in the patent specification and does not add clarity to the meaning of these claim terms." Instead, Petitioner asserted the terms should be given "their respective ordinary and customary meanings." *Id*.

Patent Owner responded that three terms, in context, required construction and addressed each in the Preliminary Response. Prelim. Resp. 6–12.

In our Institution Decision, we addressed the parties' proposed constructions of "indicator" and "indicatory signal" as well as the

construction of "generate," which we identified as an additional term requiring construction. Institution Dec. 18–24. We further address the construction of these terms below.

1. First Signal/Indicatory Signal Terms

According to Patent Owner, "Petitioner is both incorrect in presenting the terms 'First Signal' and 'Indicatory Signal' as the same for all three [independent] claims and in asserting that they do not require construction." Prelim. Resp. 9. Patent Owner explained that "the two signals are very different– one indicates when a driver/vehicle is near a specific location and the other relates to what is displayed so the rider and driver can be matched." *Id.* at. 7.

Patent Owner asserted that "a controller in a vehicle identification system actively formulates an indicator (or code/indicatory symbol which represents an indicator) that is sent to the rider, and driver, which is ultimately displayed for each ride." *Id.* at 9. The controller "generates a signal sent by the transceiver to the driver's 'mobile communication device' when the driver is within a predetermined distance to a location." *Id.* Patent Owner continued, "the location signal is very different from the signal that indicates what code should be on the display." *Id.* at 10. Thus, Patent Owner proposed separate constructions for "location signal" and "indicatory signal." *Id.*

For "location signal," Patent Owner proposed "a notification signal for activating a driver's mobile communication device." *Id.* at 10. As Patent Owner's analysis acknowledged, however, the term "location signal" does not appear in the claims. Instead, claim 1 refers to "a first signal to be transmitted by the transceiver to a mobile communication device associated

with a driver of the vehicle when it is determined that the vehicle is within a predetermined distance of a specific location." Ex. 1001, 7:33–37. Claim 9 recites the step of "when it is determined that the vehicle is within a predetermined distance of the location of the user, generating a notification signal to a mobile communication device associated with the driver." *Id.* at 8:1–4. And although claim 13 makes no reference to location, its dependent claim 15 specifies that "the first, second and third signals are transmitted when it is determined that the vehicle is within a predetermined distance of a specific location of the user." *Id.* at 8:45–47.

We did not agree with Patent Owner's assertion that the term "location signal" requires a special construction. Institution Dec. 19. We observed that the claims themselves adequately describe the signals that Patent Owner equates to "location signals." *Id.* For example, claim 1 recites "a first signal to be transmitted by the transceiver to a mobile communication device associated with a driver of the vehicle when it is determined that the vehicle is within a predetermined distance of a specific location." *Id.* at 7:33–37.

Similarly, we saw no need to adopt a special construction for "indicatory signal." Institution Dec. 19; *see* Section III.C.3, *infra*.

For the reasons given, therefore, we did not adopt Patent Owner's construction for these terms, as the terms do not require special constructions beyond plain meaning. Institution Dec. 19. Patent Owner's Response does not address the construction of these terms. Therefore, for the reasons given, we maintain our decision that no special construction is necessary for these terms.

2. Indicator

For the term "indicator" (as in "indicatory signal representing an indicator"), Patent Owner proposed the following construction: "any code (e.g., text, alphanumeric, icon, or other symbol), color, etc., or combination thereof, which displays and enables a match between user/rider and driver that preferably is not duplicated in the same pickup location." Prelim. Resp. 11.

The '637 patent describes an indicator as "a 'code' (e.g., a text string or an alphanumeric string), an icon, or other identifier, on the display 130 and on a mobile communication device 140 associated with the user P to enable the user P to identify the vehicle that he/she has requested for a ride service." Ex. 1001, 4:6–10. Consistent with this description in the specification, we construed the term "indicator" as a code (e.g., a text string or an alphanumeric string), an icon, or other identifier, for display to enable a match between a user/rider and a driver. Institution Dec. 20.

We did not see a basis in the claims or specification for Patent Owner's contention that a "new unique indicator" must be "actively formulate[d] . . . for each rider-driver trip while the driver is in transit." *Id.* at 20 (citing Prelim. Resp. 29).

Patent Owner does not address the construction of "indicator" in its Response. For the reasons given, therefore, we maintain our construction of this term. We discuss Patent Owner's contention that a new indicator must be "actively formulated" further in connection with our consideration of the claim term "generate," *infra*.

3. Indicatory Signal

Patent Owner contended that the term "indicatory signal" is not the "'indicator'– . . . it is the signal that tells the display what 'indicator' to display." Prelim. Resp. 11. As in the case of the term "indicator," we did not see a basis for construing this term as requiring that the signal be "actively formulated," in the sense described by Patent Owner. Institution Dec. 20–21. We, therefore, did not adopt Patent Owner's construction. *Id.* at 21.

The claims themselves adequately describe the signals identified as indicatory signals by Patent Owner. For example, claim 9 recites the step of "generating an indicatory signal representing an indicator in response to receiving the notification signal." Ex, 1001, 8:5–6.

Patent Owner does not address this construction in its Response. Therefore, for the reasons given, we maintain our construction of this term.

4. Generate

Based on the arguments presented and on Patent Owner's analysis of the prior art in the Preliminary Response, we identified "generate" as an additional term appearing in the challenged claims that required construction, as it relates to the controller in such phrases as "generate a second signal to be transmitted to the at least one display, the second signal representing an indicator." Institution Dec. 10 (citing Ex. 1001, 7:39–42 (claim element 1E)).

Referring to the specification, Patent Owner explained that "a controller in a vehicle identification system actively 'formulates an indicator . . . that is sent to the rider and driver, which is ultimately displayed for each ride." Prelim. Resp. 9 (emphasis added). Patent Owner's analysis of the

claims equated the claim term "generate" a signal with "actively formulate" an indicator. *See id.* at 29 ("[T]he present invention actively formulates a new unique indicator for each rider-trip while the driver is in transit"). In discussing claim limitation 1E, which recites "generate a second signal . . . representing an indicator," Patent Owner asserts that "[t]he claims require that a new signal [i.e., not 'pre-associated with a particular rider or a particular driver'] be actively formulated each time a ride is dispatched." *Id.* at 32.

We declined to adopt this implicit construction (and the related construction "actively generate"). Institution Dec. 22. The claims themselves do not require the controller to "actively formulate" a new indicator for the same rider requesting a subsequent trip for that second trip, or that "a new signal be actively formulated each time a ride is dispatched" as Patent Owner's analysis asserts. *See infra*.

Nor is it clear how this construction is supported by the '637 patent specification. The '637 patent describes the controller as "communicatively coupled to the transceiver." Ex. 1001, 1:65–66. Further, "[t]he controller is adapted to generate a first signal to be transmitted by the transceiver to a mobile communication device." *Id.* at 1:67–2:2. Elsewhere in the patent, "controller" is defined as "any type of computing device, computational circuit, or any type of processor or processing circuit capable of executing a series of instructions that are stored in a memory associated with a with the controller." *Id.* at 2:60–64. The operation of the controller is also described as follows: "The controller 110 may generate a first signal (also referred to herein as a 'notification signal') that is transmitted via the transceiver 120 to

the mobile communication device 150 associated with the driver D." *Id.* at 5:1–4.

Still further, "[t]he controller 110 generates four different notification signals, NOTIFICATION-A, NOTIFICATION-B, NOTIFICATION-C, and NOTIFICATION-D, to be transmitted by the transceiver 120 to a first DRIVER'S MOBILE DEVICE 150A, a second DRIVER'S MOBILE DEVICE 150B, a third DRIVER'S MOBILE DEVICE 150C, and a fourth DRIVER'S MOBILE DEVICE 150D, respectively." *Id.* at 6:26–33. And further, "[i]n other embodiments, wherein the vehicle identification system 11 is utilized, an indicatory signal to the rider's mobile communication device may be generated by the controller 110." *Id.* at 6:58–61.

In none of these descriptions of the controller's operation is there mention of "actively formulates," or a disclosure that the controller "actively formulates" a new indicator for the same rider requesting a subsequent trip for that second trip, or that "a new signal be actively formulated each time a ride is dispatched." *See infra*. Instead, as discussed *supra*, the specification describes the indicator, for example, as "a 'code' (e.g., a text string or an alphanumeric string), an icon, or other identifier, on the display 130 and on a mobile communication device 140 associated with the user P to enable the user P to identify the vehicle that he/she has requested for a ride service." Ex. 1001, 4:6–10.

Because the specification and prosecution history do not explicitly provide a definition for the term "generate," we looked to extrinsic sources to determine its plain meaning. Institution Dec. 23–24. The Federal Circuit has approved the use of dictionaries for guidance in claim construction, "so long as the extrinsic evidence does not contradict the meaning otherwise

apparent from the intrinsic record." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of "consult[ing] a general dictionary definition of [a] word for guidance" in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) ("[O]ur decisions, including *Phillips*, do not preclude the use of general dictionary definitions as an aid to claim construction.") (citation omitted).

One dictionary definition of "generate" is "to bring into existence: such as: . . . to originate by a vital, chemical, or physical process**:** PRODUCE." *See* https://www.merriam-webster.com/dictionary/generate. We, therefore, construed the term "generate" as it relates to the controller in reference to a signal in accordance with its plain and ordinary meaning, which is to originate or produce the signal. Institution Dec. 23–24.

Patent Owner's Response does not directly respond to this construction. PO Resp. 7. Instead, Patent Owner asserts that "at institution, the Board determined that the term 'generating should be construed according to its ordinary meaning. . . . Applying ordinary meaning should still lead to the conclusion that the prior art does not render the claims of the patent unpatentable." *Id.*

For the foregoing reasons, we maintain our construction of "generate" a signal as "to originate or produce the signal." Institution Dec. 24.

5. Other Terms

To the extent we need to interpret any other terms, we will do so in the context of the analysis of the prior art that follows.

D. Description of the Prior Art References

1. Kalanick (Ex. 1006)

Kalanick discloses a system for arranging an on-demand service to be provided by a transport service provider to a requesting user. Ex. 1006 ¶ 2. Kalanick describes a dynamically configured and personalized display that is positioned on or fastened to a vehicle. The display is easily visible to a user outside of the vehicle and informs the user which vehicle has been assigned to the user for the on-demand service. *Id.* ¶ 10.

The on-demand service system can arrange a transport service for a user by receiving a request for transport from the user's device, selecting a driver from a plurality of available drivers to perform the transport service for that user, sending an invitation to the selected driver's device, and receiving an acceptance of the invitation by the selected driver. *Id.* ¶ 11.

The on-demand service system described by Kalanick can associate an identifier of the user and an identifier of the driver with an entry for that transport service. Once the on-demand service system arranges the transport service for the user and the driver, the transport personalization system can access a user database to determine whether that user has specified an output configuration for an indication device (e.g., determine whether the user has personalized at least one aspect of the transport service). *Id.*

This operation is illustrated in Figure 1 of Kalanick, following:

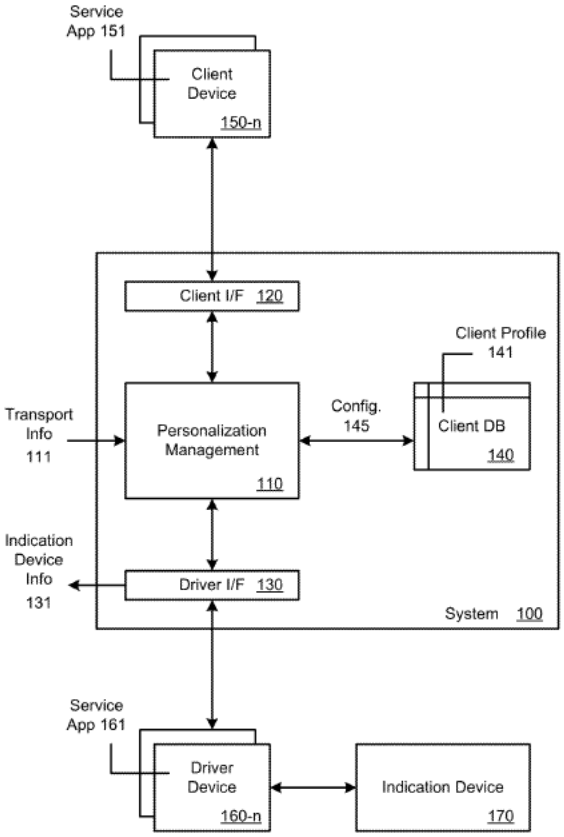


FIG. 1

Figure 1 of Kalanick illustrates a system to provide configuration information for controlling an indication device for use with an on-demand service. *Id.* ¶ 3. System 100 can communicate, over one or more networks via a network interface (e.g., wirelessly or using a wire), with client devices 150 (e.g., mobile computing devices operated by clients or users/customers) and driver devices 160 (e.g., mobile computing devices operated by drivers) using client device interface 120 and driver device interface 130, respectively. *Id.* ¶ 25. System 100 can receive transport information 111 about the transport service from the on-demand service system and

determine whether to transmit user-specified configuration data to the driver device of the driver selected to provide the transport service. *Id.* ¶ 26.

Client database 140 stores a plurality of client profiles 141 for each user that has an account with the on-demand service system. A client profile 141 can include a user identifier. *Id.* ¶ 29. When personalization management 110 receives transport information 111, the personalization management can use the user ID to access client database 140. *Id.*

Personalization management 110 can perform a lookup of client profile 141 (e.g., using the user's ID or user's device ID) and determine if the user has specified an output configuration for an indication device. If the user has specified the output configuration, the personalization management can determine and/or retrieve configuration data 145 corresponding to the specified configuration for that user. *Id.* ¶ 30. If the user does not provide indication preferences, however, the personalization management can store or maintain default indication preferences in the user's profile 141. *Id.*

The personalization management can transmit the user's configuration data 145 corresponding to the user's indication preferences (or default configuration data if the user has not specified indication preferences) to the driver device. *Id.* ¶ 31.

In one example, the on-demand service system can use location information from driver's device 160 and/or transport information 111 to automatically determine the driver's state, and based on the state of the transport service or the driver, system 100 and/or the service application 161 can control the operation of the indication device 170. *Id.* ¶¶ 35–36.

The state of the transport service can correspond to the driver "arriving now." *Id.* ¶ 37. When service application 161 determines that the

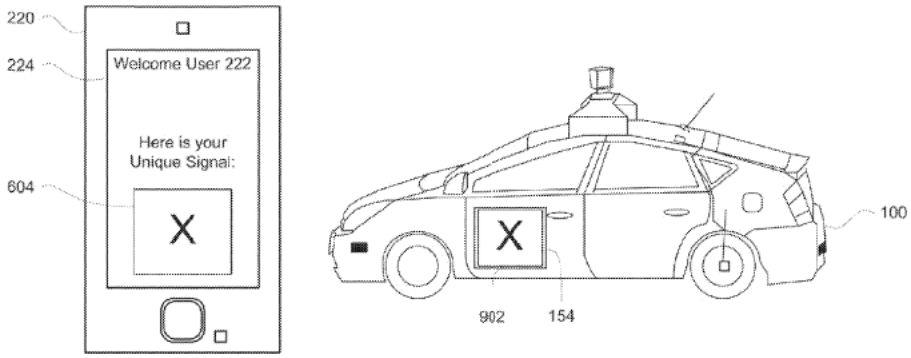
transport service is to change states from "en route" to "arriving now," the service application can trigger or control the indication device to output the user's specified color, e.g., blue, (and/or other preferred output content, patterns, or sequences) so that the user can see which vehicle is approaching and will provide the service for the user. *Id.* The service application can also control the indication device to output the user's specified display/output preferences in a specific configuration that is based on the transport state. *Id.*

2. Kemler (Ex. 1008)

Kemler discloses providing a user with a way to identify or verify a driverless vehicle dispatched to pick up the user. Ex. 1008, 3:38–41. Once the vehicle is within a certain distance of the user, the vehicle may signal to the user in order to identify the vehicle to the user and avoid confusion. This signaling could include a display or audio including a unique string of text. *Id.* at 3:43–47.

Kemler describes the dispatched vehicle as having an external electronic display mounted on the vehicle and an internal electronic display. *Id.* at 5:22–24. Kemler explains that as the dispatched vehicle approaches the user's client device, a unique signal may be displayed on the vehicle's external display and the user's client device so the user can identify the vehicle without compromising the user's privacy. *Id.* at 4:1–19.

This operation is illustrated in Figure 9 of Kemler, following:



900
FIGURE 9

Figure 9 is a diagram 900 of a client computing device and a computing device of a vehicle displaying unique signal "X" around the same time. *Id.* at 12:45–47. By comparing unique signal 604 of display 224 to unique signal 902 of external electronic display 154, a user may recognize that vehicle 100 was dispatched for that user. *Id.* at 12:47–51. If the signals are the same, the user can easily identify the vehicle, and if not, the user may continue to look for the vehicle dispatched for that user. *Id.* at 12:51–53.

3. Lalancette (Ex. 1009)

In its most relevant embodiment, Lalancette describes an electronic display mounted to be visible from outside a taxi, a mobile computing device in the taxi that manages a dash-mounted driver display and the mounted electronic display, and a smart phone of a user. Ex. 1009 ¶¶ 27–33.

The taxi is equipped with an electronic display mounted outside of the taxi car or at least visible from outside the taxi car as well as a dash-mounted driver display. The displays are configured to display information received from the taxi dispatch service. *Id.* ¶ 27.

In one scenario described by Lalancette, a user orders a taxi using a handset to request taxi service from a taxi dispatch service. *Id.* ¶ 29. The user device (the handset) conveys user identification (user ID) to the service provider. *Id.* The service provider validates the request to ensure the request can be accommodated. *Id.* ¶ 30. An automated dispatch system uses the user's location to select the most suitable taxi car to respond to the request for service from the user. *Id.*

The service provider then requests a personal human-readable icon for the user from an icon server by sending a message carrying a user ID for the user. The icon server uses the user ID to retrieve a personal icon corresponding to the user from an icon database. *Id.* ¶ 31.

The icon server sends the retrieved icon to the service provider. *Id.* ¶ 32. The service provider dispatches the selected taxi car to the location of user and displays the user's icon on the taxi's roof-top electronic display and the driver's dashboard display. *Id.* The service provider also transmits a copy of the icon to the user device for confirmation to the user. *Id.*

In one embodiment, as part of the dispatch procedure, the service provider transmits the dispatch information and the user's icon to a mobile computer in the taxi car, and the mobile computer manages the taxi roof-top electronic display 122 and the driver's dashboard display. *Id.*

When then taxi car approaches the user's location, the user can view the rooftop display to identify the taxi car as the taxi responding to the user's request. *Id.* ¶ 33. The user can compare the display of the icon on rooftop display to the copy of the icon on the user's device 104 to confirm the identity of the taxi. *Id.*

E. Motivation to Combine Kemler with Kalanick and Lalancette

1. Introduction

Petitioner asserts that a person of ordinary skill would have been motivated to combine the teachings of Kalanick and Kemler with a reasonable expectation of success. Pet. 21–27; Williams I Decl. ¶¶ 113–125. Petitioner asserts that both Kalanick and Kemler address similar problems related to vehicle identification. Pet. 21–22. Furthermore, Petitioner asserts that "[b]oth teach similar solutions involving generating, transmitting, and displaying unique, easily distinguishable visual indicators on multiple displays such that users can visually match the unique indicators to efficiently identify their assigned vehicle." *Id.* at 22. Further, "[b]oth also utilize vehicle mounted displays which are visible from the outside of the vehicle." Pet. 22; Williams I Decl. ¶ 113. Petitioner asserts "a [person of ordinary skill] would have a reasonable expectation of success as this would require nothing more than modifying the software of *Kalanick's* system to permit the central controller to create and assign unique indicators, using the technique taught in *Kemler*." Pet. 26; Williams I Decl. ¶ 122.

Similarly, Petitioner contends a person of ordinary skill would have been motivated to combine the teachings of Lalancette and Kemler. Pet. 53–56; Williams I Decl. ¶¶ 218–226. Petitioner asserts that "*Lalancette* and *Kemler* address similar problems related to vehicle identification and share the common objective of enabling riders to visually locate a requested vehicle while protecting the rider's privacy, safety, and security." Pet. 53. Further, "[b]oth teach similar solutions involving generating, transmitting, and displaying unique visual indicators on multiple displays such that users

can visually match the unique indicators to efficiently identify their assigned vehicle." *Id.*

Finally, Petitioner explains that a person of ordinary skill would have had a reasonable expectation of success in making the combination. *Id.* at 56. "Because both of the systems utilize the same basic display technologies and similar techniques for generating, transmitting, and displaying unique privacy-protected visual indicators, it would have been well within a [person of ordinary skill's] level of skill to implement *Lalancette's* taxi identification system with the additional technical details taught for *Kemler's* substantially similar vehicle identification system." *Id.* (citing Williams I Decl. ¶ 225).

2. Patent Owner's Contentions

Patent Owner responds that the Petition fails to provide a sufficient motivation to combine Kemler with either Kalanick or Lalancette. PO Resp. 8 (Kemler), 41 (Lalancette). For example, Patent Owner contends that Petitioner assertion that Kalanick and Kemler "teach similar solutions" is insufficient proof of a motivation to combine "as a matter of law." *Id.* at 10–11. Patent Owner asserts that Kalanick "already mitigates" the potential "duplication" problem created when riders from the same area select the same or similar indicators. *Id.* at 12– 14. Patent Owner argues that "combining known technologies" is not sufficient to establish a motivation to combine Kemler and Kalanick. *Id.* at 14–18. Patent Owner contends Petitioner fails to "substantiate" its assertion that modifying Kalanick based on Kemler to tie transmission of the first signal [from the central system to the driver's mobile device] to a distance at which the user would be in range will result in "improved accuracy, efficiency, and privacy of the user." *Id.* at 18–22 (internal quotation marks omitted; alterations in original). Patent

Owner asserts that "Petitioner fails to show that there are only two ways to generate a signal when a vehicle is within a predetermined distance." *Id.* at 21–24. And Patent Owner contends there is no "evidence of a reasonable expectation of success in combining Kemler to make up the deficiencies of Kalanick." *Id.* at 24–25. Patent Owner asserts that "[t]he immense expense and complexity of operating a server 'farm' would be a reason to *avoid* Kemler's teachings." *Id.* at 24.

Patent Owner makes similar arguments asserting an insufficiency of evidence of a motivation to combine Kemler with Lalancette. PO Resp. 41–47. For example, in addition to the arguments discussed above in connection with Kalanick, Patent Owner asserts that "Kemler is no better at protecting privacy than Lalancette." *Id.* at 43–45. Patent Owner also argues that "Petitioner has failed to substantiate that the combination [of Kemler and Lalancette] would improve efficiency." *Id.* at 46. Patent Owner expands on this latter argument as follows: "Petitioner provides no support for the claim that combining the system of Kemler to Lalancette would make Lalancette more efficient by virtue of turning the icon indicator light on when the vehicle was in a predetermined distance to the location of the user." *Id.* at 46.

Patent Owner argues also that "there is no reasonable expectation of success in combining Kemler with Lalancette." *Id.* at 34–35. Patent Owner explains that "[t]he relatively simplicity of the configuration of Lalancette – an icon server and icon database in a network, contrasts with the complexity of operating the server farm of Kemler." *Id.* at 47.

3. Discussion

For the reasons that follow, we find that Petitioner has established a sufficient motivation to combine the teachings of Kemler and Kalanick and of Kemler and Lalancette. We further find, for the reasons given here and in Section III.E.1, *supra*, that Petitioner has demonstrated that there was a reasonable expectation of success in making those combinations. *See id.*

The Federal Circuit has recently reminded us that "[t]he motivation-to-combine analysis is a flexible one. *Any* need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379 (Fed. Cir. 2023) ("*Intel Corp.*") (citing *KSR Int'l' Co. v.Teleflex*, 550 U.S. 398, 420 (2007)) (alterations and internal quotation marks omitted). Reversing a Board decision finding insufficient motivation to combine references, the Federal Circuit further reminded us that "a person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* (quoting *KSR*, 550 U.S. at 421) (alterations omitted).

The Federal Circuit further observed that "in many cases[,] a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 1379–80 (alteration in original, internal quotation marks omitted). The court continued, "[t]hat's why the motivation-to-combine analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 1380 (internal quotation marks omitted).

The Federal Circuit also recognized what it termed "universal motivation," i.e., motivation "known in a particular field to improve technology," commenting that such motivations "provide a motivation to combine prior art references *even absent any hint of suggestion* in the references themselves." *Id.* (citing *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 797-99 (Fed. Cir. 2021) (internal quotation marks omitted).

a) Kalanick and Kemler

We find that Petitioner demonstrates that Kalanick and Kemler address "similar problems related to vehicle identification." Pet. 21–22; Williams I Decl. ¶ 113. Furthermore, as Petitioner asserts, we find that "[b]oth teach similar solutions involving generating, transmitting, and displaying unique, easily distinguishable visual indicators on multiple displays such that users can visually match the unique indicators to identify their assigned vehicle." Pet. 22; Williams I Decl. ¶ 113. Further, "[b]oth also utilize vehicle mounted displays which are visible from the outside of the vehicle." Pet. 22; Williams I Decl. ¶ 113.

We do not agree with Patent Owner that the Petition "failed to establish a motivation" to combine Kemler with Kalnick." PO Resp. 8. As noted above, the Federal Circuit does not require Petitioner to identify "precise teachings directed to the specific subject matter of the challenged claim." *See Intel Corp*, 61 F.4th at 1380.

We find that the Petition and supporting expert testimony sufficiently demonstrate that a person of ordinary skill would have combined the teachings of Kemler and Kalanick with a reasonable expectation of success. Pet. 21–27; Williams I Decl. ¶¶ 113–125; Williams III Decl. ¶¶ 5–17. In addition to the reasons given *supra*, Petitioner explains that Kalanick's "on-

demand service system can also use location information from the driver's device and/or transport information . . . to automatically determine the driver's state or state of the transport service." Pet. 22 (citing Ex. 1006 ¶¶ 29, 35). Petitioner explains that in Kalanick, "[w]hen a service application on the driver's device determines that the transport service is 'arriving now,' based on a determination that the driver is within a predetermined distance, the service application can trigger the indication device to output the user's specific color." *Id.* at 23 (citing Ex. 1006 ¶ 37). Thus, Kalanick's system can "control the indication device to output the user's color or other unique distinctive indicator based on the transport state." *Id.* (citing Ex. 1006 ¶ 38).

Petitioner explains that Kemler describes a central dispatching system in which one or more server computing devices of the centralized dispatching system may select a vehicle to be dispatched based upon the location of the client computing device. *Id.* (citing Ex. 1008, 10:3–33). Thus, Petitioner explains that Kemler, like Kalanick, "discloses ride-matching based on proximity and distance to match requesting riders with drivers based at least in part on the proximity of their respective locations." *Id.*

Petitioner demonstrates that "a [person of ordinary skill] would find it obvious to modify *Kalanick's* vehicle identification system in view of *Kemler,* at least because both systems disclose substantially similar ride-matching techniques based on proximity and distance to match requesting riders with drivers based at least in part on the proximity of their respective locations." *Id.* at 23–24. As Mr. Williams testifies, "[a person of ordinary skill] would find it obvious to modify Kalanick's vehicle identification

system to have the controller generate and transmit the signal based on a 'predetermined distance' from the user's location, as disclosed in Kemler." Williams I Decl. ¶ 118 (cited at Pet. 24). Mr. Williams testifies that "[a person of ordinary skill] would have considered this a well-known way to indicate a vehicle is at a predetermined location. Thus, this proposed modification would have been well within the skill of a person of ordinary skill." Williams I Decl. ¶ 119.

Petitioner also explains that a person of ordinary skill would "anticipate success of such a modification." *Id.* at 25. Petitioner explains that "the controller in *Kalanick* is already in communication with the car and could easily send a signal to activate the display with the unique code." *Id.* (citing Williams I Decl. ¶ 120).

Petitioner recognizes that although both Kalanick and Kemler "focus on vehicle identification by utilizing indicators, . . . the disclosures approach indicator selection in slightly different ways." *Id.* Kemler approaches indicator selection through a "centralized dispatching system," while Kalanick allows the user to specify the "output configuration" of the identification information. *Id.*

We do not find Patent Owner's responsive arguments persuasive. *See* Section III.E.2, *supra*. For example, we disagree with Patent Owner's argument that Petitioner's demonstration that Kalanick and Kemler provide similar solutions is "insufficient as a matter of law." PO Resp. 10–11. The assertion that Kalanick and Kemler are analogous art to the '637 patent, which Patent Owner no longer disputes (*see* Hearing Tr. 58:11–15), is entitled to consideration as one factor in Petitioner's argument. *See* Pet. 21–27; Pet. Reply 3–10. Moreover, Patent Owner's argument that it is

"insufficient as a matter of law" that Kalanick and Kemler "teach similar solutions" (PO Resp. 10) is contrary to *Intel*'s approval of the "known-technique" rationale for combining the teachings of references: "[I]f there's a known technique to address a known problem using 'prior art elements according to their established functions,' then there is a motivation to combine." *Intel Corp.*, 61 F.4th at 138 (citation omitted).

We disagree, also, with Patent Owner's "duplication" argument. PO Resp. 12–14. The fact that Kalanick may not "disclose any problem" arising from the possibility of two passengers in the same area having the same signal does not prove a problem did not exist or that a person of ordinary skill would not be motivated to improve upon the solution for it. *See* Pet. Reply 5–6. Similarly, we are not persuaded by Patent Owner's argument that there would be no reasonable expectation of success based on Kemler's disclosure of a server farm. PO Resp. 24 ("The immense expense and complexity of operating a server 'farm' would be a reason to *avoid* Kemler's teachings."). Testimony from Mr. Williams establishes the advantages of such systems. Pet. Reply 7 (citing Williams I Decl. ¶¶ 124); Williams Dep. 82:1–88:25, 92:13–93:1; Williams III Decl. ¶¶ 34–35.[5]

Petitioner demonstrates that a person of ordinary skill would have expected success in combining the teachings of the references, because it would require modifications to Kalanick's controller that is "already in communication with the car and could easily send a signal to activate the

[5] We find Mr. Williams's testimony credible on this issue. On cross-examination by Patent Owner's counsel, Mr. Williams testified to his experience in designing, implementing, and setting up server farms. *See* Williams Dep. 82:17–88:7; 91:11–93:1.

display with the unique code." Pet. 25 (citing Williams I Decl. ¶ 120); *see also* Williams III Decl. ¶ 15 (expressing the opinion that the expense of operating a server farm would not lead to unexpected results). We find that for the reasons given, the necessary modifications to Kalanick are "nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." Pet. Reply 11; Williams III Decl. ¶ 17.

We find for the reasons given that "[a person of ordinary skill] would have been motivated to use Kemler's controller to generate and transmit the signal based on a 'predetermined distance' from the user's location – a well-known way to indicate a vehicle is at a predetermined location. Pet. 24 (citing Williams I Decl. ¶ 119). Further, "[a person of ordinary skill] would be motivated to implement Kemler's indicator selection system, which provides for automatic selection of the indicator, in Kalanick because it would eliminate instances where riders within a similar area select the same or similar indicators, or are provided the same default indicator, making them less unique." *Id.* at 25; Williams I Decl. ¶ 122. Petitioner explains also that Kemler teaches the benefits of using rules requiring "unique" signals. Pet. 25–26 (citing Ex. 1008, 8:54–9:2).

Petitioner demonstrates also that "[a person of ordinary skill] would have a reasonable expectation of success as this would require nothing more than modifying the software of *Kalanick's* system to permit the central controller to create and assign unique indicators, using the technique taught in Kemler." *Id.* at 26; Williams I Decl. ¶ 122.

b) Lalancette and Kemler

Similarly, we find that Petitioner demonstrates that a person of ordinary skill would have combined the teachings of Lalancette and Kemler with a reasonable expectation of success. Pet. 53–56; Pet. Reply 18–23; Williams I Decl. ¶¶ 218–226. Petitioner explains that "*Lalancette* and *Kemler* address similar problems related to vehicle identification and share the common objective of enabling riders to visually locate a requested vehicle while protecting the rider's privacy." Pet. 53; Williams I Decl . ¶ 218. Further, "[b]oth teach similar solutions involving generating, transmitting, and displaying unique visual indicators on multiple displays such that users can visually match the unique indicators to efficiently identify their assigned vehicle." Pet. 53; Williams I Decl. ¶ 218.

Petitioner explains that "*Lalancette* discloses a system, which includes a vehicle dispatch controller to generate and transmit unique, personalized, privacy-protected indicators, to provide more efficient and effective identification of dispatched vehicles." Pet. 54 (citing Williams I Decl. ¶ 220). Petitioner also relies on the disclosure in Kemler that "[t]he signal may include a unique, distinct, and/or easily distinguishable string of text or image, and may further include, for example, a series of nonsensical letters, a sequence of colors, and/or a barcode." *Id.* (citing Ex. 1008, 3:60–67, 10:62–11:14).

Petitioner shows also that "*Kemler* explains that a centralized dispatching system may generate a signal to identify [a] vehicle to the user, and that [o]nce the vehicle is within a certain distance of the user's client device, the vehicle's computing device may display the signal on an external display of the vehicle such that the signal should be visible to the user as the

vehicle approaches the user's client device." *Id.* at 54 (quoting Ex. 1008, 3:48–4:11 (alterations in original, internal quotation marks omitted)).

Still further, Petitioner explains "[r]eceiving and displaying signal as disclosed in *Kemler* provides a more efficient and effective system for identifying dispatched vehicles." *Id.* at 55 (citing Williams I Decl. ¶ 222). Petitioner reasons that "[t]his is so at least because the system is more efficient by only displaying the signal once the vehicle [is] within a threshold distance of the rider and thus conserves energy." *Id.*

Finally, as Petitioner explains, we find that a person of ordinary skill would have had a reasonable expectation of success in making the combination. *Id.* at 56 (citing Williams I Decl. 225). "Because both of the systems utilize the same basic display technologies and similar techniques for generating, transmitting, and displaying unique privacy-protected visual indicators, it would have been well within a [person of ordinary skill's] level of skill to implement *Lalancette's* taxi identification system with the additional technical details taught for *Kemler's* substantially similar vehicle identification system." *Id.* (citing Williams I Decl. ¶ 225). Furthermore, as Petitioner explains, we find that "combining *Lalancette* and *Kemler* would have been well within the skill of a [person of ordinary skill in the art] and doing so is a suitable option because it is nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." *Id.* (citing Williams I Decl. ¶ 226).

We do not agree with Patent Owner's arguments in response. *See supra*, Section III.E.2. For example, Patent Owner reprises the argument that "showing the references are analogous art" is insufficient to show a

motivation to combine references, which is similar to the argument discussed *infra* in connection with Kalanick and Kemler, and is unavailing for similar reasons. PO Resp. 43; s*ee supra*, Section III.E.3.a. Similarly unavailing is Patent Owner's argument that "Lalancette is a complete and finished method of facilitating the connection of users and drivers, allowing users to select icons that do not allow an association with the user, thus protecting privacy." PO Resp. 44. This argument is similar to the "duplication" argument discussed *supra* in connection with Kalanick, and is unavailing for similar reasons. The fact that Lalancette is allegedly "complete" does not prevent a person of ordinary skill from being motivated to improve upon it.

Finally, we credit Petitioner's argument that combining Kemler and Lalancette would make Lalancette more efficient. Pet. 55 ("This is so at least because the system is more efficient by only displaying the signal once the vehicle within a threshold distance of the rider and thus conserves energy.") (citing Williams I Decl. ¶ 222). This argument is persuasive because it is supported by the testimony of Mr. Williams and by common sense. *See* Pet. Reply 22. Mr. Williams testified credibly that a person of ordinary skill would understand that by virtue of turning Lalancette's indicator light on only when the vehicle was in a predetermined distance to the location of the user as disclosed in Kemler, the vehicle indicator display system would conserve energy and thus be more energy efficient. *Id.* (citing Williams I Decl. ¶¶ 222; Williams III Decl. ¶ 36; Williams Dep. 97:5–21). Moreover, Mr. Williams backed up his testimony on the power requirements of server farms with several years of experience designing, implementing, and operating a server farm. *See* discussion *supra*. We find that this

experience lends credibility to his testimony that the server farm in Kemler would improve efficiency of the system, even without specific test data. *See* Pet. 55–56; Pet. Reply 22; Williams I Decl. ¶ 224; Williams Dep. 82:1–88:25; 92:20–93:1.

c) Conclusion

We are persuaded and find for the reasons given by Petitioner's showing that a person of ordinary skill would have combined the teachings of the references as proposed by Petitioner with a reasonable expectation of success. As Mr. Williams testifies, the necessary modifications to Kalanick and Lalancette are "nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." Williams I Decl. ¶¶ 125, 226.

F. Obviousness Based on Kalanick and Kemler

Petitioner asserts that claims 1–9 and 11–20 would have been obvious in light of Kalanick and Kemler. Pet. 21–53. Petitioner provides an element-by-element claim analysis, supported by expert testimony. *Id.*; Williams I Decl. ¶¶ 126–216.

1. Claim 1

(Preamble) A vehicle identification system, comprising:

Petitioner contends that the preamble of claim 1 is disclosed by Kalanick. Pet. 26–27; Williams I Decl. ¶¶ 126–127. Petitioner explains that Kalanick discloses a "system that can automatically configure an indication device (or a display device) for use with an on-demand service." Pet. 27 (quoting Ex. 1006 ¶ 10). Patent Owner does not address this contention.

We find, for the reasons given, that the preamble of claim 1 is taught or suggested by Kalanick.[6]

(1A) at least one display associated with a vehicle, wherein the at least one display is located to be visible from an exterior of the vehicle

Petitioner contends this limitation is disclosed by Kalanick. Pet. 28–29; Williams I Decl. ¶¶ 130–131. Petitioner contends Kalanick discloses an indication device that can be positioned to be easily visible to the user. Pet. 28–29 (citing Ex. 1006 ¶ 10). Patent Owner does not address this contention.

We find, for the reasons given, that claim element 1A is taught or suggested by Kalanick.

(1B) a transceiver

Petitioner contends this limitation is disclosed by Kalanick. Pet. 29; Williams I Decl. ¶¶ 132–133. Petitioner contends that a person of ordinary skill would recognize Kalanick's "network interface" to include the claimed transceiver. Pet. 29 (citing Williams I Decl. ¶ 133). Patent Owner does not address this contention.

We find, for the reasons given, that claim element 1B is taught or suggested by Kalanick.

(1C) a controller communicatively coupled to the transceiver

Petitioner contends that this limitation is disclosed by Kalanick. *Id.* at 29 (citing Williams I Decl. ¶¶ 134–137). Petitioner refers to Figure 1 of Kalanick, reproduced *supra*, in Section III.D.1. *Id.* at 31. Petitioner

[6] We express no opinion on whether the preambles of the challenged claims are limiting.

contends a person of ordinary skill "would recognize *Kalanick's* system 100 to be a 'controller' (i.e., a 'computing device , , , capable of executing a series of instructions')." *Id.* at 31 (alteration in original). Further, a person of ordinary skill would recognize that Kalanick's system 100 "is communicatively coupled' to the network interface (i.e., 'transceiver'), as claimed." *Id.* (citing Williams I Decl. ¶ 137). Patent Owner does not address this contention.

We find, for the reasons given, that claim element 1C is taught or suggested by Kalanick.

> *(1D) wherein the controller is adapted to generate a first signal to be transmitted by the transceiver to a mobile communication device associated with a driver of the vehicle when it is determined that the vehicle is within a predetermined distance of a specific location*

Petitioner contends that this limitation is disclosed by Kalanick and Kemler. Pet. 32–34; Williams I Decl. ¶¶ 138–144. Petitioner contends that "Kalanick's 'controller' (i.e., its 'system 100') can communicate, over one or more networks via a network interface [i.e., transceiver] (e.g., wirelessly or using a wire), with the client devices 150 (e.g., mobile computing devices operated by clients or users/customers) and the driver devices 160 (e.g., mobile computing devices operated by drivers) using a client device interface 120 and a driver device interface 130, respectively." Pet. 32–33 (alteration in original) (citing Ex. 1006 ¶25).

Further, addressing the "predetermined distance" recitation in the claim, Petitioner contends that "*Kemler* discloses that the system determines when the vehicle reaches a particular location that is a threshold distance from the vehicle's location and when the vehicle reaches the particular location, sends a notification to one or more server computing devices." *Id.*

at 33 (citing Ex. 1008, claim 10). Thus, the combination of Kalanick and Kemler "would include having the controller generate and transmit the signal containing the unique display information when the vehicle is within a 'predetermined distance' from the user's location." *Id.* at 34 (citing Williams I Decl. ¶ 143). Furthermore, Petitioner explains that a person of ordinary skill would have been motivated to combine these teachings. *Id.* at 34 (citing Williams I Decl. ¶ 143).

Patent Owner responds to this challenge by again asserting that "Petitioner fails to establish that the claimed combination generates a first signal when it is determined that the vehicle is within a predetermined distance of a specific location, or that there is a generation of a first signal, as the term is understood from its ordinary meaning. It also fails to demonstrate a motivation to combine Kemler with Kalanick." PO Resp. 26.

We disagree. Petitioner explains that the "first signal" is referred to as the "notification signal" in the '637 patent. Pet. Reply 12. The Petition explains that Kalanick's controller communicates with client devices 150 and driver devices 160 "over one or more networks via a network interface." Pet. 32–33 (citing Ex. 1006 ¶ 25). Kalanick also discloses that the system can determine "if the driver's position is within a predetermined distance of the user's current location or the pickup location." *Id.* at 33 (quoting Ex. 1006 ¶ 36). Mr. Williams testifies that a person of ordinary skill would understand that "Kalanick discloses a signal that is transmitted by the transceiver when it is determined that the vehicle is within a predetermined

distance of a specific location." Williams I Decl. ¶ 141. We, therefore, find that Kalanick teaches or suggests the claimed "first signal."

We find also that Kemler teaches determining when the vehicle reaches a particular location that is a threshold distance from the vehicle's location and when the vehicle reaches the particular location, sending a notification to one or more server computing devices. Pet. 33 (citing Ex. 1008, claim 10). We find that the combination of Kalanick and Kemler "would include having the controller generate and transmit the signal containing the unique display information when the vehicle is within a 'predetermined distance' from the user's location." *Id.* at 34 (citing Williams I Decl. ¶ 143).

As discussed *supra*, we find that a person of ordinary skill would have been motivated to combine the teachings of Kalanick and Kemler with a reasonable expectation of success. *See* Section III.E.3. Among other reasons, a person of ordinary skill would be motivated to tie transmission of the first signal to a distance at which the user would be in range to visually observe and identify the vehicle, thereby resulting in improved accuracy, efficiency, and privacy of the user of the identification system. Pet. 34 (citing Williams I Decl. ¶ 143).

Patent Owner's other arguments are unavailing. For example, Patent Owner argues that Kemler cannot be combined with Kalanick because Kemler does not have a mobile communication device associated with the driver. PO Resp. 28–30. This argument fails because it does not address the teachings of Kalanick, which includes mobile communications devices. Pet. Reply 13–14. One cannot show non-obviousness by attacking references individually where the challenge is based on combinations of references.

See In re Keller, 642 F.2d 413, 426 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Instead, the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art. *In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012).

Nor do we agree with Patent Owner's argument that "Kemler does not fill Kalanick's gaps" because Kemler describes a driverless vehicle. PO Resp. 29. Patent Owner does not acknowledge that Kalanick discloses a vehicle with a driver. *See, e.g.*, Ex. 1006, (57) ("An on-demand service system arranges a transport service for a user to be provided by a driver."). Therefore, Patent Owner's argument directed to Kemler is unavailing because it fails to address the combination of Kemler with Kalanick.

Also lacking in merit is Patent Owner's argument that "Kalanick does not satisfy the 'generate' requirement." PO Resp. 30. According to Patent Owner, "[t]he claims require that a new signal be generated each time a ride is dispatched." *Id.* We disagree. This argument is not supported by the claims and is a variation on the "active formulation" requirement we have rejected in our discussion of claim construction. *See supra*, Section III.C.4.

We have addressed Patent Owner's argument disputing the motivation to combine Kemler with Kalanick above and in Section III.E, and find the argument unavailing for the reasons stated.

For the reasons summarized above and given by Petitioner, we find that Kalanick and Kemler teach or suggest claim element 1D.

(1E) wherein the mobile communication device associated with the driver is adapted to generate a second signal transmitted to the at least one display, the second signal representing the indicator

Petitioner demonstrates that this limitation is met by Kalanick and Kemler. Pet. 34–35; Williams I Decl. ¶¶ 145–147. Petitioner contends that a person of ordinary skill "would be motivated to combine the controller generated signal/indicator of Kemler's driverless vehicle identification system with Kalanick's driver oriented vehicle identification system to permit the driver's device to send the signal to the display on the vehicle after the driver's device receives the signal from the controller." Pet. 35 (citing Williams I Decl. ¶ 146).

Patent Owner does not challenge this contention directly. However, in connection with other limitations, Patent Owner contends that Kalanick does not satisfy the "generate" requirement because "[t]he claims require that a new signal be generated each time a ride is dispatched." PO Resp. 30. As discussed, we do not agree as this argument is based on Patent Owner's rejected construction of "generate." *See supra*, Section III.C. Similarly, for the reasons given, we do not agree with Patent Owner's argument based on the lack of a driver in Kemler's autonomous vehicle, as it does not address the combination of Kemler with Kalanick.

For the reasons given by Petitioner and those summarized above, we find that Kalanick and Kemler teach or suggest limitation 1E.

We find that for the reasons given, that Petitioner has demonstrated by a preponderance of the evidence that Kalanick and Kemler teach or suggest each limitation of claim 1 and that it would have been obvious to combine the references with a reasonable expectation of success. We therefore

determine that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over Kalanick and Kemler.

2. Claims 9 and 13

Petitioner's analysis of independent claims 9 and 13 in relation to Kalanick and Kemler relies heavily on its analysis of claim 1. Pet. 44–47 (claim 9), 47–50 (claim 13).

Patent Owner specifically addresses two limitations in claim 9, namely, the limitations identified as 9A ("when it is determined that the vehicle is within a predetermined distance of the location of the user generating a notification signal to a mobile communication device associated with the driver") and 9D ("displaying the indicator on a mobile communication device associated with the user")." PO Resp 36–39.

Patent Owner's arguments for claim 9 largely repeat the arguments already discussed in connection with claim 1. For example, addressing limitation 9A, Patent Owner contends that "Kalanick describes a system that can track the driver's position using location data . . . but it does not use this location data to generate a notification signal when the driver is within a predetermined location." PO Resp. 36. This argument fails because it is not directed to the combination of Kalanick and Kemler. *See* discussion *supra*, Section III.F.1. As Petitioner demonstrates, Kemler discloses using the location of the vehicle to generate a notification signal when the driver is within a predetermined location. *See* Pet. 33 (citing Ex. 1008, claim 13).

Similarly, Patent Owner addresses claim element 9D by referring to its discussion of claim 2. PO Resp. 39. Petitioner's challenge to claim 2 relies on the combination of Kalanick and Kemler. *See* Pet. 36–38. As

discussed *infra*, Patent Owner's response is not persuasive because it does not address the combination of Kalanick and Kemler. Pet. Reply 17.

Similarly, for claim 13, Patent Owner's refers back to limitation 1D, *supra*. PO Resp 40. For the reasons stated in our discussion of claim 1, *supra*, we do not agree with these arguments. *See* Section III.F.1.

We find that for the reasons given, Petitioner has demonstrated by a preponderance of the evidence that the Kalanick and Kemler teach or suggest each limitation of claims 9 and 13 and that it would have been obvious to combine the references with a reasonable expectation of success. We therefore determine that Petitioner has shown by a preponderance of the evidence that claims 9 and 13 would have been obvious over Kalanick and Kemler.

3. Claims 2–8, 11, 12, and 14–20

Claims 2–8 depend, directly or indirectly, from claim 1. Petitioner provides an analysis for each of these claims in relation to Kalanick and Kemler. Pet. 36–44; Williams I Decl. ¶¶ 148–175, 186–188, 200–216. For the reasons given, Petitioner's analysis demonstrates that Kalanick and Kemler disclose the additional limitations of these claims.

For example, claim 2 recites that "the second signal representing the indicator is receivable by a mobile communication device associated with a rider." Ex. 1001 7:43–45. Petitioner contends that "a [person of ordinary skill] would find it obvious to modify *Kalanick's* vehicle identification system in view of the . . . teachings of *Kemler* to send and display the second signal on the rider's mobile device. The [person of ordinary skill] may be motivated to do so to assist the rider with ensuring it has located the correct vehicle." Pet. 38 (citing Williams I Decl. ¶ 153). Patent Owner responds by

referring to its analysis of claim 1, discussed *supra*. PO Resp. 34.

Additionally, Patent Owner argues that "the system of Kalanick does not disclose that a 'signal representing the indicator is receivable by a mobile communication device associated with a rider.' Kalanick's users already have the icon that they previously configured or a default is assigned." *Id.* (citations omitted).

We do not agree with this argument as it fails to address Petitioner's reliance on the combination of Kalanick and Kemler to meet this limitation. *See* Pet. Reply 16 ("*Kemler* discloses the user's mobile communication device receiving the indicator."). Patent Owner does not provide any additional arguments directed to Petitioner's analysis of the dependent claims 3–8. We find for the reasons given that Kalanick and Kemler teach or suggest the limitations of claims 2–8.

Petitioner provides similar analyses for claims 11 and 12 (depending from claim 9) and 14–20 (depending from claim 13). Pet. 47–48, 50–53.

For claim 15, Patent Owner refers back to its analysis of claim 13, which in turn refers back to claim 1. PO Resp. 40. In addition, Patent Owner argues that "Kalanick does not tie the transmission of any signals to when a vehicle is within a predetermined distance and does not send signals to a mobile communication device associated with the rider, and Kemler does not send signals to a mobile communication device associated with the driver." PO Resp. 40–41. These arguments are similar to arguments addressed in connection with claim 1. *See* Section III.F.1, *supra*. We do not agree for the reasons stated there. As Petitioner demonstrates, Kalanick discloses transmitting signals and predetermined distances and a device associated with the driver. Pet. Reply 17 (citing Pet. 22–24, 33–34).

Patent Owner does not respond separately to Petitioner's analysis of the other dependent claims. We find that for the reasons given, Petitioner has demonstrated by a preponderance of the evidence that the Kalanick and Kemler teach or suggest each limitation of claims 2–8, 11, 12, and 14–20, and it would have been obvious to combine the references with a reasonable expectation of success. We therefore determine that Petitioner has shown by a preponderance of the evidence that claim 2–8, 11, 12, and 14–20 would have been obvious over Kalanick and Kemler.

G. Obviousness Based on Lalancette and Kemler

Petitioner contends also that claim 1–9 and 11–20 would have been obvious in light of Lalancette and Kemler and provides an element-by-element analysis. Pet. 53–80. Petitioner provides supporting testimony from Mr. Williams. Williams I Decl. ¶¶ 217–307.

Petitioner's analysis for claim 1 demonstrates that each element of the claim is met by Lalancette and Kemler. Pet. 56–66; Williams I Decl. ¶¶ 227–244. For example, Petitioner demonstrates that the preamble is met by Lalancette's disclosure of "a cross-platform target identification system" for use with a taxi dispatch service. Pet. 57. Similarly, the display limitation (1A) is met by Lalancette's disclosure of an electronic display mounted outside of a taxi car and a dash-mounted driver display. *Id.* at 58 (citing Ex. 1009 ¶ 27). These contentions are not addressed by Patent Owner.

Petitioner demonstrates that the "generate" element of limitation 1D is met by Lalancette and Kemler. Pet. 63–65; Williams I Decl. ¶¶ 238–241. Petitioner explains that "*Lalancette* discloses that the taxi service provider server generates and transmits a signal including the icon to the driver's

mobile computer which is also displayed on the roof-top display of the taxi." Pet. 64 (citing Williams I Decl. ¶ 239).

Petitioner further demonstrates that Lalancette and Kemler meet the "predetermined distance" requirement. *Id.* at 65–66; Williams I Decl. ¶¶ 240–242. Petitioner explains that "*Kemler* teaches that 'the centralized dispatching system may send the signal . . . when the vehicle is within the certain distance or time relative to the user.'" Pet. 65 (alteration in original) (citing Ex. 1008, 4:12–19). Petitioner demonstrates that "[a person of ordinary skill] would find it obvious to modify *Lalancette's* taxi identification system to have the controller generate and transmit the claimed first signal when the vehicle is within a 'predetermined distance' from the user's location, as disclosed in *Kemler*." *Id.* at 66 (citing Williams I Decl. ¶ 242).

Patent Owner's responses largely repeat its arguments directed to the combination of Kemler and Kalanick discussed *supra*, and are unavailing for many of the same reasons previously given,

For example, Patent Owner responds that Lalancette fails to meet the "generate" requirement in limitation 1D. PO Resp. 48–52. Patent Owner again argues that "[t]he claims of the invention require that a new signal be actively formulated each time there is a ride dispatched. No signal is pre-associated with a particular rider or a particular driver." *Id.* at 50. Patent Owner continues, "Lalancette, in contrast, relies on pre-selection – a permanent signal icon stored in a server 112 associated with a user – in a manner similar to Kalanick." *Id.* Patent Owner makes a similar argument for claims 9 and 13. *Id.* at 53–54.

As in the case of Patent Owner's argument directed to Kalanick, we do not agree with this argument because it is based on Patent Owner's proposed construction of "generate" which we do not adopt. *See supra*, Section III.C. Petitioner demonstrates that Lalancette meets this limitation because it specifically discloses generating and transmitting a signal including an icon to the driver's mobile computer and display of the icon on the roof-top display. Ex. 1009 ¶ 32; Williams I Decl. ¶¶ 238–239. Moreover, Petitioner relies also on Kemler to meet this limitation. Pet. 65–66. We do not agree with Patent Owner's argument that the Petition fails to provide a motivation to combine Kemler with Lalancette. PO Resp. 41. Our reasoning is discussed in Section III.E., *supra*.

Similarly, Patent Owner contends that "Lalancette does not describe any embodiments that generate a notification signal when a driver is within a predetermined distance of the location." PO Resp. 49. This argument is unavailing for its failure to address the combination of Kemler with Lalancette. *See* Pet. 65 ("Kemler teaches that the 'the centralized dispatching system may send the signal . . . when the vehicle is within the certain distance or time relative to the user.'").

Patent Owner's analysis of this claim element is not persuasive because it avoids addressing the combined teachings of Lalancette and Kemler. Instead, it addresses the references separately. For example, Patent Owner's argument that "Kemler does not have a driver, hence it does not generate a signal to a mobile communication associated with a driver" (PO Resp. 49) ignores the fact that Lalancette discloses a mobile communication device associated with a driver. Pet. Reply 24 (citing Williams III Decl. ¶ 39). Similarly, Patent Owner's argument that Lalancette does not disclose

generating or transmitting a signal "when it is determined that the vehicle is within a predetermined distance of a specific location." (PO Resp. 49) does not address Petitioner's reliance on the combination of Lanalcette and Kemler to meet this limitation. Pet. Reply 24.

For the reasons previously given, we find that Petitioner has demonstrated by a preponderance of the evidence that a person of ordinary skill would have combined those teachings with a reasonable expectation of success. *See supra*, Section III.E.3. We find in addition that for the reasons given, including those summarized above and in the Petition, that Petitioner has demonstrated by a preponderance of the evidence that the combination of Lalancette and Kemler would teach or suggest the limitations of claim 1.

Petitioner's analyses of independent claims 9 and 13 for this challenge track closely its analysis of claim 1 for the elements common to the claims. Pet. 72–77. Claim 9 additionally calls for "identifying the vehicle based on appearance of a match, by visual observation of the user." Ex. 1001, 7:63–65. Petitioner demonstrates that Lalancette discloses this limitation. Pet. 74. Claim 13 introduces a new limitation: "a third signal to be transmitted to the at least one display, the third signal providing the code and representing an indicator to identify the vehicle.'" Ex. 1001, 8:39–41. Petitioner shows that Lalancette and Kemler meet this limitation. Pet. 77.

Patent Owner's response does not separately address the limitations in claim 9, referring back to its analysis of claim 1. PO Resp. 53. For claim 13, Patent Owner additionally asserts that "Petitioner fails to establish that Lalancette generates a signal including a code." *Id.* at 53. Patent Owner asserts "Lalancette instead uses an icon server that stores icons associated with users." *Id.* at 54. We do not agree as this argument is based on Patent

Owner's construction of "generate," which we have not adopted. *See supra*, Section III.C.4. For claim 15, Patent Owner repeats its argument that Lalancette and Kemler fail to meet the "predetermined distance" requirement. For the reasons discussed, we find that Kalanick teaches or suggests transmitting signals and predetermining distances as claimed. Pet Reply 17 (citing Pet. 22–24, 33–34); *see also* Section III.F.1, *supra*.

We find that for the reasons given above and by Petitioner, that Petitioner has demonstrated by a preponderance of the evidence that Lalancette and Kemler teach or suggest the limitations of claims 9, 13, and 15.

Patent Owner provides no separate response to Petitioner's analysis of dependent claims 2–8, 11, 12, 14, and 16–20. *See* Pet. 66–72, 74, 77–80. We find that for the reasons given above and by Petitioner, Lalancette and Kemler teach or suggest the limitations of those dependent claims.

We find that for the reasons given, Lalancette and Kemler teach or suggest each limitation of claim 1–9 and 11–20, and it would have been obvious to combine the references with a reasonable expectation of success. We therefore determine that Petitioner has shown by a preponderance of the evidence that claims 1–9 and 11–20 would have been obvious over Lalancette and Kemler.

H. Conclusion

For the foregoing reasons, we have determined that Petitioner has demonstrated by a preponderance of the evidence that claims 1–9 and 11–20 of the '637 patent would have been obvious (1) over Kalanick and Kemler and (2) over Lalancette and Kemler.

IV. MOTION TO AMEND

A. Introduction

As discussed *supra,* after institution, Petitioner filed a contingent Motion to Amend. The Motion requests that, "[t]o the extent the Board finds either of original independent claims 1 or 9 unpatentable in this proceeding, Patent Owner respectfully requests that the Board consider this Contingent Motion and grant entry of corresponding substitute claims 21–32." Mot. Amend 1.

Patent Owner submitted the second Declaration of Dr. Matthew Valenti ("Valenti II Decl.") in support of the Motion. *See supra*, Section I. Petitioner filed an Opposition to the Motion to Amend. Paper 16 ("Pet. MTA Opp."). Petitioner submitted the second Declaration of David Williams ("Williams II Decl.) in support of the Opposition.

Patent Owner requested that we provide preliminary guidance in accordance with the Board's pilot program concerning motion to amend practice and procedures. Mot. Amend 1. After considering Patent Owner's Motion to Amend and Petitioner's Opposition, we provided Preliminary Guidance. Paper 20 ("Prelim. Guidance").

In this Preliminary Guidance, we provided information indicating our initial, preliminary, and non-binding views on whether Patent Owner had shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend in an *inter partes* review and whether Petitioner (or the record) established a reasonable likelihood that the substitute claims are unpatentable. *See* Notice, 84 Fed. Reg. at 9,497; *see also* 35 U.S.C. § 316(d) (providing statutory requirements for a motion to amend); 37 C.F.R. § 42.121 (providing regulatory

requirements and burdens for a motion to amend); *Lectrosonics, Inc. v Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential) (providing information and guidance regarding motions to amend).

In the Preliminary Guidance, we concluded that at that preliminary stage of the proceeding, and based on the record at that time, Patent Owner had shown a reasonable likelihood that its Motion satisfied the statutory and regulatory requirements associated with filing a motion to amend with respect to proposed substitute claims 29, 31, and 32, but not proposed substitute claims 21–28. Prelim. Guidance 4.

Subsequently, Patent Owner filed a Reply to Petitioner's Opposition to the Preliminary Guidance (Paper 21, "PO MTA Reply"), and Petitioner filed a Sur-reply (Paper 24, "Pet. MTA Sur-reply").

For the reasons that follow, we grant Patent Owner's Motion to Amend as to proposed substitute claims 29, 31, and 32, and deny the Motion as to proposed substitute claims 21–28.

B. Legal Standard

In an *inter partes* review, amended claims are not added to a patent as a matter of right, but rather must be proposed as a part of a motion to amend. 35 U.S.C. § 316(d). "Before considering the patentability of any substitute claims, . . . the Board first must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121." *Lectrosonics, Inc.*, Paper 15 at 4. Accordingly, we consider whether: (1) the amendment proposes a reasonable number of substitute claims; (2) the proposed claims are supported in the original disclosure (and any earlier filed disclosure for

which the benefit of filing date is sought); (3) the amendment responds to a ground of unpatentability involved in the trial; and (4) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter. *See* 35 U.S.C. § 316(d); 37 C.F.R. § 42.121.

The Board assesses the patentability of proposed substitute claims "without placing the burden of persuasion on the patent owner" for issues of patentability. *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1328 (Fed. Cir. 2017) (en banc); *see also Lectrosonics, Inc.*, Paper 15 at 3–4.

In accordance with *Aqua Products* and *Lectrosonics*, Patent Owner does not bear the burden of persuasion to demonstrate the patentability of the substitute claims presented in the motion to amend. To the contrary, ordinarily, "the petitioner bears the burden of proving that the proposed amended claims are unpatentable by a preponderance of the evidence." *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1040 (Fed. Cir. 2017), *as amended on reh'g in part* (Mar. 15, 2018); *see Lectrosonics*, Paper 15 at 3–4. In determining whether a petitioner has proven unpatentability of the substitute claims, the Board focuses on "arguments and theories raised by the petitioner in its petition or opposition to the motion to amend." *Nike, Inc. v. Adidas AG*, 955 F.3d 45, 51 (Fed. Cir. 2020).

C. Patent Owner's Proposed Substitute Claims

Patent Owner proposes to substitute claims 21–32 for original claims 1–12, respectively. Mot. Amend 2. Proposed substitute claims 21 (replacing claim 1) and 29 (replacing claim 9) are the independent claims. Proposed substitute claims 22–28 depend from claim 21 and proposed substitute claims 30–32 depend from claim 29.

Proposed substitute claim 21[7] provides:

> [21(Preamble)] A vehicle identification system, comprising:
>
> [21(a)] at least one display associated with a vehicle, wherein the at least one display is located to be visible from an exterior of the vehicle;
>
> [21(b)] a transceiver; and
>
> [21(c)] a controller communicatively coupled to the transceiver, wherein the controller is adapted to generate a first signal to be transmitted by the transceiver to a mobile communication device associated with a driver of the vehicle, wherein said first signal is generated by creating an indicator when it is determined that the vehicle is within a predetermined distance of a specific location,
>
> [21(d)] wherein the mobile communication device associated with the driver is adapted to generate a second signal to be transmitted to the at least one display, the second signal representing an the indicator.

Mot. Amend, App. A, 1.

Proposed substitute claim 29 provides:

> [29(pre)] A method of identifying a vehicle being dispatched to a location of a user having requested a ride from a transportation service, comprising:
>
> [29(a)] when it is determined that the vehicle is within a predetermined distance of the location of the user, generating a notification signal to a mobile communication device associated with the driver;
>
> [29(b)] generating, by creating an indicator, an indicatory signal representing an the indicator in response to receiving the notification signal;

[7] Material added to the claims is indicated by underlining.

> [29(c)] displaying, on a display associated with the vehicle, the indicator based on the notification and indicatory signals, the display being located to be visible on the exterior of the vehicle;
>
> [29(d)] displaying the indicator on a mobile communication device associated with the user; and
>
> [29(e)] identifying the vehicle based on appearance of a match, by visual observation of the user, between the indicator being displayed on the mobile communication device associated with the user and the indicator being displayed on the display associated with the vehicle.

Id. at App. A, 1–2. The remaining claims are amended to change their dependency. *Id.* at App. A, 2–5.

D. Requirements for Amendment

1. Claim Listing

Patent Owner provides a claim listing showing the proposed changes. *See* Mot. Amend 2, App. A (Claim Listing).

2. Reasonable Number of Substitute Claims

Patent Owner proposes no more than one substitute claim for each of challenged claims 1–9, 11, and 12. We determine that the requirement for a reasonable number of substitute claims has been met.[8]

3. Responsive to Ground of Patentability

The proposed substitute claims recite new limitations that are responsive to a ground of unpatentability on which we instituted trial, namely, the timing of the generation of an indicator that is unique to a user and driver. *See supra*, Sections III.F, III.G.

[8] We do not consider proposed substitute claim 30 because it seeks to amend original claim 10 that is not challenged in this proceeding. *See* Prelim. Guidance 3.

4. Scope of Amended Claims

The proposed substitute claims do not broaden the scope of the amended claims. Proposed substitute independent claims 21 and 29 include narrowing limitations as compared to corresponding original claims 1 and 9. Proposed substitute claims 22–28, 31, and 32 depend from narrowed claims.

5. New Matter

a) Claim 29

Proposed substitute claim 29 amends original independent claim 9 to further recite "generating, by creating an indicator, an indicatory signal representing the indicator in response to receiving the notification signal" and "displaying, on a display associated with the vehicle, ..." Prelim. Guidance 6. Petitioner contends the proposed amendment is not supported by the specification. Pet. MTA Opp. 10. Referring to the most pertinent paragraphs of the '049 application for the '637 patent, Petitioner contends that "nothing in those paragraphs suggest [sic] that the indicator is generated after dispatch or during transmission." *Id.*

We disagree with Petitioner. In our Preliminary Guidance, we pointed out that the '049 application does not support Petitioner's argument. Prelim. Guidance 7–8. Referring mainly to paragraph 30 of the application, we reasoned that "[b]ecause the '049 application discloses that (i) a notification signal is generated for a new rider/user, (ii) the notification signal is generated when it is determined that the vehicle is within a predetermined distance of the user's location, and (iii) a new indicator is generated for the new user after the notification signal is generated (i.e., after it has been determined that the vehicle is within a predetermined distance of the user's location), we agree with Patent Owner that the '049 application (and the

'637 patent) provides written description support for *creating an indicator when it is determined that the vehicle is within a predetermined distance of the location of the user, as recited in proposed substitute claim 29*." *Id.* at 8–9.

As we explained in the Preliminary Guidance, "paragraph 30 [of the '049 application] explicitly discloses that *a new indicator is generated for a new rider*, with previously-used indicators being "*deleted*" and "*not . . . duplicated*." *Id.* at 7–8 (alteration in original). Further, "paragraph 34 of the '049 application discloses that the notification signal is generated 'when it is determined that the vehicle 20 is *within a predetermined distance of the location of the user P.*'" *Id.* at 8. Finally, "paragraphs 12, 21, 27, and 35 disclose that the indicator is generated *after* the notification signal is generated, as the notification signal *activates* the driver's mobile communication device to generate the indicator, and the indicator is created *in response to* receiving the notification signal." *Id.*

For the reasons summarized above and those given in our Preliminary Guidance, we find that Patent Owner's proposed substitute claim 29 does not introduce new matter.

b) Claim 21

In the Preliminary Guidance, we observed that "[p]roposed substitute claim 21 requires two features: (i) 'creating an indicator when it is determined that the vehicle is within a predetermined distance of a specific location,' . . . and (ii) 'said first signal [transmitted by the transceiver to a mobile communication device associated with a driver of the vehicle] is generated by creating an indicator.'" Prelim. Guidance 9. We determined that the first feature "is a feature similar to the indicator creation feature

discussed *supra* for claim 29, and for which there is adequate support in the original disclosure of the '637 patent." *Id.* As to the second feature, we determined that "*it does not appear that there is adequate support* in the original disclosure of the '637 patent." *Id.* We reasoned that "[t]he '049 application does not disclose that the first signal (notification signal) is *generated by creating the indicator* (as claim 21 recites)." *Id*. We explained that "the '049 application discloses throughout that the first signal (the notification signal) is created *before* the second signal (the indicator signal), the first signal *activates* the driver's mobile communication device to generate the indicator, and the first signal is different from the indicator." *Id.* (citing Ex. 1002, 115–116 (¶¶ 11–12), 117 (¶ 21), 118 (¶ 23), 119–120 (¶¶ 26–27), 122 (¶¶ 34–36).

Patent Owner responds by referring us to the description of the Figure 1B embodiment of the '637 patent (reproduced *supra*, in Section II.C), and the flowchart of Figure 3. According to Patent Owner, "[r]ead together, these passages describe a system where a first (notification) signal that is sent to the driver D includes an indicator." PO MTA Reply 4.

Petitioner responds by asserting that "[t]he '492 Application does not disclose creating an indicator once the vehicle is determined to be within a predetermined distance of the user's location. Instead, the '492 application only discloses the creation of an indicatory signal in response to a notification signal once the vehicle is within a predetermined distance of the user." Pet. MTA Sur-reply 1–2 (citing Williams II Decl. ¶¶ 29–31).

We agree with Petitioner and for the reasons stated in our Preliminary Guidance, we find that the disclosure of the '049 application does not disclose that the first (notification) signal is generated by creating the

indicator, as claim 21 recites. We, therefore, find that there is no written description support for the proposed amendment to claim 21. Prelim. Guidance 9–10.

6. Patentability of the Proposed Claims

a) Obviousness

Petitioner contends the proposed substitute claims would have been obvious over: (1) Kalanick and Kemler, (2) Kalanick, Kemler, and Stanfield[9]; (3) Lalancette and Kemler; and (4) Lalancette, Kemler, and Stanfield. Pet. MTA Opp. 11–25.

The Preliminary Guidance concludes that "each of Petitioner's challenges (or the record) fails to show a reasonable likelihood that the respective proposed substitute claims are unpatentable." Prelim, Guidance 11. According to the Preliminary Guidance, "both claims 21 and 29 require creating the indicator when, or after it is determined that the vehicle is within a predetermined distance of a particular location." *Id.* The Preliminary Guidance concludes that Kemler and Kalanick "do not teach (and do not provide an underlying factual basis for the contention that it would be obvious to add) creating the indicator when (or after) it is determined that the vehicle is within a predetermined distance of a particular location." *Id.* at 13.

Petitioner asserts in its Sur-reply that "the Preliminary Guidance limits Kemler's disclosure to where a unique signal is created when the user requests a vehicle from a dispatching service." Pet. MTA Sur-reply. 6. Petitioner disagrees with this conclusion, asserting that "a [person of

[9] U.S. Patent No. 9,442,888 (Ex. 1026).

ordinary skill] would understand Kemler to also disclose that the unique signal may be generated *after* the user requests a vehicle from a dispatching service." *Id.* Petitioner relies on an "alternative" embodiment of Kemler, depicted in Figures 7 and 8. *Id.* at 6–7. According to Petitioner, in Figures 7 and 8, "the vehicle is already assigned to the user but the unique signal is not yet generated or sent." *Id.* at 7. Alternatively, Petitioner asserts that "it would also have been an obvious implementation choice to only create and send the indicator to the vehicle once the vehicle and the user were within a certain distance to efficiently allocate resources and protect the user's privacy." *Id.* (citing Williams II Decl. ¶¶ 39–41).

We do not find these arguments persuasive. Petitioner's argument is contradicted by Figure 10 of Kemler, a flowchart that shows the relationship of the signal generation step to dispatch. Further, it is inconsistent with the Kemler specification. *See* Ex. 1008, 3:52–59 ("The request [for a vehicle] may be sent to a centralized dispatching system which selects or assigns a vehicle to the requesting user. At the same time, the centralized dispatching system may generate a signal to identify the vehicle to the user."). For the reasons summarized above and given in the Preliminary Guidance, we find that Kemler and Kalanick fail to teach or suggest the limitation of "creating an indicator" as recited in proposed substitute claims 21 and 29.

Similarly, the Preliminary Guidance states that "we disagree with Petitioner's contentions that Lalancette's taxi service provider 108 generates a user's icon when or after the user requests a taxi." Prelim. Guidance 18. We explain that "Lalancette actually discloses that an icon is generated by the user in advance of using a taxi service, such that the taxi service (service provider 108) merely retrieves (e.g., from a server) the user's existing icon at

the time the user requests a taxi." *Id.* (citing Ex. 1009 ¶¶ 31–32, 34, 36, 39). We further conclude that "[n]either has Petitioner provided persuasive support for its position that an ordinarily skilled artisan would have found it obvious to modify Lalancette to create an indicator when (or after) it is determined that a vehicle is within a predetermined distance of a particular location." *Id.* For the reasons summarized above and given in the Preliminary Guidance, we find that Lalancette fails to teach or suggest the limitation of "creating an indicator" as recited in proposed substitute claims 21 and 29.

b) Stanfield

In the Preliminary Guidance, we did not find supported Petitioner's contention that Stanfield "discloses the indicator creation features in contingent claims 21 and 29." Prelim. Guidance 14. We concluded that "Petitioner's contention does not establish that Stanfield creates the indicator when (or after) it is determined that the vehicle is within a predetermined distance of a particular location (as required by claims 21 and 29)." *Id.* at 15 (emphasis omitted). We reasoned that "[i]n Stanfield, the signal's (indicator's) creation is not prompted by the vehicle being within a predetermined distance of a particular location or user." *Id.* at 15 (emphasis omitted). We explained that "[b]ecause Stanfield's indicator is *created* when the vehicle's availability becomes known to the fleet manager (or is set by the fleet manager), and *not when* a potential customer approaches (or is within a certain distance of) a vehicle, we are unpersuaded by Petitioner's contentions that 'Stanfield discloses the indicator creation features in contingent claims 21 and 29,' or that 'a [person of ordinary skill] would

have considered the creation of an indicator for the first time when a vehicle reaches a certain distance obvious.'" *Id*. at 15–16.

We also found Petitioner's arguments and evidence "insufficient to demonstrate that a skilled artisan would have been prompted by Stanfield to modify Kalanick and/or Kemler to create an indicator when (or after) it is determined that a vehicle is within a predetermined distance of a particular location [of a user] (as required by claims 21 and 29)." *Id*. at 16.

In reaching these preliminary conclusions, we considered and discussed Petitioner's arguments. *See id.* at 14–17. The arguments Petitioner presents in its Sur-reply are repetitive and no more persuasive than those already considered. Pet Sur-reply 8–9. For example, the argument that "Stanfield along with the other references address similar problems as the '637 Patent involving vehicle identification in an on-demand transport system" was previously considered and was rejected. *See* Prelim. Guidance 16 ("We are unpersuaded by Petitioner's argument because Stanfield does not address the same problem as the '637 patent.").

Petitioner does not convince us that Stanfield addresses a "security problem," as opposed to an information retrieving problem. *See* discussion at Prelim. Guidance 16–17. For the reasons given in our Preliminary Guidance and summarized *supra*, we find that Stanfield does not teach or suggest the indicator creation limitation, nor would a person of ordinary skill have combined Stanfield with the other references relied on by Petitioner.

c) Patent Eligibility of the Proposed Claims

The Preliminary Guidance concluded that Petitioner failed to show "a reasonable likelihood that proposed substitute claims 21–29, 31, and 32 are patent-ineligible" under 35 U.S.C. § 101. Prelim. Guidance 20. We first

determined under the 2019 Revised Patent Subject Matter Eligibility Guidance and the October 2019 Update,[10] that the proposed claims recite a judicial exception in Revised Step 2A, Prong One. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54 (Jan. 7, 2019) (hereinafter "Guidance") updated by USPTO, October 2019 Update: Subject Matter Eligibility ("October 2019 Guidance Update"). Prelim. Guidance 20.

We next determined that in accordance with Prong Two of Step 2A of the Guidance, "proposed substitute claims 21 and 29 (and their dependent claims) recite technological features that enable communication and coordination between multiple devices that are not co-located and are moving with respect to each other (i.e., a customer's/user's mobile communication device, a vehicle's display, and a driver's mobile communication device and a controller of a vehicle identification system communicating therebetween and generating notifications and indicators based on the vehicle's location and the distance to the user)." *Id.* at 22. We concluded that "[t]hus, proposed substitute claims 21 and 29 provide a technological solution rooted in computer and network technologies." *Id.* at 22–23 (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–58 (Fed. Cir. 2014); *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1259–60 (Fed. Cir. 2017)).

We concluded, therefore, that Petitioner had not shown that proposed substitute claims 21–29, 31, and 32 are patent-ineligible. *Id.* at 23.

Petitioner responds that "[t]he limitations in steps 21a–3d and 29a–28e of determining that a dispatched vehicle is within a predetermined

[10] Available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf.

distance of the location of a user, generating a notification signal, creating an indicator, and displaying the indicator based on the notification signal on an external display are merely computer implementations of the abstract idea of enabling a user to identify a dispatched cab." Pet. MTA Sur-reply 10. Petitioner continues, "[s]uch limitations do not result in an improvement in the functioning of a computer or other technical improvement." *Id.*

We disagree with Petitioner. Petitioner does not address the rationale of our preliminary decision, but only expresses disagreement with the outcome. Petitioner does not persuasively address our conclusion that the proposed substitute claims "recite technological features that enable communication and coordination between multiple devices that are not co-located and are moving with respect to each other." Prelim. Guidance 22,

Therefore, for the reasons set forth in our Preliminary Guidance and summarized above, we find that Petitioner fails to prove that the proposed substitute claims are not patent-eligible.

7. Conclusion

For the reasons given, we find that Patent Owner's Motion to Amend has met the statutory and regulatory requirements as to claim 29, 31, and 32, but not as to claim 21 or dependent claims 22–28, and Petitioner has failed to demonstrate that proposed substitute claims 29, 31, and 32 are unpatentable as obvious over Kalanick and Kemler or Lalancatte and Kemler, with or without Stanfield. Therefore, Patent Owner's Motion to Amend is *granted* as to proposed substitute claims 29, 31, and 32 and *denied* as to proposed substitute claims 21–28.

V. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner's Motion to Exclude seeks to exclude three categories of evidence relating to Petitioner's expert, David Williams: (1) certain paragraphs of Mr. Williams's second declaration (Ex. 1027)[11] for allegedly expressing "legal opinions"; (2) Exhibits 1027 and 1030 (Mr. Williams's third declaration) as "[n]on-expert and unreliable under FRE 702" and "[p]rejudicial under FRE 703"; and (3) Exhibit 1030 under 37 C.F.R for presenting "new evidence or argument that could have been presented in the Petition." Paper 27, 1–2. Petitioner opposes the Motion. Paper 28. For the reasons that follow, Patent Owner's Motion is *denied*.

A. Mr. Williams's Second Declaration (Exhibit 1027)

Patent Owner moves to exclude paragraphs 5–19, 20–32, 34, 36, 38–41, 43, 45, 46, 54, 55, 57, 59–64, 66–69, and 71–78 of Exhibit 1027, the Second Declaration of Mr. Williams. Paper 27, 1. Patent Owner complains that Mr. Williams's testimony is "unreliable" and Mr. Williams is "not qualified." *Id.* Patent Owner contrasts Mr. Williams's qualifications to those of its own expert, Dr. Valenti. *Id.* at 2. Patent Owner refers specifically to the discussion of "server farms" in connection with Kemler. *See supra*, Section III.E.3.

Patent Owner's attack on Mr. Williams's qualifications and credibility is unfounded. As discussed *supra*, in Section III.E.3, we found Mr, Williams's testimony on server farms and other matters to be reliable and highly credible, especially his responses to Patent Owner's counsel on cross-examination. *See, e.g.*, Williams Dep. 82:17–94:22. As we noted, Mr.

[11] The Motion incorrectly identifies this declaration as Exhibit 2027.

Williams backed up his testimony on the power requirements of server farms with several years of experience designing, implementing, and operating a server farm. We found this experience lends credibility to his testimony that the server farms in Kemler would improve efficiency of the system, even without specific test data. *See id.*

We found the declaration testimony in Mr. Williams's Second Declaration in connection with the Motion to Amend to be helpful. Patent Owner had the opportunity to challenge the testimony given in Mr. Williams's Second Declaration on cross-examination, but did not take up that opportunity. We find that these challenges to Mr. Williams's Second Declaration, at most, go to the credibility, and not to the admissibility, of his testimony. We agree with Petitioner that the challenged testimony provided by Mr. Williams relates to technical matters commonly addressed by experts testifying in patent cases, and not to conclusions of law. Paper 28, 2–4. We therefore deny the Motion as to Mr. Williams's Second Declaration.

B. Mr. Williams's Third Declaration (Ex. 1030)

Patent Owner moves to exclude paragraphs 5–45 (i.e., essentially all) of Mr. Williams's Third Declaration (Ex. 1030). Paper 27, 2. Again, Patent Owner alleges that the declaration is "unreliable" and "[p]rejudicial." *Id.*

Petitioner responds that Patent Owner had a chance to challenge the testimony on cross-examination, but failed to do so. Paper 28, 1. Petitioner asserts that Patent Owner's arguments go to the weight of the testimony, not its admissibility, and that the Board is "well positioned" to assess the weight. *Id.* Petitioner argues that the testimony should not be excluded under Federal Evidence Rule 703. We agree with these arguments by Petitioner.

As Petitioner points out, Patent Owner "ignores large sections" of the testimony of Mr. Williams demonstrating the basis for his opinions that meets the reliability standard of Rule 703. *See* Paper 28, 5–7. This would include the "server farm" testimony cited by Patent Owner as an example. *See id*. at 6–7. As discussed *infra*, we found Mr. Williams's testimony helpful on that and other issues.

For the reasons given, including those summarized above, we deny the Motion as to Mr. Williams's Third Declaration.

C. Alleged New Evidence or Argument (Exhibit 1030)

Patent Owner alleges that "Exhibit 1030 is inadmissible under 37 CFR 42.23 because it is new evidence that could have been provided in the Petition." Paper 27, 8. Patent Owner gives, as an example, testimony presented by Mr. Williams that it Patent Owner itself describes as "*in response to* Patent Owner pointing out that Kalanick does not disclose the 'first signal' of Claim 1[D]." *Id.* (emphasis added).

Petitioner responds that "[t]he Federal Circuit has repeatedly made clear that Petitioners may introduce new evidence after the petition stage, when such evidence responds to arguments made and evidence introduced by patent owner." Paper 28, 9 (citing *Apple Inc. v. Andrea Elecs. Corp.*, 949 F. 3d 697, 705-707 (Fed. Cir. 2020); *Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019)). We agree with Petitioner that Patent Owner seeks to exclude testimony that admittedly was properly presented by Petitioner "in response to" Patent Owner's arguments, such as in the examples cited by Patent Owner. *Id.* at 9–11. Furthermore, we see no undue prejudice to Patent Owner, who passed up the opportunity to cross-examine Mr. Williams on this testimony.

For the reasons given, including those summarized above, we deny the Motion to Exclude Mr. Williams's Third Declaration as untimely.

VI. CONCLUSION

For the foregoing reasons we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–9 and 11–20 of the '637 patent are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
1–9, 11–20	103	Kalanick, Kemler	1–9, 11–20	
1–9, 11–20	103	Lalancette, Kemler	1–9, 11–20	
Overall Outcome			1–9, 11–20	

Furthermore, we grant in part Patent Owner's contingent Motion to Amend, which proposed cancelling original claims 1–12 and replacing them with substitute claims 21–32.

In summary:

Motion to Amend Outcome	Claim(s)
Original Claims Cancelled by Amendment	9, 11, 12
Substitute Claims Proposed in the Amendment	21–32
Substitute Claims: Motion to Amend Granted	29, 31, 32
Substitute Claims: Motion to Amend Denied	21–28
Substitute Claims: Not Reached	30

VII. ORDER

Upon consideration of the record before us, it is:

ORDERED that claims 1–9 and 11–20 of the '637 patent are not patentable;

ORDERED that Patent Owner's Motion to Amend is *granted in part;*

ORDERED that claims 9, 11, and 12 of the '637 patent are *cancelled* and replaced by substitute claims 29, 31, and 32, respectively;

ORDERED that Patent Owner's Motion to Exclude is *denied*; and

FURTHER ORDERED that because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2021-01598
Patent 9,892,637 B2

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LYFT, INC.,
Petitioner,

v.

RIDESHARE DISPLAYS, INC.,
Patent Owner.

IPR2021-01599
Patent 10,169,987 B1

Before THOMAS L. GIANNETTI, LYNNE E. PETTIGREW, and JOHN D. HAMANN, *Administrative Patent Judges*.

PETTIGREW, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)
Dismissing Patent Owner's Motion to Exclude
37 C.F.R. § 42.64

I. BACKGROUND

Petitioner, Lyft, Inc., challenges claims 1, 2, 4, and 6–8 ("the challenged claims") of U.S. Patent No. 10,169,987 B1 (Ex. 1001, "the '987 patent"). We have jurisdiction under 35 U.S.C. § 6, and we issue this Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that claims 1, 2, 4, and 6–8 of the '987 patent are unpatentable.

A. Procedural History

Petitioner filed a Petition for *inter partes* review of the challenged claims. Paper 1 ("Pet."). Patent Owner, Rideshare Displays, Inc., filed a Preliminary Response. Paper 7 ("Prelim. Resp."). Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we instituted an *inter partes* review of the challenged claims. Paper 8 ("Institution Decision" or "Inst. Dec.").

Following institution, Patent Owner filed a Patent Owner Response (Paper 13, "PO Resp."), Petitioner filed a Reply (Paper 16, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 18, "PO Sur-reply"). Patent Owner filed a Motion to Exclude Evidence (Paper 22, "Mot. Excl."), and Petitioner filed an Opposition to the Motion to Exclude Evidence (Paper 23).

On January 10, 2023, we held a consolidated oral hearing for IPR2021-01598, IPR2021-01599, IPR2021-01600, IPR2021-01601, and IPR2021-01602. A copy of the hearing transcript has been entered into the record. Paper 26 ("Tr.").

B. Real Parties-in-Interest

Petitioner identifies Lyft, Inc. as the only real party-in-interest. Pet. 1. Patent Owner identifies Rideshare Displays, Inc. as the only real party-in-interest. Paper 6, 2. Neither party challenges those identifications.

C. Related Matters

The parties identify the following district court proceeding involving the '987 patent: *Rideshare Displays, Inc. v. Lyft, Inc.*, No. 20-cv-01629-RGA-JLH (D. Del.). Pet. 1; Paper 6, 2. The parties also identify several petitions for *inter partes* review of patents related to the '987 patent: IPR2021-01598, IPR2021-01600, IPR2021-01601, and IPR2021-01602. Pet. 1; Paper 6, 2.

D. Overview of the '987 Patent

The '987 patent is titled "Vehicle Identification System." Ex. 1001, code (54). The '987 patent is a continuation of U.S. Patent No. 9,892,637. *Id.* at code (63). The patent describes a system for providing an indicator on a mobile communication device of a user having requested a ride service to allow the user to identify a vehicle prior to boarding the vehicle. *Id.* at 1:22–26. According to the patent, "[a] continuing need exists for systems and methods adapted for use by transportation services to ensure rider and driver security." *Id.* at 1:59–61.

Two separate embodiments of the invention are shown in Figures 1A and 1B:

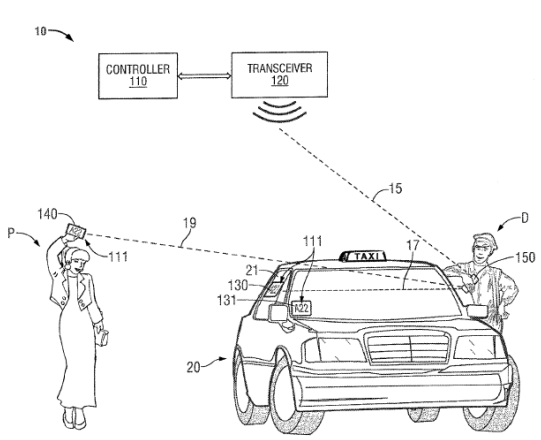


FIG. 1A

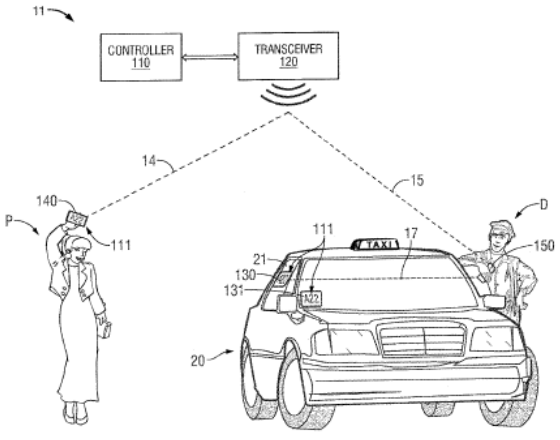


FIG. 1B

Figures 1A and 1B, above, illustrate two embodiments of a vehicle identification system in accordance with the '987 patent. *Id.* at 2:38–43. Figure 1A illustrates vehicle identification system 10, which includes controller 110, transceiver 120, and one or more displays associated with motor vehicle 20. *Id.* at 3:57–59. First display 130 is associated with passenger side rear window 21 of motor vehicle 20, and second display 131 is associated with the front windshield of motor vehicle 20. *Id.* at 3:59–63. Vehicle identification system 10 can generate one or more signals representing an indicator, which may be displayable as a "code" (e.g., a text string or an alphanumeric string), an icon, or other identifier, on display 130 and on mobile communication device 140 associated with user P to enable the user to identify the vehicle that he or she has requested for a ride service. *Id.* at 4:4–13.

Figure 3 is a flowchart illustrating a method of identifying a vehicle in accordance with the '987 patent. *Id.* at 2:47–49. Figure 3 follows:

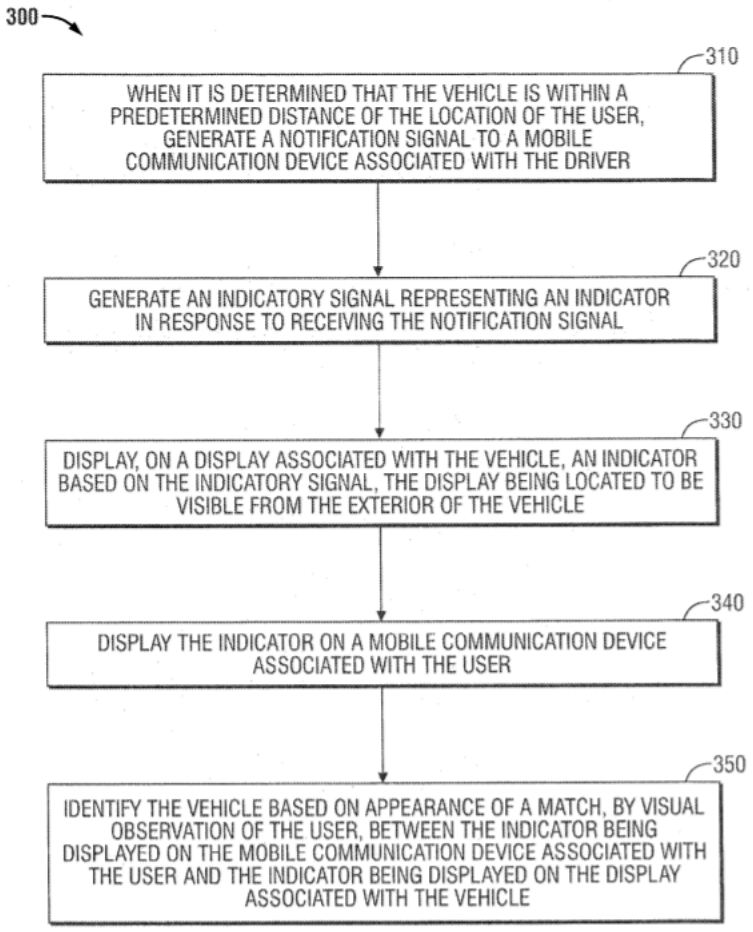


Figure 3 above illustrates a method of identifying a vehicle being dispatched to a location of a user having requested a ride from a transportation service. Ex. 1001, 6:66–7:2. When it is determined that motor vehicle 20 is within a predetermined distance of the location of user P, notification signal 15 is generated to mobile communication device 150 associated with driver D. *Id.* at Fig 3, block 310. Indicatory signal 17 representing indicator 111 is generated in response to receiving notification signal 15. *Id.* at Fig. 3, block 320. Indicator 111 based on indicatory signal 17 is displayed on

display 130 associated with vehicle 20. *Id.* at Fig. 3, block 330. Display 130 is located to be visible on the exterior of vehicle 20. *Id.* at 7:12–13.

Indicator 111 is also displayed on mobile communication device 140 associated with user P. *Id.* at Fig. 3, block 340. Motor vehicle 20 is identified based on appearance of a match, by visual observation of user P, comparing the indicator being displayed on the mobile communication device associated with user P and the indicator being displayed on the display associated with vehicle 20. *Id.* at Fig. 3, block 350.

In the embodiment of Figure 1A, the mobile communication device associated with driver D generates a second signal representing an indicator that is transmitted to mobile communication device 140 associated with user P. *Id.* at 5:32–39. In the embodiment of Figure 1B, vehicle identification system 11 generates indicatory signal 14 transmitted to the mobile communication device associated with user P and notification signal 15 to be transmitted to the mobile communication device associated with driver D. *Id.* at 5:40–49. In this embodiment, the driver's mobile communication device does not communicate with the user's mobile communication device. *Id.* at 5:49–54.

E. Illustrative Claim

Among the claims challenged in the Petition, claims 1 and 8 are independent. Claim 1 is illustrative of the claimed subject matter and is reproduced below:

> 1. [preamble] A vehicle identification system, comprising:
>
> [1A] a display associated with a vehicle, wherein the display is located to be visible from an exterior of the vehicle by a rider;
>
> [1B] a controller communicatively coupled to a network
>
> [1C] and configured to, in response to receipt of a signal from a user, generate and transmit a first signal representing an

> indicator via the network to a mobile communication device associated with a driver of the vehicle; and
>
> [1D] wherein, in response to receiving the first signal, the mobile communication device associated with the driver of the vehicle generates and transmits a second signal representing the indicator to the display, the indicator identifies the vehicle.

Ex. 1001, 7:33–46 (formatting modified and Petitioner's identification of limitations added).

F. Asserted Grounds of Unpatentability

We instituted *inter partes* review of the challenged claims based on the following grounds of unpatentability asserted by Petitioner:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 4, 6–8	103	Kalanick,[1] Kemler[2]
1, 2, 4, 7, 8	102	Lalancette[3]
6	103	Lalancette, Kemler

Inst. Dec. 8, 43; *see* Pet. 5.

G. Testimonial Evidence

In support of its unpatentability contentions, Petitioner relies on a Declaration of David Hilliard Williams (Ex. 1003) submitted with the Petition and a Second Declaration of Mr. Williams submitted with Petitioner's Reply (Ex. 1030). Patent Owner cross-examined Mr. Williams via deposition. *See* Ex. 2022.

[1] U.S. Patent Pub. 2015/0332425 A1, filed Jan. 23, 2015, published Nov. 19, 2015 (Ex. 1006, "Kalanick").
[2] U.S. Patent No. 9,494,938 B1, filed Apr. 3, 2014, issued Nov. 15, 2016 (Ex. 1008, "Kemler").
[3] U.S. Patent Pub. 2012/0137256 A1, published May 31, 2012 (Ex. 1009, "Lalancette").

In support of its Patent Owner Response, Patent Owner relies on a declaration of Dr. Matthew Valenti (Ex. 2023). Petitioner cross-examined Dr. Valenti via deposition. *See* Ex. 1029.

II. DISCUSSION

A. Principles of Law

A prior art reference anticipates a claim if it discloses each and every element of the claimed invention arranged or combined in the same way as in the claim. *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016). "However, a reference can anticipate a claim even if it 'd[oes] not expressly spell out' all the limitations arranged or combined as in the claim, if a person of ordinary skill in the art, reading the reference, would 'at once envisage' the claimed arrangement or combination.'" *Id.* (quoting *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015)).

A claim is unpatentable under § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary

skill in the art; and (4) when in evidence, objective indicia of non-obviousness.[4] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To prevail on its challenges to Patent Owner's claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). "In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")).

B. Level of Ordinary Skill in the Art

According to Petitioner, a person of ordinary skill in the pertinent art "would have had at least a bachelor's degree in electrical or computer engineering, or a similar field with at least two years of experience in the field of vehicle location and tracking systems or related technologies." Pet. 9. Petitioner adds that "[a] person with less education but more relevant practical experience may also meet this standard. The prior art also evidences the level of skill in the art." *Id.* (citing Ex. 1003 ¶ 47).

Patent Owner provided a slightly different formulation in the Preliminary Response. According to Patent Owner, a person of ordinary skill at the relevant time would have had:

> i) at least a bachelor's degree in electrical or computer engineering, or a similar field;

[4] The parties do not present arguments or evidence regarding objective indicia of non-obviousness, and therefore we do not consider the fourth *Graham* factor as part of our obviousness analysis. *See* Pet. 58; PO Resp.

> ii) at least two years of experience in wireless cellular network protocols, including location and tracking/positioning, and having an understanding of signal timing and reliability issues in such wireless cellular network protocols; and
>
> iii) knowledge of issues with respect to data privacy and database storage systems. Regarding data privacy, the [person of ordinary skill] need not have extensive knowledge in, e.g. data encryption methodologies, but would have experience with data privacy policies and protection models.

Prelim. Resp. 5. At the institution stage, we adopted Petitioner's more general formulation, with one qualification. Inst. Dec. 19. We stated we would also expect a person of ordinary skill to have at least some experience in wireless cellular network protocols, as suggested by Patent Owner. *Id.* at 19–20. We reasoned that our review of the '987 patent and the cited prior art did not suggest that specific experience with data privacy policies and protection models would be required, given the focus of the '987 patent on more general principles of cellular communications and signaling. *Id.* at 20. However, we observed that our decision would be the same under either formulation. *Id.* at 20.

In its Patent Owner Response, Patent Owner states that it "disagrees" with our formulation because "the ['987] patent is not directed to a vehicle tracking system." PO Resp. 3. Patent Owner explains that "[i]t is directed to a communication system between a rider and driver, albeit using location[-]based services in some aspects of this system, and thus a [person of ordinary skill] would be a person who is skilled in the field of communication systems along cellular networks." *Id.* at 3–4.

We agree that the patented technology involves cellular communications, and this is reflected in our formulation, where we stated "we would also expect a person of ordinary skill to also have at least some

experience in wireless cellular network protocols, as suggested by Patent Owner." Inst. Dec. 19–20. But Patent Owner continues that "a [person of ordinary skill] should have knowledge of wireless communications protocols and some general experience with data privacy issues and protection models, in addition to the education level in electrical or computer engineering identified by the parties." PO Resp. 4. Patent Owner cites no authority for this proposal, which we rejected in our Institution Decision based on our review of the patent and the prior art. Inst. Dec. 19. We therefore maintain our formulation of the person of ordinary skill from our Institution Decision.

Patent Owner segues from discussing the scope of knowledge of a person of ordinary skill to an attack on Mr. Williams's testimony. PO Resp. 4–5. We are not persuaded by Patent Owner's citations to Mr. Williams's testimony, or by Patent Owner's attempt to discredit Mr. Williams's opinions on the pertinent art as "overreach." *Id.* None of the testimony cited by Patent Owner relates to the Kalanick, Lalancette, or Kemler references. Nor do we see how Mr. Williams's testimony concerning background technology "infects each argument that Petitioner makes with respect to the knowledge of a [person of ordinary skill in the art]," as Patent Owner alleges. *Id.* at 5. Patent Owner does not point to any specific arguments that would be so "infected."

As we stated in our Institution Decision, "the arguments presented by the parties do not depend on the definition of the person o[f] ordinary skill, and therefore, our decision would be the same under either formulation." Inst. Dec. 20. The parties' statements made during the oral hearing are consistent with this point. *See* Tr. 75:17–18 (Patent Owner stating that "[i]t's not clear to us that the level of ordinary skill arguments actually

matter"), 106:12–17 (Petitioner stating that its arguments do not depend on which definition we adopt).

C. Claim Construction

In this *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). In applying this standard, we generally give claim terms their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

We address below two terms that we construed in our Institution Decision. *See* Inst. Dec. 20–25. To the extent we need to interpret any other claim terms, we will do so in the context of our analysis of the prior art that follows.

1. "indicator"

In our Institution Decision, we construed the term "indicator" as a "code (e.g., a text string or an alphanumeric string), an icon, or other identifier, for display to enable a match between a user/rider and a driver." Inst. Dec. 22. We determined this construction was consistent with the description of an indicator in the specification of the '987 patent. *Id.* at 21–22 (citing Ex. 1001, 4:9–13). Neither party challenges this construction, which we maintain for this Final Written Decision. *See* PO Resp. 6; Pet. Reply 2; PO Sur-reply 2.

2. "generate"

Our Institution Decision addressed a dispute regarding the term "generate" in the phrases "generate . . . a first signal representing an indicator" and "generates . . . a second signal representing an indicator,"

recited in independent claims 1 and 8. Inst. Dec. 22–25. We rejected Patent Owner's argument that the claims require that "a new signal be actively formulated each time a ride is dispatched." *Id.* at 22–23 (citing Prelim. Resp. 29, 32, 36). This argument equates "generate" with "actively formulate," which does not appear in the claim language or elsewhere in the specification of the '987 patent. *Id.* at 22–24 (citing Ex. 1001, 2:1–5, 2:63–67, 5:4–7, 6:62–65 (describing controller operation)).

We also rejected Patent Owner's contention that a "new indicator" must be "actively formulated" for each ride, which appears to conflate "signal" and "indicator." *Id.*; *see* Prelim. Resp. 29 ("[T]he present invention actively formulates a new indicator for each rider-driver trip while the driver is in transit."). The claim language recites that the controller is configured to "generate . . . a first signal representing an indicator" and the mobile communication device associated with the driver "generates . . . a second signal representing the indicator." Ex. 1001, 7:37–45, 8:5–13. Thus, the claims require generating a signal that represents the indicator, which is different from generating the indicator itself.

Because the specification and prosecution history do not explicitly provide a definition for the term "generate," we looked to extrinsic sources to determine its plain meaning. Inst. Dec. 24. The Federal Circuit has approved the use of dictionaries for guidance in claim construction, "so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of "consult[ing] a general dictionary definition of [a] word for guidance" in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed.

Cir. 2008) ("[O]ur decisions, including *Phillips*, do not preclude the use of general dictionary definitions as an aid to claim construction.") (citation omitted). One dictionary definition of "generate" is "to bring into existence: such as: . . . to originate by a vital, chemical, or physical process: PRODUCE." *See* https://www.merriam-webster.com/dictionary/generate. We therefore construed the term "generate" as it relates to the controller in reference to a signal in accordance with its plain and ordinary meaning, which is "to originate or produce the signal." Inst. Dec. 24–25.

Patent Owner's Response does not directly respond to this construction. PO Resp. 6. Instead, Patent Owner asserts that "[a]t institution, the Board determined that the term 'generating' should be construed according to its ordinary meaning. . . . Applying ordinary meaning should still lead to the conclusion that the prior art does not render the claims of the patent unpatentable." *Id.* (citing Ex. 2023 ¶ 33). Patent Owner further asserts that its positions in the Patent Owner Response "are based on the Board's use of the plain and ordinary meaning of the term 'generate.'" PO Sur-reply 2.

For the foregoing reasons and those discussed in our Institution Decision, we maintain our construction of "generate" as it relates to a signal as "to originate or produce the signal." Inst. Dec. 25.

D. Overview of Asserted Prior Art References

1. Kalanick

Kalanick discloses a system for arranging an on-demand service to be provided by a transport service provider to a requesting user. Ex. 1006 ¶ 2. Kalanick describes a dynamically configured and personalized display that is positioned on or fastened to a vehicle. The display is easily visible to a user

outside of the vehicle and informs the user which vehicle has been assigned to the user for the on-demand service. *Id.* ¶ 10.

The on-demand service system can arrange a transport service for a user by receiving a request for transport from the user's device, selecting a driver from a plurality of available drivers to perform the transport service for that user, sending an invitation to the selected driver's device, and receiving an acceptance of the invitation by the selected driver. *Id.* ¶ 11.

The on-demand service system described by Kalanick can associate an identifier of the user and an identifier of the driver with an entry for that transport service. *Id.* Once the on-demand service system arranges the transport service for the user and the driver, the transport personalization system can access a user database to determine whether that user has specified an output configuration for an indication device (e.g., determine whether the user has personalized at least one aspect of the transport service). *Id.*

This operation is illustrated in Figure 1 of Kalanick:

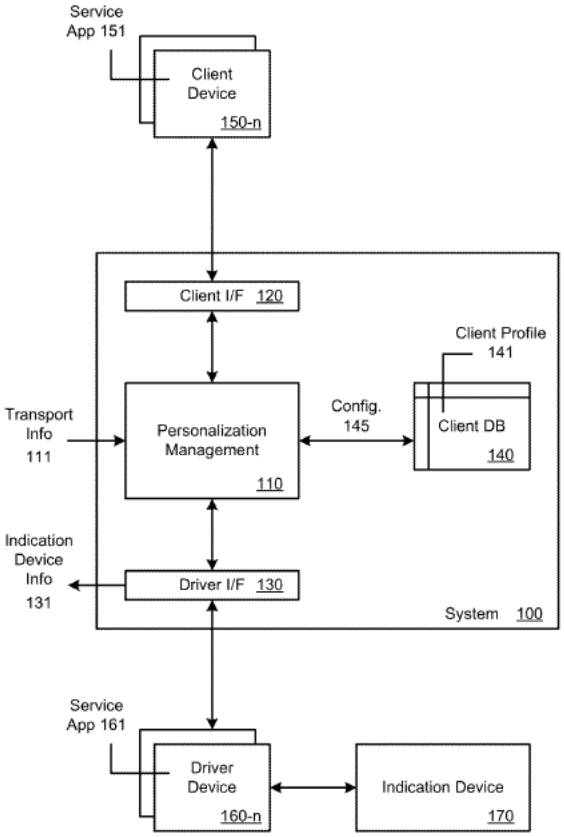


FIG. 1

Figure 1 of Kalanick, above, illustrates a system to provide configuration information for controlling an indication device for use with an on-demand service. *Id.* ¶ 3. System 100 can communicate, over one or more networks via a network interface (e.g., wirelessly or using a wire), with client devices 150 (e.g., mobile computing devices operated by clients or users/customers) and driver devices 160 (e.g., mobile computing devices operated by drivers) using client device interface 120 and driver device interface 130, respectively. *Id.* ¶ 25. System 100 can receive transport information 111 about the transport service from the on-demand service

system and determine whether to transmit user-specified configuration data to the driver device of the driver selected to provide the transport service. *Id.* ¶ 26.

Client database 140 stores a plurality of client profiles 141 for each user that has an account with the on-demand service system. A client profile 141 can include a user identifier. *Id.* ¶ 29. When personalization management 110 receives transport information 111, the personalization management can use the user ID to access client database 140. *Id.*

Personalization management 110 can perform a lookup of client profile 141 (e.g., using the user's ID or user's device ID) and determine if the user has specified an output configuration for an indication device. *Id.* ¶ 30. If the user has specified the output configuration, the personalization management can determine or retrieve configuration data 145 corresponding to the specified configuration for that user. *Id.* If the user does not provide indication preferences, however, the personalization management can store or maintain default indication preferences in the user's profile 141. *Id.*

The personalization management can transmit the user's configuration data 145 corresponding to the user's indication preferences (or default configuration data if the user has not specified indication preferences) to the driver device. *Id.* ¶ 31.

In one example, the on-demand service system can use location information from driver's device 160 and/or transport information 111 to automatically determine the driver's state, and based on the state of the transport service or the driver, system 100 and/or service application 161 can control the operation of indication device 170. *Id.* ¶¶ 35–36.

The state of the transport service can correspond to the driver "arriving now." *Id.* ¶ 37. When service application 161 determines that the

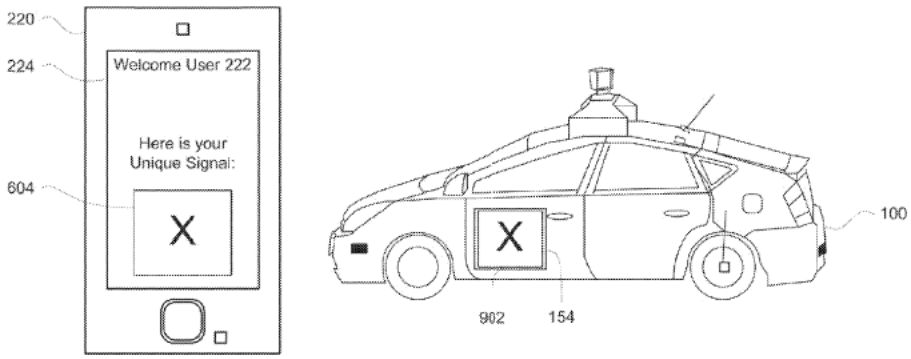
transport service is to change states from "en route" to "arriving now," the service application can trigger or control the indication device to output the user's specified color (and/or other preferred output content, patterns, or sequences) so that the user can see which vehicle is approaching and will provide the service for the user. *Id.* The service application can also control the indication device to output the user's specified display/output preferences in a specific configuration that is based on the transport state. *Id.*

2. Kemler

Kemler discloses providing a user with a way to identify or verify a vehicle dispatched to pick up the user. Ex. 1008, 3:38–40. Once the vehicle is within a certain distance of the user, the vehicle may signal to the user in order to identify the vehicle to the user and avoid confusion. This signaling could include a display or audio including a unique string of text. *Id.* at 3:43–47.

Kemler describes the dispatched vehicle as having an external electronic display mounted on the vehicle and an internal electronic display. *Id.* at 5:22–24. Kemler explains that as the dispatched vehicle approaches the user's client device, a unique signal may be displayed on the vehicle's external display and the user's client device so the user can identify the vehicle without compromising the user's privacy. *Id.* at 4:1–19.

This operation is illustrated in Figure 9 of Kemler:



900
FIGURE 9

Figure 9 above shows a client computing device and a computing device of a vehicle displaying unique signal "X" around the same time. *Id.* at 12:45–47. By comparing unique signal 604 of display 224 to unique signal 902 of external electronic display 154, a user may recognize that vehicle 100 was dispatched for that user. *Id.* at 12:47–51. If the signals are the same, the user can easily identify the vehicle, and if not, the user may continue to look for the vehicle dispatched for that user. *Id.* at 12:51–53.

3. Lalancette

In its most relevant embodiment, Lalancette describes an electronic display mounted to be visible from outside a taxi, a mobile computing device in the taxi that manages a dash-mounted driver display and the mounted electronic display, and a smart phone of a user. Ex. 1009 ¶¶ 27–33. The taxi is equipped with an electronic display mounted outside of the taxi car, or at least visible from outside the taxi car, as well as a dash-mounted driver display. *Id.* ¶ 27. The displays are configured to display information received from the taxi dispatch service. *Id.*

In one scenario described by Lalancette, a user orders a taxi using a handset to request taxi service from a taxi dispatch service. *Id.* ¶ 29. The user device (the handset) conveys user identification (user ID) to the service provider. *Id.* The service provider validates the request to ensure the request can be accommodated. *Id.* ¶ 30. An automated dispatch system uses the user's location to select the most suitable taxi car to respond to the request for service from the user. *Id.*

The service provider then requests a personal human-readable icon for the user from an icon server by sending a message carrying a user ID for the user. *Id.* ¶ 31. The icon server uses the user ID to retrieve a personal icon corresponding to the user from an icon database. *Id.*

The icon server sends the retrieved icon to the service provider. *Id.* ¶ 32. The service provider dispatches the selected taxi car to the location of the user and displays the user's icon on the taxi's roof-top electronic display and the driver's dashboard display. *Id.* The service provider also transmits a copy of the icon to the user device for confirmation to the user. *Id.*

In one embodiment, as part of the dispatch procedure, the service provider transmits the dispatch information and the user's icon to a mobile computer in the taxi car and the mobile computer manages the taxi roof-top electronic display 122 and the driver's dashboard display. *Id.*

When the taxi car approaches the user's location, the user can view the rooftop display to identify the taxi car as the taxi responding to the user's request. *Id.* ¶ 33. The user can compare the display of the icon on the rooftop display to the copy of the icon on the user's device to confirm the identity of the taxi. *Id.*

E. Obviousness over Kalanick and Kemler

Petitioner contends that claims 1, 2, 4, and 6–8 are unpatentable under 35 U.S.C. § 103(a) as obvious over Kalanick and Kemler. Pet. 22–42. Patent Owner disagrees, arguing that the combined references do not teach or suggest all the claim limitations and that Petitioner has failed to show a sufficient motivation to combine the references. PO Resp. 7–31. For the reasons discussed below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 4, and 6–8 are unpatentable for obviousness over Kalanick and Kemler.

1. Independent Claim 1

a. Preamble and Limitations [1A] and [1B]

Petitioner contends that Kalanick teaches a "vehicle identification system," as recited in the preamble of claim 1, that comprises "a display associated with a vehicle, wherein the display is located to be visible from an exterior of the vehicle by the rider," as recited in limitation [1A]. Pet. 26–28 (citing Ex. 1003 ¶¶ 126–130). Petitioner explains that Kalanick discloses a "system that can automatically configure an indication device (or a display device) for use with an on-demand service." *Id.* at 26 (quoting Ex. 1006 ¶ 10). Petitioner contends that Kalanick's indication device can be positioned or fastened on or within a vehicle operated by a service provider such that it is easily visible to a user. *Id.* at 27 (citing Ex. 1006 ¶ 10). Petitioner further contends that a person of ordinary skill in the art would have understood that Kalanick's "user" is a "rider." *Id.* at 28 (citing Ex. 1003 ¶ 130; Ex. 1006 ¶ 11 (stating that the disclosed system "can arrange a transport service for a user")).

Petitioner contends that Kalanick teaches that its disclosed system comprises "a controller communicatively coupled to a network," as recited

in limitation [1B]. With reference to Kalanick's Figure 1, Petitioner points to system 100, which communicates over one or more networks with client devices (e.g., mobile computing devices operated by riders) and driver devices (e.g., mobile computing devices operated by drivers). *Id.* at 28–29 (citing Ex. 1006 ¶¶ 23, 25, Fig. 1). Petitioner contends that a person of ordinary skill would have recognized that Kalanick's system 100 is a "controller," which the '987 patent describes as a "computing device . . . capable of executing a series of instructions." *Id.* at 29–30 (citing Ex. 1003 ¶ 134); *see* Ex. 1001, 2:63–66.

Patent Owner does not advance any arguments regarding these limitations. *See* PO Resp. 18–26. Having considered Petitioner's arguments and supporting evidence, we find that Kalanick teaches the preamble of claim 1 and limitations [1A] and [1B].[5]

b. Limitation [1C]

Limitation [1C] requires the claimed controller to be "configured to, in response to receipt of a signal from the user, generate and transmit a first signal representing an indicator via the network to a mobile communication device associated with a driver of the vehicle." Petitioner contends that to the extent we reject Patent Owner's proposed claim constructions, Kalanick alone teaches this limitation. Pet. 31 n.5. Petitioner additionally contends that, even applying Patent Owner's constructions, the combination of Kalanick and Kemler teaches this limitation. *Id.* at 30–31; *see* Ex. 1003 ¶ 137.

[5] We need not determine whether the preamble is limiting because we find that Kalanick teaches a "vehicle identification system."

Petitioner asserts that Kalanick's "controller" (i.e., system 100) can communicate, over one or more networks via a network interface (i.e., a transceiver), with client devices 150 (e.g., mobile computing devices operated by users) and driver devices 160 (e.g., mobile computing devices operated by drivers) using client device interface 120 and driver device interface 130, respectively. Pet. 31 (citing Ex. 1006 ¶ 25). Petitioner further asserts that Kalanick discloses arranging a transport service for a user by receiving a transport request from a user device and, in response to determining that the user has specified an output configuration (i.e., an indicator) for an indication device, identifying data corresponding to the user-specified output configuration and transmitting the data over a network to the driver device to configure the vehicle's indication device. *Id.* at 31–32 (citing Ex. 1006 ¶ 2, claim 1). Additionally, Petitioner asserts that indicator preferences for Kalanick's indication device display may include color, text, pattern, illumination sequence, or media content. *Id.* at 32 (citing Ex. 1006 ¶¶ 10, 29).

Patent Owner argues that Petitioner "fails to identify with specificity what in Kalanick corresponds to the first signal." PO Resp. 19 (citing Ex. 2023 ¶ 53). We disagree. The Petition articulates that Kalanick's controller communicates via a network interface with the driver's mobile communication device. Pet. 31 (citing Ex. 1006 ¶ 25); *see* Ex. 1003 ¶ 138. The Petition also cites Kalanick's claim 1, which specifically recites "transmitting, over one or more networks, the data [corresponding to the output configuration specified by the user] to . . . the driver device . . . to configure how the indication device of the driver operates when the driver is selected for the customer." Pet. 32 (quoting Ex. 1006, claim 1). Thus, we find the Petition identifies with particularity Kalanick's disclosure of a

communication containing data for configuring the vehicle's display, transmitted from the controller to the driver's mobile device, as teaching or suggesting the claimed "first signal representing an indicator" that is transmitted via the network to a mobile communication device associated with a driver of the vehicle, as recited in limitation [1C]. *See* Pet. Reply 9.

Next, Patent Owner argues that disclosure in Kalanick cited by Petitioner "does not identify a signal that corresponds to transmission of a first signal 'in response to receipt of a signal from a user.'" PO Resp. 20 (citing Ex. 1006 ¶¶ 25, 36–37). We disagree with Patent Owner's position. Patent Owner overlooks Petitioner's citation to Kalanick's claim 1, which specifically recites "receiving a transport request from a user device operated by the user," "determining that the user has specified an output configuration for an indication device," "in response to determining that the user has specified the output configuration, identifying . . . data corresponding to the output configuration," and "transmitting, over one or more networks, the data to at least one of the driver device or the indicator device." Ex. 1006, claim 1; *see* Pet. 31–32. We find that Petitioner's citation to Kalanick's claim 1 identifies with particularity that Kalanick teaches transmitting a first signal "in response to receipt of a signal from a user," as recited in limitation [1C].

Patent Owner also argues that Kalanick does not satisfy the "generate" requirement because the claims "require that a new signal be generated each time a ride is dispatched." PO Resp. 21 (citing Ex. 1001, 3:8–17, 4:7–13). By contrast, Patent Owner argues, Kalanick "does not generate an indicator signal. Instead, it transmits a signal that was stored in the user's profile based on the user's predetermined configuration preferences." *Id.* (citation omitted).

We disagree. Kalanick meets this limitation because it generates for transmission a *signal* representing the indicator. Kalanick does not "transmit[] a signal that was stored in the user's profile," as Patent Owner argues. PO Resp. 21. In Kalanick, it is the indicator itself (the user's profile) that is stored, not the signal. Ex. 1006 ¶¶ 29–30. As Petitioner points out, Patent Owner's argument is a variation on the "active formulation" claim construction argument advanced by Patent Owner, which we have rejected. *See* Pet. Reply 10; *supra* Section II.C.2. We also agree with Petitioner that Patent Owner "continues to confuse generating a unique icon or symbol with the claim requirement that simply requires that the controller generate or produce a first signal." Pet. Reply 10. As discussed in our claim construction section, the claim language does not require generating an indicator, but rather a signal that represents an indicator. *See supra* Section II.C.2. Thus, Patent Owner's arguments premised on a claim construction requiring "active formulation" or generating an indicator are unavailing.

Moreover, Petitioner additionally argues that the combination of Kalanick and Kemler teaches this limitation. Pet. 32–33; Pet. Reply 11. Petitioner refers to Kemler's Figure 9, which "illustrates 'a client computing device and a computing device of a vehicle displaying a unique signal at the same, or nearly the same time.'" Pet. 32 (citing Ex. 1008, 12:45–53, Fig. 9). Petitioner contends that a person of ordinary skill would have been motivated to combine Kemler's "controller generated signal/indicator" with Kalanick's vehicle identification system to have the controller send a signal representing the indicator to the driver's device. *Id.* at 33 (citing Ex. 1008, Fig. 9; Ex. 1003 ¶ 143).

Patent Owner argues that Kemler cannot be combined with Kalanick because Kemler describes a driverless system that "does not have a mobile communication device associated with a driver." PO Resp. 24–25. This argument is unavailing because, in the asserted combination, Petitioner relies on Kalanick, not Kemler, for teaching a mobile communication device associated with a driver. *See* Pet. 33. Patent Owner's argument fails to address the combination of teachings from Kalanick and Kemler set forth in the Petition. We further address the motivation to combine the teachings of Kalanick and Kemler below. *See infra* Section II.E.1.d.

For the reasons discussed above and those presented in the Petition, and having considered Patent Owner's opposing arguments and supporting evidence, we find that Kalanick alone, as well as the combination of Kalanick and Kemler, teaches limitation [1C].

c. Limitation [1D]

Limitation [1D] recites "wherein, in response to receiving the first signal, the mobile communication device associated with the driver of the vehicle generates and transmits a second signal representing the indicator to the display, the indicator identifies the vehicle." Petitioner contends that Kalanick, as well as the combination of Kalanick and Kemler, teaches this limitation. Pet. 33–35; *see* Ex. 1003 ¶ 142 (Mr. Williams stating that "Kalanick discloses this element").

Petitioner asserts that Kalanick teaches that the service application on the driver's communication device controls the vehicle's indication device to output the user's specified display preferences, such as light sources in a particular color or pattern (i.e., indicator). Pet. 34 (citing Ex. 1006 ¶¶ 36, 37, 90). Petitioner also cites Kalanick's teaching that the vehicle's indication device communicates with the driver's device using a communication

interface to receive data from the driver's device (i.e., a second signal) to control the display on the indication device. *Id.* (citing Ex. 1006 ¶ 16).

Petitioner additionally cites Kemler, which discloses an identifier shown on the vehicle display. *Id.* (citing Ex. 1008, 3:60–63). Similar to its argument for limitation [1C], Petitioner contends that a person of ordinary skill would have been motivated to combine Kemler's "controller generated signal/indicator" with Kalanick's vehicle identification system "to permit the driver's device to send the signal to the display on the vehicle after the driver's device receives the signal from the controller." *Id.* at 34–35 (citing Ex. 1003 ¶ 144).

In response, Patent Owner raises the same arguments that it raised for limitation [1C]. PO Resp. 26. As discussed previously, those arguments are unavailing. *See supra* Section II.E.1.b.

For the reasons discussed above and those presented in the Petition, and having considered Patent Owner's opposing arguments and supporting evidence, we find that Kalanick alone, as well as the combination of Kalanick and Kemler, teaches limitation [1D].

d. Motivation to Combine Kalanick and Kemler

Petitioner asserts that a person of ordinary skill would have been motivated to combine the teachings of Kalanick and Kemler with a reasonable expectation of success. Pet. 22–26; Ex. 1003 ¶¶ 118–124. Petitioner asserts that both Kalanick and Kemler address similar problems related to vehicle identification. Pet. 22–23. Furthermore, Petitioner asserts that "[b]oth teach similar solutions involving generating, transmitting, and displaying unique, easily distinguishable visual indicators on multiple displays such that users can visually match the unique indicators to efficiently identify their assigned vehicle." *Id.* at 23. Petitioner additionally

contends that "[b]oth also utilize vehicle mounted displays which are visible from the outside of the vehicle." *Id.* at 23; Ex. 1003 ¶ 118.

Further, Petitioner explains that Kalanick and Kemler both focus on vehicle identification using indicators but "approach indicator selection in slightly different ways." Pet. 24; Ex. 1003 ¶ 122. For example, Petitioner explains that Kalanick's on-demand service system "can receive information about the transport state from the service application and can control the indication device to output the user's color or other unique distinctive indicator based on the transport state." Pet. 24 (citing Ex. 1006 ¶ 38). As for Kemler, Petitioner explains that it describes a central dispatching system that generates a signal to identify the vehicle to the user, and "[o]nce the vehicle is within a certain distance of the user's client device, the vehicle's computing device may display the signal on an external display of the vehicle such that the signal should be visible to the user as the vehicle approaches the user's client device." *Id.* at 24–25 (quoting Ex. 1008, 3:48–4:11).

Petitioner concludes that a person of ordinary skill would have been motivated to implement Kemler's indicator selection system, which provides for automatic selection of an indicator, in Kalanick's vehicle identification system to "eliminate instances where riders within a similar area select the same or similar indicators, or are provided the same default indicator, making them less unique." *Id.* at 25. Petitioner contends also that a person of ordinary skill would have had a reasonable expectation of success in making the combination because it would require nothing more than modifying the software of Kalanick's system to permit the central controller to create and assign unique indicators, as taught in Kemler. *Id.*; *see* Ex. 1003 ¶ 124 (stating that the modification "is nothing more than

combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results").

Patent Owner argues that the Petition fails to provide a sufficient motivation to combine Kemler with Kalanick. PO Resp. 7–18. First, Patent Owner contends that Petitioner's assertion that Kalanick and Kemler "teach similar solutions" is insufficient proof of a motivation to combine "as a matter of law." *Id.* at 9. Patent Owner also asserts that Kalanick "already mitigates" the potential "duplication" problem created when riders from the same area select the same or similar indicators. *Id.* at 11–13. Patent Owner further argues that "combining known technologies" is not sufficient to establish a motivation to combine. *Id.* at 13–17. Finally, Patent Owner argues there would be no reasonable expectation of success due to the "immense expense and complexity of operating a server farm" in Kemler's system. *Id.* at 17–18 (internal quotation marks omitted).

The Federal Circuit has recently reminded us that "[t]he motivation-to-combine analysis is a flexible one. *Any* need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379 (Fed. Cir. 2023) (citing *KSR*, 550 U.S. at 420). The court further observed that "in many cases[,] a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 1379–80 (alteration in original, internal quotation marks omitted). The court continued, "[t]hat's why the motivation-to-combine analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of

ordinary skill in the art would employ." *Id.* at 1380 (internal quotation marks omitted).

We find that the Petition and supporting expert testimony sufficiently demonstrate that a person of ordinary skill would have combined the teachings of Kemler and Kalanick with a reasonable expectation of success. *See* Pet. 22–26; Ex. 1003 ¶¶ 118–124. We do not find Patent Owner's responsive arguments persuasive. For example, we disagree with Patent Owner's argument that Petitioner's demonstration that Kalanick and Kemler provide similar solutions is "insufficient as a matter of law." PO Resp. 9. The assertion that Kalanick and Kemler are analogous art to the '987 patent, which Patent Owner no longer disputes (*see* Tr. 58:11–15), is entitled to consideration as one factor among many in Petitioner's argument. *See* Pet. 22–24; Pet. Reply 3–4. Moreover, Patent Owner's argument is contrary to *Intel*'s approval of the "known-technique" rationale for combining the teachings of references: "[I]f there's a known technique to address a known problem using 'prior art elements according to their established functions,' then there is a motivation to combine." *Intel Corp.*, 461 F.4th at 1380 (citation omitted).

We disagree, also, with Patent Owner's argument that potential duplication of indicators does not provide a reason for combining Kemler's indicator selection with Kalanick's system. *See* PO Resp. 11–13. The fact that Kalanick may not "disclose any problem" arising from the possibility of two passengers in the same area having the same indicator does not prove a problem did not exist or that a person of ordinary skill would not be motivated to improve upon the solution for it. *See* Pet. Reply 5–6; Ex. 1003 ¶ 123. We also are not persuaded by Patent Owner's argument that there would be no reasonable expectation of success in combining the references

due to the complexity of Kemler's system. *See* PO Resp. 17–18. Patent Owner does not sufficiently explain the relevance of the alleged complexity of Kemler's system to the proposed combination of Kemler's indicator selection with Kalanick's vehicle identification system that Petitioner asserts against the challenged claims of the '987 patent. *See id.*; Pet. Reply 7–8.

e. Conclusion for Claim 1

For the reasons explained above, we find that the combination of Kalanick and Kemler teaches or suggests all the limitations of claim 1 and that a person of ordinary skill in the art would have combined Kalanick and Kemler in the manner asserted in the Petition with a reasonable expectation of success. Having considered the evidence of obviousness under the first three *Graham* factors, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 of the '987 patent is unpatentable under 35 U.S.C. § 103 as obvious over the combination of Kalanick and Kemler.

2. Dependent Claim 2

Claim 2 depends from claim 1 and further recites "wherein the controller is further configured to transmit a third signal representing the indicator to a mobile communication device associated with the rider, the indicator identifies the vehicle." Ex. 1001, 7:47–50. Petitioner relies on a combination of Kalanick and Kemler for teaching this limitation. Pet. 35–37.

Petitioner first points to Kalanick's description of a user interface depicting a service application displayed on a mobile computing device of a user/rider. *Id.* at 35 (citing Ex. 1006 ¶¶ 75–76, Figs. 4A, 4B). Petitioner then cites Kemler's disclosure that the dispatching system may send a signal to a user's device to identify a dispatched vehicle. *Id.* at 35–36 (citing

Ex. 1008, 4:12–19, 7:31–36, 9:33–41, Figs. 6, 9). Petitioner refers to Kemler's Figure 9, which "illustrates 'a client computing device and a computing device of a vehicle displaying a unique signal at the same, or nearly the same time.'" *Id.* at 36 (quoting Ex. 1008, 12:45–53). Petitioner asserts that in view of Kemler's teachings, it would have been obvious to a person of ordinary skill in the art to modify Kalanick's vehicle identification system to send and display a third signal representing the indicator to assist the rider in quickly locating the dispatched vehicle. *Id.* at 37 (citing Ex. 1003 ¶¶ 146–150).

In response, Patent Owner argues that Kalanick does not disclose a controller "configured to transmit a third signal representing the indicator to a mobile communication device associated with the rider." PO Resp. 27. This argument fails because it does not address the teachings of Kemler. One cannot show non-obviousness by attacking references individually where the challenge is based on combinations of references. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Instead, the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art. *In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012).

Patent Owner also argues that Petitioner has not made a sufficient showing regarding motivation to combine Kalanick and Kemler. PO Resp. 27. We disagree. Petitioner has established that a person of ordinary skill in the art would have had reason to combine the references for the reasons discussed above. *See supra* Section II.E.1.d. Petitioner further demonstrates, with support from Mr. Williams, that a person of ordinary skill in the art would have modified Kalanick with Kemler "to implement[]

Kalanick's purpose of assisting the rider with ensuring it has located the correct vehicle" and so "the rider can quickly and safely locate the vehicle dispatched for them." Pet. 37 (citing Ex. 1003 ¶ 150).

For these reasons, we find that the combination of Kalanick and Kemler teaches or suggests the limitations of claim 2 and that a person of ordinary skill in the art would have combined the references in the manner asserted. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 2 is unpatentable as obvious over Kalanick and Kemler.

3. Dependent Claim 4

Claim 4 depends from claim 1 and further recites that the vehicle identification system includes "a transceiver which receives and transmits signals from the controller to the mobile communication devices." Ex. 1001, 7:57–59. Petitioner asserts that Kalanick's system 100 (corresponding to the claimed "controller") communicates via a network interface with the mobile computing devices operated by the driver and the user (i.e., rider). Pet. 37–38 (citing Ex. 1006 ¶¶ 23, 25). Petitioner contends that a person of ordinary skill in the art would have recognized Kalanick's network interface to be a "transceiver" that receives and transmits signals between the controller and the mobile communication devices associated with the driver and the rider. *Id.* at 38 (citing Ex. 1003 ¶¶ 153–154).

Patent Owner does not advance any arguments regarding claim 4 other than those discussed above with respect to claims 1 and 2 and the motivation to combine the references. PO Resp. 28. Based on Petitioner's arguments and supporting evidence, we find that the combination of Kalanick and Kemler teaches or suggests the limitations of claim 4 and that a person of ordinary skill in the art would have combined the references in

the manner asserted. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 4 is unpatentable as obvious over Kalanick and Kemler.

4. Dependent Claim 6

Claim 6 depends from claim 1 and further recites "wherein the indicator is an identifier in the form of an alphanumeric string." Ex. 1001, 7:62–64. For this limitation, Petitioner first cites Kalanick's disclosure that user preferences for the indicator device can include text. Pet. 39 (citing Ex. 1006 ¶¶ 10, 29). Petitioner also cites Kemler, which teaches sending to the user a signal identifying the dispatched vehicle, which may be a unique string of text or alphanumeric characters. *Id.* (citing Ex. 1008, 4:12–19, Fig. 6); *see* Ex. 1008, 3:60–61, 11:1–2. Petitioner contends that a person of ordinary skill in the art would have been motivated to combine Kalanick's visual indicator with the central controller of Kemler sending the indicator signal in order to utilize the diverse indicator options disclosed in Kalanick along with the benefits of the central controller selecting and sending indicators signals as disclosed in Kemler. Pet. 39 (citing Ex. 1003 ¶ 159).

Patent Owner argues that "Kalanick does not describe an alphanumeric string when it refers to indicators that it allows for sign preferences." PO Resp. 28 (citing Ex. 1006 ¶ 29; Ex. 2023 ¶ 69). We disagree, as Kalanick explicitly provides that "user preferences can be configured by the user and can include indication (or sign) preferences, such as . . . text." Ex. 1006 ¶ 29. Patent Owner otherwise advances the same arguments discussed above with respect to claims 1 and 2 and the motivation to combine the references. PO Resp. 28.

Based on Petitioner's arguments and supporting evidence, we find that the combination of Kalanick and Kemler teaches or suggests the limitations

of claim 6 and that a person of ordinary skill in the art would have combined the references in the manner asserted. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 6 is unpatentable as obvious over Kalanick and Kemler.

5. Dependent Claim 7

Claim 7 depends from claim 1 and further recites "wherein the indicator is an identifier in the form other than an alphanumeric string." Ex. 1001, 7:65–67. Petitioner cites Kalanick, which discloses non-alphanumeric configurable indicator sign preferences including color and pattern. Pet. 40 (citing Ex. 1006 ¶¶ 29, 39; Ex. 1003 ¶ 162).

Patent Owner does not advance any arguments regarding claim 7 other than those discussed above with respect to claims 1 and 2 and the motivation to combine the references. PO Resp. 28. Based on Petitioner's arguments and supporting evidence, we find that the combination of Kalanick and Kemler teaches or suggests the limitations of claim 7 and that a person of ordinary skill in the art would have combined the references in the manner asserted. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 7 is unpatentable as obvious over Kalanick and Kemler.

6. Independent Claim 8

Most of the limitations in claim 8 are substantially the same as the limitations in claim 1. *Compare* Ex. 1001, 8:1–14, *with id.* at 7:33–46. Additionally, claim 8 recites "wherein the indicator is displayed on the mobile communication device associated with the driver, the mobile communication device associated with the rider and the display associated with the vehicle." *Id.* at 8:15–18.

Petitioner refers back to its analysis for claims 1 and 2. Pet. 40–42. Patent Owner repeats some of its earlier arguments with respect to claims 1 and 2. PO Resp. 29–31. For the reasons discussed previously, we find those arguments unavailing. *See supra* Sections II.E.1, II.E.2.

For the reasons explained above with respect to claims 1 and 2 and those presented in the Petition, we find that the combination of Kalanick and Kemler teaches or suggests the limitations of claim 8 and that a person of ordinary skill in the art would have combined the references in the manner asserted. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 8 is unpatentable as obvious over Kalanick and Kemler.

F. Anticipation by Lalancette

Petitioner contends that claims 1, 2, 4, 7, and 8 are unpatentable under 35 U.S.C. § 102 as anticipated by Lalancette. Pet. 42–54. Patent Owner disagrees, arguing that Lalancette does not disclose all the claim limitations. PO Resp. 31–38. For the reasons discussed below, we determine that Petitioner has demonstrated by a preponderance of the evidence that Lalancette anticipates claims 1, 2, 4, 7, and 8.

1. Independent Claim 1

a. Preamble and Limitations [1A] and [1B]

Petitioner contends that Lalancette discloses a "vehicle identification system," as recited in the preamble of claim 1, that comprises "a display associated with a vehicle, wherein the display is located to be visible from an exterior of the vehicle by the rider," as recited in limitation [1A]. Pet. 42–43. Petitioner cites Lalancette's disclosure of a "cross-platform target identification system" for use with a taxi dispatch service. *Id.* at 42 (citing Ex. 1009 ¶¶ 1, 2, 27, 29, 33). As Petitioner explains, Lalancette

discloses a taxi car with an electronic display mounted on the outside, such as a rooftop display, as well as a dash-mounted driver display. *Id.* at 42–43 (citing Ex. 1009 ¶¶ 27, 32–33, Fig. 1).

Petitioner also contends that Lalancette discloses that its system comprises "a controller communicatively coupled to a network," as recited in limitation [1B]. *Id.* at 44–47. Petitioner cites Lalancette's disclosure of a taxi dispatch service that is accessible to customers via wired or wireless communication links in a telecommunications network and telecommunications equipment at the service provider. *Id.* at 44 (citing Ex. 1009 ¶¶ 27, 29). Petitioner explains that Lalancette's taxi service provider system incorporates a server that, according to a method illustrated in Figure 2, receives a request for service for a person ordering a taxi, associates the request for service with a human-readable icon associated with the user, and sends the icon to a target display. *Id.* at 45–46 (citing Ex. 1009 ¶¶ 37, 39, Fig. 2). Petitioner contends that Lalancette also discloses that its methods may be implemented using computers, processors, or controllers, and that a person of ordinary skill in the art would have recognized that the taxi dispatch server performing the method in Figure 2 is a "controller" that would be "communicatively coupled" to a network. *Id.* at 46–47 (citing Ex. 1009 ¶¶ 45–48; Ex. 1003 ¶¶ 177–179).

Patent Owner does not advance any arguments regarding these limitations. *See* PO Resp. 32–35. Having considered Petitioner's arguments and supporting evidence, we find that Lalancette discloses the preamble of claim 1 and limitations [1A] and [1B].[6]

[6] We need not determine whether the preamble is limiting because we find that Lalancette discloses a "vehicle identification system."

b. Limitation [1C]

Limitation [1C] requires the claimed controller to be "configured to, in response to receipt of a signal from the user, generate and transmit a first signal representing an indicator via the network to a mobile communication device associated with a driver of the vehicle." Petitioner contends that Lalancette discloses that the controller (i.e., taxi service provider 108) generates a first signal representing an indicator (icon) which is transmitted to a mobile communication device (i.e., mobile computer) in the taxi car. Pet. 48 (citing Ex. 1009 ¶¶ 29, 31–33, 39, Fig. 1).

We disagree with Patent Owner's argument that Lalancette does not disclose a mobile device associated with a driver. *See* PO Resp. 32. Lalancette discloses that the mobile computer is in the taxi car, and thus is associated with it. And Lalancette discloses that the taxi car has one driver while it is in service for dispatch to a rider, and thus, that driver is associated with the taxi car. Ex. 1009 ¶¶ 29–33. Moreover, Lalancette discloses that the taxi's equipment is associated with its driver. *See* Ex. 1009 ¶ 33 (teaching that "user 102 can show the driver the copy of the icon on the user device 104 which the driver can compare to the copy of the icon displayed on the *driver's dashboard display 124*" (emphasis added)).

We also find unavailing Patent Owner's argument that Mr. Williams, Petitioner's expert, "acknowledges that Lalancette does not disclose the use of a mobile communication device associated with the driver." *Id.* (citing Ex. 2022, 128:14–129:25, 132:1–8). Patent Owner misrepresents Mr. Williams's testimony. Mr. Williams was not asked whether Lalancette "discloses" a mobile communication device, but rather was asked "You'll agree that La[l]ancette doesn't identify the mobile computer as a mobile communication device associated with the driver?" Ex. 2022, 129:10–13.

Mr. Williams responded "[i]n that passage of where mobile computer is specifically referenced, that description is not in that passage." *Id.* at 129:14–16. Notably, Mr. Williams also testified that (i) "[t]he nature of La[l]ancette requires some sort of computing device in the taxi that has the ability to receive and communicate in order to get information, for example, icon information from the central computer"; (ii) "mobile computer . . . has a variety of form factors inclusive of something like a [s]martphone"; and (iii) "[i]n the passage where [Lalancette] references mobile computer, it doesn't have a specific form factor discussion such as referencing [s]martphones." *Id.* at 125:17–22, 129:20–25, 132:5–8.

We also find unavailing Patent Owner's argument that "Lalancette does not disclose a mobile device associated with a driver at all" to the extent that Patent Owner "tries to improperly narrow the definition of a mobile communication device to only mean a smartphone," as Petitioner alleges. Pet. Reply 15 (citing Ex. 2022, 128:14–17); *see* PO Resp. 32. We find that this argument is contradicted by the '987 patent, which describes mobile communication devices broadly. *See* Ex. 1001, 3:4–7.

We further disagree with Patent Owner's argument that Lalancette does not meet the "generate" requirement because the claims "require that a new signal be actively formulated each time there is a ride dispatched." PO Resp. 33 (citing Ex. 2023 ¶ 80). As discussed previously, we have rejected Patent Owner's proposed construction requiring "active formulation." *Supra* Section II.C.2. Moreover, to the extent Patent Owner contends that a new indicator/icon must be generated for each ride, the claim language does not require generating an indicator, but rather a signal that represents an indicator. *Id.*

For the reasons discussed above and those presented in the Petition, and having considered Patent Owner's opposing arguments and supporting evidence, we find that Lalancette discloses limitation [1C].

c. Limitation [1D]

Limitation [1D] recites "wherein, in response to receiving the first signal, the mobile communication device associated with the driver of the vehicle generates and transmits a second signal representing the indicator to the display, the indicator identifies the vehicle." Petitioner contends that Lalancette "discloses that the taxi's mobile computer manages the taxi roof-top electronic display and displays the received icon signal on the roof-top display as the taxi approaches the user." Pet. 49.

Patent Owner argues that Lalancette does not disclose this limitation for the same reasons raised with respect to limitation [1C]. For the reasons discussed, those arguments are unavailing.

For the reasons discussed above and those presented in the Petition, and having considered Patent Owner's opposing arguments and supporting evidence, we find that Lalancette discloses limitation [1D].

d. Conclusion for Claim 1

For the reasons explained above, we find that Lalancette discloses all the limitations of claim 1. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that Lalancette anticipates claim 1.

2. Dependent Claim 2

Claim 2 depends from claim 1 and further recites "wherein the controller is further configured to transmit a third signal representing the indicator to a mobile communication device associated with the rider, the indicator identifies the vehicle." Ex. 1001, 7:47–50. Lalancette discloses

that the service provider transmits a copy of the icon (indicator) to the user device. Ex. 1009 ¶ 32.

Patent Owner does not advance any arguments regarding claim 2 other than those discussed above with respect to claim 1. PO Resp. 35. Based on Petitioner's arguments and supporting evidence, we find that Lalancette discloses the limitations of claim 2. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that Lalancette anticipates claim 2.

3. Dependent Claim 4

Claim 4 depends from claim 1 and further recites that the vehicle identification system includes "a transceiver which receives and transmits signals from the controller to the mobile communication devices." Ex. 1001, 7:57–59. Petitioner contends that a person of ordinary skill in the art would have recognized that Lalancette's taxi dispatch server (controller) has a transceiver for receiving and transmitting signals to the mobile communication devices. Pet. 51 (citing Ex. 1003 ¶ 190; Ex. 1009 ¶¶ 27, 29, 45–48).

Patent Owner does not advance any arguments regarding claim 4 other than those discussed above with respect to claim 1. PO Resp. 35–36. Based on Petitioner's arguments and supporting evidence, we find that Lalancette discloses the limitations of claim 4. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that Lalancette anticipates claim 4.

4. Dependent Claim 7

Claim 7 depends from claim 1 and further recites "wherein the indicator is an identifier in the form other than an alphanumeric string."

Ex. 1001, 7:65–67. Lalancette discloses "human-readable icons" such as a simple geometric pattern of pixels. Ex. 1009 ¶¶ 43–44, Fig. 4; *see* Pet. 52.

Patent Owner does not advance any arguments regarding claim 7 other than those discussed above with respect to claim 1. PO Resp. 36. Based on Petitioner's arguments and supporting evidence, we find that Lalancette discloses the limitations of claim 7. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that Lalancette anticipates claim 7.

5. Independent Claim 8

For independent claim 8, Petitioner refers back to its analysis for claims 1 and 2. Pet. 52–54. Similarly, Patent Owner refers back to or repeats its arguments for claims 1 and 2, which we have found unavailing. PO Resp. 36–38.

For the reasons explained with respect to claims 1 and 2, we find that Lalancette discloses the limitations of claim. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that Lalancette anticipates claim 8.

G. Obviousness over Lalancette and Kemler

Petitioner contends that claim 6 is unpatentable under 35 U.S.C. § 103 as obvious over Lalancette and Kemler. Pet. 54–57. For this asserted ground, Petitioner relies on Kemler only for teaching the limitation in claim 6 reciting "wherein the indicator is an identifier in the form of an alphanumeric string." Ex. 1001, 7:62–64; *see* Pet. 57. As Petitioner asserts, Kemler discloses that the "unique signal may include a unique string of text or alphanumeric characters." Ex. 1008, 11:1–2; *see* Pet. 57. Petitioner contends that a person of ordinary skill would have found it obvious to

modify Lalancette's taxi identification system to use the alphanumeric indicators taught in Kemler. Pet. 57 (citing Ex. 1003 ¶ 213).

Similar to its argument with respect to Kalanick and Kemler, Petitioner argues that Lalancette and Kemler address similar problems related to vehicle identification and teach similar solutions involving transmitting and displaying unique visual indicators so that users can efficiently and safely identify their vehicle. Pet. 54. Petitioner contends that it would have been an obvious design choice to use the type of indicators taught in Kemler in the vehicle identification system of Lalancette. *Id.* at 56; Ex. 1003 ¶ 207. Petitioner also contends that a person of ordinary skill in the art would have understood that Kemler's alphanumeric indicators are easier to display on low resolution displays and easier to recognize than Lalancette's icons. Pet. 56; Ex. 1003 ¶ 207. Further, Petitioner contends that a person of ordinary skill would have had a reasonable expectation of success in implementing Kemler's indicators in Lalancette's system because the systems use similar display technologies and modifying Lalancette as proposed "is nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." Pet. 56–57 (citing Ex. 1003 ¶ 208).

Patent Owner argues that Petitioner fails to show that Lalancette generates a first signal including an alphanumeric string. PO Resp. 45 (citing Ex. 2023 ¶ 110). This argument is unavailing because Petitioner relies on Kemler, not Lalancette, for teaching a signal in the form of an alphanumeric string. *See* Pet. 57.

Patent Owner also contends that the Petition fails to show a motivation to combine Kemler with Lalancette. PO Resp. 38–44. We

disagree. Patent Owner's various arguments do not relate to the particular combination set forth by Petitioner, i.e., using alphanumeric indicators, such as those taught in Kemler, in place of Lalancette's icons. *See id.* Petitioner sufficiently demonstrates that using alphanumeric indicators would have been an obvious design choice and further provides reasoning for why a person of ordinary skill in the art would have replaced Lalancette's icons with alphanumeric indicators. *See* Pet. 56–57; Ex. 1003 ¶¶ 207–208.

For the reasons explained above, we find that the combination of Lalancette and Kemler teaches or suggests all the limitations of claim 6 and that a person of ordinary skill in the art would have combined Lalancette and Kemler in the manner asserted in the Petition with a reasonable expectation of success. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 6 is unpatentable as obvious over Lalancette and Kemler.

H. Patent Owner's Motion to Exclude

Patent Owner filed a Motion to Exclude paragraphs 4–60 of the Second Declaration David Hilliard Williams (Ex. 1030). Mot. Excl. 1. We do not rely on any of these paragraphs in this Final Written Decision. Accordingly, we dismiss as moot Patent Owner's Motion to Exclude.

III. CONCLUSION[7]

For the foregoing reasons, we determine Petitioner has shown by a preponderance of the evidence that claims 1, 2, 4, and 6–8 of the '987 patent are unpatentable. The chart below summarizes our conclusions:

Claim(s)	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 4, 6–8	103	Kalanick, Kemler	1, 2, 4, 6–8	
1, 2, 4, 7, 8	102	Lalancette	1, 2, 4, 7, 8	
6	103	Lalancette, Kemler	6	
Overall Outcome			1, 2, 4, 6–8	

IV. ORDER

Accordingly, it is

ORDERED that claims 1, 2, 4, and 6–8 of the '987 patent have been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 22) is *dismissed* as moot; and

[7] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LYFT, INC.,
Petitioner,

v.

RIDESHARE DISPLAYS, INC.,
Patent Owner.

IPR2021-01600
Patent 10,395,525 B1

Before THOMAS L. GIANNETTI, LYNNE E. PETTIGREW, and JOHN D. HAMANN, *Administrative Patent Judges.*

HAMANN, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Dismissing Patent Owner's Motion to Exclude
35 U.S.C. § 318(a)

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Lyft, Inc. ("Petitioner") challenges the patentability of claim 1 ("the challenged claim") of U.S. Patent No. 10,395,525 B1 (Ex. 1001, "the '525 patent"), owned by Rideshare Displays, Inc. ("Patent Owner"). We have jurisdiction under 35 U.S.C. § 6 (2018). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 (2022). For the reasons discussed herein, we determine that Petitioner shows by a preponderance of the evidence that the challenged claim is unpatentable.

A. Procedural History

Petitioner filed a Petition requesting *inter partes* review of the challenged claim of the '525 patent. Paper 1 ("Pet."). Patent Owner filed a Preliminary Response. Paper 6 ("Prelim. Resp."). We instituted *inter partes* review of the challenged claim of the '525 patent on all of the grounds raised in the Petition. Paper 7 ("Dec. on Inst."), 45.

Following institution, Patent Owner filed a Response to the Petition. Paper 12 ("PO Resp."). Petitioner filed a Reply to Patent Owner's Response. Paper 15 ("Pet. Reply"). Patent Owner filed a Sur-reply to Petitioner's Reply. Paper 17 ("PO Sur-reply").

Patent Owner filed a Motion to Exclude certain of Petitioner's evidence (Paper 21, "Mot. Excl.") and Petitioner filed an Opposition (Paper 22).

An oral hearing was held on January 10, 2023. A transcript of the oral hearing is included in the record. Paper 25 ("Tr.").

B. Real Parties-in-Interest

The parties identify themselves as the real parties-in-interest. Pet. 1; Paper 5, 2.

C. Related Matters

The parties identify *Rideshare Displays, Inc. v. Lyft, Inc.*, 20-cv-01629-RGA-JLH (D. Del.) as a matter that may affect, or be affected by, a decision in this proceeding. Pet. 1; Paper 5, 2. In addition, Petitioner has filed petitions for *inter partes* review of four additional patents that are related to the '525 patent and owned by Patent Owner: (i) U.S. Patent No. 9,892,637 B2 (IPR2021-01598); (ii) U.S. Patent No. 10,169,987 B1 (IPR2021-01599); (iii) U.S. Patent No. 10,559,199 B1 (IPR2021-01601); and (4) U.S. Patent No. 10,748,417 B1 (IPR2021-01602). Pet. 1; Paper 5, 2.

D. The Challenged Patent

The '525 patent is titled "Vehicle Identification System." Ex. 1001, code (54). The '525 patent describes a system for "provid[ing] an indicator on a mobile communication device of a user having requested a ride service to allow the user to identify a vehicle prior to boarding the vehicle." *Id.* at 1:22–26. According to the '525 patent, "[a] continuing need exists for systems and methods adapted for use by transportation services to ensure rider and driver security." *Id.* at 1:59–61.

Figures 1A and 1B, shown below, illustrate two separate embodiments of the '525 patent. *Id.* at 2:38–43.

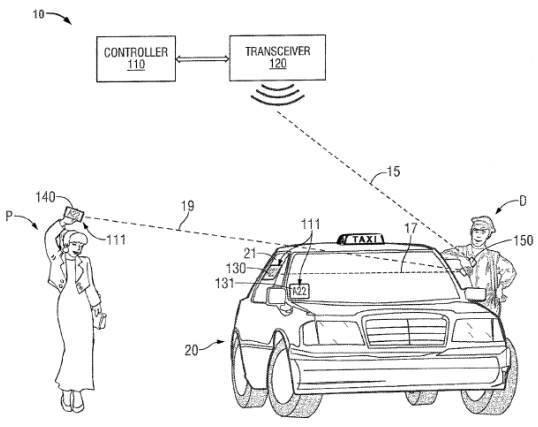

FIG. 1A

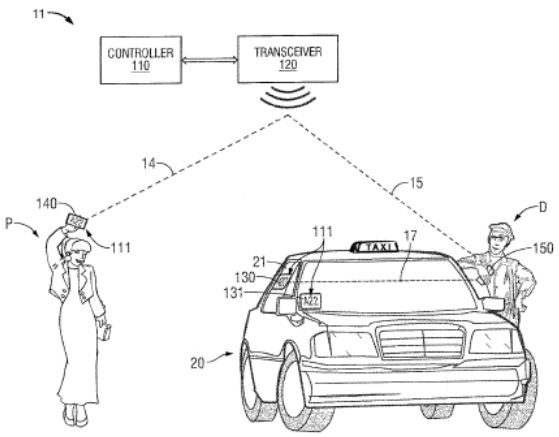

FIG. 1B

Figures 1A and 1B illustrate two embodiments of a vehicle identification system in accordance with the '525 patent. *Id.* Referring first to Figure 1A, vehicle identification system 10 includes controller 110, transceiver 120, and one or more displays associated with motor vehicle 20. *Id.* at 3:37–39. First display 130 is associated with passenger side rear window 21 of motor vehicle 20, and second display 131 is associated with the front windshield of motor vehicle 20. *Id.* at 3:39–43. Vehicle identification system 10 can "generate one or more signals representing an indicator, which may be displayable as a 'code' (e.g., a text string or an alphanumeric string), an icon, or other identifier, on" display 130 and on mobile communication device 140 associated with the user P to enable the user P to identify the vehicle that he or she has requested for a ride service. *Id.* at 4:4–13.

Figure 3, shown below, is a flowchart illustrating a method of identifying a vehicle in accordance with the '525 patent. *Id.* at 2:47–49.

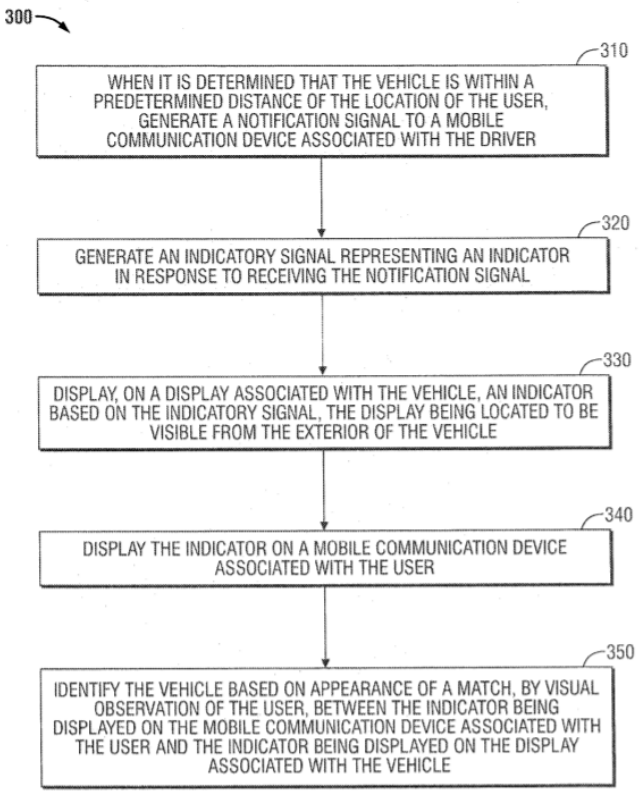

Figure 3 illustrates a method of identifying a vehicle being dispatched to a location of a user having requested a ride from a transportation service. Ex. 1001, 6:66–7:2. When it is determined that motor vehicle 20 is within a predetermined distance of the location of user P, notification signal 15 is generated to mobile communication device 150 associated with driver D. *Id.* at Fig. 3 (block 310). Indicatory signal 17 representing indicator 111 is generated in response to receiving notification signal 15. *Id.* at Fig. 3 (block 320). Indicator 111 based on indicatory signal 17 is displayed on display 130 associated with motor vehicle 20. *Id.* at Fig. 3 (block 330). Display 130 is located to be visible on the exterior of motor vehicle 20. *Id.* at 7:12–13.

Indicator 111 is also displayed on mobile communication device 140 associated with user P. *Id.* at Fig. 3 (block 340). Motor vehicle 20 is identified based on appearance of a match, by visual observation of user P, comparing the indicator being displayed on the mobile communication device associated with user P and the indicator being displayed on the display associated with motor vehicle 20. *Id.* at Fig. 3 (block 350).

In the embodiment of Figure 1A, the mobile communication device associated with driver D generates the second signal representing an indicator that is transmitted to the mobile communication device associated with user P. *Id.* at 5:32–37. In the embodiment of Figure 1B, vehicle identification system 11 generates indicatory signal 14 transmitted to the mobile communication device associated with user P and notification signal 15 to be transmitted to the mobile communication device associated with driver D. *Id.* at 5:40–49. In this latter embodiment, the driver's mobile communication device does not communicate with the user's mobile communication device. *Id.* at 5:49–54.

E. The Challenged Claim

Claim 1 is the sole claim of the '525 patent, and reads as follows:

> 1. A vehicle identification system, comprising:
>
> a display associated with a front windshield of a vehicle, wherein the display is movable so as to be visible from an exterior of the vehicle by a rider;
>
> a controller communicatively coupled to mobile communication devices, wherein the controller generates a first signal representing an indicator which is transmitted to a mobile communication device associated with a driver of the vehicle and a second signal representing the indicator which is transmitted to a mobile communication device associated with the rider; and
>
> wherein the mobile communication device associated with the driver of the vehicle generates a third signal representing the indicator which is transmitted to the display, the third signal representing the indicator identifies the vehicle.

Ex. 1001, 8:8–23.

F. Instituted Grounds of Unpatentability

We instituted trial based on the following grounds of unpatentability, which are all the grounds of unpatentability raised in the Petition:

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis[2]
1	103	Lalancette[3]

[1] The Leahy-Smith America Invents Act ("AIA") included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the '525 patent issued from an application having an effective filing date after March 16, 2013, we apply the AIA version of the statutory basis for unpatentability.
[2] For each of the three asserted grounds, Petitioner also lists "the knowledge of" one of ordinary skill in the art. Pet. 4. Although we do not list such knowledge separately, we consider such knowledge as part of our obviousness analysis. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362–63 (Fed. Cir. 2013).
[3] US 2012/0137256 A1, published May 31, 2012 (Ex. 1009, "Lalancette").

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis[2]
1	103	Kalanick,[4] Kemler[5]
1	103	Lalancette, Kalanick

Pet. 4, 22–54. Petitioner submits in support of its arguments the Declaration of David Hilliard Williams (Ex. 1003) and the Second Expert Declaration of David H. Williams (Ex. 1030). Patent Owner submits in support of its arguments the Declaration of Dr. Matthew Valenti (Ex. 2001) and the Second Declaration of Dr. Matthew Valenti (Ex. 2023).

II. LEVEL OF ORDINARY SKILL IN THE ART

To determine whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). In assessing the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)). "[O]ne or more factors may predominate." *Id.*

Petitioner argues that one of ordinary skill in the art "would have had at least a bachelor's degree in electrical or computer engineering, or a similar field with at least two years of experience in the field of vehicle location and tracking systems or related technologies." Pet. 8. Petitioner adds that "[a] person with less education but more relevant practical experience may also meet this standard." *Id.* at 8–9 (citing Ex. 1003 ¶ 44).

[4] US 2015/0332425 A1, published Nov. 19, 2015 (Ex. 1006, "Kalanick").
[5] US 9,494,938 B1, issued Nov. 15, 2016 (Ex. 1008, "Kemler").

Patent Owner argues that one of ordinary skill in the art would have had "knowledge of wireless communications protocols and some general experience with data privacy issues and protection models, in addition to the education level in electrical or computer engineering identified by the parties." PO Resp. 4 (citing Ex. 2023 ¶ 28). In addition, Patent Owner argues that Mr. Williams overstates what was known by one of ordinary skill in the art, including when Mr. Williams describes the state of the art as reflected in the Technology Background section of the Petition. *Id.* at 4–5. Mr. Williams also "cites to other areas of technology that he acknowledges are irrelevant to the technology in the patent," according to Patent Owner. *Id.* at 5. Patent Owner argues that "[t]he scope of knowledge of [one of ordinary skill in the art] as defined by Petitioner here is too broad, . . . and this overreach infects each argument that Petitioner makes with respect to the knowledge of" one of ordinary skill in the art. *Id.* at 6 (citing Ex. 2023 ¶¶ 28, 30).

In our Decision on Institution, we adopted Petitioner's proposed definition, with a qualification. Dec. on Inst. 17. In particular, we determined that a person of ordinary skill in the art also would have had at least some experience in wireless cellular network protocols, as suggested by Patent Owner. *Id.* We also noted that from our review of the '525 patent and the cited prior art, requiring specific experience with data privacy policies and protection models was not warranted, given the focus of the '525 patent on more general principles of cellular communications and signal transmission. *Id.*

On the full record, we determine that Petitioner's definition, with the above qualification, is consistent with the '525 patent and the asserted prior art, and thus, we maintain it for purposes of this Final Written Decision. *See*

Okajima v. Bourdeau, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *GPAC*, 57 F.3d at 1579; *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

Our analysis herein, however, does not turn on which of the parties' definitions we adopt. The parties' statements made during the oral hearing are consistent with this point. *See* Tr. 75:17–18 (Patent Owner stating that "[i]t's not clear to us that the level of ordinary skill arguments actually matter"), 106:12–17 (Petitioner stating that its arguments do not depend on which definition we adopt).

In sum, we maintain Petitioner's definition, as qualified, for the level of one of ordinary skill in the art, and employ it in our analysis of the parties' unpatentability arguments.

III. CLAIM CONSTRUCTION

Because the Petition was filed after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b); 83 Fed. Reg. 51,340, 51,340–41, 51,343 (Oct. 11, 2018). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner argues that the terms of the challenged claim should be afforded their plain and ordinary meaning, except for "a display associated with a front windshield of a vehicle." Pet. 9–11. Patent Owner also argues that we should construe this term. PO Resp. 6–7.[6]

In addition, the parties submit that the plain and ordinary meaning of the term "generates" supports their arguments concerning patentability. Pet. Reply 2–3; PO Resp. 6. Certain of Patent Owner's arguments, however, as to what the prior art fails to teach implicate the construction of the term "generates." *See* PO Resp. 31–34. We address each of these two terms below.

A. Display Associated with a Front Windshield of a Vehicle

Petitioner proposes that we construe "a display associated with a front windshield of a vehicle" to mean "a display mounted on or connected to a front windshield of a vehicle." Pet. 11. Petitioner argues that the Specification of the '525 patent "distinguishes the 'front windshield' from other areas of the vehicle, including the 'rear shield passenger side front window, passenger side rear window, driver side rear window, and/or driver side front window.'" *Id.* at 10–11 (quoting Ex. 1001, 4:18–19). According to Petitioner, "[t]he [S]pecification further discloses the display may be 'mounted on or otherwise associated with' the 'front windshield' and refers to 130 in F[igures] 1A–1B, where the display 130 appears to be connected to

[6] Patent Owner identified two additional terms in its Preliminary Response, but did not renew those arguments in its Response. *Compare* Prelim. Resp. 7–9, *with* PO Resp. 6–7. As such, those arguments are waived. Paper 8 (Scheduling Order), 9 ("Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.").

the front windshield." *Id.* at 11 (quoting Ex. 1001, 4:16–17; citing *id.* at Figs. 1A–1B; citing Ex. 1003 ¶¶ 91–92).

Patent Owner proposes that we construe "a display associated with a front windshield of a vehicle" to mean "a display that is in proximity with the front windshield, visible on or through the front windshield of a vehicle." PO Resp. 6–7. Patent Owner argues that its proposed construction is supported by the '525 patent Specification which contrasts "mounted" with "otherwise associated with," evidencing that the display need not be mounted to the front windshield. *Id.* at 7 (citing Ex. 1001, 4:16–20).

We determine that no express construction is needed for this term because Petitioner shows that Lalancette teaches this limitation under either parties' proposed construction, and Patent Owner does not dispute that Lalancette teaches the term. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'"); *see also infra* Section V.B (finding that Petitioner demonstrates that Lalancette teaches "a display associated with a front windshield of a vehicle").

B. Generates

Based on Patent Owner's arguments regarding what the prior art fails to teach, the term "generates" in the phrase "the controller generates a first signal representing an indicator" requires construction. *See* Ex. 1001, 8:13–16; PO Resp. 28–30; *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1318 (Fed. Cir. 2016) (finding that disputes between the parties over the plain and ordinary meaning of a term should be resolved as a matter of claim construction).

Patent Owner first argues that claim 1 "require[s] that a new *signal* be generated each time there is a ride dispatched." PO Resp. 28 (citing Ex. 2023 ¶ 70) (emphasis added). Patent Owner, however, proceeds to conflate generating a signal with generating an icon.[7] *Id.* at 28–30. For example, Patent Owner next argues that the teachings of Lalancette "eliminate[] the possibility that *icons* can be generated on a per-ride basis," and that "the *icon* would remain associated with the user on subsequent trips." *Id.* at 28–29 (citing Ex. 1009 ¶¶ 31–42; Ex. 2023 ¶ 73) (emphases added). According to Patent Owner, "[t]his contrasts with the system of claim 1 where an icon is generated for each user-driver trip," and "[n]either the user nor the driver have pre-selected icons." *Id.* at 29 (citing Ex. 2023 ¶ 73); *see also id.* at 30 (citing Ex. 2023 ¶ 74) (making similar arguments).

Simply put, these arguments incorrectly conflate "signal" and "indicator" (e.g., icon). Claim 1 recites that a controller generates a signal representing an indicator, rather than reciting that the controller generates the indicator. Ex. 1001, 8:13–18. And the Specification of the '525 patent is replete with examples of the controller generating signals that represent an indicator for transmission by a transceiver, which is different than generating the indicator itself. *See, e.g.*, Ex. 1001, 2:1–5, 5:4–7, 6:30–37, 6:62–65.

And we find unavailing Patent Owner's arguments that claim 1 requires a new indicator (e.g., icon) for each trip, and that the indicator cannot be pre-selected. PO Resp. 29. The language of claim 1 sets forth no such requirements. Ex. 1001, 8:8–23. Notably, Patent Owner does not cite to the Specification or claim language to support these arguments. *Id.*

[7] The '525 patent describes "an indicator" as "a 'code' (e.g., a text string or an alphanumeric string), *an icon*, or other identifier." Ex. 1001, 4:7–10 (emphasis added).

Rather, Patent Owner cites to the testimony of Dr. Valenti. PO Resp. 28–30 (citing Ex. 2023 ¶¶ 70–74). We find that this testimony lacks factual support and is entitled to little weight. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."); *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (finding that when "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term[,] . . . it is improper to rely on extrinsic evidence").

In addition, because the Specification and file history do not explicitly provide a definition for the term "generates," we look to a dictionary definition to illustrate its plain meaning for the parties. The Federal Circuit has approved the use of dictionaries for guidance in claim construction, "so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of "consult[ing] a general dictionary definition of [a] word for guidance" in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) ("[O]ur decisions, including *Phillips*, do not preclude the use of general dictionary definitions as an aid to claim construction.") (citation omitted).

A dictionary definition of "generate" is "to bring into existence: such as: . . . to originate by a vital, chemical, or physical process: [produce]." Merriam-webster.com (accessed April 8, 2022), https://www.merriam-webster.com/dictionary/generate (Ex. 3001). We therefore construe the term "generates" as it relates to the controller in reference to a signal in

accordance with its plain and ordinary meaning, which is to originate or produce the signal.

We note that this is the same definition that we provided in our Decision on Institution, and which Patent Owner appears to adopt in its Response. Dec. on Inst. 22–23; PO Resp. 6 (quoting without attribution Ex. 3001[8] (defining "generate")). More specifically, Patent Owner submits that "[a]t institution, the Board determined that the term 'generating' should be construed according to its ordinary meaning," and argues that "[a]pplying ordinary meaning should still lead to the conclusion that the prior art does not render the claims of the patent unpatentable." PO Resp. 6. We also note that for many of the arguments we address above for this term, we also addressed them in our Decision on Institution. Patent Owner's Response largely recasts the arguments without using the phrase "actively formulated" while maintaining their same or similar substance. *Compare supra*, *with* Dec. on Inst. 22.

IV. PRINCIPLES OF LAW

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence

[8] Patent Owner incorrectly identifies the source of this definition as the Oxford Dictionary, rather than the Merriam-Webster Dictionary. PO Resp. 6.

of non-obviousness, if present.[9] *See Graham*, 383 U.S. at 17–18. When evaluating a claim for obviousness, we also must "determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

V. ALLEGED OBVIOUSNESS OVER LALANCETTE

Petitioner argues that Lalancette renders claim 1 obvious. Pet. 4, 39–48. We have reviewed the parties' arguments and the evidence of record. For the reasons that follow, we determine that Petitioner shows by a preponderance of the evidence that Lalancette renders claim 1 obvious.

A. Summary of Lalancette

In its most relevant embodiment, Lalancette describes an electronic display mounted to be visible from outside a taxi, a mobile computing device in the taxi that manages a dash-mounted driver display and the mounted electronic display, and a smart phone of a user. Ex. 1009 ¶¶ 27–33. The taxi is equipped with an electronic display mounted outside of the taxi car or at least visible from outside the taxi car as well as a dash-mounted driver display. *Id.* ¶ 27. The displays are configured to display information received from the taxi dispatch service. *Id.*

In one scenario described by Lalancette, a user orders a taxi using a handset to request taxi service from a taxi dispatch service. *Id.* ¶ 29. The user device (the handset) conveys user identification (user ID) to the service provider. *Id.* The service provider validates the request to ensure the request can be accommodated. *Id.* ¶ 30. An automated dispatch system uses

[9] Patent Owner does not present arguments or evidence of such objective evidence of non-obviousness. *See generally* PO Resp.

the user's location to select the most suitable taxi car to respond to the request for service from the user. *Id.*

The service provider then requests a personal human-readable icon for the user from an icon server by sending a message carrying a user ID for the user. *Id.* ¶ 31. The icon server uses the user ID to retrieve a personal icon corresponding to the user from an icon database. *Id.*

The icon server sends the retrieved icon to the service provider. *Id.* ¶ 32. The service provider dispatches the selected taxi car to the location of user and displays the user's icon on the taxi's roof-top electronic display and the driver's dashboard display. *Id.* The service provider also transmits a copy of the icon to the user device for confirmation to the user. *Id.*

In one embodiment, as part of the dispatch procedure, the service provider transmits the dispatch information and the user's icon to a mobile computer in the taxi car and the mobile computer manages the taxi roof-top electronic display 122 and the driver's dashboard display. *Id.*

When then taxi car approaches the user's location, the user can view the rooftop display to identify the taxi car as the taxi responding to the user's request. *Id.* ¶ 33. The user can compare the display of the icon on the rooftop display to the copy of the icon on the user's device 104 to confirm the identity of the taxi. *Id.*

B. Challenged Claim 1

1. Vehicle Identification System (Preamble)

Petitioner argues that Lalancette teaches "[a] vehicle identification system," as recited in the preamble of claim 1. Pet. 39–40. More specifically, Petitioner argues that Lalancette teaches "'a cross-platform target identification system' to 'identify a target in a target-rich environment' for use with a 'taxi dispatch service.'" *Id.* at 39 (citing

Ex. 1009, code (57), ¶¶ 1–2, 27, 29, 33). According to Petitioner, Lalancette explains that "[w]hen taxi car 118 approaches user (102)'s location, user 102 can view the rooftop display 122 to identify taxi car 118 as being the taxi responding to user (102)'s request, from among other taxi cars in the vicinity," and that "[t]his can be especially useful in situations where there are a large number of similar looking taxi cars in one location." *Id.* at 39–40 (quoting Ex. 1009 ¶ 33; citing *id.* at Fig. 1).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "[a] vehicle identification system."

2. Display Associated With A Front Windshield

Petitioner argues that Lalancette teaches "a display associated with a front windshield of a vehicle, wherein the display is movable so as to be visible from an exterior of the vehicle by a rider," as recited in claim 1. Pet. 40–42. More specifically, Petitioner argues that Lalancette teaches a "[t]axi car 120 [] equipped with electronic display 122 mounted outside of the taxi car or at least visible from outside the taxi car as well as a dash-mounted driver display 124." *Id.* at 40–41 (quoting Ex. 1009 ¶ 27; citing *id.* ¶¶ 17, 32–33, 39, claim 13). Petitioner argues that Lalancette teaches that "'electronic display 122' may be a 'rooftop display 122' and that a 'user 102 can view the rooftop display 122 to identify [the] taxi car' when it 'approaches user (102)'s location.'" *Id.* at 41 (citing Ex. 1009 ¶¶ 17, 32–33, 39, claim 13, Fig. 1).

According to Petitioner, "[o]ne of ordinary skill in the art would have considered it obvious to have a display mounted on or connected to a front windshield of a vehicle, wherein the display is movable so as to be visible

from an exterior of the vehicle by a rider . . . because putting a sign, a form of a display, in the front windshield of a vehicle was well-known (and required by the Office of the Secretary of Transportation for certain transportation vehicles) . . . ." *Id.* (citing Ex. 1023, 49 (§ 38.39); Ex. 1003 ¶ 158). One of ordinary skill in the art "would have considered it obvious to mount or connect a display to the windshield that would be visible from an exterior of the vehicle as it approached a rider to further secure the display to the vehicle while ensuring it is viewable by a rider and protect the display from the outside environment," according to Petitioner. *Id.* at 42 (citing Ex. 1003 ¶ 158). Petitioner adds that one of ordinary skill in the art "would have considered it obvious to make such a display movable to permit the driver to adjust the display as needed depending on the driver's preference and on the likely location of the rider relative to the vehicle." *Id.*

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "a display associated with a front windshield of a vehicle, wherein the display is movable so as to be visible from an exterior of the vehicle by a rider."

3. Controller Communicatively Coupled

Petitioner argues that Lalancette teaches "a controller communicatively coupled to mobile communication devices," as recited in claim 1. Pet. 42–45. More specifically, Petitioner argues that Lalancette teaches that "'[u]ser 102 can access telecommunications network 106 using smart phone 104 via communication link 109' using 'a smart phone or a communication device having the ability to send and receive digital

information.'" *Id.* at 42 (quoting Ex. 1009 ¶¶ 27, 29). Petitioner argues that Lalancette teaches that "taxi dispatch service 108 is accessible to customers from telecommunications network 106 via communications link 110." *Id.* (quoting Ex. 1009 ¶ 27; citing *id.* at Fig. 1). According to Petitioner, Lalancette "explains that '[c]ommunication links 109 and 110 can be web or Internet connections and can be wired or wireless' and that user communications are received and identified by '[t]elecommunication equipment at service provider 108 . . . using mechanisms well known to persons skilled in the art.'" *Id.* at 42–43 (quoting Ex. 1009 ¶ 29).

In addition, Petitioner argues that Lalancette teaches "a taxi service provider using telecommunications equipment to transmit and receive communications with user's devices through a telecommunications network." *Id.* at 43 (citing Ex. 1009 ¶¶ 27, 29). More specifically, Lalancette "teaches the taxi service provider 108 transmitting and receiving that information in order to perform various steps in the disclosed target identification system," according to Petitioner. *Id.* (citing Ex. 1009 ¶¶ 37, 39). In particular, Petitioner argues that Lalancette's Figure 2 illustrates a "'method . . . from the point of view of a server' which may be 'incorporated into [the] service provider system,'" and "the server 'receives a request for a service for a user, for example, a person ordering a taxi from a taxi dispatch service,' 'associates the request for service for a user with a human-readable icon associated with the user,' and 'sends the human-readable icon to a target display.'" *Id.* at 43–44 (quoting Ex. 1009 ¶¶ 37, 39; citing *id.* at Fig. 2) (alterations in original). Petitioner argues that Lalancette teaches that the method "may be implemented using computers, processors, or controllers." *Id.* at 44 (citing Ex. 1009 ¶¶ 45–48).

Petitioner argues that accordingly, one of ordinary skill in the art would recognize the taxi dispatch server performing the method to be a controller, and that "in order for *Lalancette's* taxi dispatch server to communicate across a telecommunications network using the taxi service provider's 'telecommunication equipment,' the taxi dispatch server ('controller') would need to be 'communicatively coupled' to mobile communication devices." *Id.* at 44–45 (citing Ex. 1003 ¶ 163).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "a controller communicatively coupled to mobile communication devices."

4. Wherein the Controller Generates a First Signal

Claim 1 further recites "wherein the controller generates a first signal representing an indicator which is transmitted to a mobile communication device associated with a driver of the vehicle." Ex. 1001, 8:13–16. We agree with Petitioner and find that Lalancette teaches this limitation. Pet. 45–47; Pet. Reply 13–16. We address this limitation below in two parts.

First, we find that Lalancette teaches that the controller (i.e., taxi service provider 108) generates a first signal representing an indicator (icon) which is transmitted to a mobile communication device (i.e., the mobile computer) in taxi car 118. *See* Ex. 1009 ¶¶ 29, 31–33, 39; Pet. 46. More specifically, Lalancette teaches the following in responding to a request for service from a user:

> Service provider 108 . . . requests a personal human-readable icon for user 102, from icon server 112 by sending

> message 142, carrying a user ID for user 102. Icon server 112 uses the user's (102) user ID as a key to the database and retrieves a personal icon corresponding to user 102 from icon database (dB) 114 via message interaction 144. The retrieving step validates the request by determining if the request returns a valid icon. The icon server 112 thus provides a validation of icons to help ensure that other users can not use an icon associated with user 102.

Ex. 1009 ¶ 31. Lalancette teaches that "the icon server 112 sends the retrieved icon to service provider 108," and "as part of the dispatch procedure, the service provider 108 transmits the dispatch information and the user's icon to a mobile computer in taxi car 118 and the mobile computer manages the taxi roof-top electronic display 122 and to the driver's dashboard display 124." *Id.* ¶ 32; *see also id.* at Fig. 1 (showing taxi 118 displaying (122, 124) user 102's personal icon (as shown on smartphone 104)), ¶ 27; Ex. 1003 ¶ 165; Pet. 46–47.

We find unavailing Patent Owner's arguments that conflate generating a signal with generating an indicator (e.g., icon) because, as we discuss above, claim 1 does not require generating an indicator, but rather a signal that represents an indicator. PO Resp. 28–29; *supra* Section III.B (construing "generates"); *see also In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (stating "the name of the game is the claim"); *cf. In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (stating limitations not appearing in the claims cannot be relied upon for patentability). Likewise, we find unavailing Patent Owner's arguments that icons must be newly-generated on a per-ride/trip basis because, as we discuss above, claim 1 has no such requirements. PO Resp. 28–30; *supra* Section III.B; *In re Hiniker Co.*, 150 F.3d at 1369; *In re Self*, 671 F.2d at 1348.

Second, we agree with Petitioner that Lalancette teaches that the mobile communication device (i.e., the taxi car 118's mobile computer) is associated with a driver of the vehicle (i.e., the driver of taxi car 118). Pet. 45–46; Pet. Reply 13–14. In particular, Lalancette teaches that the mobile computer is in taxi car 118, and thus is associated with it. And Lalancette teaches that the taxi car 118 has one driver while it is in service for dispatch to a rider, and thus, that driver is associated with the taxi car 118. Ex. 1009 ¶¶ 29–33. Thus, the mobile computer in taxi car 118 is associated with the driver of taxi car 118. *Id.* Moreover, Lalancette teaches that the taxi's equipment is associated with its driver. *See* Ex. 1009 ¶ 33 (emphasis added) (teaching that "user 102 can show the driver the copy of the icon on the user device 104 which the driver can compare to the copy of the icon displayed on the *driver's dashboard display 124*").

We find unavailing Patent Owner's argument that "Lalancette does not disclose a mobile device associated with a driver at all.' PO Resp. 27 (citing Ex. 2023 ¶ 69). Patent Owner argues that instead "Lalancette sends a signal directly to the vehicle itself through a 'mobile computer in taxi car 118.'" *Id.* (citing Ex. 1009 ¶ 32). As we explain above, however, the mobile computer in taxi car 118 is associated with its driver.

We also find unavailing Patent Owner's argument that Mr. Williams, Petitioner's expert, "acknowledged that Lalancette does not disclose the use of a mobile communication device associated with the driver." *Id.* (citing Ex. 2022, 128:14–129:25, 132:1–8). Patent Owner misrepresents Mr. Williams's testimony. Mr. Williams was not asked whether Lalancette "discloses" a mobile communication device, but rather was asked "You'll agree that La[l]ancette doesn't identify the mobile computer as a mobile communication device associated with the driver?" Ex. 2022, 129:10–13.

Mr. Williams responded "[i]n that passage of where mobile computer is specifically referenced, that description is not in that passage." *Id.* at 129:14–16. Notably, Mr. Williams also testified that (i) "[t]he nature of La[l]ancette requires some sort of computing device in the taxi that has the ability to receive and communicate in order to get information, for example, icon information from the central computer"; (ii) "mobile computer . . . has a variety of form factors inclusive of something like a [s]martphone"; and (iii) "[i]n the passage where [Lalancette] references mobile computer, it doesn't have a specific form factor discussion such as referencing [s]martphones." *Id.* at 125:17–22, 129:20–25, 132:5–8.

We also find unavailing Patent Owner's argument that "Lalancette does not disclose a mobile device associated with a driver at all" to the extent that Patent Owner "attempts to improperly narrow the definition of a mobile device to only mean a smartphone," as Petitioner alleges. PO Resp. 27; Pet. Reply 14. We find that this argument, and the expert testimony (Ex. 2023 ¶ 69) cited in support, are contradicted by the '525 patent Specification, which describes mobile communication devices broadly. *See* Ex. 1001, 3:4–7.

In sum, we find that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "wherein the controller generates a first signal representing an indicator which is transmitted to a mobile communication device associated with a driver of the vehicle."

5. Wherein the Controller Generates a Second Signal

Petitioner argues that Lalancette teaches "wherein the controller generates . . . a second signal representing the indicator which is transmitted to a mobile communication device associated with the rider," as recited in

claim 1. Pet. 47–48. More specifically, Petitioner argues that Lalancette teaches that "service provider 108 also transmits a copy of the icon to user device 104 for confirmation to the user." *Id.* at 47 (quoting Ex. 1009 ¶ 32). In addition, Petitioner argues that Lalancette's Figure 1 illustrates "the second signal representing the indicator is transmitted to and displayed on the user's mobile communication device." *Id.* at 48 (citing Ex. 1009, Fig. 1 (excerpting user 102 and their smartphone 104 showing the user 102's personal icon displayed on the phone 104)).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "wherein the controller generates . . . a second signal representing the indicator which is transmitted to a mobile communication device associated with the rider."

6. Device Associated with the Driver Generates a Third Signal

Claim 1 further recites "wherein the mobile communication device associated with the driver of the vehicle generates a third signal representing the indicator which is transmitted to the display, the third signal representing the indicator identifies the vehicle." Ex. 1001, 8:19–23. We agree with Petitioner that Lalancette teaches this limitation. Pet. 45–48.

More specifically, we agree with Petitioner that Lalancette teaches "that the taxi's mobile computer manages the taxi roof-top electronic display and displays the received icon signal on the roof-top display as the taxi approaches the user." *Id.* at 48. For example, Lalancette teaches that "the service provider 108 transmits the dispatch information and the user's icon to a mobile computer in taxi car 118 and the mobile computer manages the taxi roof-top electronic display 122 and to the driver's dashboard display

124." Ex. 1009 ¶ 32; *see also id.* at Fig. 1 (showing taxi 118 displaying (122, 124) user 102's personal icon (as shown on smartphone 104)), ¶ 27; Ex. 1003 ¶ 165; Pet. 46–47.

In addition, for the reasons discussed above, we find unavailing Patent Owner's argument that "Lalancette does not disclose a mobile device associated with a driver at all; therefore, there is no mobile communication device associated with the driver to generate a signal to transmit to the display." PO Resp. 30 (citing Ex. 2023 ¶ 75); *see supra* Section V.B.4 (finding that Lalancette teaches a mobile communication device associated with the driver of the vehicle).

In sum, we find that Lalancette teaches "wherein the mobile communication device associated with the driver of the vehicle generates a third signal representing the indicator which is transmitted to the display, the third signal representing the indicator identifies the vehicle."

7. Summary

In summary, based on the arguments and evidence of record, we find that Petitioner demonstrates by a preponderance of the evidence that claim 1 is unpatentable under 35 U.S.C. § 103 over Lalancette.

VI. REMAINING GROUNDS

Petitioner argues that claim 1 is rendered obvious by (i) Kalanick and Kemler and (ii) Lalancette and Kalanick. Pet. 4, 22–39, 48–54. Thus, these grounds of unpatentability challenge claim 1 which we already determine is unpatentable over Lalancette. *See supra* Section V.B (determining Petitioner shows claim 1 is unpatentable). Under the circumstances of this case, analyzing additional grounds challenging the same claim, which we have determined to be unpatentable, would not be an efficient use of the Board's time and resources. *See Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*,

809 F. App'x 984, 990 (Fed. Cir. 2020) ("We agree that the Board need not address issues that are not necessary to the resolution of the proceeding.").

Accordingly, we do not reach these grounds. *Cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching other grounds of unpatentability after affirming the anticipation ground); *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (determining once a dispositive issue is decided, there is no need to decide other issues).

VII. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude paragraphs 4–31 of the Second Declaration of David Hilliard Williams (Ex. 1030). Mot. Excl. 1. We do not rely on any of these paragraphs in this Final Written Decision. Accordingly, we dismiss as moot Patent Owner's Motion to Exclude.

VIII. CONCLUSION[10]

Based on the full record, we determine that Petitioner shows by a preponderance of the evidence that claim 1 is unpatentable over Lalancette.

Claim(s)	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1	103	Lalancette	1	

[10] Should Patent Owner wish to pursue amendment of the challenged claim in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

1	103[11]	Kalanick, Kemler		
1	103[12]	Lalancette, Kalanick		
Overall Outcome			1	

IX. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), Petitioner has shown by a preponderance of the evidence that claim 1 of the '525 patent is unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 21) is *dismissed* as moot; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

[11] Because we determine that the challenged claim is unpatentable under § 103 over Lalancette, we decline to address it for this ground.
[12] Because we determine that the challenged claim is unpatentable under § 103 over Lalancette, we decline to address it for this ground.

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Paper 32
Entered: April 10, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LYFT, INC.,
Petitioner,

v.

RIDESHARE DISPLAYS, INC.,
Patent Owner.

IPR2021-01601
Patent 10,559,199 B1

Before THOMAS L. GIANNETTI, LYNNE E. PETTIGREW, and JOHN D. HAMANN, *Administrative Patent Judges.*

GIANNETTI, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

ORDER
Granting Motion to Amend
37 C.F.R. § 42.121
Denying Motion to Exclude
37 C.F.R § 42.64

I. INTRODUCTION

Lyft, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1 and 2 (the "challenged claims") of U.S. Patent No. 10,558,199 B1 (Ex. 1001, "the '199 patent"). Patent Owner, Rideshare Displays, Inc., filed a Preliminary Response (Paper 6, "Prelim. Resp."). We determined that Petitioner had established a reasonable likelihood that it would prevail with respect to at least one claim. We, therefore, instituted *inter partes* review as to all of the challenged claims of the '199 patent and all of the asserted grounds of unpatentability in the Petition. Paper 7 ("Institution Dec.").

Following institution, Patent Owner filed a Response. Paper 13 ("PO Resp."). Subsequently, Petitioner filed a Reply (Paper 18, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 21, "PO Sur-reply").

After institution, Petitioner filed a contingent Motion to Amend (Paper 12, "Mot. Amend") and requested that we provide preliminary guidance in accordance with the Board's pilot program concerning motion to amend practice and procedures. Mot. Amend 1; *see* Notice Regarding a New Pilot Program Concerning Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board, 84 Fed. Reg. 9,497 (Mar. 15, 2019) ("Notice"). *See* Section IV, *infra.* In addition, Patent Owner filed a Motion to Exclude Evidence (Paper 26) and Petitioner filed an Opposition (Paper 28). *See* Section V, *infra*. On January 10, 2023, we held a consolidated oral hearing

with four related cases.[1] A transcript of the hearing is included in the record. Paper 31 ("Hearing Tr.").

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision issued pursuant to 35 U.S.C. § 318(a). For the reasons we discuss below, we determine that Petitioner has proven by a preponderance of the evidence that claims 1 and 2 of the '199 patent are unpatentable.

In addition, because we determine that Petitioner has failed to establish by a preponderance of the evidence that proposed substitute claims 3 and 4 of Patent Owner's contingent Motion to Amend are unpatentable, we grant the Motion to Amend.

II. BACKGROUND

A. Related Matters

The parties identify the following district court proceedings involving the '199 patent: *Rideshare Displays, Inc. v. Lyft, Inc.*, 20-cv-01629-RGA-JLH (D. Del.). Pet. 1; Paper 5, 2. The parties also identify several petitions for *inter partes* review of patents related to the '199 patent: IPR2021-01598, IPR2021-01599, IPR2021-01600, and IPR2021-01602. Pet. 1; Paper 5, 2.

B. Real Parties-in-Interest

Petitioner identifies Lyft, Inc. as the only real party-in-interest. Pet. 1. Patent Owner identifies Rideshare Displays, Inc. as the only real party-in-interest. Paper 5, 2. Neither party challenges those identifications.

C. The '199 Patent (Ex. 1001)

The '199 patent is titled "Vehicle Identification System." Ex. 1001, (54). The '199 patent is a continuation (through intermediate continuations)

[1] Those cases are IPR2021-01598, IPR2021-01599, IPR2021-01600, and IPR2021-01602.

of U.S. Patent 9,892,637 ("the '637 patent"). *Id.* at (63). The patent describes a system for providing an indicator on a mobile communication device of a user having requested a ride service to allow the user to identify a vehicle prior to boarding the vehicle. *Id.* at 1:31–35. According to the patent, "[a] continuing need exists for systems and methods adapted for use by transportation services to ensure rider and driver security." *Id.* at 2:1–3.

Two separate embodiments of the invention are shown, in Figures 1A and 1B, following:

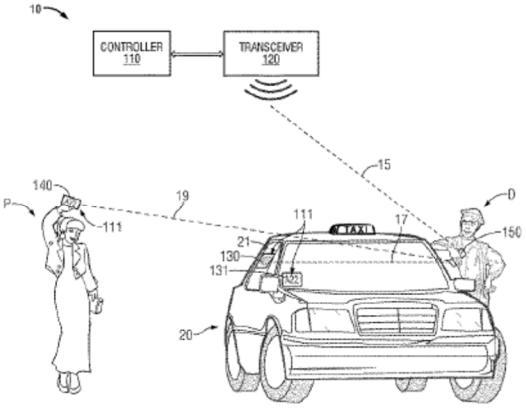


Fig. 1A

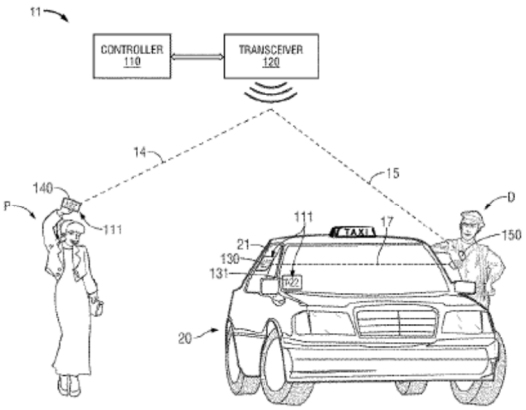


Fig. 1B

Figures 1A and 1B illustrate two embodiments of a vehicle identification system in accordance with the '199 patent. *Id.* at 2:48–53. Referring first to Figure 1A, vehicle identification system 10 includes controller 110, transceiver 120, and one or more displays associated with motor vehicle 20. *Id.* at 3:67–4:2. First display 130 is associated with passenger side rear window 21 of motor vehicle 20, and second display 131 is associated with the front windshield of motor vehicle 20. *Id.* at 4:2–6. Vehicle identification system 10 can generate one or more signals representing an indicator, which may be displayable as a "code" (e.g., a text string or an alphanumeric string), an icon, or other identifier, on display 130 and on

mobile communication device 140 associated with user P to enable the user to identify the vehicle that he or she has requested for a ride service. *Id.* at 4:17–23.

Figure 3 is a flowchart illustrating a method of identifying a vehicle in accordance with the '199 patent. *Id.* at 2:57–59. Figure 3 follows:

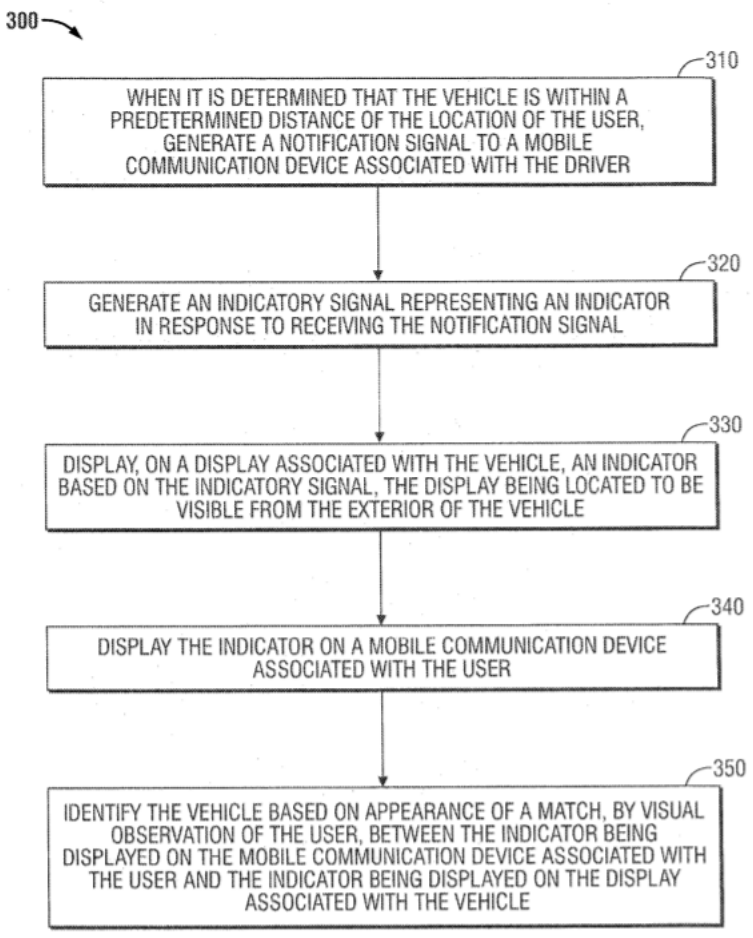


Figure 3 illustrates a method of identifying a vehicle being dispatched to a location of a user having requested a ride from a transportation service. Ex. 1001, 7:8–10. When it is determined that motor vehicle 20 is within a predetermined distance of the location of user P, notification signal 15 is generated to mobile communication device 150 associated with driver D. *Id.* at Fig 3, block 310. Indicatory signal 17 representing indicator 111 is

generated in response to receiving notification signal 15. *Id.* at Fig. 3, block 320. Indicator 111 based on indicatory signal 17 is displayed on display 130 associated with vehicle 20. *Id.* at Fig. 3, block 330. Display 130 is located to be visible on the exterior of vehicle 20. *Id.* at 7:21–22.

Indicator 111 is also displayed on mobile communication device 140 associated with user P. *Id.* at Fig. 3, block 340. Motor vehicle 20 is identified based on appearance of a match, by visual observation of user P, comparing the indicator being displayed on the mobile communication device associated with user P and the indicator being displayed on the display associated with vehicle 20. *Id.* at Fig. 3, block 350.

In the embodiment of Figure 1A, the mobile communication device associated with driver D generates a second signal representing an indicator that is transmitted to mobile communication device 140 associated with user P. *Id.* at 5:41–46. In the embodiment of Figure 1B, vehicle identification system 11 generates indicatory signal 14 transmitted to the mobile communication device associated with user P and notification signal 15 to be transmitted to the mobile communication device associated with driver D. *Id.* at 5:53–58. In this embodiment, the driver's mobile communication device does not communicate with the user's mobile communication device. *Id.* at 5:58–61.

D. Illustrative Claim

The '199 patent has two claims. As noted, both claims 1 and 2 are challenged in the Petition. Pet. 4. Claim 1 is the only independent claim.

Claim 1 is illustrative of the claimed subject matter and is reproduced below:[2]

> 1. [Preamble] A vehicle identification method implemented as an Application on mobile communication devices over a wireless communication network, comprising:
>
> [1A] requesting a ride from a transportation service from a mobile communication device of a user;
>
> [1B] determining that a vehicle is within a predetermined distance of the location of the user;
>
> [1C] generating a notification signal to a mobile communication device associated with a driver of the vehicle;
>
> [1D] generating an indicatory signal representing an indicator;
>
> [1E] displaying the indicator based on the notification signal on a display associated with the vehicle, the mobile communication device associated with the driver, and the user's mobile communication device, wherein the display associated with the vehicle is located to be visible from the exterior of the vehicle; and
>
> [1F] identifying the vehicle based on appearance of a match, by visual observation of the user, between the indicator being displayed on the user's mobile communication device and the indicator being displayed on the display associated with the vehicle.

Ex. 1001, 8:7–27.

E. Prior Art References and Other Evidence

Petitioner relies on the following references (Pet. 4):

1. U.S. Patent Pub. 2015/0332425 A1 (Jan. 23, 2015) (Ex. 1006, "Kalanick");

2. U.S. Patent No. 9,494,938 B1 (Apr. 3, 2014) (Ex. 1008, "Kemler");

[2] Paragraph references in brackets were added tracking Petitioner's analysis.

3. U.S. Patent Pub. 2012/0137256 A1 (May 31, 2012) (Ex. 1009, "Lalancette").

In addition to these references, Petitioner relies on three Declarations of David Hilliard Williams. Ex. 1003 ("Williams I Decl."), Ex. 1027 ("Williams II Decl."), Ex. 1030 ("Williams III Decl."). Patent Owner submitted a first Declaration of Dr. Matthew Valenti with the Preliminary Response (Ex. 2001 "Valenti I Decl."), and thereafter, second and third declarations of Dr. Valenti (Ex. 2021, "Valenti II Decl."; Ex. 2023, "Valenti III Decl."). In addition, the parties have submitted deposition transcripts for those witnesses.[3]

F. The Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability. Pet. 4.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis[4]
1	103	Kalanick, Kemler
1, 2	103	Lalancette, Kemler

III. ANALYSIS OF THE CHALLENGED CLAIMS

A. Obviousness

A claim is unpatentable as obvious under 35 U.S.C. § 103 "if the differences between the claimed invention and the prior art are such that the

[3] Ex. 1029 ("Valenti Dep."); Ex. 2022 ("Williams Dep."),

[4] Petitioner's obviousness challenges additionally refer to the "[k]nowledge of [a person of ordinary skill in the art]." Pet. 4. While we do not list such knowledge separately, we consider it as part of our obviousness analysis. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) ("As *KSR* established, the knowledge of such an artisan is part of the store of public knowledge that must be consulted when considering whether a claimed invention would have been obvious.").

claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains." 35 U.S.C. § 103 (2011). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) so-called "secondary considerations," including commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Neither party has presented any evidence on the fourth *Graham* factor. We therefore do not consider this factor in our decision.

B. Level of Ordinary Skill in the Art

According to Petitioner, a person of ordinary skill in the pertinent art "would have had at least a bachelor's degree in electrical or computer engineering, or a similar field with at least two years of experience in the field of vehicle location and tracking systems or related technologies." Pet. 9. Petitioner adds that "[a] person with less education but more relevant practical experience may also meet this standard. The prior art also evidences the level of skill in the art." *Id.* (citing Williams I Decl. ¶ 44).

Patent Owner provided a slightly different formulation in the Preliminary Response. According to Patent Owner, a person of ordinary skill at the relevant time would have had:

> i) at least a bachelor's degree in electrical or computer engineering, or a similar field;
>
> ii) at least two years of experience in wireless cellular network protocols, including location and tracking/positioning, and having an understanding of signal timing and reliability issues in such wireless cellular network protocols; and

> iii) knowledge of issues with respect to data privacy and database storage systems. Regarding data privacy, the [person of ordinary skill] need not have extensive knowledge in, e.g. data encryption methodologies, but would have experience with data privacy policies and protection models.

Prelim. Resp. 5. At the institution stage, we adopted Petitioner's more general formulation, with a qualification. We stated we would also expect a person of ordinary skill to also have at least some experience in wireless cellular network protocols, as suggested by Patent Owner. Institution Dec. 19. We reasoned that our review of the '199 patent and the cited prior art did not suggest that specific experience with data privacy policies and protection models would be required, given the focus of the '199 patent on more general principles of cellular communications and signaling. *Id.* at 19–20. However, we observed that the arguments presented by the parties did not depend on the definition of the person or ordinary skill, and therefore, we concluded that our decision would be the same under either formulation. *Id.* at 20.

Patent Owner responds that it "disagrees" with our formulation because "the ['199] patent is not directed to a vehicle tracking system." PO Resp. 4. Patent Owner explains that "[i]t is directed to a communication system between a rider and driver, albeit using location based services in some aspects of this system, and thus a [person of ordinary skill] would be a person who is skilled in the field of communication systems along cellular networks." *Id.*

We agree that the patented technology involves cellular communications, and this is adequately reflected in our formulation, where we stated "[w]e would also expect a person of ordinary skill to also have at least some experience in wireless cellular network protocols, as suggested by

Patent Owner." Institution Dec. 19. But Patent Owner continues that "a [person of ordinary skill] should have knowledge of wireless communications protocols and some general experience with data privacy issues and protection models, in addition to the education level in electrical or computer engineering identified by the parties." PO Resp. 4–5. Patent Owner cites no authority for this proposal, which we rejected in our Institution Decision based on our review of the patent and the prior art. Institution Dec. 19. We therefore maintain our formulation of the person of ordinary skill from our Institution Decision.

Patent Owner segues from discussing the scope of knowledge of a person of ordinary skill to an attack on Mr. Williams's testimony. PO Resp. 5–6. We are not persuaded by Patent Owner's citations to Mr. Williams's testimony, or by Patent Owner's attempt to discredit Mr. Williams's opinions on the pertinent art as "overreach." *Id.* None of the testimony cited by Patent Owner relates to the Kalanick, Lalancette, or Kemler references. Nor do we agree that Mr. Williams's testimony concerning background technology "infects each argument that Petitioner makes with respect to the knowledge of a [person of ordinary skill]," as Patent Owner alleges. *Id.* at 6. Patent Owner does not point to any specific arguments that would be so "infected." We find, instead, as we stated in our Institution Decision, that "the arguments presented by the parties do not depend on the definition of the person or ordinary skill, and therefore, our decision would be the same under either formulation." *See* Institution Dec. 20.

C. Claim Construction

For this *inter partes* review, the Board applies the same claim construction standard as that applied in federal courts. *See* 37 C.F.R.

§ 42.100(b) (2019). Under this standard, claim terms "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citations omitted). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (citation omitted).

Petitioner prefaced its claim construction discussion by stating "Petitioner interprets all claim terms in accordance with their ordinary and customary meaning *unless otherwise stated below*." Pet. 9 (emphasis added). Petitioner then proceeded to criticize two constructions proposed by Patent Owner in district court: "indicator" and "indicatory signal." *Id.* at 10. Petitioner claimed that Patent Owner's proposed construction of these terms "requires something to be 'actively formulated' by the controller." *Id.* Petitioner disagreed with these constructions, observing that "[t]he term 'actively formulated' is not used anywhere in the patent specification and does not add clarity to the meaning of these claim terms." *Id.* Instead, Petitioner asserted the terms should be given "their ordinary and customary meaning." *Id*.

Patent Owner responded that two terms, in context, required construction and addressed each in the Preliminary Response. Prelim. Resp. 6–11.

In our Institution Decision, we addressed the parties' proposed constructions of "indicator" and "indicatory signal" as well as the construction of "generate," which we identified as an additional term requiring construction. Institution Dec. 20–25. We further address the construction of these terms below.

1. Indicator

For the term "indicator" (as in "indicatory signal representing an indicator"), Patent Owner proposed the following construction: "any code (e.g., text, alphanumeric, icon, or other symbol), color, etc., or combination thereof, which displays and enables a match between user/rider and driver that preferably is not duplicated in the same pickup location." Prelim. Resp. 11. The '199 patent describes an indicator as "a 'code' (e.g., a text string or an alphanumeric string), an icon, or other identifier, on the display 130 and on a mobile communication device 140 associated with the user P to enable the user P to identify the vehicle that he/she has requested for a ride service." Ex. 1001, 4:19–23. Consistent with this description in the specification, we construed the term "indicator" as "a code (e.g., a text string or an alphanumeric string), an icon, or other identifier, for display to enable a match between the user and the driver." Institution Dec. 21.

We did not see a basis in the claims or specification for Patent Owner's contention that a "new indicator" must be "actively formulate[d] . . . for each rider-driver trip while the driver is in transit." *Id.* at 22 (citing Prelim. Resp. 31).

Patent Owner does not address the construction of "indicator" in its Patent Owner Response. For the foregoing reasons, we maintain our construction of this term. We discuss Patent Owner's contention that a new indicator must be "actively formulated" further in connection with our consideration of the claim term "generate," *infra*.

2. Indicatory Signal

Patent Owner disagreed that this term should be afforded its plain and ordinary meaning. Prelim. Resp. 7. According to Patent Owner, "the term 'indicatory signal' is not the 'indicator' – they are different and 'indicatory signal' is the signal that tells the display what 'indicator' to display." *Id.* (citing Ex. 1001, Fig. 3, block 320, reproduced *supra*, Section II.C).

Patent Owner asserted that "a controller in a vehicle identification system *actively formulates an indicator* (or code/indicatory symbol which represents an indicator) that is sent to the rider, and driver, which is ultimately displayed for each ride." *Id.* at 8 (emphasis added). The controller "generates a signal sent by the transceiver to the driver's 'mobile communication device' when the driver is within a predetermined distance to a location." *Id.* at 8–9. Patent Owner continued, "the location signal is very different from the signal that indicates what code should be on the display." *Id.* at 9. Thus, Patent Owner proposed the following construction for indicatory signal: "a signal that represents an indicator to be displayed (but that is not necessarily the indicator itself)." *Id.* (citing Ex. 1001, Fig. 3, Block 320).

As in the case of the term "indicator," we did not see a basis for construing this term as requiring that the signal be "actively formulated," in

the sense described by Patent Owner. *See* Prelim. Resp. 10. We therefore did not adopt Patent Owner's construction. Institution Dec. 23.

Patent Owner does not address this construction in its Patent Owner Response. For the foregoing reasons, we maintain our construction of this term.

3. Generate

Based on the arguments presented and on Patent Owner's analysis of the prior art in the Preliminary Response, we identified "generate" as an additional term appearing in the challenged claims that required construction, as it relates to the controller in such phrases as "generating an indicatory signal representing an indicator." Institution Dec. 23 (citing Ex. 1001, 8:16 (claim element 1D)).

Referring to the specification, Patent Owner explained that "a controller in a vehicle identification system *actively formulates an indicator* . . . that is sent to the rider, and driver, which is ultimately displayed for each ride." Prelim. Resp. 8 (emphasis added). Patent Owner's analysis of the claims in the Preliminary Response equated the claim term "generate" a signal with "actively formulate" an indicator. For example, in discussing claim limitation 1C, which recites "generating a notification signal to a mobile communication device associated with the driver of the vehicle," Patent Owner asserted that "[t]he claims require that a new signal [i.e., there is no user profile, no signal stored in a user profile, or stored in a database in advance of a rider's request for a driver/taxi] be actively formulated each time a ride is dispatched." *Id.* at 34.

We declined to adopt this implicit construction (and the related construction "actively generate"). Institution Dec. 23. The claims

themselves do not require the controller to "actively formulate" a new indicator for the same rider requesting a subsequent trip for that second trip, or that "a new signal be actively formulated each time a ride is dispatched," as Patent Owner's analysis asserts. *See infra*.

Nor is it clear how this construction is supported by the '199 patent specification. The '199 patent describes the controller as "communicatively coupled to the transceiver." Ex. 1001, 2:10–11. Further, "[t]he controller is adapted to generate a first signal to be transmitted by the transceiver to a mobile communication device." *Id.* at 2:12–14. Elsewhere in the patent, "controller" is defined as "any type of computing device, computational circuit, or any type of processor or processing circuit capable of executing a series of instructions that are stored in a memory associated with a with the controller." *Id.* at 3:6–10. The operation of the controller is also described as follows: "The controller 110 may generate a first signal (also referred to herein as a 'notification signal') that is transmitted via the transceiver 120 to the mobile communication device 150 associated with the driver D." *Id.* at 5:14–17.

Still further, "[t]he controller 110 generates four different notification signals, NOTIFICATION-A, NOTIFICATION-B, NOTIFICATION-C, and NOTIFICATION-D, to be transmitted by the transceiver 120 to a first DRIVER'S MOBILE DEVICE 150A, a second DRIVER'S MOBILE DEVICE 150B, a third DRIVER'S MOBILE DEVICE 150C, and a fourth DRIVER'S MOBILE DEVICE 150D, respectively." *Id.* at 6:39–46. And further, "[i]n other embodiments, wherein the vehicle identification system 11 is utilized, an indicatory signal to the rider's mobile communication device may be generated by the controller 110." *Id.* at 7:4–7.

In none of these descriptions of the controller's operation is there mention of "actively formulates," or a disclosure that the controller "actively formulates" a new indicator for the same rider requesting a subsequent trip for that second trip, or that "a new signal be actively formulated each time a ride is dispatched." *See infra*. Instead, the specification describes the controller's operation as generating a signal, and describes the indicator as "a 'code' (e.g., a text string or an alphanumeric string), an icon, or other identifier, on the display 130 and on a mobile communication device 140 associated with the user P to enable the user P to identify the vehicle that he/she has requested for a ride service." Ex. 1001, 4:19–23.

Because the specification and prosecution history do not explicitly provide a definition for the term "generate," we looked to extrinsic sources to determine its plain meaning. Institution Dec. 25. The Federal Circuit has approved the use of dictionaries for guidance in claim construction, "so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of "consult[ing] a general dictionary definition of [a] word for guidance" in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) ("[O]ur decisions, including *Phillips*, do not preclude the use of general dictionary definitions as an aid to claim construction.") (citation omitted). One dictionary definition of "generate" is "to bring into existence: such as: . . . to originate by a vital, chemical, or physical process**:** PRODUCE." *See* https://www.merriam-webster.com/dictionary/generate. We therefore construed the term "generate" as it relates to the controller in

reference to a signal in accordance with its plain and ordinary meaning, which is "to originate or produce the signal." Institution Dec. 25.

Patent Owner's Response does not directly respond to this construction. PO Resp. 7. Instead, Patent Owner asserts that "at institution, the Board determined that the term 'generating should be construed according to its ordinary meaning. . . . Applying ordinary meaning should still lead to the conclusion that the prior art does not render the claims of the patent unpatentable." *Id.*

For the foregoing reasons, we maintain our construction of "generate" a signal as "to originate or produce the signal." Institution Dec. 25.

4. Other Terms

To the extent we need to interpret any other terms, we will do so in the context of the analysis of the prior art that follows.

D. Description of the Prior Art References

1. Kalanick (Ex. 1006)

Kalanick discloses a system for arranging an on-demand service to be provided by a transport service provider to a requesting user. Ex. 1006 ¶ 2. Kalanick describes a dynamically configured and personalized display that is positioned on or fastened to a vehicle. The display is easily visible to a user outside of the vehicle and informs the user which vehicle has been assigned to the user for the on-demand service. *Id.* ¶ 10.

The on-demand service system can arrange a transport service for a user by receiving a request for transport from the user's device, selecting a driver from a plurality of available drivers to perform the transport service for that user, sending an invitation to the selected driver's device, and receiving an acceptance of the invitation by the selected driver. *Id.* ¶ 11.

The on-demand service system described by Kalanick can associate an identifier of the user and an identifier of the driver with an entry for that transport service. Once the on-demand service system arranges the transport service for the user and the driver, the transport personalization system can access a user database to determine whether that user has specified an output configuration for an indication device (e.g., determine whether the user has personalized at least one aspect of the transport service). *Id.* ¶ 11.

This operation is illustrated in Figure 1 of Kalanick, following:

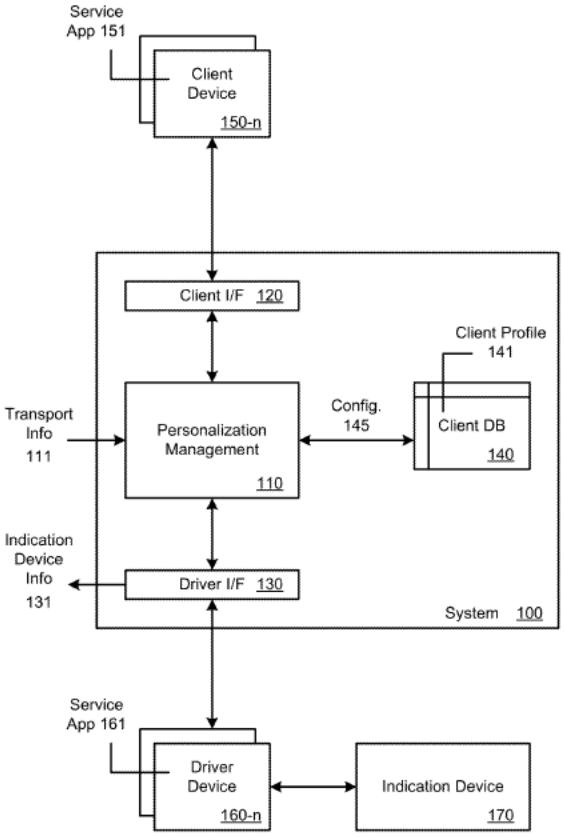


FIG. 1

Figure 1 of Kalanick illustrates a system to provide configuration information for controlling an indication device for use with an on-demand

service. *Id.* ¶ 3. System 100 can communicate, over one or more networks via a network interface (e.g., wirelessly or using a wire), with client devices 150 (e.g., mobile computing devices operated by clients or users/customers) and driver devices 160 (e.g., mobile computing devices operated by drivers) using client device interface 120 and driver device interface 130, respectively. *Id.* ¶ 25. System 100 can receive transport information 111 about the transport service from the on-demand service system and determine whether to transmit user-specified configuration data to the driver device of the driver selected to provide the transport service. *Id.* ¶ 26.

Client database 140 stores a plurality of client profiles 141 for each user that has an account with the on-demand service system. A client profile 141 can include a user identifier. *Id.* ¶ 29. When personalization management 110 receives transport information 111, the personalization management can use the user ID to access client database 140. *Id.*

Personalization management 110 can perform a lookup of client profile 141 (e.g., using the user's ID or user's device ID) and determine if the user has specified an output configuration for an indication device. If the user has specified the output configuration, the personalization management can determine and/or retrieve configuration data 145 corresponding to the specified configuration for that user. *Id.* ¶ 30. If the user does not provide indication preferences, however, the personalization management can store or maintain default indication preferences in the user's profile 141. *Id.*

The personalization management can transmit the user's configuration data 145 corresponding to the user's indication preferences (or default configuration data if the user has not specified indication preferences) to driver device 160. *Id.* ¶ 31.

In one example, the on-demand service system can use location information from driver's device 160 and/or transport information 111 to automatically determine the driver's state, and based on the state of the transport service or the driver, system 100 and/or the service application 161 can control the operation of indication device 170. *Id.* ¶¶ 35–36.

The state of the transport service can correspond to the driver "arriving now." *Id.* ¶ 37. When the service application 161 determines that the transport service is to change states from "en route" to "arriving now," the service application can trigger or control the indication device to output the user's specified color, e.g., blue, (and/or other preferred output content, patterns, or sequences) so that the user can see which vehicle is approaching and will provide the service for the user. *Id.* The service application can also control the indication device to output the user's specified display/output preferences in a specific configuration that is based on the transport state. *Id.*

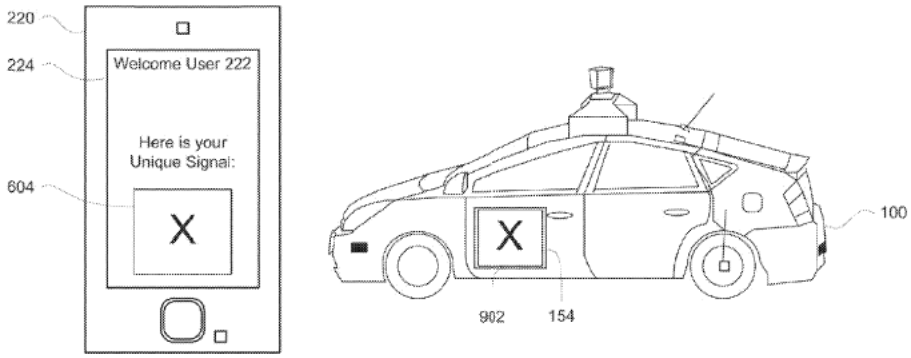
2. Kemler (Ex. 1008)

Kemler discloses providing a user with a way to identify or verify a vehicle dispatched to pick up the user. Ex. 1008, 3:38–40. Once the vehicle is within a certain distance of the user, the vehicle may signal to the user in order to identify the vehicle to the user and avoid confusion. This signaling could include a display or audio including a unique string of text. *Id.* at 3:43–47.

Kemler describes the dispatched vehicle as having an external electronic display mounted on the vehicle and an internal electronic display. *Id.* at 5:22–24. Kemler explains that as the dispatched vehicle approaches the user's client device, a unique signal may be displayed on the vehicle's

external display and the user's client device so the user can identify the vehicle without compromising the user's privacy. *Id.* at 4:1–19.

This operation is illustrated in Figure 9 of Kemler, following:



900
FIGURE 9

Figure 9 is a diagram 900 of a client computing device and a computing device of a vehicle displaying unique signal "X" around the same time. *Id.* at 12:45–47. By comparing unique signal 604 of display 224 to unique signal 902 of external electronic display 154, a user may recognize that vehicle 100 was dispatched for that user. *Id.* at 12:47–51. If the signals are the same, the user can easily identify the vehicle, and if not, the user may continue to look for the vehicle dispatched for that user. *Id.* at 12:51–53.

3. Lalancette (Ex. 1009)

In its most relevant embodiment, Lalancette describes an electronic display mounted to be visible from outside a taxi, a mobile computing device in the taxi that manages a dash-mounted driver display and the mounted electronic display, and a smart phone of a user. Ex. 1009 ¶¶ 27–33.

The taxi is equipped with an electronic display mounted outside of the taxi car or at least visible from outside the taxi car as well as a dash-mounted

driver display. The displays are configured to display information received from the taxi dispatch service. *Id.* ¶ 27.

In one scenario described by Lalancette, a user orders a taxi using a handset to request taxi service from a taxi dispatch service. *Id.* ¶ 29. The user device (the handset) conveys user identification (user ID) to the service provider. *Id.* The service provider validates the request to ensure the request can be accommodated. *Id.* ¶ 30. An automated dispatch system uses the user's location to select the most suitable taxi car to respond to the request for service from the user. *Id.*

The service provider then requests a personal human-readable icon for the user from an icon server by sending a message carrying a user ID for the user. The icon server uses the user ID to retrieve a personal icon corresponding to the user from an icon database. *Id.* ¶ 31.

The icon server sends the retrieved icon to the service provider. *Id.* ¶ 32. The service provider dispatches the selected taxi car to the location of user and displays the user's icon on the taxi's roof-top electronic display and the driver's dashboard display. *Id.* The service provider also transmits a copy of the icon to the user device for confirmation to the user. *Id.*

In one embodiment, as part of the dispatch procedure, the service provider transmits the dispatch information and the user's icon to a mobile computer in the taxi car, and the mobile computer manages the taxi roof-top electronic display 122 and the driver's dashboard display. *Id.*

When then taxi car approaches the user's location, the user can view the rooftop display to identify the taxi car as the taxi responding to the user's request. *Id.* ¶ 33. The user can compare the display of the icon on rooftop

display to the copy of the icon on the user's device 104 to confirm the identity of the taxi. *Id.*

E. Motivation to Combine Kemler with Kalanick and Lalancette

1. Introduction

Petitioner asserts that a person of ordinary skill would have been motivated to combine the teachings of Kalanick and Kemler with a reasonable expectation of success. Pet. 21–25; Williams I Decl. ¶¶ 116–124. Petitioner asserts that both Kalanick and Kemler address "similar problems related to vehicle identification." Pet. 21–22; Williams I Decl. ¶ 116. Furthermore, Petitioner asserts that "[b]oth teach similar solutions involving generating, transmitting, and displaying unique, easily distinguishable visual indicators on multiple displays such that users can visually match the unique indicators to efficiently identify their assigned vehicle." Pet. 22; Williams Decl. ¶ 116. Further, "[b]oth also utilize vehicle mounted displays which are visible from the outside of the vehicle." Pet. 22; Williams I Decl. ¶ 116. Petitioner asserts "[a person of ordinary skill] would have a reasonable expectation of success as this would require nothing more than modifying the software of *Kalanick's* system to permit the central controller to create and assign unique indicators, using the technique taught in *Kemler*." Pet. 25.

Similarly, Petitioner contends a person of ordinary skill would have been motivated to combine the teachings of Lalancette and Kemler. Pet. 35–38; Williams I Decl. ¶¶ 151–158. Petitioner asserts that "*Lalancette* and *Kemler* address similar problems related to vehicle identification and share the common objective of enabling riders to visually locate a requested vehicle while protecting the rider's privacy." Pet. 35. Further, "[b]oth teach similar solutions involving generating, transmitting, and displaying unique

visual indicators on multiple displays such that users can visually match the unique indicators to efficiently identify their assigned vehicle." *Id.*

Petitioner contends "combining *Lalancette* and *Kemler* would have been well within the skill of a [person of ordinary skill in the art] and doing so is a suitable option because it is nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." *Id.* at 38 (citing Williams I Decl. ¶ 158).

2. Patent Owner's Contentions

Patent Owner responds that the Petition gives "no reason to combine" Kemler with either Kalanick or Lalancette. PO Resp. 8 (Kemler), 28 (Lalancette). Patent Owner contends that Petitioner's assertion that Kalanick and Kemler "teach similar solutions" is insufficient proof of a motivation to combine "as a matter of law." *Id.* at 10–11. Patent Owner asserts that Kalanick "already mitigates" the potential "duplication" problem created when riders from the same area select the same or similar indicators. *Id.* at 11–13. Patent Owner argues that "combining known technologies" is not sufficient to establish a motivation to combine Kemler and Kalanick. *Id.* at 14–18. And Patent Owner contends there is no "evidence of a reasonable expectation of success in combining Kemler to make up the deficiencies of Kalanick." *Id.* at 18–19. Patent Owner asserts that "[t]he immense expense and complexity of operating a server 'farm' would be a reason to *avoid* Kemler's teachings." *Id.* at 18.

Patent Owner makes similar arguments asserting an insufficiency of evidence of a motivation to combine Kemler with Lalancette. *Id,* at 28–34. For example, in addition to the arguments discussed above in connection

with Kalanick, Patent Owner asserts that "Kemler is no better at protecting privacy than Lalancette." *Id.* at 30–32. Patent Owner also argues that "Petitioner has failed to substantiate that the combination [of Kemler and Lalancette] would improve efficiency." *Id.* at 33. Patent Owner expands on this latter argument as follows: "Petitioner provides no support for the claim that combining the system of Kemler to Lalancette would make Lalancette more efficient by virtue of turning the icon indicator light on when the vehicle was in a predetermined distance to the location of the user." *Id.* at 33.

Patent Owner argues also that "there is no reasonable expectation of success in combining Kemler with Lalancette." *Id.* at 34–35. Patent Owner explains that "[t]he relative[] simplicity of the configuration of Lalancette – an icon server and icon database in a network, contrasts with the complexity of operating the server farm of Kemler." *Id.* at 34.

3. Discussion

For the reasons that follow, we find that Petitioner has established a sufficient motivation to combine the teachings of Kemler and Kalanick and of Kemler and Lalancette. We further find, for the reasons given here and in Section III.E.1, *supra*, that Petitioner has demonstrated that there was a reasonable expectation of success in making those combinations. *See id.*

The Federal Circuit has recently reminded us that "[t]he motivation-to-combine analysis is a flexible one. *Any* need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379 (Fed. Cir. 2023) ("*Intel Corp.*") (citing *KSR Int'l Co. v. Teleflex*, 550 U.S. 398, 420 (2007))

(alterations and internal quotation marks omitted). Reversing a decision of the Board finding insufficient motivation to combine references, the Federal Circuit further reminded us that "a person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* (quoting *KSR*, 550 U.S. at 421) (alterations omitted).

The Federal Circuit further observed that "in many cases[,] a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 1379–80 (alteration in original, internal quotation marks omitted). The Court continued, "[t]hat's why the motivation-to-combine analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 1380 (internal quotation marks omitted).

The Federal Circuit also recognized what it termed "universal motivation," i.e., motivation "known in a particular field to improve technology," commenting that such motivations "provide a motivation to combine prior art references *even absent any hint of suggestion* in the references themselves." *Id.* (citing *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 797–99 (Fed. Cir. 2021) (internal quotation marks omitted).

a) Kalanick and Kemler

We find that Petitioner demonstrates that Kalanick and Kemler address "similar problems related to vehicle identification." Pet. 21–22; Williams I Decl. ¶ 116. Furthermore, as Petitioner asserts, we find that "[b]oth teach similar solutions involving generating, transmitting, and displaying unique, easily distinguishable visual indicators on multiple displays such that users can visually match the unique indicators to

efficiently identify their assigned vehicle." Pet. 22; Williams I Decl. ¶ 116. Further, "[b]oth also utilize vehicle mounted displays which are visible from the outside of the vehicle." Pet. 22; Williams I Decl. ¶ 116.

We do not agree with Patent Owner that the Petition "fail[s] to establish a motivation" to combine Kemler with Kalanick." PO Resp. 8. As noted above, the Federal Circuit does not require Petitioner to identify "precise teachings directed to the specific subject matter of the challenged claim." *See Intel Corp.*, 61 F.4th at 1380.

We find that the Petition and supporting expert testimony sufficiently demonstrate that a person of ordinary skill would have combined the teachings of Kemler and Kalanick with a reasonable expectation of success. Pet. 21–25. In addition to the reasons given *supra*, Petitioner explains that Kalanick's "on-demand service system can also use location information from the driver's device and/or transport information . . . to automatically determine the driver's state or state of the transport service." *Id.* at 22 (citing Ex. 1006 ¶¶ 29, 35). Petitioner explains that in Kalanick, "[w]hen a service application on the driver's device determines that the transport service is to change state, such as to 'arriving now,' based on a determination that the driver is within a predetermined distance, the service application can trigger the indication device to output the user's specific color." *Id.* at 23 (citing Ex. 1006 ¶ 37). Thus, Kalanick's system can "control the indication device to output the user's color or other unique distinctive indicator based on the transport state." *Id.* (citing Ex. 1006, ¶ 38).

Petitioner explains that Kemler describes a central dispatching system in which one or more server computing devices of the centralized

dispatching system may select a vehicle to be dispatched based upon the location of the client computing device. *Id,* (citing Ex. 1008, 10:3–33). Thus, Petitioner explains that Kemler, like Kalanick, "discloses ride-matching based on proximity and distance to match requesting riders with drivers based at least in part on the proximity of their respective locations." *Id.*

Petitioner demonstrates that "a [person of ordinary skill] would find it obvious to modify *Kalanick's* vehicle identification system in view of *Kemler,* at least because both systems disclose substantially similar ride-matching techniques based on proximity and distance to match requesting riders with drivers based at least in part on the proximity of their respective locations." *Id.* at 23–24. Petitioner also explains that a person of ordinary skill would "anticipate success of such a modification." *Id.* at 24. Petitioner explains that "the controller in *Kalanick* is already in communication with the car and could easily send a signal to activate the display with the unique code." *Id.* (citing Williams I Decl. ¶ 121).

Petitioner recognizes that although both Kalanick and Kemler "focus on vehicle identification by utilizing indicators, the disclosures approach indicator selection in slightly different ways." *Id.* Kemler approaches indicator selection through a "centralized dispatching system," while Kalanick allows the user to specify the "output configuration" of the identification information. *Id.*

We do not find Patent Owner's responsive arguments persuasive. *See* Section III.E.2, *supra*. For example, we disagree with Patent Owner's argument that Petitioner's demonstration that Kalanick and Kemler provide similar solutions is "insufficient as a matter of law." PO Resp. 10–11. The

assertion that Kalanick and Kemler are analogous art to the '199 patent, which Patent Owner no longer disputes (*see* Hearing Tr. 58:11–15), is entitled to consideration as one factor in Petitioner's argument. *See* Pet. 21–25; Pet. Reply 3–8. Moreover, Patent Owner's argument that it is "insufficient as a matter of law" that Kalanick and Kemler teach similar solutions (PO Resp. 10) is contrary to *Intel*'s approval of the "known-technique" rationale for combining the teachings of references: "[I]f there's a known technique to address a known problem using 'prior art elements according to their established functions,' then there is a motivation to combine." *Intel Corp.*, 61 F.4th at 1380 (citation omitted).

We disagree, also, with Patent Owner's "duplication" argument. PO Resp. 11–13. The fact that Kalanick may not "disclose any problem" arising from the possibility of two passengers in the same area having the same signal does not prove a problem did not exist or that a person of ordinary would not be motivated to improve upon the solution for it. *See* Pet. Reply 5–6. Similarly, we are not persuaded by Patent Owner's argument that there would be no reasonable expectation of success based on Kemler's disclosure of a server farm. PO Resp. 18 ("The immense expense and complexity of operating a server 'farm' would be a reason to avoid Kemler's teachings."). Testimony from Mr. Williams establishes the advantages of such systems. Pet. Reply 19 (citing Williams Dep. 82:1–88:25, 92:13–93:1; Williams III Decl. ¶ 35)). [5]

[5] We find Mr. Williams testimony credible on this issue. On cross-examination by Patent Owner's counsel, Mr. Williams testified to his experience in designing, implementing, and setting up server farms. *See* Williams Dep. 82:17–88:7; 91:11–93:1.

Petitioner demonstrates that a person of ordinary skill would have expected success in combining the teachings of the references, because it would require modifications to Kalanick's controller "already in communication with the car and could easily send a signal to activate the display with the unique code." Pet. Reply 8 (citing Williams I Decl. ¶ 123; *see also* Williams III Decl. ¶ 13 (expressing the opinion that the expense of operating a server farm would not lead to unexpected results). We find that for the reasons given, the necessary modifications to Kalanick are "nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." Pet. Reply 8; Williams III Decl. ¶ 15.

We find for the reasons given that "[a person of ordinary skill] would have been motivated to implement *Kemler's* indicator selection system, which provides for automatic selection of the indicator, in *Kalanick* because it would eliminate instances where riders within a similar area select the same or similar indicators, or are provided the same default indicator, making them less unique." Pet. 25. Williams I Decl. ¶ 120. Petitioner explains also that Kemler teaches the benefits of using rules requiring "unique" signals. Pet. 25 (citing Ex. 1008, 8:54–9:2). Petitioner demonstrates also that "[a person of ordinary skill] would have a reasonable expectation of success as this would require nothing more than modifying the software of *Kalanick's* system to permit the central controller to create and assign unique indicators, using the technique taught in Kemler." *Id.*

b) Lalancette and Kemler

Similarly, we find that Petitioner demonstrates that a person of ordinary skill would have combined the teachings of Lalancette and Kemler with a reasonable expectation of success. Pet. 35–38; Pet. Reply 15–19. Petitioner explains that "*Lalancette* and *Kemler* address similar problems related to vehicle identification and share the common objective of enabling riders to visually locate a requested vehicle while protecting the rider's privacy." Pet. 35. Further, "[b]oth teach similar solutions involving generating, transmitting, and displaying unique visual indicators on multiple displays such that users can visually match the unique indicators to efficiently identify their assigned vehicle." *Id.*

Petitioner explains that "*Lalancette* discloses a system, which includes a vehicle dispatch controller to generate and transmit unique, personalized, privacy-protected indicators, to provide more efficient and effective identification of dispatched vehicles." *Id.* at 36 (citing Williams I Decl. ¶ 153). Petitioner also relies on the disclosure in Kemler that "[t]he signal may include a unique, distinct, and/or easily distinguishable string of text or image, and may further include, for example, a series of nonsensical letters, a sequence of colors, and/or a barcode." *Id.* (citing Ex. 1008, 3:60–67, 10:62–11:14).

Petitioner shows also that "*Kemler* explains that a centralized dispatching system may generate a signal to identify [a] vehicle to the user, and that [o]nce the vehicle is within a certain distance of the user's client device, the vehicle's computing device may display the signal on an external display of the vehicle such that the signal should be visible to the user as the

vehicle approaches the user's client device." *Id.* at 35–36 (quoting Ex. 1008, 3:48–4:11 (alterations in original, internal quotation marks omitted)).

Still further, Petitioner explains "[r]eceiving and displaying signal as disclosed in *Kemler* provides a more efficient and effective system for identifying dispatched vehicles." *Id.* at 37 (citing Williams I Decl. ¶ 155). Petitioner reasons that "[t]his is so at least because the system is more efficient by only displaying the signal once the vehicle [is] within a threshold distance of the rider and thus conserves energy." *Id.*

Finally, as Petitioner explains, we find that a person of ordinary skill would have had a reasonable expectation of success in making the combination. *Id.* at 38. "Because both of the systems utilize the same basic display technologies and similar techniques for generating, transmitting, and displaying unique privacy-protected visual indicators, it would have been well within a [person of ordinary skill's] level of skill to implement *Lalancette's* taxi identification system with the additional technical details taught for *Kemler's* substantially similar vehicle identification system." *Id.* (citing Williams I Decl. ¶ 157). Furthermore, as Petitioner explains, "combining *Lalancette* and *Kemler* would have been well within the skill of a [person of ordinary skill in the art] and doing so is a suitable option because it is nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." *Id.* (citing Williams I Decl. ¶ 158).

We do not agree with Patent Owner's arguments in response. *See supra*, Section III.E.2. For example, Patent Owner reprises the argument that "showing the references are analogous art" is insufficient to show a

motivation to combine references, which is similar to the argument discussed *infra* in connection with Kalanick and Kemler, and is unavailing for similar reasons. PO Resp. 30; *see supra*, Section III.E.3.a. Similarly unavailing is Patent Owner's argument that "Lalancette is a complete and finished method of facilitating the connection of users and drivers, allowing users to select icons that do not allow an association with the user, thus protecting privacy." PO Resp. 31. This argument is similar to the "duplication" argument discussed *supra* in connection with Kalanick, and is unavailing for similar reasons. The fact that Lalancette is allegedly "complete" does not prevent a person of ordinary skill from being motivated to improve upon it.

Finally, we credit Petitioner's argument that combining Kemler and Lalancette would make Lalancette more efficient. Pet. 37 ("This is so at least because the system is more efficient by only displaying the signal once the vehicle within a threshold distance of the rider and thus conserves energy.") *Id.* (citing Williams I Decl. ¶ 155). This argument is persuasive because it is supported by the testimony of Mr. Williams and by common sense. *See* Pet. Reply 19. Mr. Williams testified credibly that a person of ordinary skill would understand that by virtue of turning Lalancette's indicator light on only when the vehicle was in a predetermined distance to the location of the user as disclosed in Kemler, the vehicle indicator display system would conserve energy and thus be more energy efficient. *Id.* (citing Williams I Decl. ¶¶ 155, 170–171; Williams III Decl. ¶ 36; Williams Dep. 97:5–21). Moreover, Mr. Williams backed up his testimony on the power requirements of server farms with several years of experience designing, implementing, and operating a server farm. *See* discussion *supra*. We find

that this experience lends credibility to his testimony that the server farm in Kemler would improve efficiency of the system, even without specific test data. Pet. Reply 19 (citing Williams III Decl. ¶ 35; Williams Dep. 82:1–88:25, 92:13–93:1).

c) Conclusion

We are persuaded and find for the reasons given that a person of ordinary skill would have combined the teachings of the references as proposed by Petitioner with a reasonable expectation of success. As Mr. Williams testifies, the necessary modifications to Kalanick and Lalancette are "nothing more than combining known display technologies and visual identification techniques described in these references to perform their intended functions with described benefits and predictable results." Williams I Decl. ¶¶ 124, 158.

F. Obviousness Based on Kalanick and Kemler

Petitioner asserts that claim 1 would have been obvious in light of Kalanick and Kemler. Pet. 21–35. Petitioner provides an element-by-element claim analysis, supported by expert testimony. *Id.* at 26–35; Williams I Decl. ¶¶ 130–149. Patent Owner disputes Petitioner's analysis for several of the claim element, as is discussed *infra*. *See* PO Resp. 19–27.

1. Claim 1

(Preamble) A vehicle identification method implemented as an Application on mobile communication devices over a wireless communication network, comprising:

Petitioner contends the preamble of claim 1 is disclosed by Kalanick. Pet. 26–27; Williams I Decl. ¶¶ 126–129. Petitioner explains that Kalanick discloses a "system that can automatically configure an indication device (or

a display device) for use with an on-demand service." Pet. 27 (quoting Ex. 1006 ¶ 10). Patent Owner does not address this contention.

We find for the reasons given that Kalnick teaches or suggests the preamble of claim 1.[6]

(1A) requesting a ride from a transportation service from a mobile communication device of a user

Petitioner contends Kalanick meets this limitation by disclosing an "on-demand service system [that] can arrange a transport service for a user by receiving a request for transport from the user's device." *Id.* (citing Ex. 1006 ¶ 1; Williams I Decl. ¶ 130). Patent Owner does not address this contention.

We find for the reasons given that Kalanick teaches or suggests claim element 1A.

(1B) determining that a vehicle is within a predetermined distance of the location of the user

Petitioner contends Kalanick discloses this limitation. Pet. 27–28. Petitioner contends that "*Kalanick* discloses that the system can determine if the driver's position is within a predetermined distance of the user's current location or the pickup location." *Id.* at 38 (citing Ex. 1006 ¶ 35) (internal quotation marks omitted).

Patent Owner responds that Kalanick fails to disclose this step. PO Resp. 19. Patent Owner asserts that "Kalanick's cited portions merely disclose that the system determines that the driver's current location is within a predetermined distance. It does not disclose that the system sends a

[6] We do not express an opinion on whether the preamble is limiting.

signal to the mobile device of the driver when the driver is a predetermined distance from a specific location." *Id.* (citation omitted).

We disagree with this argument by Patent Owner. The claim limitation does not call for sending a signal to the driver. As Petitioner points out, the parties appear to agree that Kalanick performs the "determining" step called for in this claim element. Pet. Reply 9 (citing PO Resp. 9). The dispute, therefore, is not over the "determining" step, but the next following "generating" step. *Id.* We agree with Petitioner and, for the reasons given, we find that Kalanick teaches or suggests claim element 1B.

(1C) generating a notification signal to a mobile communication device associated with a driver of the vehicle

Petitioner contends that Kalanick discloses this limitation. Pet. 28. Petitioner contends that in Kalanick, "service application 161 can receive the configuration data 145 from the system 100 and control the indication device 170." *Id.* (citing Ex. 1006 ¶ 32). Petitioner further explains that in Kalanick, "when the controller detects the driver is close to the rider, it generates a signal 1) notifying the driver's device of the appropriate identifier and 2) notif[ying] the driver's device that it is time to display that identifier." *Id.* (citing Williams I Decl. ¶ 134).

Patent Owner contends that Kalanick does not disclose this step. PO Resp. 20–22. Patent Owner contends that "the determining step [1B] must be read in connection with the generating step [1C] for the notification signal." *Id.* at 21. According to Patent Owner, Kalanick "merely discloses that the system 100 can communicate with the driver devices 160. It does not, however, indicate when the communication occurs." *Id.* (internal quotation marks and citations omitted). Patent Owner further contends that Kalanick "merely disclose[s] that the system can determine the driver's

current location and status, but it does not disclose that the system sends a signal to the mobile device of the driver when the driver is a predetermined distance from a specific location." *Id.*

We do not agree with Patent Owner's arguments. As Petitioner points out, "nowhere does the claim language recite this limitation of sending the notification signal when it is determined that the vehicle is within a predetermined distance of a specific location." Pet. Reply 10. We agree with Petitioner that Patent Owner is attempting to introduce a limitation not present in the language of the claim. *Id.* We agree also that a person of ordinary skill "would understand that the communications sent from Kalanick's controller ('system 100') via a transceiver to the driver's mobile communication device was a notification signal and satisfies the limitation." *Id.* (citing Pet. 28; Williams III Decl. ¶ 19).

We find for the reasons given that Kalanick teaches or suggests claim element 1C.

(1D) generating an indicatory signal representing an indicator

Petitioner demonstrates that this limitation is met by the combination of Kalanick and Kemler. Pet. 29 (citing Williams I Decl. ¶¶ 135–137). Petitioner contends that "Kalanick's 'controller' (i.e., its 'system 100') can communicate, over one or more networks via a network interface [i.e., transceiver] (e.g., wirelessly or using a wire), with the client devices 150 (e.g., mobile computing devices operated by clients or users/customers) and the driver devices 160 (e.g., mobile computing devices operated by drivers) using a client device interface 120 and a driver device interface 130, respectively." *Id.* at 32–33 (alteration in original) (citing Ex. 1006 ¶ 25).

Petitioner explains that Kemler discloses an identifier in the form of a

signal that is displayed on the display. *See id.* at. 30; Ex. 1008, 3:60–63 ("The signal may include a unique, distinct, and/or easily distinguishable string of text or image rather than the user's name, destination, etc. This protects the user's privacy.").

Petitioner contends that "[a person of ordinary skill] would be motivated to combine the controller generated signal/indicator of *Kemler's* driverless vehicle identification system with *Kalanick's* driver-oriented vehicle identification system to permit the driver's device to send the signal to the display on the vehicle after the driver's device receives the signal from the controller." Pet. 30 (citing Williams I Decl. ¶ 137); *see also* Section III.E.3, *supra* (finding sufficient motivation to combine Kalanick and Kemler).

Patent Owner responds that "[t]he claims require that a new signal be generated each time a ride is dispatched." PO Resp. 22. Further, Patent Owner argues that "Kalanick by contrast does not generate an indicator signal. Instead, it transmits a signal that was stored in the user's profile based on the user's predetermined configuration preferences." *Id.* (citation omitted).

We disagree that the claims "require that a new signal be generated each time a ride is dispatched." As Petitioner points out, this is a variation on the "active formulation" claim construction argument advanced by Patent Owner which we have rejected previously. Pet. Reply 11 ("[Patent Owner] continues to confuse generating a unique icon or symbol for the first time with the claim requirement that simply requires that the controller generate or produce a first signal."); *see supra*, Section III.C.3 (discussing construction of "generate" as not including active formulation). Moreover,

Petitioner relies on the combination of Kalanick and Kemler for this limitation, including the indicator signal. Pet. Reply 12. This combination would disclose having "the controller generated signal/indicator of *Kemler's* driverless vehicle identification system with *Kalanick's* driver-oriented vehicle identification system to permit the driver's device to send the signal to the display on the vehicle after the driver's device receives the signal from the controller." *Id.* (citing Pet. 30; Williams I Decl. ¶ 137; Williams III Decl. ¶ 24). Patent Owner's argument that Kalanick and Kemler "should not be combined" (PO Resp. 25) is discussed *supra*, in Section III.E.

We find for the reasons given that Kalanick and Kemler teach or suggest claim element 1D.

> (*1E) displaying the indicator based on the notification signal on a display associated with the vehicle, the mobile communication device associated with the driver, and the user's mobile communication device,*

Petitioner relies on Kalanick and Kemler to meet this limitation. Pet. 30–33. Petitioner demonstrates that "a [person of ordinary skill] would find it obvious to modify *Kalanick's* vehicle identification system in view of the teachings of *Kemler* to display the indicator on a display associated with the vehicle, the mobile communication device associated with the driver, and the user's mobile communication device." *Id.* at 32 (citing Williams I Decl. ¶ 142). Petitioner continues that "a [person or ordinary skill] would be motivated to do so to ensure that the user can accurately locate their assigned vehicle, which also serves to ensure the user's safety by avoiding entering the wrong vehicle." *Id.*

Patent Owner's response consists mainly of arguments previously addressed, such as the alleged failure of Kalanick to teach or suggest a

notification signal or a signal containing an indicator. PO Resp. 26. In addition, Patent Owner contends Kemler does not "fill the gap" it alleges exists in Kalanick, e.g., because "Kemler's system is 'driverless . . . and its computing device is 'incorporated in the vehicle.'" *Id.* One cannot show non-obviousness by attacking references individually where the assertions of obviousness are based on combinations of references. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). This argument is unavailing because it ignores the fact that while Kemler's vehicle may be driverless, Kalanick's is not. The proper test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art. *In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012).

We find for the reasons given that Kalanick teaches or suggests claim element 1E.

> *(1F) wherein the display associated with the vehicle is located to be visible from the exterior of the vehicle; and*
>
> *(1G) identifying the vehicle based on the appearance of a match, by visual observation of the user, between the indicator being displayed on the user's mobile communication device and the indicator being displayed on the display associated with the vehicle.*

Petitioner demonstrates that these claim limitations relating to the display are disclosed by Kalanick and Kemler. Pet. 33–35; Williams I Decl. ¶¶ 145–149. Patent Owner does not challenge these contentions.

We find that for the reasons given, Petitioner has demonstrated by a preponderance of the evidence that the Kalanick and Kemler teach or suggest each limitation of claim 1 and that it would have been obvious to combine the references with a reasonable expectation of success. We

therefore determine that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over Kalanick and Kemler.

G. Obviousness Based on Lalancette and Kemler

Petitioner contends also that claim 1 and 2 would have been obvious in light of Lalancette and Kemler and provides an element-by-element analysis. Pet. 38–48. Petitioner provides supporting testimony from Mr. Williams. Williams I Decl. ¶¶ 159–186.

1. Claim 1

Petitioner's analysis for claim 1 demonstrates that each element of the claim is met by Lalancette and Kemler. Pet. 38–66; Williams I Decl. ¶¶ 159–182. For example, Petitioner demonstrates that the preamble is met by Lalancette's disclosure of "a cross-platform target identification system" for use with a taxi dispatch service. Pet. 39. Similarly, the step of requesting a ride (1A) is met by Lalancette's disclosure of "a user 102 ordering a taxi by using handset/smartphone 104 to request taxi service from a taxi dispatch service ('service provider 1. 108) via communication link 109." *Id.* at 41 (quoting Ex. 1009 ¶ 29) (internal quotation marks omitted).

Petitioner demonstrates that Lalancette and Kemler meet the "predetermined distance" requirement of claim element 1B. *Id.* at 41–44; Williams I Decl. ¶¶ 167–171. Petitioner explains "*Kemler* teaches that 'the centralized dispatching system may send the signal . . . when the vehicle is within the certain distance or time relative to the user.'" Pet. 42–43 (alteration in original) (citing Ex. 1008, 4:12–19). Petitioner asserts "[a person of ordinary skill] would find it obvious to modify *Lalancette's* taxi identification system to determine that a vehicle is within a predetermined

distance of the location of the user, as disclosed in *Kemler*." *Id.* at 43 (citing Williams I Decl. ¶ 171).

Patent Owner responds that "Lalancette does not describe any embodiments that generate a notification signal when a driver is within a predetermined distance of the location." PO Resp. 35. This argument is unavailing, among other reasons, because the claim does not require generation of a notification signal when the vehicle is within a predetermined distance from the driver. *See* Section III.E.1, *supra*; *see also* Pet. Reply 9. Furthermore, the argument fails to address the combination of Kemler with Lalancette. *See* Pet. 42–43 ("*Kemler* teaches that 'the centralized dispatching system may send the signal . . . when the vehicle is within the certain distance or time relative to the user.'" (alteration in original)).

Petitioner asserts that "to the extent that Lalancette does not explicitly discuss determining that a vehicle is within a predetermined distance of the location of the user, a [person of ordinary skill] would find it obvious to modify Lalancette's taxi identification system to determine that a vehicle is within a predetermined distance of the location of the user, as disclosed in Kemler." *Id.* at 43 (citing Williams I Decl. ¶ 171). We do not agree with Patent Owner's argument that the teachings of Lalancette and Kemler "should not be combined." PO Resp. 35. Our reasoning is discussed in Section III.E.3, *supra*. We find that for the reasons given, Petitioner demonstrates that the "determining" limitation 1B is met by Lalancette combined with Kemler.

Petitioner demonstrates that the "generating" steps of limitations 1C and 1D are met by Lalancette or by Lalancette combined with Kemler. Pet.

43–45; Williams I Decl. ¶¶ 172–177. Petitioner explains that Lalancette meets the generating requirement of limitation 1C for a "notification signal" because "*Lalancett*e discloses that the taxi service provider server generates a notification signal including the icon to the driver's mobile computer which is displayed on the roof-top display of the taxi." Pet. 44 (citing Williams I Decl. ¶ 174). Similarly, for limitation 1D, Petitioner asserts that "even applying [Patent Owner's] construction, the combination of *Lalancette* and *Kemler* . . . discloses that the controller actively formulates a signal that represents the indicator for each ride in a vehicle identification system." *Id.* at 45 (citing Williams I Decl. ¶ 176).

Patent Owner responds that "[t]he claims of the invention require that a new signal be generated each time there is a ride dispatched. No signal is pre-associated with a particular rider or a particular driver." PO Resp. 37. Patent Owner continues, "Lalancette, in contrast, relies on pre-selection – a permanent signal icon stored in a server 112 associated with a user – in a manner similar to Kalanick." *Id.*

As in the case of Patent Owner's argument directed to Kalanick, we do not agree with its argument because it is based on Patent Owner's proposed construction of "generate," which we did not adopt. *See supra*, Section III.C.3; Williams I Decl. ¶¶ 175–177. Furthermore, as Petitioner points out, the argument fails to address the combination of Kalanick and Kemler that Petitioner relies on to meet this limitation. Pet. Reply 12. For the reasons given, we find that Petitioner demonstrates that Lalancette and Kemler meet limitations 1C, calling for "generating a notification signal," and 1D, calling for "generating an indicatory signal." Pet. 43–45.

For claim element 1E ("displaying the indicator based on the notification signal on the display associated with the vehicle, the mobile communication device associated with the driver, and the user's mobile device"), the Petition demonstrates that Lalancette discloses this step. *Id.* at 45–47. In Lalancette, as part of the dispatch procedure, service provider 108 transmits the dispatch information and the user's icon to a mobile computer in taxi car 118 and the mobile computer manages the taxi roof-top electronic display 122. *Id.* at 44–46; Williams I Decl. ¶¶ 178–179; Ex. 1009 ¶ 32. Petitioner explains that "*Lalancette* discloses that the user 102 can show the driver the copy of the icon on the user device 104 which the driver can compare to the copy of the icon displayed on the driver's dashboard display 124." Pet. 47 (citing Ex. 1009 ¶ 33) (internal quotation marks omitted).

Patent Owner responds that "Lalancette does not disclose a mobile device associated with a driver at all." PO Resp. 39 (citing Valenti III Decl. ¶ 94). Patent Owner continues, "Petitioner's expert acknowledges that Lalancette does not disclose the use of a mobile communication device associated with the driver." *Id.* (citing Williams Dep. 128:14–129:25, 132:1–8). This is a misrepresentation of Mr. Williams's testimony. He was not asked whether Lalancette "discloses" a mobile communication device; he was asked to agree whether Lalancette "identi[fies] the mobile computer as a mobile communication device." Williams Dep 129:10–13. He explained his response later in his testimony: "In the passage where [Lalancette] references mobile computer, it doesn't have a specific form factor discussion such as referencing Smartphones." *Id.* at 132:5–8.

We do not agree with Patent Owner's argument that this limitation is not met by Lalancette and we do not find the testimony of its expert, Dr.

Valenti, credible or helpful. *See* Valenti III Decl. ¶¶ 94 ("Lalancette does not disclose a mobile device associated with a driver at all."). As Petitioner points out, the argument supported by Dr. Valenti is an "attempt to improperly narrow the definition of a mobile device to only mean a smartphone of the driver." Pet. Reply 24. We find that this argument and the supporting expert testimony are contradicted by the '199 patent specification. *See id,* at 24–25 (quoting Ex. 1001, 3:10–11, defining mobile communication device broadly). We, therefore, find that the mobile computer disclosed in Lalancette meets the requirement of this claim limitation for a "mobile communication device associated with the driver." We find for the reasons given that Petitioner demonstrates that Lalancette and Kemler meet limitation 1E.

Patent Owner does not challenge Petitioner's showing that 1F, the one remaining limitation of claim 1, is met by Lalancette and Kemler. We determine for the reasons given that claim limitation 1E is met by Lalancette and Kemler.

We find that for the reasons given, Petitioner has demonstrated by a preponderance of the evidence that the Lalancette and Kemler teach or suggest each limitation of claim 1 and that it would have been obvious to combine the references with a reasonable expectation of success. We therefore determine that Petitioner has demonstrated by a preponderance of the evidence that claim 1 would have been obvious over Lalancette and Kemler.

2. Claim 2

Claim 2 depends from claim 1 and adds the step of "identifying the user based on appearance of a match . . . ." Ex. 1001, 8:28–33. Petitioner

demonstrates that this step is taught by Lalancette in view of Kemler. Pet. 48 (citing Ex. 1009 ¶ 33).

Patent Owner does not separately challenge this contention., relying on its contentions for claim 1. PO Resp. 40 n.1.

We determine that for the reasons given for claim 1, Petitioner has demonstrated by a preponderance of the evidence that claim 2 would have been obvious over Lalancette and Kemler.

H. Conclusion

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 2 of the '199 patent would have been obvious (1) over Kalanick and Kemler, and (2) over Lalancette and Kemler.

IV. MOTION TO AMEND

A. Introduction

As discussed *supra,* after institution, Petitioner filed a contingent Motion to Amend. The Motion requests that, if we find in a final written decision that "original independent claim 1 [is] unpatentable," we amend the '199 patent to "grant entry of corresponding substitute claims 3–4" presented in the Motion. Mot. Amend 1.

Patent Owner submitted the second Declaration of Dr. Matthew Valenti ("Valenti II Decl.") in support of the Motion. *See supra*, Section I. Petitioner filed an Opposition to the Motion to Amend. Paper 16 ("Pet. MTA Opp."). Petitioner submitted the second Declaration of David Williams ("Williams II Decl.") in support of the Opposition.

Patent Owner requested that we provide preliminary guidance in accordance with the Board's pilot program concerning motion to amend

practice and procedures. Mot. Amend 1. After considering Patent Owner's Motion to Amend and Petitioner's Opposition, we provided Preliminary Guidance. Paper 20 ("Prelim. Guidance").

In this Preliminary Guidance, we provided information indicating our initial, preliminary, and non-binding views on whether Patent Owner had shown a reasonable likelihood that it had satisfied the statutory and regulatory requirements associated with filing a motion to amend in an *inter partes* review and whether Petitioner (or the record) established a reasonable likelihood that the substitute claims are unpatentable. *See* Notice, 84 Fed. Reg. at 9,497; *see also* 35 U.S.C. § 316(d) (providing statutory requirements for a motion to amend); 37 C.F.R. § 42.121 (providing regulatory requirements and burdens for a motion to amend); *Lectrosonics, Inc. v Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential) (providing information and guidance regarding motions to amend). In our Preliminary Guidance, we concluded that at the preliminary stage of the proceeding, and based on the record at that time, Patent Owner had shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend with respect to proposed substitute claims 3 and 4. Prelim. Guidance 4.

Subsequently, Petitioner filed a Reply to the Board's Preliminary Guidance (Paper 24, "Pet. MTA Reply") and Patent Owner filed a Sur-reply in support of its Motion to Amend (Paaper 27, "PO MTA Sur-reply").

For the reasons that follow, we grant Patent Owner's Motion to Amend.

B. Legal Standard

In an *inter partes* review, amended claims are not added to a patent as a matter of right, but rather must be proposed as a part of a motion to amend. 35 U.S.C. § 316(d). "Before considering the patentability of any substitute claims, . . . the Board first must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121." *Lectrosonics, Inc.*, Paper 15 at 4. Accordingly, we consider whether: (1) the amendment proposes a reasonable number of substitute claims; (2) the proposed claims are supported in the original disclosure (and any earlier filed disclosure for which the benefit of filing date is sought); (3) the amendment responds to a ground of unpatentability involved in the trial; and (4) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter. *See* 35 U.S.C. § 316(d); 37 C.F.R. § 42.121.

The Board assesses the patentability of proposed substitute claims "without placing the burden of persuasion on the patent owner" for issues of patentability. *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1328 (Fed. Cir. 2017) (en banc); *see also Lectrosonics, Inc.*, Paper 15 at 3–4.

In accordance with *Aqua Products* and *Lectrosonics,* Patent Owner does not bear the burden of persuasion to demonstrate the patentability of the substitute claims presented in the motion to amend. To the contrary, ordinarily, "the petitioner bears the burden of proving that the proposed amended claims are unpatentable by a preponderance of the evidence." *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1040 (Fed. Cir. 2017), *as amended on reh'g in part* (Mar. 15, 2018); *see Lectrosonics*, Paper 15 at 3–4. In determining whether a petitioner has proven unpatentability of

the substitute claims, the Board focuses on "arguments and theories raised by the petitioner in its petition or opposition to the motion to amend." *Nike, Inc. v. Adidas AG*, 955 F.3d 45, 51 (Fed. Cir. 2020).

C. Patent Owner's Proposed Substitute Claims

Patent Owner proposes to substitute claims 3 and 4 for claims 1 and 2, respectively. Proposed substitute claim 3[7] provides:

> [3. (Preamble)] A vehicle identification method implemented as an Application on mobile communication devices over a wireless communication network, comprising:
>
> [3(a)] requesting a ride from a transportation service from a mobile communication device of a user;
>
> [3(b)] determining that a vehicle is within a predetermined distance of the location of the user;
>
> [3(c)] generating a notification signal to a mobile communication device associated with a driver of the vehicle;
>
> [3(d)] generating, by creating an indicator that is specific to a user and driver match, an indicatory signal representing ~~an~~ the indicator;
>
> [3(e)] displaying the indicator based on the notification signal on a display associated with the vehicle, the mobile communication device associated with the driver, and the user's mobile communication device,
>
> [3(f)] wherein the display associated with the vehicle is located to be visible from the exterior of the vehicle; and
>
> [3(g)] identifying the vehicle based on appearance of a match, by visual observation of the user, between the indicator being displayed on the user's mobile communication device and the indicator being displayed on the display associated with the vehicle.

[7] Material added to claim 1 is indicated by underlining. Material deleted is stricken through.

Mot. Amend App. A, 1.[8] Proposed claim 4 modifies claim 2 to change its dependency from claim 1 to claim 3. *Id.* at 2.

D. Requirements for Amendment

1. Claim Listing

Patent Owner provides a claim listing showing the proposed changes. *See* Mot. Amend 2, App. A (Claim Listing) (proposing substitute claims 3 and 4).

2. Reasonable Number of Substitute Claims

Patent Owner proposes two substitute claims. We determine that the requirement for a reasonable number of substitute claims has been met.

3. Responsive to Ground of Patentability

The proposed substitute claims recite a new limitation that is responsive to a ground of unpatentability on which we instituted trial, namely, the timing of the generation of an indicator that is unique to a user and driver. *See supra*, Sections III.F, III.G.

4. Scope of Amended Claims

The proposed substitute claims do not broaden the scope of the amended claims. Proposed substitute independent claim 3 includes narrowing limitations as compared to corresponding original claim 1. Proposed substitute claim 4 depends from a narrowed claim.

5. New Matter

Petitioner contends that "there is no support in the written description for at least the requirement that "(iii) a new indicator is generated for the new user, by the driver's mobile device in communication with the vehicle identification system, after the notification signal is generated (i.e., after it

[8] Paragraph references in brackets were added to track Petitioner's analysis.

has been determined that the vehicle is within a predetermined distance of the user's location)." Pet. MTA Reply 6. Petitioner asserts that "[t]he '492 Application simply does not disclose creating *an indicator* once the vehicle is determined to be within a predetermined distance of the user's location." *Id.* (citing Williams II Decl. ¶¶ 113–117). Patent Owner responds that Petitioner "reargues its position" already addressed in the Preliminary Guidance. PO MTA Sur-reply 6.

We agree with Patent Owner. In the Preliminary Guidance, we determined that "[b]ecause the '492 application [which became the '199 patent] discloses that (i) a notification signal is generated for a new rider/user, (ii) the notification signal is generated when it is determined that the vehicle is within a predetermined distance of the user's location, and (iii) a new indicator is generated for the new user, by the driver's mobile device in communication with the vehicle identification system, after the notification signal is generated (i.e., after it has been determined that the vehicle is within a predetermined distance of the user's location), we agree with Patent Owner that the '492 application (and the '199 patent) provides written description support for creating an indicator specific to a user and driver match after determining that the vehicle is within a predetermined distance of the location of the user." Prelim. Guidance 8 (emphasis omitted).

We addressed Petitioner's arguments in the Preliminary Guidance and did not find them persuasive "because the original disclosure of the '199 patent, i.e., U.S. Application No. 16/514,492 ("the '492 application"), which became the '199 patent, explicitly discloses creating an indicator that is specific to a user and driver match, after it is determined that the vehicle is

within a predetermined distance of the location of the user, as recited in proposed substitute claim 3." *Id.* at 6.

We noted that that "Petitioner's analysis of paragraph 30 of the specification of the '492 application ignores most of the disclosure in this paragraph." *Id.* at 6–7. We concluded that this paragraph "explicitly discloses that *a new indicator is generated (by the driver's mobile device in communication with the vehicle identification system) for a new rider, with previously-used indicators being 'deleted' and 'not . . . duplicated.'*" *Id.* at 7 (alteration in original). We also determined that "Paragraph 30 also discloses that when a new rider is scheduled to be picked up and 'the driver D approaches the second location [of the new rider] (or third location, etc.), the vehicle identification system 10 may *generate another notification signal*.'" *Id.* We concluded that "[f]urther, paragraph 34 of the '492 application discloses that the notification signal is generated 'when it is determined that the vehicle 20 is *within a predetermined distance of the location of the user P*.'" *Id.*

We agree that the arguments in Petitioner's MTA Reply focus on Paragraph 30 and are duplicative of and do not adequately address our preliminary findings. *See* Pet. MTA Reply 7. For the reasons summarized above and stated in our Preliminary Guidance, we find that there is written description support for the proposed amendments.

6. Patentability of the Proposed Claims

a) Obviousness

Petitioner contends the proposed substitute claims would have been obvious over: (1) Kalanick and Kemler, (2) Kalanick, Kemler, and

Stanfield[9]; (3) Lalancette and Kemler; and (4) Lalancette, Kemler, and Stanfield. Pet. MTA Opp. 11–25.

The Preliminary Guidance concluded that "each of Petitioner's challenges (or the record) fails to show a reasonable likelihood that the respective proposed substitute claims are unpatentable." Prelim. Guidance 9. The basis for this determination in each of the challenges was the failure of the references to teach or suggest "creating an indicator after determining that the vehicle is within a predetermined distance of the location of the user as recited in proposed substitute claim 3." *Id.* at 16 (Kalanick and Kemler, with or without Stanfield), 18–19 (Lalancette and Kemler, with or without Stanfield) (emphasis omitted).

Petitioner asserts in its Reply that "the Preliminary Guidance limits Kemler's disclosure to that the unique signal is created when the user requests a vehicle from a dispatching service, as opposed to 'after it is determined that the vehicle is within a predetermined distance of the location of the user.'" Pet. MTA Reply. 2. Petitioner disagrees with this conclusion, asserting that "a [person of ordinary skill] would understand Kemler to also disclose that the unique signal may be generated *after* the user requests a vehicle from a dispatching service." *Id.* Petitioner relies on an "alternative" embodiment of Kemler, depicted in Figures 7 and 8. *Id.* According to Petitioner, in Figures 7 and 8, "the vehicle is already assigned to the user but the unique signal is not yet generated or sent." *Id.*

Alternatively, Petitioner asserts that "it would also have been an obvious implementation choice to only create and send the indicator to the

[9] U.S. Patent No. 9,442,888 (Ex. 1026).

vehicle once the vehicle and the user were within a certain distance to efficiently allocate resources and protect the user's privacy." *Id.* at 3 (citing Williams II Decl. ¶¶ 26–28).

We do not find these arguments persuasive. As Patent Owner points out, Petitioner's argument is contradicted by Figure 10 of Kemler, a flowchart showing the relationship of the signal generation step to dispatch. PO MTA Sur-reply 2. Further, it is inconsistent with the Kemler specification. *See* Ex. 1008, 3:52–59 ("The request [for a vehicle] may be sent to a centralized dispatching system which selects or assigns a vehicle to the requesting user. At the same time, the centralized dispatching system may generate a signal to identify the vehicle to the user."). For the reasons summarized above and given in the Preliminary Guidance, we find that the prior art relied on by Petitioner fails to teach or suggest the limitation of "creating an indicator after determining that the vehicle is within a predetermined distance of the location of the user" as recited in proposed substitute claim 3.

In a similar way, the Preliminary Guidance concluded that "Lalancette . . . discloses that an icon is generated by the user in advance of using a taxi service, such that the taxi service (service provider 108) merely retrieves (e.g., from a server) the user's existing icon at the time the user requests a taxi. Lalancette's taxi service provider 108 generates a user's icon after the user requests a taxi." Prelim. Guidance 16. "Thus, Lalancette does not teach creating an icon after it is determined that the requested car is within a predetermined distance of the location of the user (as required by claim 3)." *Id.* at 16–17 (emphasis omitted).

b) Stanfield

In the Preliminary Guidance, we did not find supported Petitioner's contention that Stanfield "discloses the indicator creation features in contingent claim 3." Prelim. Guidance 13. We concluded that "Petitioner's contentions do not establish that Stanfield *creates* the indicator *after* it is determined that the vehicle is *within a predetermined distance of the location of the user* (as required by claim 3)." *Id.* We reasoned that "[i]n Stanfield, creation of the signal (indicator) is not prompted by a determination that the vehicle is within a predetermined distance of the user." *Id.* at 14 (emphasis omitted). We explained that "[b]ecause Stanfield's indicator is *created* when the vehicle's availability becomes known to the fleet manager (or is set by the fleet manager), and *not when* a potential customer approaches (or is within a certain distance of) a vehicle, we are unpersuaded by Petitioner's contentions that 'Stanfield discloses the indicator creation features in contingent claim 3,' or that 'a [person of ordinary skill] would have considered the creation of an indicator for the first time when a vehicle reaches a certain distance obvious.'" *Id.* (second alteration in original)

We found also that Petitioner's arguments and evidence were "insufficient to demonstrate that a skilled artisan would have been prompted by Stanfield to modify Kalanick and/or Kemler to create an indicator after it is determined that a vehicle is within a predetermined distance of the location of the user (as required by claim 3)." *Id.*

In reaching these preliminary conclusions we considered and discussed Petitioner's arguments. *See id.* at 14–16. The arguments Petitioner presents in its Reply are repetitive and no more persuasive than

those already considered. *See* Pet. MTA Reply 5–6. For example, the argument that "Stanfield along with the other references address similar problems as the '199 Patent involving vehicle identification in an on-demand transport system" was previously considered and was rejected. *See* Prelim. Guidance 14 ("We are unpersuaded by Petitioner's argument because Stanfield does not address the same problem as the '199 patent.").

Petitioner does not convince us that Stanfield addresses a "security problem," as opposed to an information retrieving problem. *See* Prelim. Guidance 14–15. For the reasons given in our Preliminary Guidance and summarized *supra*, we find that Stanfield does not teach or suggest the indicator creation limitation, nor would a person of ordinary skill have combined Stanfield with the other references relied on by Petitioner.

c) Patent Eligibility

The Preliminary Guidance concluded that Petitioner failed to show "a reasonable likelihood that proposed substitute claims 3 and 4 are patent-ineligible" under 35 U.S.C. § 101. Prelim. Guidance 19. We first determined, under the 2019 Revised Patent Subject Matter Eligibility Guidance and the October 2019 Update,[10] that the proposed claims recite a judicial exception in Revised Step 2A, Prong One. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54 (Jan. 7, 2019) (hereinafter "Guidance") updated by USPTO, October 2019 Update: Subject Matter Eligibility ("October 2019 Guidance Update"). Prelim. Guidance 19.

[10] Available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf.

We next determined that in accordance with Prong Two of Step 2A of the Guidance, "proposed substitute claim 3 (and its dependent claim 4) recites technological features that enable communication and coordination between multiple devices that are not co-located and are moving with respect to each other (i.e., a customer's/user's mobile communication device, a vehicle's display, and a driver's mobile communication device and a controller of a vehicle identification system communicating therebetween and generating notifications and indicators based on the vehicle's location and the distance to the user)." *Id.* at 21. We concluded that "[t]hus, proposed substitute claim 3 provides a technological solution rooted in computer and network technologies." *Id.* (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–58 (Fed. Cir. 2014); *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1259–60 (Fed. Cir. 2017)).

We concluded, therefore, that Petitioner had not shown a reasonable likelihood that proposed substitute claims 3 and 4 are patent-ineligible. *Id.* at 22.

Petitioner responds that "[t]he limitations in steps 3b-3e of determining that a dispatched vehicle is within a predetermined distance of the location of a user, generating a notification signal, creating an indicator that is specific to a user and driver match, and displaying the indicator based on the notification signal on an external display are merely computer implementations of the abstract idea of enabling a user to identify a dispatched cab." Pet. MTA Reply 9. Petitioner continues, "[s]uch limitations do not result in an improvement in the functioning of a computer or other technical improvement." *Id.*

We disagree with Petitioner. As Patent Owner points out, Petitioner has not addressed the rationale of our preliminary decision, only expressing its disagreement with the outcome. PO MTA Sur-reply 7. Petitioner does not persuasively address our conclusion that the proposed substitute claims "recite[] technological features that enable communication and coordination between multiple devices that are not co-located and are moving with respect to each other." Prelim. Guidance 21,

Therefore, for the reasons set forth in our Preliminary Guidance and summarized above, we find that Petitioner fails to prove that the proposed substitute claims at not patent-eligible.

7. Conclusion

For the reasons given, we find that Patent Owner's Motion to Amend has met the regulatory requirements and Petitioner has failed to demonstrate that proposed substitute claims 3 and 4 are unpatentable. Therefore, Patent Owner's Motion to Amend is *granted*.

V. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owners Motion to Exclude seeks to exclude three categories of evidence relating to Petitioner's expert, David Williams: (1) certain paragraphs of Mr. Williams's second declaration (Ex. 1027)[11] for allegedly expressing "legal opinions"; (2) Exhibits 1027 and 1030 (Mr. Williams's third declaration) as "[n]on-expert and unreliable under FRE 702" and "[p]rejudicial under FRE 703"; and (3) Exhibit 1030 under 37 C.F.R for presenting "new evidence or argument that could have been presented in the

[11] The Motion incorrectly identifies this declaration as Exhibit 2027.

Petition." Paper 26, 1–2. Petitioner opposes the motion. Paper 28. For the reasons that follow, Patent Owner's Motion is *denied*.

A. Mr. Williams's Second Declaration (Exhibit 1027)

Patent Owner moves to exclude paragraphs 5–20, 22, 23, 25, 27–31, 39–40, 42, 44–49, and 51–56 of Exhibit 1027, the Second Declaration of Mr. Williams.[12] Paper 26, 1. Patent Owner complains that Mr. Williams's testimony is "[n]on expert and unreliable under FRE 702" and "[p]rejudicial under FRE 703." *Id.* at 2. Patent Owner contrasts Mr. Williams's qualifications to those of its own expert, Dr. Valenti. *Id.* Patent Owner refers specifically to the discussion of "server farms" in connection with Kemler. *See supra*, Section III.E.3.

Patent Owner's attack on Mr. Williams's qualifications and credibility are unfounded. As discussed *supra*, in Section III.E.3, we found Mr, Williams's testimony on server farms and other matters reliable and highly credible, especially in his responses to Patent Owner's counsel on cross-examination. *See, e.g.*, Williams Dep. 82:17–94:22. As we noted, Mr. Williams backed up his testimony on the power requirements of server farms with several years of experience designing, implementing, and operating a server farm. We found this experience lends credibility to his testimony that the server farm in Kemler would improve efficiency of the system, even without specific test data. *See id.*

We found the declaration testimony in Mr. Williams's Second Declaration in connection with the Motion to Amend to be helpful. Patent Owner had the opportunity to challenge that testimony on cross-

[12] The Motion incorrectly identifies this declaration as Exhibit 2027.

examination, but did not take up that opportunity. We find that these challenges to Mr. Williams's Second Declaration, at most, go to the credibility, and not to the admissibility of the testimony. We agree with Petitioner that the challenged testimony provided by Mr. Williams relates to technical matters commonly addressed by experts testifying in patent cases, and not to conclusions of law. Paper 28, 2–4. We, therefore, deny the Motion as to Mr. Williams's Second Declaration.

B. Mr. Williams's Third Declaration (Ex. 1030)

Patent Owner moves to exclude paragraphs 4–49 (i.e., essentially all) of Mr. Williams's Third Declaration (Ex. 1030). Paper 26, 2. Again, Patent Owner alleges that the declaration is "unreliable" and "[p]rejudicial." Paper 26, 2.

Petitioner responds that Petitioner had a chance to challenge the testimony on cross-examination, but failed to do so. Paper 28, 1. Petitioner asserts that Patent Owner's arguments go to the weight of the testimony, not its admissibility, and that the Board is "well positioned" to assess the weight. *Id.* Petitioner argues that the testimony should not be excluded under Federal Rule of Evidence 703. We agree with these arguments by Petitioner. As Petitioner points out, Patent Owner ignores the testimony of Mr. Williams demonstrating the basis for his opinions that meets the reliability standard of Rule 703. *See* Paper 28, 5–7. This would include the "server farm" testimony cited by Patent Owner as an example. *See id*. at 6. As discussed *infra*, we found Mr. Williams's testimony helpful on that and other issues.

For the reasons given, including those summarized above, we deny the Motion as to Mr. Williams's Third Declaration.

C. Alleged New Evidence or Argument (Exhibit 1030)

Patent Owner alleges that "Exhibit 1030 is inadmissible under 37 CFR 42.23 because it is new evidence that could have been provided in the Petition." Paper 26, 8–9. Patent Owner gives, as an example, testimony presented by Mr. Williams that Patent Owner itself characterizes as "*in response to* Patent Owner pointing out that Kalanick does not disclose the 'notification signal' of Claim 1[C]." *Id.* at 8 (emphasis added).

Petitioner asserts that "[t]he Federal Circuit has repeatedly made clear that Petitioners may introduce new evidence after the petition stage, when such evidence responds to arguments made and evidence introduced by patent owner." Paper 28, 8–9 (citing *Apple Inc. v. Andrea Elecs. Corp.*, 949 F. 3d 697, 705–07 (Fed. Cir. 2020); *Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019)). We agree with Petitioner that Patent Owner seeks to exclude testimony that admittedly was properly presented by Petitioner "in response to" Patent Owner's arguments, such as in the examples cited by Patent Owner. *Id.* at 9–11. Furthermore, we see no undue prejudice to Patent Owner, who passed up the opportunity to cross-examine Mr. Williams on this testimony.

For the reasons given, including those summarized above, we deny the Motion to Exclude Mr. Williams's Third Declaration as untimely.

VI. CONCLUSION

For the foregoing reasons we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 2 of the '199 patent are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
1	103	Kalanick, Kemler	1	
1, 2	103	Lalancette, Kemler	1, 2	
Overall Outcome			1, 2	

Furthermore, we grant Patent Owner's contingent Motion to Amend, cancelling original claims 1 and 2 and replacing them with substitute claims 3 and 4.

In summary:

Motion to Amend Outcome	Claim(s)
Original Claims Cancelled by Amendment	1, 2
Substitute Claims Proposed in the Amendment	3, 4
Substitute Claims: Motion to Amend Granted	3, 4
Substitute Claims: Motion to Amend Denied	
Substitute Claims: Not Reached	

VII. ORDER

Upon consideration of the record before us, it is:

ORDERED that claims 1 and 2 of the '199 patent are not patentable;

ORDERED that Patent Owner's Motion to Amend is *granted*;

ORDERED that claims 1 and 2 of the '199 patent are *cancelled* and replaced by substitute claims 3 and 4, respectively;

ORDERED that Patent Owner's Motion to Exclude is *denied*; and

FURTHER ORDERED that because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2021-01601
Patent 10,559,199 B1

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Paper 26
Date: April 10, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LYFT, INC.,
Petitioner,

v.

RIDESHARE DISPLAYS, INC.,
Patent Owner.

IPR2021-01602
Patent 10,748,417 B1

Before THOMAS L. GIANNETTI, LYNNE E. PETTIGREW, and JOHN D. HAMANN, *Administrative Patent Judges.*

HAMANN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Dismissing Patent Owner's Motion to Exclude
35 U.S.C. § 318(a)

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Lyft, Inc. ("Petitioner") challenges the patentability of claims 1–5 ("the challenged claims") of U.S. Patent No. 10,748,417 B1 (Ex. 1001, "the '417 patent"), owned by Rideshare Displays, Inc. ("Patent Owner"). We have jurisdiction under 35 U.S.C. § 6 (2018). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 (2022). For the reasons discussed herein, we determine that Petitioner shows by a preponderance of the evidence that the challenged claims are unpatentable.

A. Procedural History

Petitioner filed a Petition requesting *inter partes* review of the challenged claims of the '417 patent. Paper 1 ("Pet."). Patent Owner filed a Preliminary Response. Paper 6 ("Prelim. Resp.). We instituted *inter partes* review of the challenged claims of the '417 patent on all of the grounds raised in the Petition. Paper 7 ("Dec. on Inst."), 42.

Following institution, Patent Owner filed a Response to the Petition. Paper 12 ("PO Resp."). Petitioner filed a Reply to Patent Owner's Response. Paper 15 ("Pet. Reply"). Patent Owner filed a Sur-reply to Petitioner's Reply. Paper 17 ("PO Sur-reply").

Patent Owner filed a Motion to Exclude certain of Petitioner's evidence (Paper 21, "Mot. Excl.") and Petitioner filed an Opposition (Paper 22).

An oral hearing was held on January 10, 2023. A transcript of the oral hearing is included in the record. Paper 25 ("Tr.").

B. Real Parties-in-Interest

The parties identify themselves as the real parties-in-interest. Pet. 8; Paper 5, 2.

C. Related Matters

The parties identify *Rideshare Displays, Inc. v. Lyft, Inc*., 20-cv-01629-RGA-JLH (D. Del.) as a matter that may affect, or be affected by, a decision in this proceeding. Pet. 8; Paper 5, 2. In addition, Petitioner has filed petitions for *inter partes* review of four additional patents that are related to the '417 patent and owned by Patent Owner: (i) U.S. Patent No. 9,892,637 B2 (IPR2021-01598); (ii) U.S. Patent No. 10,169,987 B1 (IPR2021-01599); (iii) U.S. Patent No. 10,395,525 B1 (IPR2021-01600); and (4) U.S. Patent No. U.S. Patent No. 10,559,199 B1 (IPR2021-01601). Pet. 8; Paper 5, 2.

D. The Challenged Patent

The '417 patent is titled "Vehicle Identification System." Ex. 1001, code (54). The '417 patent describes a system for "provid[ing] an indicator on a mobile communication device of a user having requested a ride service to allow the user to identify a vehicle prior to boarding the vehicle." *Id.* at 1:22–26. According to the '417 patent, "[a] continuing need exists for systems and methods adapted for use by transportation services to ensure rider and driver security." *Id.* at 1:59–61.

Figures 1A and 1B, shown below, illustrate two separate embodiments of the '417 patent. *Id.* at 2:38–43.

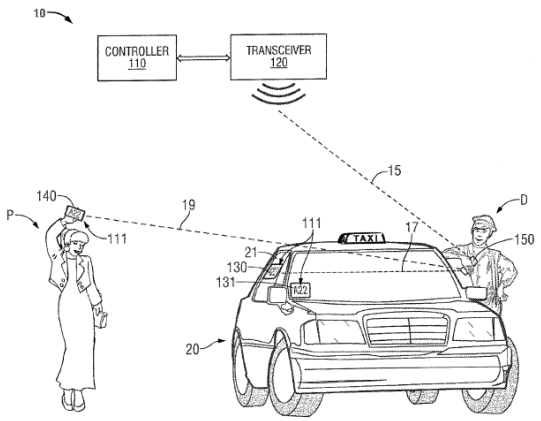

FIG. 1A

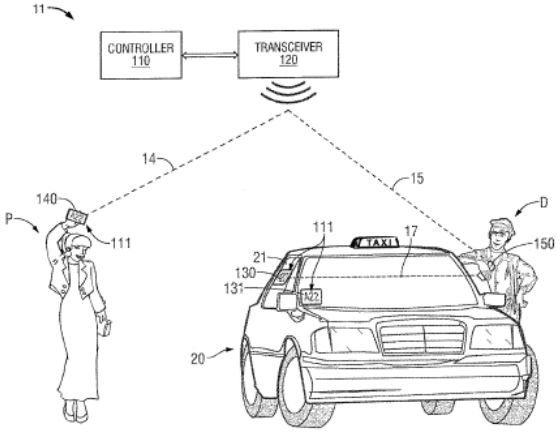

FIG. 1B

Figures 1A and 1B illustrate two embodiments of a vehicle identification system in accordance with the '417 patent. *Id.* Referring first to Figure 1A, vehicle identification system 10 includes controller 110, transceiver 120, and one or more displays associated with motor vehicle 20. *Id.* at 3:37–39. First display 130 is associated with passenger side rear window 21 of motor vehicle 20, and second display 131 is associated with the front windshield of motor vehicle 20. *Id.* at 3:39–43. Vehicle identification system 10 can "generate one or more signals representing an indicator, which may be displayable as a 'code' (e.g., a text string or an alphanumeric string), an icon, or other identifier, on" display 130 and on mobile communication device 140 associated with the user P to enable the user P to identify the vehicle that he or she has requested for a ride service. *Id.* at 4:4–13.

Figure 3, shown below, is a flowchart illustrating a method of identifying a vehicle in accordance with the '417 patent. *Id.* at 2:47–49.

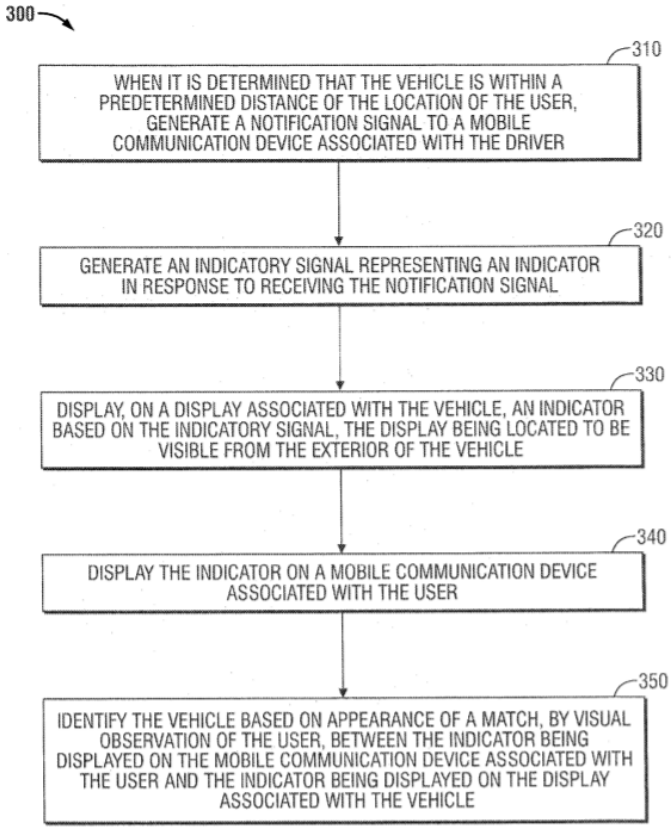

Figure 3 illustrates a method of identifying a vehicle being dispatched to a location of a user having requested a ride from a transportation service. Ex. 1001, 6:66–7:2. When it is determined that motor vehicle 20 is within a predetermined distance of the location of user P, notification signal 15 is generated to mobile communication device 150 associated with driver D. *Id.* at Fig. 3 (block 310). Indicatory signal 17 representing indicator 111 is generated in response to receiving notification signal 15. *Id.* at Fig. 3 (block 320). Indicator 111 based on indicatory signal 17 is displayed on display 130 associated with motor vehicle 20. *Id.* at Fig. 3 (block 330). Display 130 is located to be visible on the exterior of motor vehicle 20. *Id.* at 7:12–13. Indicator 111 is also displayed on mobile communication device 140 associated with user P. *Id.* at Fig. 3 (block 340). Motor vehicle 20 is identified based on appearance of a match, by visual observation of user P, comparing the indicator being displayed on the mobile communication device associated with user P and the indicator being displayed on the display associated with motor vehicle 20. *Id.* at Fig. 3 (block 350).

In the embodiment of Figure 1A, the mobile communication device associated with driver D generates the second signal representing an indicator that is transmitted to the mobile communication device associated with user P. *Id.* at 5:32–37. In the embodiment of Figure 1B, vehicle identification system 11 generates indicatory signal 14 transmitted to the mobile communication device associated with user P and notification signal 15 to be transmitted to the mobile communication device associated with driver D. *Id.* at 5:40–49. In this latter embodiment, the driver's mobile communication device does not communicate with the user's mobile communication device. *Id.* at 5:49–54.

E. The Challenged Claims

Petitioner challenges claims 1–5 of the '417 patent. Pet. 11. Claim 1 is the only independent claim. Claim 1 is illustrative of the challenged claims, and reads as follows:

> 1. A vehicle identification system for mobile communication device users, comprising:
>
> a display associated with a vehicle, wherein the display is located to be visible from an exterior of the vehicle by mobile communication device users;
>
> a controller communicatively coupled to a network and configured to, in response to receipt of a ride request signal from a mobile communication device of a user in a pickup area, generate and transmit a notification signal via the network to a mobile communication device associated with a driver of the vehicle, and in response to the mobile communication device associated with the driver of the vehicle receiving the notification signal an indicatory signal representing a visual indicator is generated and transmitted to the display and the mobile communication device of the user, wherein the visual indicator is not duplicated in the same pickup area.

Ex. 1001, 7:31–8:13.

F. Instituted Grounds of Unpatentability

We instituted trial based on the following grounds of unpatentability, which are all the grounds of unpatentability raised in the Petition:

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis[2]
1–5	103	Lalancette[3]
1–5	102	Lalancette
1–5	103	Kalanick,[4] Kemler[5]

Pet. 11, 28–63. Petitioner submits in support of its arguments the Declaration of David Hilliard Williams (Ex. 1003) and the Second Expert Declaration of David H. Williams (Ex. 1030). Patent Owner submits in support of its arguments the Declaration of Dr. Matthew Valenti (Ex. 2001) and the Second Declaration of Dr. Matthew Valenti (Ex. 2023).

II. LEVEL OF ORDINARY SKILL IN THE ART

To determine whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). In assessing the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995)

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[1] The Leahy-Smith America Invents Act ("AIA") included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the '417 patent issued from an application having an effective filing date after March 16, 2013, we apply the AIA version of the statutory bases for unpatentability.

[2] For each of the asserted obviousness grounds, Petitioner also lists "the knowledge of" one of ordinary skill in the art. Pet. 11. Although we do not list such knowledge separately, we consider such knowledge as part of our obviousness analysis. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362–63 (Fed. Cir. 2013).

[3] US 2012/0137256 A1, published May 31, 2012 (Ex. 1009, "Lalancette").

[4] US 2015/0332425 A1, published Nov. 19, 2015 (Ex. 1006, "Kalanick").

[5] US 9,494,938 B1, issued Nov. 15, 2016 (Ex. 1008, "Kemler").

(citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)). "[O]ne or more factors may predominate." *Id.*

Petitioner argues that one of ordinary skill in the art "would have had at least a bachelor's degree in electrical or computer engineering, or a similar field with at least two years of experience in the field of vehicle location and tracking systems or related technologies." Pet. 16. Petitioner adds that "[a] person with less education but more relevant practical experience may also meet this standard." *Id.* (citing Ex. 1003 ¶ 47).

Patent Owner argues that one of ordinary skill in the art would have had "knowledge of wireless communications protocols and some general experience with data privacy issues and protection models, in addition to the education level in electrical or computer engineering identified by the parties." PO Resp. 4 (citing Ex. 2023 ¶ 28). In addition, Patent Owner argues that Mr. Williams overstates what was known by one of ordinary skill in the art, including when Mr. Williams describes the state of the art as reflected in the Technology Background section of the Petition. *Id*. at 4–5. Mr. Williams also "cites to other areas of technology that he acknowledges are irrelevant to the technology in the patent," according to Patent Owner. *Id.* at 5. Patent Owner argues that "[t]he scope of knowledge of [one of ordinary skill in the art] as defined by Petitioner here is too broad, . . . and this overreach infects each argument that Petitioner makes with respect to the knowledge of" one of ordinary skill in the art. *Id.* (citing Ex. 2023 ¶ 30).

In our Decision on Institution, we adopted Petitioner's proposed definition, with a qualification. Dec. on Inst. 17. In particular, we determined that a person of ordinary skill in the art also would have had at least some experience in wireless cellular network protocols, as suggested by Patent Owner. *Id.* We also noted that from our review of the '417 patent

and the cited prior art, requiring specific experience with data privacy policies and protection models was not warranted, given the focus of the '417 patent on more general principles of cellular communications and signal transmission. *Id.*

On the full record, we determine that Petitioner's definition, with the above qualification, is consistent with the '417 patent and the asserted prior art, and thus, we maintain it for purposes of this Final Written Decision. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *GPAC*, 57 F.3d at 1579; *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

Our analysis herein, however, does not turn on which of the parties' definitions we adopt. The parties' statements made during the oral hearing are consistent with this point. *See* Tr. 75:17–18 (Patent Owner stating that "[i]t's not clear to us that the level of ordinary skill arguments actually matter"), 106:12–17 (Petitioner stating that its arguments do not depend on which definition we adopt).

In sum, we maintain Petitioner's definition, as qualified, for the level of one of ordinary skill in the art, and employ it in our analysis of the parties' unpatentability arguments.

III. CLAIM CONSTRUCTION

Because the Petition was filed after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b); 83 Fed. Reg. 51,340, 51,340–41, 51,343 (Oct. 11, 2018). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure.

Phillips, 415 F.3d at 1312–13. "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner argues that the terms of the challenged claims should be afforded their plain and ordinary meaning. Pet. 16–17. Patent Owner does not identify any terms for express construction.[6] PO Resp. 6.

In addition, the parties submit that the plain and ordinary meaning of the term "generate" supports their arguments concerning unpatentability. Pet. Reply 2–3; PO Resp. 6. However, based on Patent Owner's arguments regarding what the prior art fails to teach, the term "generate" in the phrase "generate and transmit a notification signal," requires construction. *See* Ex. 1001, 8:4–5; PO Resp. 30–32; *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1318 (Fed. Cir. 2016) (finding that disputes between the parties over the plain and ordinary meaning of a term should be resolved as a matter of claim construction). We turn to that task now.

Patent Owner first argues that the claims "require that a new *signal* be generated each time there is a ride dispatched." PO Resp. 30 (citing Ex. 2023 ¶ 78) (emphasis added). Patent Owner, however, proceeds to

[6] Patent Owner identified two terms in its Preliminary Response, but did not renew those arguments in its Response. *Compare* Prelim. Resp. 6–10, *with* PO Resp. 6. As such, those arguments are waived. Paper 9 (Scheduling Order), 9 ("Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.").

conflate generating a signal with generating an icon.[7] *Id.* at 30–32. For example, Patent Owner next argues that the teachings of Lalancette "eliminate[] the possibility that *icons* can be generated on a per-ride basis," and that "the *icon* would remain associated with the user on subsequent trips." *Id.* at 31–32 (citing Ex. 1009 ¶¶ 31, 42; Ex. 2023 ¶ 81) (emphases added). According to Patent Owner, "[t]his contrasts with the system of [c]laim 1 where an indicator (icon) is generated for each user-driver trip," and "[n]either the user nor the driver have pre-selected icons." *Id.* at 32 (citing Ex. 2023 ¶ 81); *see also id.* (citing Ex. 2023 ¶ 82) (making similar arguments).

Simply put, these arguments incorrectly conflate "signal" and "indicator" (e.g., icon). Claim 1 recites that a controller generates a signal, rather than reciting that the controller generates an indicator. Ex. 1001, 8:1–6. And the Specification of the '417 patent is replete with examples of the controller generating signals, including those that represent an indicator, for transmission by a transceiver, which is different than generating the indicator itself. *See, e.g.*, Ex. 1001, 2:1–5, 5:4–7, 6:30–37, 6:62–65. And we find unavailing Patent Owner's arguments that claim 1 requires a new indicator (e.g., icon) for each trip, and that the indicator cannot be pre-selected. PO Resp. 32. The language of claim 1 sets forth no such requirements. Ex. 1001, 7:31–8:14. Notably, Patent Owner does not cite to the Specification or claim language to support these arguments. PO Resp. 30–32. Rather, Patent Owner cites to the testimony of Dr. Valenti. *Id.* (citing Ex. 2023 ¶¶ 78–82). We find that this testimony lacks factual

[7] The'417 patent describes "an indicator" as "a 'code' (e.g., a text string or an alphanumeric string), *an icon*, or other identifier." Ex. 1001, 4:8–10 (emphasis added).

support and is entitled to little weight. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."); *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (finding that when "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term[,] . . . it is improper to rely on extrinsic evidence").

In addition, because the Specification and file history do not explicitly provide a definition for the term "generate," we look to a dictionary definition to illustrate its plain meaning for the parties. The Federal Circuit has approved the use of dictionaries for guidance in claim construction, "so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of "consult[ing] a general dictionary definition of [a] word for guidance" in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) ("[O]ur decisions, including *Phillips*, do not preclude the use of general dictionary definitions as an aid to claim construction.") (citation omitted).

A dictionary definition of "generate" is "to bring into existence: such as: . . . to originate by a vital, chemical, or physical process: [produce]." Merriam-webster.com (accessed April 8, 2022), https://www.merriam-webster.com/dictionary/generate (Ex. 3001). We therefore construe the term "generate" as it relates to the controller in reference to a signal in accordance with its plain and ordinary meaning, which is to originate or produce the signal.

We note that this is the same definition that we provided in our Decision on Institution, and which Patent Owner appears to adopt in its Response. Dec. on Inst. 21; PO Resp. 6 (quoting without attribution Ex. 3001[8] (defining "generate")). More specifically, Patent Owner submits that "[a]t institution, the Board determined that the term 'generating' should be construed according to its ordinary meaning," and argues that "[a]pplying ordinary meaning should still lead to the conclusion that the prior art does not render the claims of the patent unpatentable." PO Resp. 6. We also note that for many of the arguments we address above for this term, we also addressed them in our Decision on Institution. Patent Owner's Response largely recasts the arguments without using the phrase "actively formulated" while maintaining their same or similar substance. *Compare supra*, *with* Dec. on Inst. 22.

IV. PRINCIPLES OF LAW

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence

[8] Patent Owner incorrectly identifies the source of this definition as the Oxford Dictionary, rather than the Merriam-Webster Dictionary. PO Resp. 6.

of non-obviousness, if present.[9] *See Graham*, 383 U.S. at 17–18. When evaluating a claim for obviousness, we also must "determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

V. ALLEGED OBVIOUSNESS OVER LALANCETTE

Petitioner argues that Lalancette renders claims 1–5 obvious. Pet. 47–62. We have reviewed the parties' arguments and the evidence of record. For the reasons that follow, we determine that Petitioner shows by a preponderance of the evidence that Lalancette renders claims 1–5 obvious.

A. Summary of Lalancette

In its most relevant embodiment, Lalancette describes an electronic display mounted to be visible from outside a taxi, a mobile computing device in the taxi that manages a dash-mounted driver display and the mounted electronic display, and a smart phone of a user. Ex. 1009 ¶¶ 27–33. The taxi is equipped with an electronic display mounted outside of the taxi car or at least visible from outside the taxi car as well as a dash-mounted driver display. *Id.* ¶ 27. The displays are configured to display information received from the taxi dispatch service. *Id.*

In one scenario described by Lalancette, a user orders a taxi using a handset to request taxi service from a taxi dispatch service. *Id.* ¶ 29. The user device (the handset) conveys user identification (user ID) to the service provider. *Id.* The service provider validates the request to ensure the request can be accommodated. *Id.* ¶ 30. An automated dispatch system uses

[9] Patent Owner does not present arguments or evidence of such objective evidence of non-obviousness. *See generally* PO Resp.

the user's location to select the most suitable taxi car to respond to the request for service from the user. *Id.*

The service provider then requests a personal human-readable icon for the user from an icon server by sending a message carrying a user ID for the user. *Id.* ¶ 31. The icon server uses the user ID to retrieve a personal icon corresponding to the user from an icon database. *Id.*

The icon server sends the retrieved icon to the service provider. *Id.* ¶ 32. The service provider dispatches the selected taxi car to the location of user and displays the user's icon on the taxi's roof-top electronic display and the driver's dashboard display. *Id.* The service provider also transmits a copy of the icon to the user device for confirmation to the user. *Id.*

In one embodiment, as part of the dispatch procedure, the service provider transmits the dispatch information and the user's icon to a mobile computer in the taxi car and the mobile computer manages the taxi roof-top electronic display 122 and the driver's dashboard display. *Id.*

When then taxi car approaches the user's location, the user can view the rooftop display to identify the taxi car as the taxi responding to the user's request. *Id.* ¶ 33. The user can compare the display of the icon on the rooftop display to the copy of the icon on the user's device 104 to confirm the identity of the taxi. *Id.*

B. Challenged Claim 1

1. Vehicle Identification System (Preamble)

Petitioner argues that Lalancette teaches "[a] vehicle identification system for mobile communication device users," as recited in the preamble of claim 1. Pet. 47–48. More specifically, Petitioner argues that Lalancette teaches "'a cross-platform target identification system' to 'identify a target in a target-rich environment' for use with a 'taxi dispatch service.'" *Id.* at 47

(citing Ex. 1009, code (57), ¶¶ 1–2, 27, 29, 33). According to Petitioner, Lalancette explains that "[w]hen taxi car 118 approaches user (102)'s location, user 102 can view the rooftop display 122 to identify taxi car 118 as being the taxi responding to user (102)'s request, from among other taxi cars in the vicinity," and that "[t]his can be especially useful in situations where there are a large number of similar looking taxi cars in one location." *Id.* at 47–48 (quoting Ex. 1009 ¶ 33; citing *id.* at Fig. 1).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "[a] vehicle identification system for mobile communication device users."

2. Display Associated with a Vehicle

Petitioner argues that Lalancette teaches "a display associated with a vehicle, wherein the display is located to be visible from an exterior of the vehicle by mobile communication device users," as recited in claim 1. Pet. 48–49. More specifically, Petitioner argues that Lalancette teaches a "[t]axi car 120 [] equipped with electronic display 122 mounted outside of the taxi car or at least visible from outside the taxi car as well as a dash-mounted driver display 124." *Id.* at 49 (quoting Ex. 1009 ¶ 27; citing *id.* ¶¶ 17, 32–33, 39, claim 13). Petitioner argues that Lalancette teaches that "'electronic display 122' may be a 'rooftop display 122' and that a 'user 102 can view the rooftop display 122 to identify [the] taxi car' when it 'approaches user (102)'s location.'" *Id.* (citing Ex. 1009 ¶¶ 17, 32–33, 39, claim 13, Fig. 1) (alteration in original).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that

Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "a display associated with a vehicle, wherein the display is located to be visible from an exterior of the vehicle by mobile communication device users."

3. A Controller Communicatively Coupled

Petitioner argues that Lalancette teaches "a controller communicatively coupled to a network," as recited in claim 1. Pet. 49–53. More specifically, Petitioner argues that Lalancette teaches that "'[u]ser 102 can access telecommunications network 106 using smart phone 104 via communication link 109' using 'a smart phone or a communication device having the ability to send and receive digital information.'" *Id.* at 50 (quoting Ex. 1009 ¶¶ 27, 29). Petitioner argues that Lalancette teaches that "taxi dispatch service 108 is accessible to customers from telecommunications network 106 via communications link 110." *Id.* (quoting Ex. 1009 ¶ 27; citing *id.* at Fig. 1). According to Petitioner, Lalancette "explains that '[c]ommunication links 109 and 110 can be web or Internet connections and can be wired or wireless' and that user communications are received and identified by '[t]elecommunication equipment at service provider 108 . . . using mechanisms well known to persons skilled in the art.'" *Id.* (quoting Ex. 1009 ¶ 29).

In addition, Petitioner argues that Lalancette "teaches the taxi service provider 108 transmitting and receiving that information in order to perform various steps in the disclosed target identification system." *Id.* at 51 (citing Ex. 1009 ¶¶ 37, 39). In particular, Petitioner argues that Lalancette's Figure 2 illustrates a "'method . . . from the point of view of a server' which may be 'incorporated into [the] service provider system,'" and "the server 'receives a request for a service for a user, for example, a person ordering a taxi from

a taxi dispatch service,' 'associates the request for service for a user with a human-readable icon associated with the user,' and 'sends the human-readable icon to a target display.'" *Id.* (quoting Ex. 1009 ¶¶ 37, 39; citing *id.* at Fig. 2) (alterations in original). Petitioner argues that Lalancette teaches that the method "may be implemented using computers, processors, or controllers." *Id.* at 52 (citing Ex. 1009 ¶¶ 45–48).

Petitioner argues that accordingly, one of ordinary skill in the art "would recognize the service provider performing the method . . . to be a 'controller,' and that in order for *Lalancette's* service provider to communicate across a telecommunications network the service provider ('controller') would need to be 'communicatively coupled' to a 'network.'" *Id.* at 52 (citing Ex. 1003 ¶ 182).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "a controller communicatively coupled to a network."

4. Configured to Generate and Transmit a Notification Signal

Claim 1 further recites that the controller is "configured to, in response to receipt of a ride request signal from a mobile communication device of a user in a pickup area, generate and transmit a notification signal via the network to a mobile communication device associated with a driver of the vehicle." Ex. 1001, 8:1–6. We agree with Petitioner and find that Lalancette teaches this limitation. Pet. 53–54; Pet. Reply 17–19. We address this limitation below in two parts.

First, we find that Lalancette teaches that the controller (i.e., taxi service provider 108) is configured to, in response to receipt of a ride request signal from a mobile communication device of a user in a pickup area,

generate and transmit a notification signal (representing dispatch information and a user's icon) via the network to a mobile communication device. *See* Ex. 1009 ¶¶ 29, 31–33, 39, Fig. 1; Pet. 53–54. More specifically, Lalancette teaches that "user 102 orders a taxi (message 140) by using handset 104 to request taxi service from a taxi dispatch service ([service provider 108]) via communication link 109." *Id.* ¶ 29, Fig. 1 (showing message 140 communicated from user 102's handset 104 to taxi service provider 108 via network 106). More specifically, Lalancette teaches that "[u]ser device 104 conveys a user identification (user ID) . . . to service provider 108," and that "[t]he request for service can also include a location of the user . . . ." *Id.* ¶ 29. Lalancette also teaches that "[h]andset 104 can be a mobile telephone or a smart phone or a communication device having the ability to send and receive digital information." *Id.*

In addition, Lalancette teaches the following in responding to a request for service from a user:

> Service provider 108 . . . requests a personal human-readable icon for user 102, from icon server 112 by sending message 142, carrying a user ID for user 102. Icon server 112 uses the user's (102) user ID as a key to the database and retrieves a personal icon corresponding to user 102 from icon database (dB) 114 via message interaction 144. The retrieving step validates the request by determining if the request returns a valid icon. The icon server 112 thus provides a validation of icons to help ensure that other users can not use an icon associated with user 102.

Id. ¶ 31. Lalancette teaches that "the icon server 112 sends the retrieved icon to service provider 108," and "as part of the dispatch procedure, the service provider 108 transmits the dispatch information and the user's icon to a mobile computer in taxi car 118 and the mobile computer manages the taxi roof-top electronic display 122 and to the driver's dashboard display

124." *Id.* ¶ 32; *see also id.* at Fig. 1 (showing taxi 118 displaying (122, 124) user 102's personal icon (as shown on smartphone 104)), ¶ 27; Ex. 1003 ¶ 185; Pet. 53–54 (arguing "that the taxi service provider server generates and transmits a notification signal including the icon to the driver's mobile computer").

We find unavailing Patent Owner's arguments that conflate generating a signal with generating an indicator (e.g., icon) because, as we discuss above, claim 1 does not require generating an indicator, but rather a signal. PO Resp. 30–32; *supra* Section III (construing "generate"); *see also In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (stating "the name of the game is the claim"); *cf. In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (stating limitations not appearing in the claims cannot be relied upon for patentability). Likewise, we find unavailing Patent Owner's arguments that icons must be newly-generated on a per-ride/trip basis because, as we discuss above, claim 1 has no such requirements. PO Resp. 30–32; *supra* Section III; *In re Hiniker Co.*, 150 F.3d at 1369; *In re Self*, 671 F.2d at 1348.

Second, we agree with Petitioner that Lalancette teaches that the mobile communication device (i.e., the taxi car 118's mobile computer) is associated with a driver of the vehicle (i.e., the driver of taxi car 118). Pet. 53–54; Pet. Reply 17. In particular, Lalancette teaches that the mobile computer is in taxi car 118, and thus is associated with it. Ex. 1009 ¶¶ 29–33. And Lalancette teaches that taxi car 118 has one driver while it is in service for dispatch to a rider, and thus, that driver is associated with taxi car 118. *Id.* Thus, the mobile computer in taxi car 118 is associated with the driver of taxi car 118. *Id.* Moreover, Lalancette teaches that the taxi's equipment is associated with its driver. *See id.* ¶ 33 (emphasis added) (teaching that "user 102 can show the driver the copy of the icon on the user

device 104 which the driver can compare to the copy of the icon displayed on the *driver's dashboard display 124*").

We find unavailing Patent Owner's argument that "Lalancette does not disclose a mobile device associated with a driver at all.' PO Resp. 30 (citing Ex. 2023 ¶ 77). Patent Owner argues that instead "Lalancette sends a signal directly to the vehicle itself through a 'mobile computer in taxi car 118.'" *Id.* (citing Ex. 1009 ¶ 32). As we explain above, however, the mobile computer in taxi car 118 is associated with its driver.

We also find unavailing Patent Owner's argument that Mr. Williams, Petitioner's expert, "acknowledged that Lalancette does not disclose the use of a mobile communication device associated with the driver." *Id.* (citing Ex. 2022, 128:14–129:25, 132:1–8). Patent Owner misrepresents Mr. Williams's testimony. Mr. Williams was not asked whether Lalancette "discloses" a mobile communication device, but rather was asked "You'll agree that La[l]ancette doesn't identify the mobile computer as a mobile communication device associated with the driver?" Ex. 2022, 129:10–13. Mr. Williams responded "[i]n that passage of where mobile computer is specifically referenced, that description is not in that passage." *Id.* at 129:14–16. Notably, Mr. Williams also testified that (i) "[t]he nature of La[l]ancette requires some sort of computing device in the taxi that has the ability to receive and communicate in order to get information, for example, icon information from the central computer"; (ii) "mobile computer . . . has a variety of form factors inclusive of something like a [s]martphone"; and (iii) "[i]n the passage where [Lalancette] references mobile computer, it doesn't have a specific form factor discussion such as referencing [s]martphones." *Id.* at 125:17–22, 129:20–25, 132:5–8.

We also find unavailing Patent Owner's argument that "Lalancette does not disclose a mobile device associated with a driver at all" to the extent that Patent Owner "attempts to improperly narrow the definition of a mobile communication device to only mean a smartphone," as Petitioner alleges. PO Resp. 30; Pet. Reply 17. We find that this argument, and the expert testimony (Ex. 2023 ¶ 77) cited in support, are contradicted by the '417 patent Specification, which describes mobile communication devices broadly. *See* Ex. 1001, 3:4–7.

In sum, we find that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches that the controller is "configured to, in response to receipt of a ride request signal from a mobile communication device of a user in a pickup area, generate and transmit a notification signal via the network to a mobile communication device associated with a driver of the vehicle."

5. Indicatory Signal is Generated and Transmitted

Claim 1 further recites "and in response to the mobile communication device associated with the driver of the vehicle receiving the notification signal an indicatory signal representing a visual indicator is generated and transmitted to the display and the mobile communication device of the user." Ex. 1001, 8:6–11. We agree with Petitioner that Lalancette teaches this limitation. Pet. 53–56.

More specifically, we agree with Petitioner and find that Lalancette teaches "that the taxi's mobile computer manages the taxi roof-top electronic display and, after receiving the icon signal from the service provider, the taxi's mobile computer displays the received icon signal on the roof-top display as the taxi approaches the user and that the service provider also transmits a copy of the icon to user device for confirmation to the user." *Id.*

at 55–56. For example, Lalancette teaches that "the service provider 108 transmits the dispatch information and the user's icon to a mobile computer in taxi car 118 and the mobile computer manages the taxi roof-top electronic display 122 and to the driver's dashboard display 124." Ex. 1009 ¶ 32; *see also id.* at Fig. 1 (showing taxi 118 displaying (122, 124) user 102's personal icon (as shown on smartphone 104)), ¶ 27; Ex. 1003 ¶ 165; Pet. 53.

In addition, Lalancette teaches that "service provider 108 also transmits a copy of the icon to user device 104 for confirmation to the user." Ex. 1009 ¶ 32; Pet. 53, 56. We also agree with Petitioner and find that Lalancette's Figure 1 illustrates "the same indicatory signal is received by and displayed on the rider's mobile device and the vehicle display." Ex. 1009, Fig. 1 (illustrating user 102's smartphone 104 and taxi car 118 displays 122, 124 showing user 102's icon); Pet. 56.

For the reasons discussed above, we find unavailing Patent Owner's argument that in Lalancette "[t]here is no mobile communication device associated with the driver; hence Lalancette does not describe any actions in response to signals transmitted from a mobile communication device associated with the driver." PO Resp. 32–33 (citing Ex. 2023 ¶ 83); *see supra* Section V.B.4 (finding that Lalancette teaches a mobile communication device associated with the driver of the vehicle).

In sum, we find that Lalancette teaches "and in response to the mobile communication device associated with the driver of the vehicle receiving the notification signal an indicatory signal representing a visual indicator is generated and transmitted to the display and the mobile communication device of the user."

6. Visual Indicator is not Duplicated

Petitioner argues Lalancette that teaches "wherein the visual indicator is not duplicated in the same pickup area," as recited in claim 1. Pet. 56–57. More specifically, Petitioner argues that Lalancette teaches that the user's icon is human-readable and, for example, "'can be generated in an 8×8 matrix or 16×16 matrix of squares or pixels,' 'a single simple static icon,' 'a combination 412 of simple icons in a specific configuration,' or an 'animated [] series of icons or images sequentially displayed.'" *Id.* at 57 (quoting Ex. 1009 ¶ 44); *see also id.* (citing Ex. 1009, Fig. 4 (arguing that Figure 4 illustrates icons)).

In addition, Petitioner argues that Lalancette teaches "the process of 'associating the [ride] request with a human-readable icon for the user' and that 'the associating step further comprises a step of verifying the human-readable icon is unique among icons stored on the icon database' such that the 'personal icon can be considered unique to an individual and used for identification purposes.'" *Id.* (quoting Ex. 1009 ¶¶ 5, 18, 27) (alteration in original). According to Petitioner, one of ordinary skill in the art would have understood "that because the icon is unique to a particular individual, it would not be duplicated in the same pickup area." *Id.* (citing Ex. 1003 ¶ 192).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Lalancette teaches "wherein the visual indicator is not duplicated in the same pickup area."

7. Summary

In summary, based on the arguments and evidence of record, we find that Petitioner demonstrates by a preponderance of the evidence that claim 1 is unpatentable under 35 U.S.C. § 103 over Lalancette.

C. Challenged Claims 2–5

Petitioner argues, with specific cites to Lalancette, that Lalancette teaches the limitations recited in claims 2–5. Pet. 58–62. These claims each depend directly from independent claim 1. Ex. 1001, 8:15–33. Patent Owner's Response does not separately address Petitioner's arguments directed to these claims, and instead Patent Owner relies on its arguments for independent claim 1. PO Resp. 32–34. As we discuss above, we find these arguments unavailing. *See supra* Section V.B.

Based on the evidence and arguments of record, we find that Petitioner demonstrates by a preponderance of the evidence that claims 2–5 would have been obvious to one of ordinary skill in the art over Lalancette.

VI. REMAINING GROUNDS

Petitioner argues that claims 1–5 are (i) anticipated by Lalancette, and (ii) rendered obvious by Kalanick and Kemler. Pet. 11, 28–62. Thus, these grounds of unpatentability challenge the same claims which we already determine are unpatentable over Lalancette. *See supra* Sections V.B–C (determining Petitioner shows claims 1–5 are unpatentable). Under the circumstances of this case, analyzing additional grounds challenging the same claims, which we have determined to be unpatentable, would not be an efficient use of the Board's time and resources. *See Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. 2020) ("We agree that the Board need not address issues that are not necessary to the resolution of the proceeding.").

Accordingly, we do not reach these grounds. *Cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching other grounds of unpatentability after affirming the anticipation ground); *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (determining once a dispositive issue is decided, there is no need to decide other issues).

VII. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude paragraphs 4–39 of the Second Declaration of David Hilliard Williams (Ex. 1030). Mot. Excl. 1. We do not rely on any of these paragraphs in this Final Written Decision. Accordingly, we dismiss as moot Patent Owner's Motion to Exclude.

VIII. CONCLUSION[10]

Based on the full record, we determine that Petitioner shows by a preponderance of the evidence that claims 1–5 are rendered obvious by Lalancette.

Claim(s)	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–5	103	Lalancette	1–5	
1–5	102[11]	Lalancette		

[10] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

[11] Because we determine that the challenged claims are unpatentable under § 103 over Lalancette, we decline to address this ground.

1–5	103[12]	Kalanick, Kemler		
Overall Outcome			1–5	

IX. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), Petitioner has shown by a preponderance of the evidence that claims 1–5 of the '417 patent are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 21) is *dismissed* as moot; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

[12] Because we determine that the challenged claims are unpatentable under § 103 over Lalancette, we decline to address this ground.

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