

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LYFT, INC.,
Petitioner,

v.

AGIS SOFTWARE DEVELOPMENT LLC,
Patent Owner.

IPR2022-00513
Patent 10,341,838 B2

Before CHARLES J. BOUDREAU, DANIEL J. GALLIGAN, and
IFTIKHAR AHMED, *Administrative Patent Judges*.

AHMED, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Lyft, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–26 of U.S. Patent No. 10,341,838 B2 (“the ’838 patent,” Ex. 1001). Paper 2 (“Pet.”). AGIS Software Development LLC (“Patent Owner”) filed a Preliminary Response. Paper 8. Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of the challenged claims. Paper 11 (“Inst. Dec.”).

After institution, Patent Owner filed a Patent Owner Response (Paper 15, “PO Resp.”), Petitioner filed a Reply to Patent Owner’s Response (Paper 16, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 20, “PO Sur-reply”). An oral hearing was held on March 2, 2023, and a copy of the transcript was entered in the record. Paper 23 (“Tr.”).

We have jurisdiction pursuant to 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2021). Having reviewed the arguments and the supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–26 of the ’838 patent are unpatentable.

B. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), the parties identify various related matters, including the following: *Uber Techs., Inc. v. AGIS Software Development LLC*, IPR2021-01306, which has been terminated; and *Lyft, Inc. v. AGIS Software Development LLC*, No. 5-21-cv-04653 (N.D. Cal.) (“the district court litigation”). Pet. 1–2; Paper 5, 2–7. We are concurrently

issuing a final written decision in IPR2022-00514, involving related U.S. Patent 10,299,100 B2, of which the '838 patent is a continuation.

C. Real Parties in Interest

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

D. The '838 Patent

The '838 patent is directed to location-based communications among mobile devices. Ex. 1001, code (57), 1:39–56. The '838 patent seeks to provide “the ability for individuals to set up an ad hoc digital and voice network easily and rapidly to allow users to coordinate their activities by eliminating the need for pre-entry of data into a web or identifying others by name, phone numbers or email.” *Id.* at code (57).

Figure 5 of the '838 patent is reproduced below.

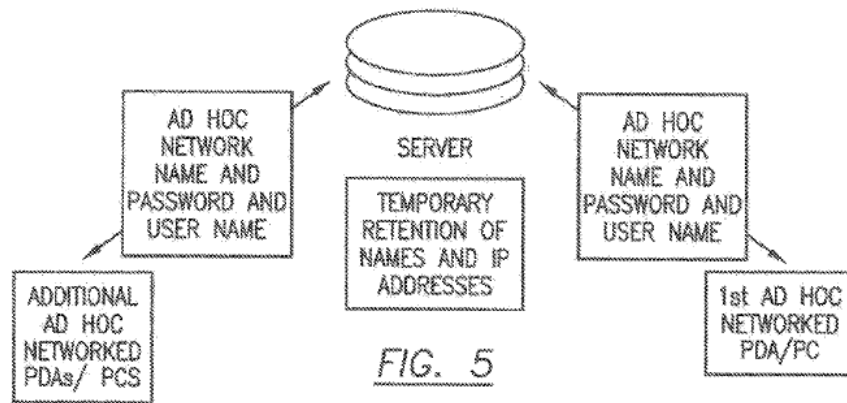


Figure 5 shows a flow chart of the network as users sign on to the network. Ex. 1001, 4:60–61. To join the network, a user enters the ad hoc event network name along with other information on the cellphone/PDA, which sends an initial message to the server. *Id.* at 10:53–11:5. After the server responds, the device automatically commences to report its GPS-derived location and other status information to the server. *Id.* at 11:5–11. When other devices sign on to the server with the same ad hoc event name and

password, the server is able to pass location and status information automatically between the ad hoc network participants. *Id.* at 11:12–17.

Claims 1 and 14 are independent claims. Claim 1 is reproduced below with Petitioner's identifiers for the claim limitations.

1. [a] A method performed by one or more servers each having one or more processors, the method comprising:

[b] executing operations on the one or more processors, the operations comprising:

[c] obtaining first data provided by a first mobile device corresponding to a vehicle, the first data including a first identifier;

[d] permitting the first mobile device corresponding to the vehicle to join a communication network, the permitting based on a determination regarding the first data;

[e] obtaining second data provided by a second mobile device corresponding to a participant, the second data including a second identifier associated with the participant;

[f] allowing the second mobile device corresponding to the participant to join the communication network, the allowing based on a determination regarding the second data;

[g] receiving vehicle location data provided by the first mobile device corresponding to the vehicle, wherein the vehicle location data are associated with the first identifier and indicate coordinates of a geographical location of the first mobile device;

[h] receiving participant location data provided by the second mobile device corresponding to the participant, wherein the participant location data are associated with the second identifier and indicate coordinates of a geographical location of the second mobile device;

[i] sending participant data to the second mobile device corresponding to the participant, wherein the participant data comprise the vehicle location data,

[j] wherein the second mobile device corresponding to the participant is configured to (1) determine coordinates of a position on the participant map corresponding to the coordinates of the geographical location of the second mobile device, (2) display the participant map, and (3) place a first symbol on the participant map at the determined coordinates of the position

on the participant map corresponding to the coordinates of the geographical location of the second mobile device;

[k] sending vehicle data to the first mobile device corresponding to the vehicle, wherein the vehicle data comprise the participant location data,

[l] wherein the first mobile device corresponding to the vehicle is configured to (1) determine coordinates of a position on the vehicle map corresponding to the coordinates of the geographical location of the first mobile device, (2) display the vehicle map, and (3) place a second symbol on the vehicle map at the determined coordinates of the position on the vehicle map corresponding to the coordinates of the geographical location of the first mobile device;

[m] receiving participant selection data provided by the second mobile device corresponding to the participant, the participant selection data corresponding to user input provided via a display of the second mobile device;

[n] based on the participant selection data, performing one or more acts selected from the group consisting of: sending updated vehicle data to the first mobile device corresponding to the vehicle, sending updated participant data to the second mobile device corresponding to the participant, and sending a message to the first mobile device corresponding to the vehicle;

[o] receiving entity-of-interest data transmitted by the second mobile device, the entity-of-interest data comprising coordinates of a geographical location of a new entity of interest,

[p] wherein the second mobile device is configured to (1) identify participant interaction with a display of the second mobile device, the participant interaction indicating selection of a position on the participant map and entry of the new entity of interest at the selected position, (2) display an entity symbol representing the new entity of interest at the selected position on the participant map, (3) determine coordinates of a geographical location of the new entity of interest based on coordinates of the selected position on the participant map, and (4) transmit the entity-of-interest data; and

[q] sending the entity-of-interest data to the first mobile device corresponding to the vehicle, wherein the first mobile device is configured to place the entity symbol representing the new entity of interest on the vehicle map at a position on the

vehicle map corresponding to the geographical location of the new entity of interest.

Id. at 15:2–16:18.

E. Prior Art and Instituted Grounds of Unpatentability

We instituted trial based on the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–12, 14–25	103(a)	Makoto, ¹ Konishi, ² Hamynen, ³ Scaer ⁴
13, 26	103(a)	Makoto, Konishi, Hamynen, Scaer, Van Bosch ⁵

Inst. Dec. 22. Petitioner supports its arguments with declaration testimony of Sandeep Chatterjee, Ph.D. (Exs. 1002, 1030). *See* Pet. 3–4, 7–65; Pet. Reply 1–10. Patent Owner supports its arguments with declaration testimony of Loren Terveen, Ph.D. (Ex. 2006). *See* PO Resp. 1–25; PO Sur-reply 1–18.

II. ANALYSIS

A. Principles of Law

“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

¹ JP 2002-199433 A, published July 12, 2002 (Ex. 1005). Exhibit 1005 contains the Japanese language document and a translation to English.

² JP 2002-352388 A, published Dec. 6, 2002 (Ex. 1008). Exhibit 1008 contains the Japanese language document and a translation to English.

³ US 2005/0228860 A1, published Oct. 13, 2005 (Ex. 1007).

⁴ US 2004/0243299 A1, published Dec. 2, 2004 (Ex. 1010).

⁵ US 2005/0221876 A1, published Oct. 6, 2005 (Ex. 1009).

petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A patent claim is unpatentable under 35 U.S.C. § 103(a) 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) any secondary considerations, if in evidence.⁶ *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Citing Dr. Chatterjee’s testimony, Petitioner contends that a person of ordinary skill in the art “would have had at least a bachelor’s degree in computer science, software engineering, electrical engineering, or the equivalent and at least two years of experience in the relevant field, e.g., electronic communications systems.” Pet. 5 (citing Ex. 1002 ¶¶ 17–19). Petitioner further argues that “[m]ore education can substitute for practical experience and vice versa.” *Id.*

⁶ Patent Owner does not present any objective evidence of nonobviousness (i.e., secondary considerations) as to any of the challenged claims.

Patent Owner does not dispute this assessment or offer its own assessment. *See* PO Resp. In his declaration, Dr. Terveen testifies that “a person of ordinary skill in the art would have a bachelor’s degree in computer science or computer engineering with one to two years of experience in the field of computer programming for communications system, or the equivalent education and work experience.” Ex. 2006 ¶ 27.

We determine that the level of ordinary skill proposed by Dr. Terveen is not significantly different from that proposed by Petitioner and that Petitioner’s proposed level of ordinary skill is consistent with the ’838 patent and the asserted prior art. *See In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). We accept Petitioner’s assessment, except that we delete the qualifier “at least” to eliminate vagueness as to the amount of education and experience. The qualifier expands the range indefinitely without an upper bound, and thus precludes a meaningful indication of the level of ordinary skill in the art. We otherwise adopt Petitioner’s proposed level in deciding the patentability of the challenged claims.

C. Claim Construction

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history.” 37 C.F.R. § 42.100(b) (2021).

Petitioner argues that no express constructions are necessary. Pet. 7 (citing Ex. 1002 ¶ 35). Patent Owner does not address claim construction. *See* PO Resp.

On this record, we determine that no terms or phrases in the claims require express construction. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Overview of the Asserted Prior Art

1. Makoto (Ex. 1005)

Makoto discloses “communication methods that can provide location information of other mobile terminal devices to a mobile terminal device without violating one’s privacy.” Ex. 1005, code (57).

Figure 16 of Makoto is reproduced below.

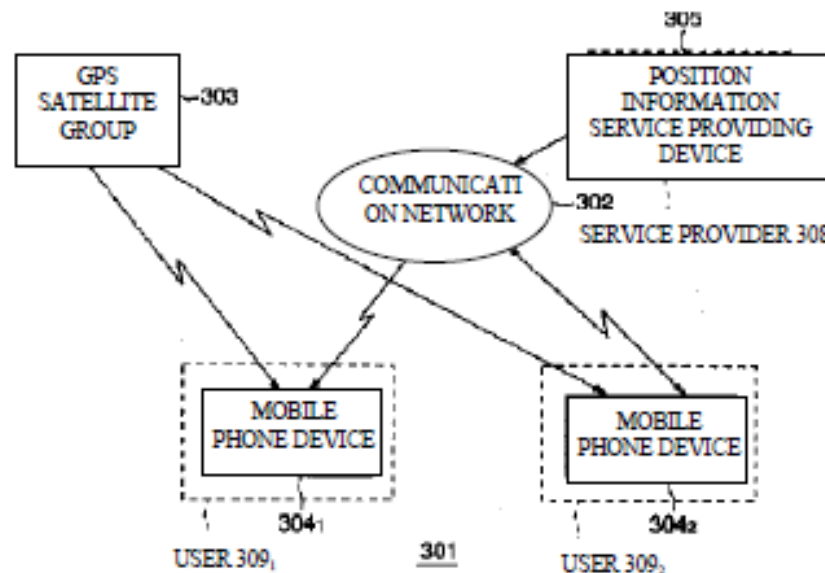


Figure 16 discloses a communication system 301 comprising mobile communication devices 304₁ and 304₂ and location information service providing device 305 connected via the communication network 302. Ex. 1005 ¶ 97. Makoto discloses that location information service providing device 305 receives group registration requests, location registration

requests, location information requests, and other requests from mobile communication devices 304₁ and 304₂ and transmits the information generated by its processing unit 322 to mobile communication devices 304₁ and 304₂. *Id.* ¶ 105. For example, in response to a location information request from device 304₁, the processing unit may transmit the GPS information of device 304₂, where permission requirements have been fulfilled. *Id.* ¶ 124.

2. *Konishi (Ex. 1008)*

Konishi relates to a vehicle search system that provides a customer with the current positions of vacant vehicles located near the customer. Ex. 1008, code (57).

Figure 1 of Konishi is reproduced below.

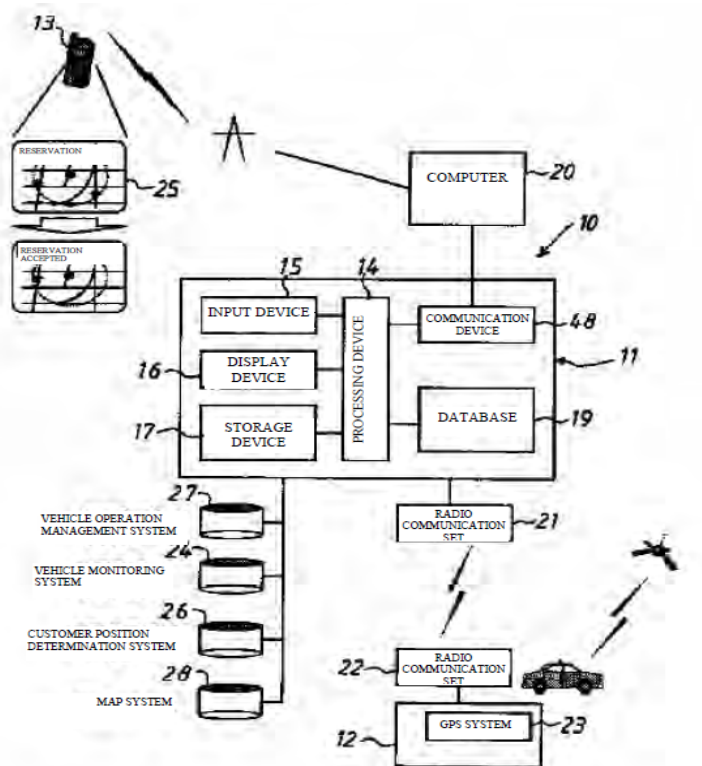


Figure 1 discloses Konishi's vehicle allocation system 10 comprising information processing device 11, vehicle information terminal 12 mounted in each vehicle, and a mobile telephone set 13 used by a customer. Ex. 1008 ¶ 26. Vehicle information terminal 12 mounted in each vehicle has GPS system 23 for detecting the vehicle's position. *Id.* ¶ 27. Information processing device 11 determines the customer's position, searches for vacant vehicles within a prescribed range of that position, and transmits a map of the region along with the customer and vehicle positions to the mobile device for display to the customer, who may then make a vehicle reservation. *Id.* ¶¶ 26–31.

3. *Hamynen (Ex. 1007)*

Hamynen relates to providing location-based web content to mobile terminals. Ex. 1007, code (57), ¶ 8. Figure 5 of Hamynen is reproduced below.

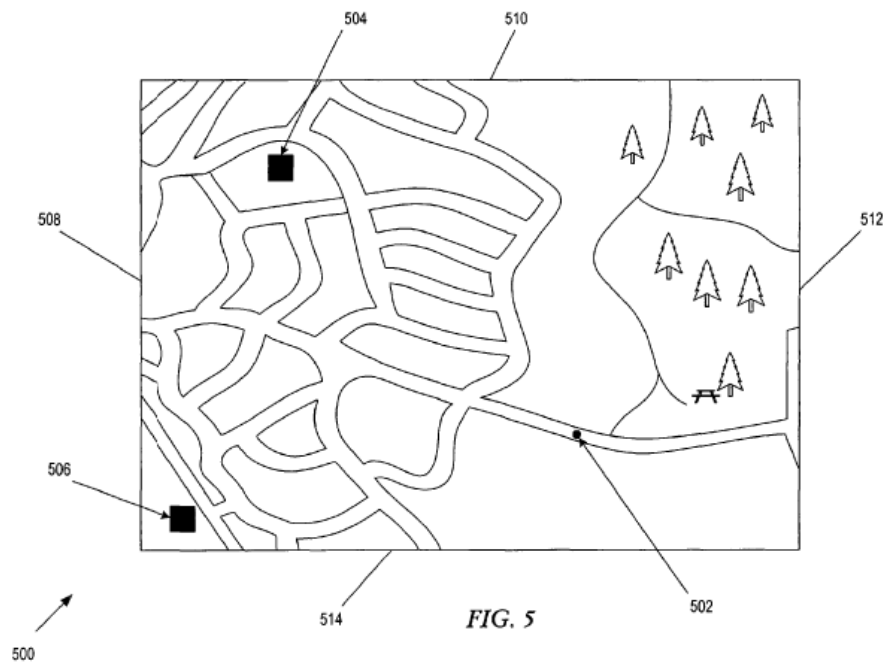


Figure 5 discloses exemplary map data that may be rendered onto a display of Hamynen's mobile terminals. Ex. 1007 ¶¶ 24, 60. Hamynen discloses that a user may initiate a map based geographical search, which results in map data being rendered as shown. *Id.* ¶ 54. For example, the user may enter a keyword, such as "gas stations," to initiate a map based geographical search for gas stations that are in the proximity. *Id.* ¶ 55. The results of the map based geographical search "may be plotted on map 500 as blocks 504 and 506, whereby blocks 504 and 506 represent the two closest gas stations that are relative to the user's current position 502." *Id.*

4. *Scaer* (Ex. 1010)

Scaer discloses web-based transportation decision support system and geographic information system (GIS) application that leverages intelligent transportation system (ITS) information available from federal, state, local, and commercial transportation sources. Ex. 1010, code (57). Scaer discloses a web server for "generating a map-like display, and displaying the map-like display on a webpage of the web server for access and viewing by users on a user interface." *Id.* ¶ 23, Fig. 1. The displayed information includes a combination of geographic mapping, meteorological conditions, geospatial tracking, and other information and data relating to transportation and logistics for movement of goods and people. *Id.* ¶ 23. Figure 7 of Scaer is reproduced below.

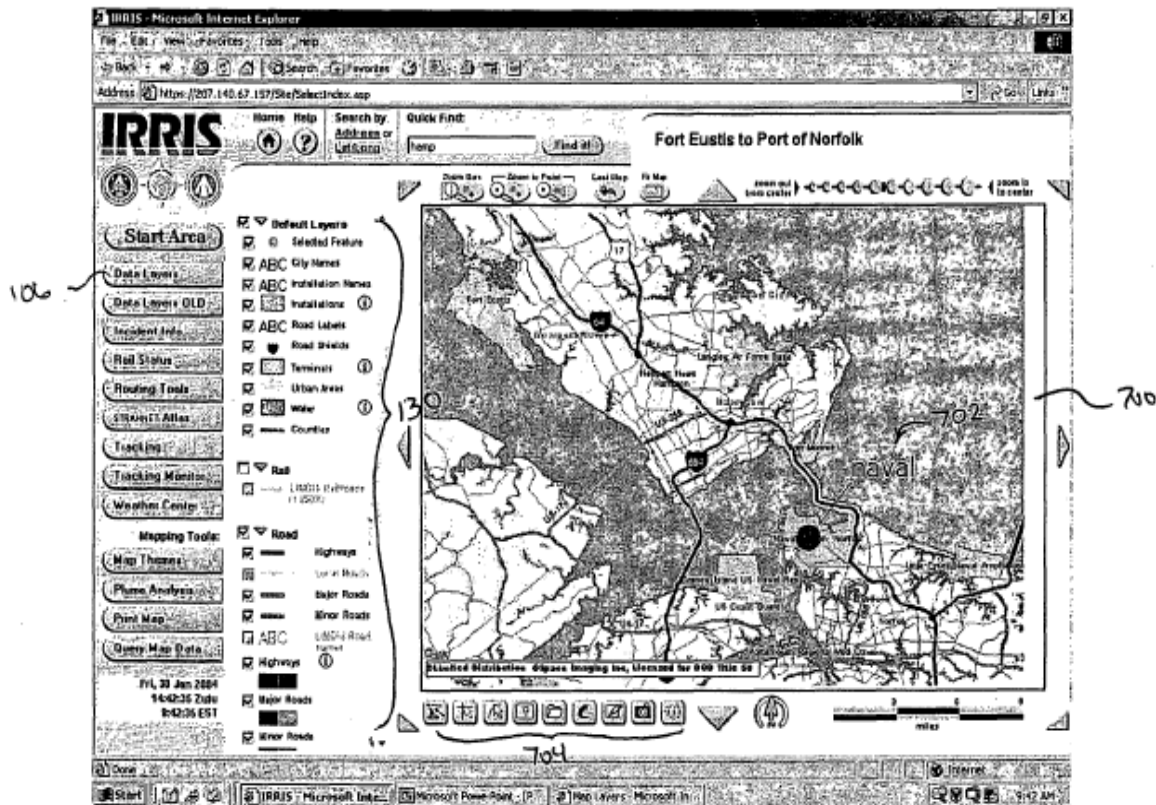


FIG. 7

Figure 7 is an exemplary screen display showing some of the features of Scaer's invention. *Id.* ¶ 18. With reference to Figure 7, Scaer discloses that its system “includes toolbar features 704 that allow users to edit the map, such as by adding text and symbols 702 on the map to denote an area of interest.” *Id.* ¶ 40. The system can also display incident information for incidents such as “traffic accidents, traffic congestion, road construction, road closures, weather events, and other traffic related events that affect vehicle travel on roads.” *Id.* ¶ 41, Fig. 8.

5. Van Bosch (Ex. 1009)

Van Bosch discloses a “system and procedure for posting and receiving location-based messages in a wireless communication based network.” Ex. 1009, code (57). The messages can be “textual, audio, video,

or pictorial” and may be associated with a particular location and superimposed on a map. *Id.* Van Bosch further discloses that its system may be used with “portable communicative user interfaces not contained within vehicles, such as cell phones, personal data assistants (PDAs), portable computers, etc.” *Id.* ¶ 68.

*E. Obviousness over Makoto, Konishi, Hamynen, and Scaer
(Claims 1–12 and 14–25)*

Petitioner asserts that claims 1–12 and 14–25 are unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Makoto, Konishi, Hamynen, and Scaer. Pet. 3–4, 7–62. On the complete record, we are persuaded by Petitioner’s explanations and evidence in support of the obviousness ground for claims 1–12 and 14–25 over Makoto, Konishi, Hamynen, and Scaer. We address below the evidence, analysis, and arguments presented by the parties.

1. Independent Claim 1

a) “A method performed by one or more servers each having one or more processors, the method comprising”

Petitioner contends Makoto teaches the preamble of claim 1 because Makoto discloses a system comprising mobile devices and a location information service providing device, which a person of ordinary skill in the art would have understood is a server that services requests received from the mobile devices. Pet. 7–9 (citing Ex. 1005, code (57), ¶¶ 50–51, 97, 105, Fig. 18; Ex. 1002 ¶¶ 36–40, 49–54).

Patent Owner does not present arguments as to the preamble of claim 1. *See* PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by

a preponderance of the evidence that, to the extent the preamble is limiting, Makoto teaches the preamble of claim 1.⁷

b) *“executing operations on the one or more processors, the operations comprising:”*

For limitation 1[b], Petitioner contends that Makoto discloses that processing unit 322 of location information service providing device 305 executes each of the claimed operations. Pet. 9 (citing Ex. 1002 ¶¶ 55–56; Pet. §§ VIII.A.1(c)–(q)).⁸

Patent Owner does not present arguments as to this limitation. See PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

c) *“obtaining first data provided by a first mobile device corresponding to a vehicle, the first data including a first identifier;”*

For limitation 1[c], Petitioner relies on a combination of teachings from Makoto and Konishi. Pet. 9–12. Petitioner argues that Makoto’s mobile device 304₁ transmits a group registration request containing the communication device ID of mobile device 304₁ and the communication device IDs of a plurality of mobile devices belonging to a group to location service providing device 305. *Id.* at 9–10 (citing Ex. 1005 ¶¶ 105, 107–109; Ex. 1002 ¶¶ 58–59). Petitioner argues that to the extent Makoto does not

⁷ We need not decide whether the preamble is limiting because we determine that the cited evidence supports Petitioner’s undisputed contentions regarding the preamble.

⁸ Petitioner cross-references various parts of Section IX throughout its Petition. Section IX contains a discussion regarding discretionary denial. See Pet. 65–69. In context, it is clear that Petitioner’s cross-references to Section IX are meant to refer to Section VIII.

explicitly disclose that any of its mobile devices correspond to a vehicle, such a feature would have been obvious in view of Konishi, which discloses vehicle information terminal 12 mounted in each vehicle configured to transmit vehicle position information identifying the vehicle. *Id.* at 10–11 (citing Ex. 1008, code (57), ¶¶ 1, 4, 26–28, 31, 39; Ex. 1002 ¶¶ 62–65). Petitioner also argues that a person of ordinary skill in the art would have had reason to combine the teachings of Makoto and Konishi because such a combination would have enabled the exchange of vehicle related information with other devices for the purpose of improving location-based services and/or features, such as exchanging location information between devices or allocating vehicles. *Id.* at 11 (citing Ex. 1008 ¶¶ 1, 4, 25; Ex. 1005 ¶¶ 1, 173; Ex. 1002 ¶ 66). Petitioner contends that combining the teachings of Makoto and Konishi as proposed would have required nothing more than mounting or otherwise associating such well-known devices into a vehicle. *Id.* at 12 (citing Ex. 1008 ¶¶ 5, 27–28, 31; Ex. 1002 ¶¶ 67–68).

Patent Owner argues that Makoto does not disclose this limitation. *See* PO Resp. 20–22. Patent Owner contends that “Makoto does not disclose an ‘identifier,’ let alone an identifier that is associated with a vehicle,” because “the ‘communication device ID’ disclosed in Makoto does not describe a vehicle’s identifier,” but instead is an identifier for a device. *Id.* at 21 (citing Ex. 1005 ¶ 107; Ex. 2006 ¶¶ 39–40). Patent Owner further contends that “Makoto does not show that the mobile devices perform the operation of associating a device with a vehicle.” *Id.* at 21–22 (citing Ex. 1005 ¶ 114, Fig. 16; Ex. 2006 ¶ 41).

Patent Owner also argues that “like Makoto, Konishi identifies a device, not a vehicle,” and that Konishi’s mobile device “could be removed

from a vehicle, thus removing the alleged correspondence to the vehicle.”
Id. at 22 (citing Ex. 2006 ¶ 42).

We are persuaded that the combination of Makoto and Konishi teaches the claim limitation. The claim requires “a first mobile device *corresponding to a vehicle*,” and Patent Owner’s argument appears to improperly read in requirements that “the mobile devices perform the *operation of associating* a device with a vehicle” and that mobile device may never be *removed* from the vehicle.⁹ PO Resp. 21–22 (emphasis added).

To the extent Patent Owner argues that Petitioner’s proposed combination fails because Makoto *itself* does not expressly disclose an identifier that is associated with a vehicle, “the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.” *See In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)). Here, Petitioner relies on the combined teachings of Makoto and Konishi as teaching the limitation. Pet. 10–11. Konishi discloses “a *vehicle* information terminal 12 mounted in each vehicle” (Ex. 1008 ¶ 26 (emphasis added)), and Petitioner persuasively argues that a person of ordinary skill in the art would have combined Konishi’s teachings with Makoto “such that

⁹ Petitioner further notes that Patent Owner’s arguments are inconsistent with its own claim interpretation in the district court litigation. Pet. Reply 7 (citing Ex. 1011, 1024); Pet. 10; *see also* Ex. 1024, 1 (“For example, the Accused Products comprise the Lyft application installed on all Android, iOS, Blackberry, and Windows Mobile based mobile devices (e.g. smartphones, tablets, laptops, and smart watches), and any variants thereof.”)). We need not address the claim interpretation issue given that Konishi clearly discloses a “*vehicle* information terminal” mounted in each vehicle that transmits the vehicle’s position information.

any of Makoto's mobile communication devices correspond to a vehicle" (Pet. 11 (citing Ex. 1008 ¶¶ 26, 39; Ex. 1002 ¶¶ 62–65)).¹⁰

Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto and Konishi teaches this limitation.

d) *"permitting the first mobile device corresponding to the vehicle to join a communication network, the permitting based on a determination regarding the first data;"*

For limitation 1[d], Petitioner relies on a combination of teachings from Makoto and Konishi. Pet. 12–14. Petitioner contends that Makoto's location information service providing device 305 determines which mobile devices belong to a group and issues a group ID for those devices based on the communication devices IDs of the devices contained in the group registration request received from mobile device 304₁. *Id.* at 13 (citing Ex. 1005 ¶¶ 106, 111; Ex. 1002 ¶¶ 70–71). Petitioner further contends that mobile device 304₁ is required to include the group ID in its subsequent location registration requests and location information requests and that a person of ordinary skill in the art would have therefore recognized that location service providing device 305 *permits* the mobile device to join a communication network. *Id.* at 13–14 (citing Ex. 1005 ¶¶ 106, 111, 114, 117, 119, 124; Ex. 1002 ¶¶ 72–74). Petitioner argues that "[w]ithout registering and/or including the communication device IDs of the plurality of mobile communication devices in the group, device 304₁ would not be

¹⁰ Petitioner and Dr. Chatterjee italicize the names of prior art references. We omit this emphasis when quoting Petitioner's arguments and Dr. Chatterjee's testimony.

able to join such a network.” *Id.* at 14 (citing Ex. 1002 ¶ 74); *see also* Pet. Reply 9 (citing Ex. 1030 ¶ 11).

Patent Owner argues that Makoto does not teach this limitation. *See* PO Resp. 22–24. Patent Owner contends that “[w]hile Makoto teaches ‘registering’ a ‘group’ that has already been formed on the alleged first device and thereby sending the already-formed ‘group’ to the ‘location information service providing device 305,’ any purported *permitting* or *determination* steps occur at the alleged first device (by the user of the first device), not the alleged server.” *Id.* at 23–24 (citing Ex. 1005 ¶¶ 106–111; Ex. 2006 ¶ 45). Patent Owner specifically contends that “Makoto’s group registration request is sent with all the ‘communication device IDs for the plurality of communication devices belonging in the group’” and that “Makoto does not require the alleged server . . . to mediate between the devices.” *Id.* at 24.

On the complete record, we do not agree with Patent Owner’s attempted distinction over Makoto. In relevant part, the claim merely requires “permitting based on a determination regarding the first data.” We agree with Petitioner that there is no requirement of any sort of *mediation* on the part of the server, as argued by Patent Owner, and Patent Owner fails to point us to any support in the ’838 patent specification for such a requirement. *See* Pet. Reply 8 (citing Ex. 1030 ¶ 11); PO Resp. 22–24. Dr. Terveen’s testimony, which Patent Owner relies on, merely mirrors Patent Owner’s statements and fails to provide any support for such a requirement. *See* Ex. 2006 ¶ 45.

Makoto’s server permits a mobile device to join a network based on a determination regarding the device. Petitioner maps the “communication devices IDs of a plurality of mobile communication devices . . . contained in

the group registration request” received from mobile device 304₁ (the first mobile device) as the “first data.” Pet. 12–13 (citing Ex. 1005 ¶ 106; Ex. 1002 ¶¶ 70–71). Based on that “first data,” Makoto’s location information service providing device *determines* the mobile devices belonging to the group and issues a group ID, which *has to be used* by the mobile devices to obtain location information for other devices from that server. *See* Ex. 1005 ¶¶ 114, 119. Dr. Chatterjee testifies that “[t]he purpose of Makoto’s server is to determine which devices should be joined to a network,” and if that determination is made by the first device, as argued by Patent Owner, there would no need for Makoto’s server to associate a group ID or later verify the group ID in determining whether to allow a device to join the network, or for devices to include the group ID in each request. Ex. 1030 ¶ 11; Pet. Reply 9 (“As Dr. Chatterjee explains, the only sensical reading of Makoto is that the server issues a group ID given that the decision to allow a device to join a network is *not* made by the first device . . .”). We credit Dr. Chatterjee’s testimony because it is consistent with Makoto’s disclosure. *See* Ex. 1005 ¶¶ 106, 114, 117, 119, 124. Dr. Terveen’s testimony that Makoto’s mobile devices permit other devices to join a group is inconsistent with Makoto’s disclosure that its location information service providing device issues a group ID, stores it, and verifies the group ID in later requests from a mobile device. *See* Ex. 2006 ¶ 45.

Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto and Konishi teaches this limitation.

- e) “*obtaining second data provided by a second mobile device corresponding to a participant, the second data including a second identifier associated with the participant;*”

For limitation 1[e], Petitioner contends that Makoto’s mobile device 304₂ includes its communication ID in its location registration request and location information request to location information service providing device 305 and that Makoto explains that each mobile device is associated with a user. Pet. 14–17 (citing Ex. 1005 ¶¶ 100, 111–114, 117–119, 127, Fig. 16; Ex. 1002 ¶¶ 81–83).

Patent Owner argues that Makoto fails to teach this limitation. *See* PO Resp. 24. Patent Owner contends that because “Makoto discloses the alleged first device already transmits the identity of the grouped devices’ initial registration,” “it would be unnecessary for the ‘location information service providing device’ to send the identity of the grouped devices’ initial registration where the first device of Makoto already does so.” *Id.* (citing Ex. 1005 ¶¶ 107–110; Ex. 2006 ¶ 46). Patent Owner further contends that “Petitioner is unable to demonstrate that the alleged server ‘location information service providing device’ also performs the claimed steps of *obtaining* communication IDs *provided by* the alleged second device.” *Id.*

On the complete record, we do not agree with Patent Owner’s attempted distinction over Makoto. Petitioner relies on Makoto’s location registration request and location information request as teaching this limitation. *See* Pet. 14–16. Makoto discloses that these requests are *sent from* the mobile device to the location information service providing device (Makoto’s server) and each of these contains the communication device ID of the requesting device. Ex. 1005 ¶¶ 114, 117. It is, accordingly, irrelevant whether “it would be unnecessary for the ‘location information service

providing device' *to send* the identity of the grouped devices' initial registration," as argued by Patent Owner. PO Resp. 24 (emphasis added). Makoto therefore teaches that its server obtains the required second data, as recited in this limitation.

Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

f) "allowing the second mobile device corresponding to the participant to join the communication network, the allowing based on a determination regarding the second data;"

For limitation 1[f], Petitioner contends Makoto's location service providing device 305 determines whether mobile device 304₂ may transmit and receive location information to and from other devices in the group based on the group ID included in mobile device 304₂'s requests. Pet. 17 (citing Ex. 1005 ¶¶ 105, 114, 118–119, 124; Ex. 1002 ¶¶ 85–88).

Patent Owner does not present arguments as to this limitation except those discussed above with regard to limitation 1[d]. See PO Resp. 22–25. Based on the entirety of the record and for the reasons discussed above, we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

g) "receiving vehicle location data provided by the first mobile device corresponding to the vehicle, wherein the vehicle location data are associated with the first identifier and indicate coordinates of a geographical location of the first mobile device;"

For limitation 1[g], Petitioner relies on a combination of teachings from Makoto and Konishi. Pet. 18–19. Petitioner argues that Makoto discloses that mobile device 304₁ generates a location information

registration request that is received by location information service providing device 305. *Id.* at 18–19 (citing Ex. 1005 ¶¶ 97, 100, 116–117; Ex. 1002 ¶¶ 89–92). Petitioner further argues that Makoto discloses that “a mobile terminal device receives a GPS signal sent from a GPS satellite *to specify its own location in the mobile terminal device using the received GPS signal*” and that a person of ordinary skill in the art would have recognized that Makoto’s location information registration request includes information indicating coordinates of a geographical location of the mobile device. *Id.* (citing Ex. 1005 ¶¶ 2; Ex. 1002 ¶ 92; Ex. 1013 ¶ 87). Petitioner further contends in the Makoto-Konishi combination, the received GPS information constitutes “vehicle location data” corresponding to the vehicle. *Id.* at 19 (citing Pet. § VIII.A.1(c); Ex. 1002 ¶¶ 93–96).

Patent Owner argues that Makoto does not teach “coordinates” required by this limitation. PO Resp. 11–20; PO Sur-reply 2–7. Patent Owner contends that the term “coordinates” does not appear in Makoto and that Petitioner attempts to fill the gap with unsupported, conclusory expert testimony. PO Resp. 12–13 (citing Pet. 18; Ex. 1002 ¶ 92; Ex. 2007, 45:1–9, 46:8–14). Patent Owner contends that a person of ordinary skill in the art would not have recognized that GPS information includes geographical coordinates and that the “GPS Standard Positioning Service Performance Standard defines the contents of GPS signals and demonstrates that GPS signals’ navigation messages do not include any geographical coordinates of devices.” *Id.* at 13–14 (citing Ex. 2006 ¶ 31; Ex. 2007, 47:11–48:5, 49:4–17). Patent Owner further contends that a person of ordinary skill in the art would have recognized that Makoto’s GPS information is “a GPS signal and its navigation message” and that neither GPS signals received from a satellite nor their accompanying navigation

message includes geographical coordinates. *Id.* at 14–18 (citing Ex. 2006 ¶¶ 32–35; Ex. 2008, 7–8¹¹). According to Patent Owner, “whether GPS receivers can compute coordinates from GPS signals is a function of design requirement,” and “there is no requirement to compute geographical coordinates.” *Id.* at 18–19 (citing Ex. 2006 ¶ 36). Patent Owner contends that Makoto’s Figure 5A shows a low accuracy level map or a “cartoon” map and that Makoto does not “disclose a requirement for real-time device position or geographical coordinates.” *Id.* at 19 (citing Ex. 2006 ¶ 37). According to Patent Owner, Makoto, motivated by its “goal to preserve users’ privacy,” “strives for a ‘positional relationship’ rather than a geographical relationship.” *Id.* at 19–20 (citing Ex. 1005 ¶ 5; Ex. 2006 ¶ 37).

Petitioner responds that “nothing in the challenged claims requires that GPS signals received from the GPS satellites contain coordinates of the device to be located.” Pet. Reply 1–2. Petitioner asserts that this limitation merely requires receiving vehicle location data provided by the first mobile device, wherein the vehicle location data are associated with the first identifier and indicate coordinates, and Makoto “expressly teaches a mobile terminal with a GPS receiver that ‘receives a GPS signal sent from a GPS satellite *to specify its own location* in the mobile terminal device using the received GPS signal.’” *Id.* at 2–3 (citing Ex. 1005 ¶ 2, Fig. 17). Petitioner contends that based on this disclosure, a person of ordinary skill in the art would have understood that the GPS information indicates coordinates of a geographical location of the mobile communication device and that GPS a

¹¹ Citations to Exhibit 2008 are to page numbers added by Patent Owner to the exhibit.

receiver specifying its own location using received GPS data would constitute obtaining geographical coordinates of the device. *Id.* at 3–4 (citing Ex. 1030 ¶ 8; Ex. 1002 ¶¶ 91–92; Ex. 2008). Petitioner asserts that the GPS standard that Patent Owner relies upon confirms that “the GPS signals themselves include position data (orbital elements) of the satellites being used to triangulate a receiver location” and that each GPS receiver will use the received position data in order to “accomplish[] satellite position . . . computations *in the* most current realization of the . . . *Earth-Centered, Earth-Fixed (ECEF) coordinate system.*” *Id.* at 4–5 (citing Ex. 2008, 8, 13, 15; Ex. 1030 ¶ 10). Petitioner further asserts that “a GPS receiver functions to monitor a plurality of ‘satellite signals . . . to accurately triangulate . . . and *provide accurate coordinates.*” *Id.* at 5 (citing Ex. 2008, 8; Ex. 1002 ¶ 92; Ex. 1030 ¶ 10).

In its Sur-reply, Patent Owner reiterates that Petitioner’s contentions are deficient because Makoto “does not disclose anything about indicating coordinates” and that “recitations of GPS information from GPS satellites does not disclose indicating coordinates, including coordinates, or determining coordinates as recited in the above claim limitations.” PO Sur-reply 2–5. Patent Owner contends that “Dr. Chatterjee does not dispute Dr. Terveen’s opinion that the GPS Performance Standard’s IDC-GPS200C defines the contents of Makoto’s GPS information and that [a person of ordinary skill in the art] would have turned to this GPS Performance Standard to understand the contents of a GPS Signal.” *Id.* at 5–6 (citing Ex. 2006 ¶¶ 31, 35).

We agree with Petitioner that Patent Owner misinterprets this claim limitation as requiring GPS signals received from the GPS satellites to contain coordinates of the device to be located. Instead, the claim requires

in relevant part only “receiving vehicle location data provided by the first mobile device corresponding to the vehicle, wherein *the vehicle location data* are associated with the first identifier and *indicate coordinates of a geographical location* of the first mobile device.” Ex. 1001, 15:19–23 (emphasis added). Although Makoto does not expressly disclose location data that indicate coordinates of a geographical location, Petitioner persuasively argues that an ordinarily skilled artisan would have recognized that location information received from a mobile device in Makoto does indicate coordinates of the device’s geographical location. *See* Pet. 18 (citing Ex. 1005 ¶ 2; Ex. 1002 ¶ 92; Ex. 1013 ¶ 87). Makoto explains that

GPS (Global Positioning System), or the like, which provides information for specifying the location of a mobile terminal device to another mobile terminal device, and the like, is conventionally known. In GPS, a mobile terminal device receives a GPS signal sent from a GPS satellite *to specify* its own location in the mobile terminal device using the received GPS signal.

Ex. 1005 ¶ 2 (emphasis added). Makoto therefore discloses that the mobile device uses the GPS signal to specify its own location, which Petitioner contends would have been understood by skilled artisans as including coordinates of a geographical location.¹² Pet. 18; Pet. Reply 3–4.

¹² Because the Petition contends that a person of ordinary skill in the art “would have recognized that the *GPS information* ‘indicate coordinates of a geographical location of the [mobile communication device]’” (Pet. 18 (alteration in original) (emphasis added)), Patent Owner misinterprets that contention as the GPS *signal* received from a satellite indicates coordinates of a location (PO Resp. 13 (citing Pet. 18)). The preceding sentence in the Petition, however, makes clear that Petitioner relies on Makoto’s disclosure of its mobile device using the received GPS signal to *specify* its own location. Pet. 18. It is this *specified* location information (which the Petition broadly refers to as *GPS information* here and elsewhere) that Petitioner

Dr. Chatterjee testifies that a person of ordinary skill in the art would have understood so because, for example, U.S. Patent Publication 2003/0178501 (Ex. 1013, “Doherty”) discloses a GPS receiver that “constantly monitors a plurality of geo-synchronous orbiting satellite signals . . . to accurately triangulate the vehicle’s position at any moment *and provide accurate coordinates of the vehicle.*”¹³ Ex. 1002 ¶ 92 (citing Ex. 1013 ¶ 87). We credit Dr. Chatterjee’s testimony on this point because it is consistent with Makoto and Doherty’s disclosure. Moreover, the GPS standard relied upon by Patent Owner supports Dr. Chatterjee’s testimony that GPS receivers receive satellite data to compute position in a *coordinate* system. *See* Ex. 2008, 13–15; Pet. Reply 4–5.

Patent Owner agrees with this general understanding in the art about how GPS receivers work but argues that “whether GPS receivers can compute coordinates from GPS signals is a function of design requirement.” PO Resp. 18. Relying on Dr. Terveen’s testimony, Patent Owner contends that “if a system requires low accuracy levels, there is no requirement to

contends would have been understood by a skilled artisan as indicating coordinates of a geographical location—not the GPS *signal* that is received from the satellite. *See* Tr. 5:11–62 (arguing that “Makoto further teaches that once that location has been specified, it is transmitted to a server”).

¹³ We disagree with Patent Owner that Petitioner was required to include Doherty as “part of its obviousness combination” or demonstrate a “reason or motivation to combine Makoto’s mobile communication units with the vehicle mounted weather system disclosed in Doherty.” PO Sur-reply 3–4. Petitioner here relies on Doherty as evidence that a skilled artisan would have known that a GPS receiver uses signals from orbiting satellites to triangulate its position and provide coordinate information. Pet. 18 & n.1 (citing Ex. 1013 ¶ 87); Ex. 1002 ¶ 92, n.1; Tr. 7:14–8:3. The Federal Circuit has found reliance on such evidence permissible even where it is not a basis for a petitioner’s asserted ground of unpatentability. *See Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020).

compute geographical coordinates.” *Id.* (citing Ex. 2006 ¶ 35). Dr. Terveen, however, offers no evidence to support his claim that certain GPS receivers *do not* compute coordinates in determining geographical location. Ex. 2006 ¶ 35. On the contrary, the GPS standard relied upon by Patent Owner assumes that GPS receivers compute coordinates and also makes clear that the purpose of GPS is “to provide a *reliable* and continuous positioning and timing service to the GPS user community.” Ex. 2008, 2, 8, 13–15 (emphasis added). We therefore find Dr. Terveen’s testimony conclusory and Patent Owner’s argument unpersuasive.

Even if we were to agree with Patent Owner that certain GPS receivers, by design, avoid the use of geographic coordinates, Patent Owner offers no persuasive basis to find that a person of ordinary skill in the art would have understood the GPS receiver disclosed in Makoto to be of that special type. Patent Owner bases its “low accuracy system” argument on Makoto’s map, shown in Makoto’s Figure 5A, which Patent Owner contends “is not a geographical map because it merely consists of blocks, which are not drawn to any geographical or geo-referenced relationship.” *Id.* at 19 (citing Ex. 2006 ¶ 36). Patent Owner and Dr. Terveen offer no evidence to support this claim. Figure 5A of Makoto is reproduced below.

[FIG. 5]
(A)

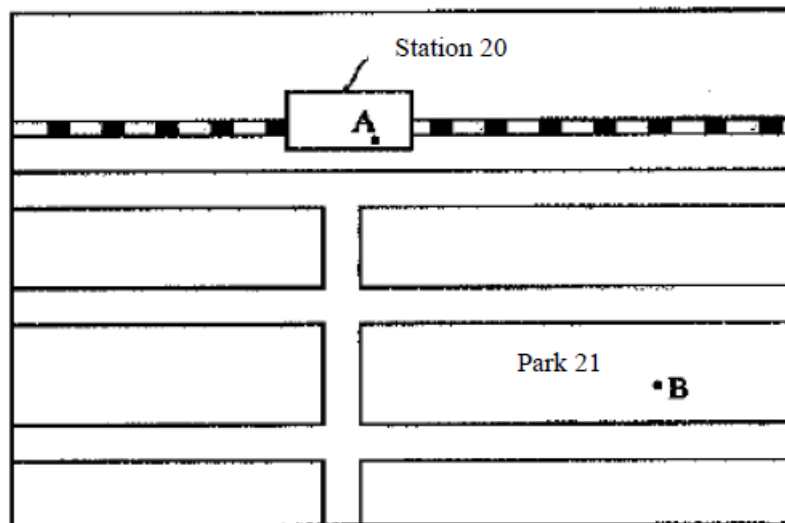


Figure 5A discloses “a display screen including a display specifying the location of mobile phone devices 4₁ and 4₂ on a map . . . outputted to the display unit 15 of mobile phone device 4₁.” Ex. 1005 ¶ 56. The map shows one mobile device at a specific point (A) in a train station and another one at a specific point (B) within a park. *Id.* Aside from Dr. Terveen’s testimony, Patent Owner offers no evidence to support that a person of ordinary skill in the art would consider that level of location identification to be of “low accuracy” or that Makoto’s GPS receiver would not compute such location information in terms of coordinates. We therefore agree with Petitioner that a person of ordinary skill in the art would have understood Makoto’s GPS receiver as specifying its own location using geographical coordinates of the device. Pet. Reply 4–5; Tr. 6:12–8:7, 12:2–10.

Lastly, Patent Owner argues that Makoto’s system avoids the use of geographical coordinates in order to preserve users’ privacy. PO Resp. 20 (citing Ex. 1005 ¶ 5; Ex. 2006, 37). Makoto, however, makes it clear that it protects user privacy by obtaining a user’s permission before sharing the

user's location information. *See* Ex. 1005 ¶¶ 5, 7; Tr. 12:2–5. We see nothing in Makoto to suggest that it achieves any privacy goals through the use of inaccurate location information.

Based on the entirety of the record, we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

- h) “receiving participant location data provided by the second mobile device corresponding to the participant, wherein the participant location data are associated with the second identifier and indicate coordinates of a geographical location of the second mobile device;”*

For limitation 1[h], Petitioner contends that Makoto discloses that mobile device 304₂ generates a location information registration request that includes GPS information of the device along with the communication device ID of the device and sends that request to location information service providing device 305. Pet. 19–20 (citing Ex. 1005 ¶¶ 116–118; Ex. 1002 ¶¶ 98–99).

As with limitation 1[g], Patent Owner contends that Makoto fails to teach “coordinates of a geographical location.” *See* PO Resp. 11–20. Based on the entirety of the record, including the reasons explained by Petitioner, and for the reasons discussed above as to the coordinates limitation (1[g]), we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

- i) “sending participant data to the second mobile device corresponding to the participant, wherein the participant data comprise the vehicle location data,”*

For limitation 1[i], Petitioner relies on a combination of teachings from Makoto and Konishi. Pet. 21–22. Petitioner argues that Makoto's

location information service providing device 305 receives and stores GPS information for the mobile devices in the network, and when it receives a location information request from device 304₂, the location information service providing device 305 transmits the GPS information of other mobile devices in the group to mobile device 304₂. *Id.* at 20–21 (citing Ex. 1005 ¶¶ 119, 122, 124; Ex. 1002 ¶¶ 101–103). Petitioner further contends that, in the Makoto-Konishi combination, the GPS information would correspond to a mobile device that is associated with a vehicle. *Id.* at 22 (citing Ex. 1002 ¶ 104).

Patent Owner does not present separate arguments as to this limitation. *See* PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto and Konishi teaches this limitation.

- j) “*wherein the second mobile device corresponding to the participant is configured to (1) determine coordinates of a position on the participant map corresponding to the coordinates of the geographical location of the second mobile device, (2) display the participant map, and (3) place a first symbol on the participant map at the determined coordinates of the position on the participant map corresponding to the coordinates of the geographical location of the second mobile device;*”

For limitation 1[j], Petitioner contends that Makoto discloses that mobile devices 304₁ and 304₂ receive a GPS signal sent from a GPS satellite and use that signal to specify their own location. Pet. 23 (citing Ex. 1005 ¶¶ 2, 97, 100; Ex. 1013 ¶ 87; Ex. 1002 ¶¶ 106–107). Petitioner further contends that Makoto discloses, in its first embodiment, a display screen of mobile phone device 4₁ with a display specifying the location of mobile

phone devices 4₁ and 4₂ (users A and B) on a map and that a person of ordinary skill in the art would have understood that display of locations requires determination of coordinates of corresponding positions on the map. *Id.* at 23–25 (citing Ex. 1005 ¶¶ 52–56, Fig. 5A; Ex. 1002 ¶¶ 108–113). Petitioner argues that, although that disclosure is provided in the context of the first embodiment, a person of ordinary skill in the art would have recognized that that disclosure would also be beneficially applicable to and would easily be implemented in Makoto’s fourth embodiment. *Id.* at 26–27 (citing Ex. 1005 ¶¶ 54–56, 126, 128–129; Ex. 1002 ¶¶ 117–118).

As with limitation 1[g], Patent Owner contends that Makoto fails to teach “coordinates of a geographical location.” *See* PO Resp. 11–20. Based on the entirety of the record, including the reasons explained by Petitioner, and for the reasons discussed above as to the coordinates limitation (1[g]), we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

k) “sending vehicle data to the first mobile device corresponding to the vehicle, wherein the vehicle data comprise the participant location data,”

For limitation 1[k], Petitioner relies on a combination of teachings from Makoto and Konishi. Pet. 27–29. Petitioner argues that Makoto’s location information service providing device 305 receives and stores GPS information for mobile devices in the network, and when it receives a location information request from device 304₁, location information service providing device 305 transmits the GPS information of other mobile devices in the group, such as mobile device 304₂, to mobile device 304₁. *Id.* at 28–29 (citing Ex. 1005 ¶¶ 119, 121–124; Ex. 1002 ¶¶ 120–122). Petitioner further contends that, in the Makoto-Konishi combination, such GPS

information would be sent to a mobile device that is associated with a vehicle. *Id.* (citing Ex. 1002 ¶ 123).

Patent Owner does not present separate arguments as to this limitation. *See* PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto and Konishi teaches this limitation.

- l) *“wherein the first mobile device corresponding to the vehicle is configured to (1) determine coordinates of a position on the vehicle map corresponding to the coordinates of the geographical location of the first mobile device, (2) display the vehicle map, and (3) place a second symbol on the vehicle map at the determined coordinates of the position on the vehicle map corresponding to the coordinates of the geographical location of the first mobile device;”*

For limitation 1[l], Petitioner relies on a combination of teachings from Makoto and Konishi and argues that, similar to its contentions for limitation 1[j], Makoto discloses that mobile devices 304₁ and 304₂ receive a GPS signal sent from a GPS satellite and use that signal to specify their own location, and that Makoto also discloses displaying locations of mobile devices on a map, which a person of ordinary skill in the art would have understood as requiring determination of coordinates of positions on a vehicle map. Pet. 29–30 (citing 1005 ¶¶ 2, 54–56, 97, 100, Fig. 5A; Ex. 1002 ¶¶ 125–128; Ex. 1013 ¶ 87).

As with limitation 1[g], Patent Owner contends that Makoto fails to teach “coordinates of a geographical location.” *See* PO Resp. 11–20. Based on the entirety of the record, including the reasons explained by Petitioner, and for the reasons discussed above as to the coordinates

limitation (1[g]), we determine that Petitioner has proved by a preponderance of the evidence that Makoto teaches this limitation.

m) “receiving participant selection data provided by the second mobile device corresponding to the participant, the participant selection data corresponding to user input provided via a display of the second mobile device;”

For limitation 1[m], Petitioner contends that Makoto’s location information service providing device 305 receives location registration requests and location information requests from mobile devices and that it would have been obvious to include a touch screen display to receive user input based on Hamynen’s disclosure of a touch screen. Pet. 31–33 (citing Ex. 1005 ¶ 119; Ex. 1007 ¶¶ 8, 54–55, 86, Figs. 4, 5; Ex. 1012, 1:20–21, 1:25–2:44; Ex. 1002 ¶¶ 45, 129–37). Petitioner contends that a person of ordinary skill in the art would have had good reason to combine the teachings of Makoto and Hamynen to allow the user interfaces of Makoto’s mobile devices to include a touch screen display for receiving user input, as described in Hamynen, providing an alternative simpler user interface mechanism for actions such as selecting a location on a map. *Id.* at 32–33 (citing Ex. 1007 ¶ 86; Ex. 1002 ¶ 136). Petitioner contends that a person of ordinary skill in the art would have had a reasonable expectation of success implementing such a combination because a touch screen user interface for receiving user input was well known and frequently utilized in the art. *Id.* at 33 (citing 1012, 1:20–21, 1:25–44; Ex. 1002 ¶ 137).

Patent Owner does not present separate arguments as to this limitation. *See* PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by

a preponderance of the evidence that the combination of Makoto and Hamynen teaches this limitation.

- n) *“based on the participant selection data, performing one or more acts selected from the group consisting of: sending updated vehicle data to the first mobile device corresponding to the vehicle, sending updated participant data to the second mobile device corresponding to the participant, and sending a message to the first mobile device corresponding to the vehicle;”*

For limitation 1[n], Petitioner relies on a combination of teachings from Makoto and Konishi. Pet. 33–38. Petitioner relies on its contentions for limitation 1[k] and argues that Makoto’s location information service providing device 305 receives and stores GPS information for mobile devices in the group, and when it receives a location information request from 304₁, it sends GPS information transferred by mobile device 304₂ to 304₁. *Id.* at 34–35 (citing Ex. 1005 ¶¶ 117, 119, 121, 124; Ex. 1002 ¶¶ 139–140). Petitioner argues that a person of ordinary skill in the art would have understood that each request causes the latest, most updated GPS information of other mobile devices to be transmitted to the requesting device. *Id.* at 35 (citing Ex. 1005 ¶¶ 114–133; Ex. 1002 ¶ 141).

Additionally, Petitioner contends, Konishi teaches a feature where updated vehicle location information is automatically provided to a mobile device at regular time intervals and a person of skill in the art would have had reason to incorporate this feature into the Makoto-Konishi-Hamynen combination such that users would not be required to manually and repeatedly transmit location registration requests and location information requests in Makoto’s system. *Id.* at 36–38 (citing Ex. 1008 ¶¶ 29–33; Ex. 1002 ¶¶ 142–46).

Patent Owner does not present separate arguments as to this limitation. *See* PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto, Konishi, and Hamynen teaches this limitation.

- o) “receiving entity-of-interest data transmitted by the second mobile device, the entity-of-interest data comprising coordinates of a geographical location of a new entity of interest,”*
- p) “wherein the second mobile device is configured to (1) identify participant interaction with a display of the second mobile device, the participant interaction indicating selection of a position on the participant map and entry of the new entity of interest at the selected position, (2) display an entity symbol representing the new entity of interest at the selected position on the participant map, (3) determine coordinates of a geographical location of the new entity of interest based on coordinates of the selected position on the participant map, and (4) transmit the entity-of-interest data;”*

For limitation 1[o], Petitioner relies on a combination of teachings from Makoto and Scaer. Pet. 38–44. Petitioner states that Makoto discloses receiving data transmitted by the second mobile device but does not disclose the claimed entity-of-interest data, for which Petitioner relies on Scaer, arguing that Scaer’s system allows users to edit a map on a user interface by adding text and symbols on the map to denote an area of interest. *Id.* at 38–40 (citing Ex. 1010 ¶¶ 23, 40–41, Figs. 9, 10; Ex. 1002 ¶¶ 148–149). Petitioner further contends that Scaer allows users to map incidents (e.g., traffic and weather events) and that a person of ordinary skill in the art would have understood such mapping involves displaying the location of the user-specified incident location on a map. *Id.* at 39–40 (citing Ex. 1010

¶ 41, Figs. 8–10; Ex. 1002 ¶ 150). Petitioner argues that a person of ordinary skill in the art would have had reason to combine the teachings of Makoto and Scaer because it would have allowed users to specify areas of interest using symbols on Makoto’s map and share those areas of interests with others, providing users with real-time information about traffic conditions or other places of interests such as meeting and dining facilities. *Id.* at 41–43 (citing Ex. 1005 ¶¶ 126–129; Ex. 1007 ¶ 55; Ex. 1010 ¶¶ 3, 40–41, Fig. 9; Ex. 1002 ¶¶ 152–156). Petitioner further argues that a person of ordinary skill in the art would have found it obvious to allow for participant selections to be provided via a touch screen, as taught by Hamynen. *Id.* at 42 (citing Pet. § VIII.A.1(m)). According to Petitioner, a person of ordinary skill in the art would have had a reasonable expectation of success combining the teachings of Makoto and Scaer because it would have involved the use of well-known computer programming principles to implement a straightforward extension of Makoto’s teachings. Pet. 43 (citing Ex. 1002 ¶ 156).

For limitation 1[p], Petitioner relies on a combination of teachings from Makoto, Hamynen, and Scaer. Pet. 44–46. Petitioner argues that Makoto, as modified by Hamynen’s touch screen teachings (*see* limitation 1[m] above) and by Scaer’s area of interest teachings (*see* limitation 1[o] above), teaches user interaction on a mobile device to select a position on the map shown on the device’s display, which is then converted into location coordinates. *Id.* at 44–45 (citing Ex. 1007 ¶¶ 38, 55, Fig. 4; Ex. 1002 ¶¶ 159–161). Petitioner also argues that a person of ordinary skill in the art would have had reason to combine the teachings of Makoto, Scaer, and Hamynen because the combination would have allowed users to specify areas of interest by selecting them on a displayed map, improving the overall

usefulness and convenience of the combined Makoto-Scaer system, and that such an implementation would have involved combining well-known techniques. *Id.* at 45–46 (citing Ex. 1002 ¶¶ 162–163). Petitioner contends Makoto in view of Scaer also teaches displaying a symbol representing the location of the selected position or area of interest on a map as well as transmitting the GPS information of that area of interest to the location information service providing device 305. *Id.* at 46 (citing Pet. § VIII.A.1(o); Ex. 1002 ¶¶ 164–164).

In its Patent Owner Response, Patent Owner does not present any argument as to limitations 1[o] and 1[p]. *See* PO Resp. In its Sur-reply, Patent Owner argues that “Petitioner’s combination fails because it fails to disclose each and every element of the claimed invention, specifically the requirement that a second mobile device is configured to identify participant interaction with a display of the second mobile device, the participant interaction indicating selection of a position on the participant map and entry of the new entity of interest at the selected position.” PO Sur-reply 13–14. According to Patent Owner, Hamynen’s disclosure is about selecting the user’s own approximate position and “has nothing to do with entering a new entity of interest at the selected approximate position,” and Scaer “merely uses a form to enter the event information and the form requires the manual entry of specific coordinates.” *Id.* at 14 (citing Ex. 1007 ¶ 55; Ex. 1010 ¶¶ 40–41, Fig. 9). Patent Owner further argues that “[t]here is no motivation to combine the references to further modify the combination of Makoto’s static map as modified with Hamynen’s pointer-device map with the additional features of Scaer because Scaer’s form requires manually entering coordinates to generate a map with a new event.” *Id.* Patent Owner also argues that there is no motivation to add pointer-device capabilities to

Makoto’s static map and that “a skilled artisan would not seek to manually enter coordinates to a form when Hamynen’s map already purportedly converts input received from a pointing device into coordinates.” *Id.* (citing Ex. 1005 ¶ 56; Ex. 1007 ¶ 37). According to Patent Owner, there “would have been no motivation to modify the Makoto-Scaer combination, which already purportedly received coordinates inputted by users, to add the feature of obtaining coordinates which were already obtained using Scaer’s form.” *Id.* at 14–15.

We consider Patent Owner’s new argument raised in Patent Owner’s Sur-reply (PO Sur-reply 11–15) to be untimely. *See In re NuVasive Inc.*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016) (holding that the patent owner waived arguments that were not raised in its response after institution); Paper 12, 9 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”). Even if not waived, we find no evidentiary support for Patent Owner’s arguments. For example, Hamynen’s disclosure is not limited to selecting the user’s *own* approximate position, as Patent Owner contends. *See* Ex. 1005 ¶ 38 (“[T]he user of mobile terminal 102 may simply locate his position (*or any other position of interest*) on an electronic map provided by web-based location information 122 using pointing and/or cursor commands available on his mobile terminal.” (emphasis added)). Nor is Scaer’s disclosure limited to use of a *form* that requires the *manual* entry of specific coordinates. *See* Ex. 1010 ¶ 40 (“As further illustrated in FIG. 7, the system 10 includes toolbar features 704 that allow users to edit the map, such as by *adding text and symbols 702 on the map to denote an area of interest.*” (emphasis added)). Patent Owner’s arguments are therefore based on an incorrect reading of Hamynen and Scaer, and are unpersuasive. We are persuaded that Petitioner

sufficiently shows that an ordinarily skilled artisan would have had reason to combine the teachings of Makoto with those of Hamynen and Scaer.

Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto, Hamynen, and Scaer teaches this limitation.

q) *“sending the entity-of-interest data to the first mobile device corresponding to the vehicle, wherein the first mobile device is configured to place the entity symbol representing the new entity of interest on the vehicle map at a position on the vehicle map corresponding to the geographical location of the new entity of interest”*

For limitation 1[q], Petitioner argues that Makoto, as modified by Hamynen’s touch screen disclosures and by Scaer’s area of interest disclosures, teaches transmitting the GPS information of areas of interest to Makoto’s location information service providing device 305, which then may transmit that information to other devices. Pet. 46–47 (citing Pet. §§ VIII.A.1(o)–(p); Ex. 1002 ¶ 166). Petitioner further argues that the combination teaches placing a symbol on a map at a position corresponding to the location of the received area of interest. *Id.*

Patent Owner does not present arguments as to this limitation. *See* PO Resp. Based on the entirety of the record and for the reasons explained by Petitioner, we determine that Petitioner has proved by a preponderance of the evidence that the combination of Makoto, Hamynen, and Scaer teaches this limitation.

r) *Conclusion as to Claim 1*

We have reviewed the parties’ evidence and argument, and based on the complete record, we find that Petitioner has shown by a preponderance

of the evidence that the combination of Makoto, Konishi, Hamynen, and Scaer teaches each of the limitations of claim 1 and that a person of ordinary skill in the art would have been motivated to combine the teachings of the references in the manner asserted.

2. Independent Claim 14

Claim 14 recites “[a] system comprising: one or more servers each having one or more processors, the processors configured to execute instructions to perform operations comprising:” and recites the same operations recited in claim 1. Ex. 1001, 17:4–18:19. Petitioner contends that Makoto in view of Konishi, Hamynen, and Scaer teaches a system comprising location information service providing device 305 with processing unit 322 configured to execute instructions to perform the operations recited in claim 14, which are the same as the operations recited in claim 1. Pet. 60 (citing Pet. § VIII.A.1; Ex. 1002 ¶ 201).

Patent Owner relies on the arguments addressed above in § II.E.1 and does not present additional arguments for claim 14. *See* PO Resp. 11–25. For the reasons discussed above with regard to claim 1, and because Petitioner sufficiently shows that Makoto teaches the remaining limitations of claim 14, we determine that Petitioner has established by a preponderance of the evidence that the combination of Makoto, Konishi, Hamynen, and Scaer teaches each of the limitations of claim 14.

3. Claims 2–12 and 14–25

Petitioner asserts that dependent claims 2–12 are unpatentable as obvious over the combined teachings of Makoto, Konishi, Hamynen, and Scaer. Pet. 47–59.

Claim 2 depends from claim 1 and recites “wherein performing the one or more acts comprises sending, based on the participant selection data, the updated participant data to the second mobile device corresponding to the participant, wherein the second mobile device is configured to display the updated participant data within the participant map.” Ex. 1001, 16:19–24. Petitioner contends that Makoto teaches the additional limitation of claim 2 because it discloses that upon receipt of GPS information of other mobile devices, a mobile device generates a display signal for location display and outputs the location display signal to the display unit 315. Pet. 47–48 (citing Ex. 1005 ¶¶ 54–56, 126, 129; Pet. § VIII.A.1(j); Ex. 1002 ¶ 169).

Claim 3 depends from claim 2 and recites “wherein the updated participant data comprise updated vehicle location data indicating coordinates of an updated geographical location of the first mobile device corresponding to the vehicle.” Ex. 1001, 16:25–28. Petitioner contends that the combination of Makoto, Konishi, and Hamynen discloses updated participant data, which includes updated GPS information of another mobile device corresponding to a vehicle. Pet. 48–49 (citing Pet. § VIII.A.1(n); Ex. 1002 ¶¶ 170–171).

Claim 4 depends from claim 1 and recites “wherein performing the one or more acts comprises sending, based on the participant selection data, the updated participant data to the second mobile device corresponding to the participant, wherein the second mobile device is configured to replace the participant map with an updated participant map on the display of the second mobile device based at least in part on the updated participant data.” Ex. 1001, 16:29–37. Petitioner contends that Konishi discloses sending a new map to a user’s mobile device at regular time intervals and that a person

of ordinary skill in the art would have found it obvious to implement a similar map replacement feature in Makoto's system. Pet. 49–52 (citing Ex. 1005 ¶¶ 126–129; Ex. 1008 ¶¶ 31, 33; Ex. 1002 ¶¶ 174–175). Petitioner contends transmitting new maps to the mobile devices at regular time intervals would allow devices with limited storage space to constantly provide updated maps without needing to store a large amount of map data for relevant geographic regions. *Id.* at 51–52 (citing Ex. 1014, 6:14–20; Ex. 1002 ¶¶ 176–178).

Claim 5 depends from claim 1 and recites “wherein performing the one or more acts comprises sending, based on the participant selection data, the message to the first mobile device corresponding to the vehicle.” Ex. 1001, 16:38–41. Petitioner contends that Makoto teaches this limitation because it discloses sending GPS information of other mobile devices in a group to a mobile device requesting location information based on a location registration request including the group ID. Pet. 52–53 (citing Pet. § VIII.A.1(n); Ex. 1002 ¶¶ 179–180).

Claim 6 depends from claim 5 and recites “wherein the message to the first mobile device corresponding to the vehicle includes the second identifier and updated participant location data.” Ex. 1001, 16:42–44. Petitioner contends that Makoto teaches this limitation because it discloses that a mobile device, upon receipt of GPS information of another mobile device in the group, displays the received location of the other device on a map. Pet. 53–54 (citing Pet. § VIII.A.1(n); Ex. 1002 ¶¶ 181–184). Petitioner contends that because Makoto's group may include multiple devices, a person of ordinary skill in the art would have understood that the communication ID of the other device is necessarily sent with its location

information so as to allow display of each device on the map. *Id.* at 54–55 (citing Ex. 1005 ¶¶ 107, 124, 126; Ex. 1002 ¶ 184).

Claim 7 depends from claim 1 and recites “wherein performing the one or more acts comprises sending, based on the participant selection data, the updated vehicle data to the first mobile device corresponding to the vehicle, wherein the first mobile device is configured to display the updated vehicle data within the vehicle map.” Ex. 1001, 16:45–50. Petitioner contends that Makoto teaches this limitation because it discloses that a mobile device, upon receipt of GPS information of another mobile device in the group, generates a display signal for the location and outputs it to the display unit 315. Pet. 55–56 (citing Ex. 1005 ¶¶ 54–56, 124, 126, 129; Pet. §§ VIII.A.1(l), (n); Ex. 1002 ¶¶ 185–186).

Claim 8 depends from claim 1 and recites “wherein performing the one or more acts comprises sending, based on the participant selection data, the updated vehicle data to the first mobile device corresponding to the vehicle, wherein the first mobile device is configured to replace the vehicle map with an updated vehicle map on the display of the first mobile device based at least in part on the updated vehicle data.” Ex. 1001, 16:51–57. Petitioner contends that, in light of Makoto’s disclosure that mobile devices 304₁ and 304₂ are the same and operate the same way, it would have been obvious to a person of ordinary skill in the art to configure Makoto’s mobile devices to replace the vehicle map with an updated vehicle map. Pet. 56–57 (citing Pet. §§ VIII.A.1(n), VIII.A.4; Ex. 1002 ¶¶ 188–189).

Claim 9 depends from claim 1 and recites “wherein the vehicle map is interactive.” Ex. 1001, 16:58–59. Petitioner contends that Makoto teaches this limitation because it discloses “an instruction of *changing a map*, for example, *zooming-in, zooming-out*” and a person of ordinary skill in the art

would have understood that a map displayed on Makoto’s device, allowing the users to zoom in or out, and add symbols thereto, is interactive. Pet. 57–58 (citing Ex. 1005 ¶¶ 52–57; Pet. §§ VIII.A.1(o)–(q); Ex. 1002 ¶¶ 190–193).

Claim 10 depends from claim 1 and recites “wherein the participant map is interactive.” Ex. 1001, 16:60–61. Petitioner contends that Makoto discloses this limitation for the same reasons as those argued for claim 9. Pet. 58 (citing Pet. § VIII.A.9; Ex. 1002 ¶¶ 194–195).

Claim 11 depends from claim 1 and recites “wherein the new entity of interest is an event and the location of the new entity of interest is a location of the event.” Ex. 1001, 16:62–64. Petitioner contends that Scaer teaches this limitation because it discloses locations of “traffic accidents, traffic congestion, road construction, road closures, weather events, and other traffic-related events that affect vehicle travel on roads” and that a person of ordinary skill in the art would have recognized that such incidents constitute events. Pet. 58 (citing Ex. 1010 ¶ 41; Pet. § VIII.A.1(n); Ex. 1002 ¶¶ 179–180).

Claim 12 depends from claim 1 and recites “wherein the new entity of interest location is different from the locations of the first and second mobile devices.” Ex. 1001, 16:65–67. Petitioner contends that Scaer teaches this limitation because it discloses an entity of interest such as the location of a traffic accident, which could also be different from the locations of the mobile devices, and that person of ordinary skill in the art would have understood that such an entity may be of interest to a group of mobile device users. Pet. 59 (citing Ex. 1007 ¶ 55; Pet. § VIII.A.1(o); Ex. 1002 ¶¶ 198–200).

Petitioner further asserts that claims 15–25 recite substantially the same language recited in claims 2–12 and are unpatentable as obvious over the combined teachings of Makoto, Konishi, Hamynen, and Scaer for the reasons discussed above. *Id.* at 60–62 (citing Pet. §§ VIII.A.1–14; Ex. 1002 ¶¶ 202–212); *see also* Ex. 1001, 18:20–67.

Patent Owner relies on the arguments addressed above in § II.E.1 and does not present additional arguments for claims 2–12 and 15–25.¹⁴ *See* PO Resp. 11–25. On the complete record, we are persuaded that Petitioner has shown by a preponderance of the evidence that the additional limitations recited in claims 2–12 and 14–25 are taught by the combined teachings of Makoto, Konishi, Hamynen, and Scaer in the manner argued by Petitioner.

4. *Weighing the Graham Factors*

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1361 (Fed. Cir. 2017). On balance, considering the record before us, Petitioner has shown, by a preponderance of the evidence, that the combination of Makoto, Konishi, Hamynen, and Scaer would have rendered the subject matter of claims 1–12 and 14–25 obvious to one of ordinary skill in the art at the time of the invention.

¹⁴ Although Patent Owner presents an argument as to claims 6 and 19, that argument is identical to Patent Owner’s argument as to limitation 1[c] addressed above in § II.E.1.c. *See* PO Resp. 25 (citing PO Resp. § VI; Ex. 2006, ¶ 49) (arguing that Makoto does not disclose the “identifier” associated with a vehicle).

F. Obviousness over Makoto, Konishi, Hamynen, Scaer, and Van Bosch (Claims 13 and 26)

Petitioner asserts that dependent claims 13 and 26 are unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Makoto, Konishi, Scaer, Hamynen, and Van Bosch. Pet. 63–66.

Claim 13 depends from claim 5 and recites “wherein the message comprises at least one of a text message, a photograph, or a video.” Ex. 1001, 17:1–3. Petitioner contends that Makoto teaches this limitation because it discloses sending GPS information of other mobile devices in the group, i.e., a message, to a mobile device requesting location information, and that Van Bosch discloses that messages can be “*textual, audio, video, or pictorial,*” may be associated with a particular location, and superimposed on a map. Pet. 63 (citing Ex. 1009, code (57); Pet. § VIII.A.1(n); Ex. 1002 ¶¶ 215–217). Petitioner contends that a person of ordinary skill in the art would have been motivated to combine teachings of Van Bosch with those of the Makoto-Konishi-Hamynen-Scaer system because “including textual description, photos, or video relating to the area of interest in the message beneficially contextualizes the area of interest, and/or provide[s] the user with additional, relevant information relating to the area of interest.” *Id.* at 64 (citing Ex. 1009 ¶¶ 41, 47, 54, 59; Pet. §§ VIII.A.1(o)–(q); Ex. 1002 ¶ 218). Petitioner further contends that a person of ordinary skill in the art would have had a reasonable expectation of success because such a modification involves well-known transmissions of text, photo, and video messages between mobile devices, implemented using well-known computer programming principles. *Id.* at 64–65 (citing Ex. 1002 ¶ 219).

Claims 26 depends from claim 18 and recites the same language recited in claim 13, and Petitioner contends that claim 26 is unpatentable as

obvious over the combined teachings of Makoto, Konishi, Hamynen, Scaer, and Van Bosch for the reasons discussed above with regard to claim 13. *Id.* at 65 (citing Pet. §§ VIII.A.1, 5, 13, 17, VIII.B.1; Ex. 1002 ¶ 220); *see also* Ex. 1001, 19:1–3.

Patent Owner relies on the arguments addressed above in § II.E.1 and does not set forth additional arguments for claims 13 and 26. *See* PO Resp. 25 (citing Ex. 2006 ¶ 50).

On balance, considering the record before us, Petitioner has shown, by a preponderance of the evidence, that the combination of Makoto, Konishi, Hamynen, Scaer, and Van Bosch would have rendered the subject matter of claims 13 and 26 obvious to one of ordinary skill in the art at the time of the invention.

G. Patent Owner's Arguments as to Dr. Chatterjee's Testimony

Patent Owner argues that “Dr. Chatterjee has no experience in GPS satellite, GPS receiver, and GPS communications systems,” that he “failed to base any of his opinions on the GPS specifications at the time of the invention,” and that his “opinions directly contradict the GPS specifications at the time of the invention (in a manner necessary to achieve a favorable outcome for Petitioner).” PO Resp. 7–9 (citing Ex. 2007, 11:22–12:7, 12:18–24, 13:4–8, 45:7–9, 45:11–18, 46:9–14). Patent Owner therefore contends that “Dr. Chatterjee’s opinions regarding the ‘coordinates’ limitations are conclusory, unsupported, and unreliable” and that we should accord no weight to his testimony. *Id.* at 9.

Petitioner responds that Patent Owner’s arguments are without merit and that Dr. Chatterjee fully explained how the prior art maps to the claims, both in his written testimony and during cross-examination. Pet. Reply 11–12 (citing Ex. 1002 ¶¶ 48–220; Ex. 2007 at 14:18–49:25).

In its Sur-reply, Patent Owner argues Dr. Chatterjee’s second declaration is “an effort to supplement a deficient petition” and that his “opinions regarding the operation of Makoto’s server . . . should be excluded as belated testimony that is not supported by the record.” PO Sur-reply 16–17 (citing Ex. 1030 ¶ 11). Patent Owner also reiterates its argument that Dr. Chatterjee has no relevant experience in GPS satellite systems and that his deposition testimony shows that his opinions on coordinates are conclusory, unsupported by evidence, and plain wrong. *Id.* at 17–18 (citing Ex. 2007, 11:11–14:17, 16:13–17:2, 22:22–23:20, 44:8–18, 47:24–48:5).

As a threshold matter, Patent Owner did not file a motion to exclude or strike Dr. Chatterjee’s declaration testimony. *See* Paper 12, 10 (setting a deadline for parties to may file a motion to exclude evidence under 37 C.F.R. § 42.64(c)). We have, however, considered Patent Owner’s arguments as to Dr. Chatterjee’s testimony and do not find them persuasive.

We begin by assessing Dr. Chatterjee’s ability to testify as to the patentability issues presented here. A witness offering expert testimony as to the understanding of one of ordinary skill in the art must have at least ordinary skill to provide relevant and reliable testimony that is helpful to the factfinder. *See Kyocera Senco Indus. Tools, Inc. v. ITC*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022). Dr. Chatterjee has a bachelor’s degree in electrical engineering and computer science from the University of California, Berkeley, and a doctorate degree in computer science from the Massachusetts Institute of Technology. *See* Ex. 1002 ¶ 5. Dr. Chatterjee has studied “networked client architectures and systems” and authored a book on developing web services. *Id.* ¶¶ 5, 9. He also claims to have “extensive experience in architecting, developing, optimizing, deploying and

managing computing systems, including location-based systems.” *Id.* ¶ 10; *see also id.* ¶¶ 7, 8. This level of skill exceeds the qualifications for the level of ordinary skill in the art under the definition we have adopted for purposes of this decision. *See* § II.B. We are not persuaded that the portions of Dr. Chatterjee’s deposition testimony that Patent Owner points us to raise questions as to his qualifications to offer testimony in this matter.¹⁵ We therefore find that Dr. Chatterjee is qualified to offer testimony on issues from the vantage point of an ordinarily skilled artisan and that his opinions are based on specialized knowledge, training, and experience.

“The Board has broad discretion to assign weight to be accorded expert testimony.” Patent Trial and Appeal Board Consolidated Trial Practice Guide 35 (Nov. 2019) (*available at* <https://www.uspto.gov/TrialPracticeGuideConsolidated>). In reviewing and according weight to Dr. Chatterjee’s testimony, as well as Dr. Terveen’s testimony, we have separately considered whether each aspect of their testimony is supported by the disclosures of the prior art references, the challenged patent, and other evidence of record. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1358 (Fed. Cir. 2018) (“The PTAB is entitled to weigh the credibility of the witnesses.”); *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1041 (Fed. Cir. 2017) (“To the extent [a party] challenges the PTAB’s factual findings, . . . the PTAB is permitted to weigh expert testimony and other record evidence and, in so doing, rely on certain

¹⁵ For example, Dr. Chatterjee’s testimony regarding whether he had ever designed a GPS satellite system or an actual satellite (Ex. 2007, 13:11–13:20) does not disqualify him from offering testimony here. Notably, Dr. Terveen’s proposed level of ordinary skill in the art for the ’838 patent requires no specific experience in GPS satellites, receivers, or systems. *See* Ex. 2006 ¶ 27.

portions of an expert’s declaration while disregarding others.”). We have considered Patent Owner’s critiques of Dr. Chatterjee’s testimony as we analyzed Petitioner’s grounds and accorded his testimony appropriate weight.¹⁶

III. CONCLUSION

For the reasons discussed above, Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–26 of the ’838 patent are unpatentable.¹⁷ Our conclusions regarding the challenged claims are summarized below:

¹⁶ Moreover, Patent Owner’s arguments on Dr. Chatterjee’s testimony relating to Makoto’s teaching of “coordinates” are based on an incorrect reading of the claim, which we do not adopt. *See supra* § III.E.1.g.

¹⁷ 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).

Claim(s)	35 U.S.C. §	Reference(s) /Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–12, 14–25	103(a)	Makoto, Konishi, Hamynen, Scaer	1–12, 14–25	
13, 26	103(a)	Makoto, Konishi, Hamynen, Scaer, Van Bosch	13, 26	
Overall Outcome			1–26	

IV. ORDER

Accordingly, it is

ORDERED that claims 1–26 of U.S. Patent No. 10,341,838 B2 are determined to be unpatentable; and

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

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Patent 10,341,838 B2

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