

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENERAL MOTORS LLC,
Petitioner,

v.

EDWARD H. NORTRUP,
Patent Owner.

IPR2023-00994
Patent 10,444,028 B2

Before JEFFREY S. SMITH, GEORGIANNA W. BRADEN, and
MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

WORMMEESTER, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

General Motors LLC (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–31 of U.S. Patent No. 10,444,028 B2 (Ex. 1001, “the ’028 patent”). Edward H. Nortrup (“Patent Owner”) filed a Preliminary Response (Paper 8, “Prelim. Resp.”). We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons that follow, we institute an *inter partes* review as to all the challenged claims of the ’028 patent based on all the challenges presented.

II. BACKGROUND

A. *Related Proceedings*

The parties do not identify any related proceedings. *See* Pet. 66; Paper 7, 2 (Patent Owner’s Updated Mandatory Notices).

B. *The ’028 Patent*

The ’028 patent describes systems in which “[l]ocation technologies are combined with other information systems to provide augmented information for individuals such as a traveler in an automobile.” Ex. 1001, code (57). For example, the ’028 patent describes a system for determining route information and providing the information to a user (or traveler). *Id.* at 1:25–32. To illustrate one embodiment, Figure 39 of the ’028 patent is reproduced below.

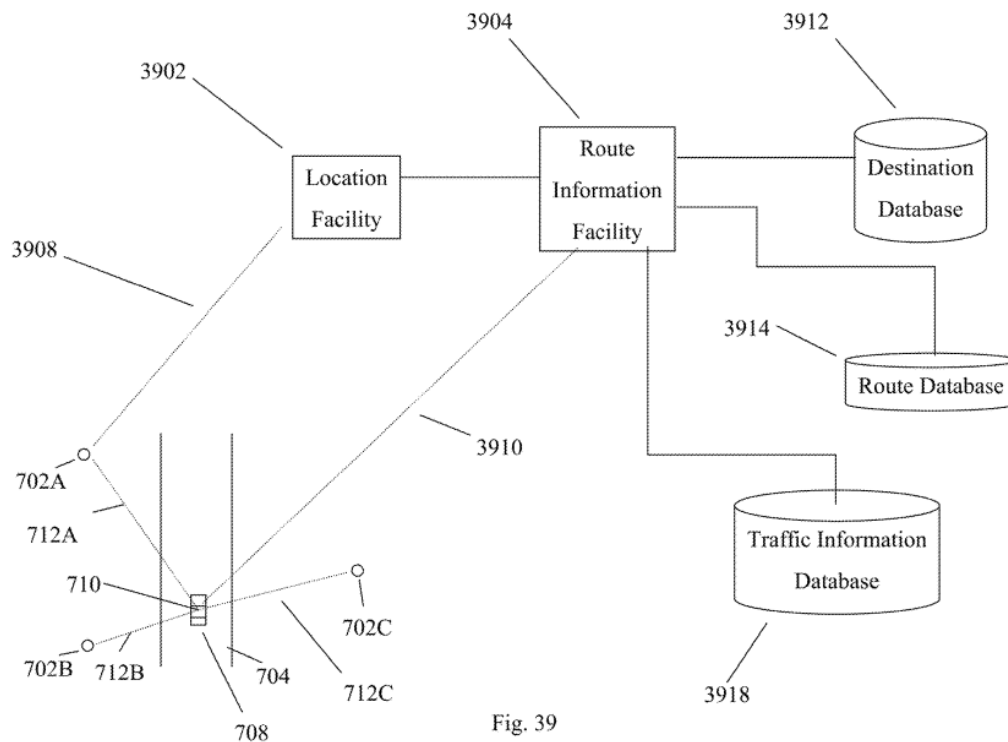


Fig. 39

Figure 39 is a block diagram that shows a travel information system, which includes location facility 3902, route information facility 3904, destination database 3912, route information database 3914, and traffic information database 3918. *Id.* at 29:46–30:7. Destination database 3912 includes information on destination locations. *Id.* at 29:56–57. A traveler may preload destination information for later retrieval. *Id.* at 29:61–64. Route information database 3914 includes information on travel routes, such as maps, traffic information, travel times, and other information on routes, navigation, and directions. *Id.* at 29:65–30:3. Traffic information database 3918 includes information on route traffic, alternate routes, route times, typical route performance, and other information on routes and directions. *Id.* at 30:3–7.

In another embodiment of the '028 patent, a traveler uses cell phone 710 to connect with route information facility 3904 to obtain

directions to a preloaded destination. Ex. 1001, 30:16–18. Location facility 3902 then locates the traveler’s position using cell phone triangulation. *See id.* at 20:11–14, 30:30–33, 31:22–25. More specifically, cell towers 702A, 702B, 702C “listen” to cell phone transmissions 712A, 712B, 712C, which may be timed or power measured, to determine the position of cell phone 710 on roadway or route 704. *Id.* at 20:19–27.

Once the position of cell phone 710 is located, route information facility 3904 provides the traveler with directions. Ex. 1001, 30:30–36, 31:22–25. Route information facility 3904 may use information from databases 3912, 3914, 3918 and information from location facility 3902 to provide information to the traveler. *Id.* at 30:13–16. For example, the cell phone location may be mapped onto a roadway map to provide location, speed, and other travel information. *Id.* at 20:17–19.

The system of the ’028 patent may also include a warning facility, where an onboard mapping system displays a warning to a driver (or traveler) about traffic conditions. Ex. 1001, 27:52–58. In use, the system tracks vehicle positions based on cell phone locations, identifies a traffic condition based on the cell phone locations, identifies vehicles in close proximity to the traffic condition through cell phone identification, and warns those vehicles about the traffic condition. *Id.* at 27:64–28:6. Thus, according to the ’028 patent, the system may identify slower traffic in the traveler’s planned route and generate an indication on the map showing the slower traffic. *Id.* at 27:58–62.

Although a traveler’s cell phone may be used to provide location information, it may also be equipped with a security facility to provide secure or limited access to the location information. *See* Ex. 1001, 44:47–

58. For example, the security facility may provide the traveler with a user interface on the cell phone, where the traveler may select security settings via a menu of options. *Id.* at 45:12–25. The options may relate to “different location based services, different entities, different people, and different locations.” *Id.* at 45:22–25. To illustrate, Figure 54 of the ’028 patent is reproduced below.

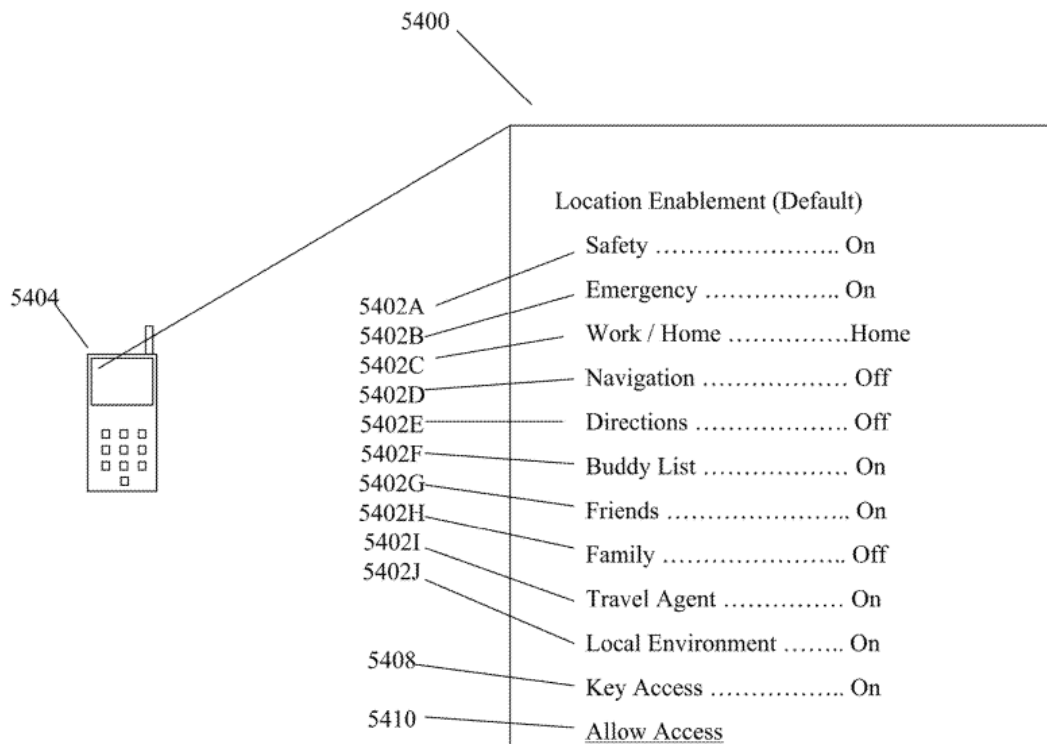


Fig. 54

Figure 54 is a diagram showing a list from secure location based service user interface 5400. *Id.* at 45:26–27. The traveler may use a link to enable, disable, or otherwise control access to the cell phone location. *Id.* at 45:31–33. As shown in Figure 54, the traveler may have a “buddy list” that includes known people or entities. *Id.* at 45:34–37. The traveler may enable or disable this group’s access to cell phone information, such as location information. *Id.* at 45:37–39.

C. Illustrative Claim

Petitioner challenges claims 1–31 of the '028 patent, where claim 1 is the only independent claim. Claim 1 is reproduced below.

1. A computer program product that, when executing on one or more computers performs the steps of:

automatically receiving a current location; and

presenting a roadway map of an area proximate the current location, wherein the map includes at least one route from the current location to a destination based at least in part on a traffic condition, wherein the traffic condition is at least in part based on a plurality of cell phone speeds estimated through an assessment of multiple locations of each of a plurality of cell phones, wherein each of the plurality of cell phones further has a user initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data.

D. Asserted Challenges to Patentability

Petitioner challenges claims 1–31 of the '028 patent on the following grounds. Pet. 1–2, 6–66.

Claims Challenged	35 U.S.C. § ¹	References/Basis
1–7, 9, 10, 12–21, 25, 26, 29, 31	103	Knockeart, ² Feldman ³
7, 8	103	Knockeart, Feldman, Simske ⁴
10, 11, 30	103	Knockeart, Feldman, Whitsell ⁵
14, 22–24	103	Knockeart, Feldman, Boies ⁶
14	103	Knockeart, Feldman, Boies, Peterson ⁷
27, 28	103	Knockeart, Feldman, Peterson
31	103	Knockeart, Feldman, Craine ⁸

In support of its challenges, Petitioner relies on a Declaration of Dr. Michael S. Braasch (Ex. 1003). *See generally* Pet.

III. DISCUSSION

A. Claim Construction

In an *inter partes* review proceeding, we construe a claim of a patent “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).” *See* 37 C.F.R. § 42.100(b). That standard involves construing claims in accordance with

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the ’028 patent issued claims priority to an application filed before this date, the pre-AIA version of § 103 applies.

² Knockeart et al., U.S. Publ’n No. 2003/0055542 A1, published Mar. 20, 2003 (Ex. 1004).

³ Feldman et al., U.S. Publ’n No. 2002/0026278 A1, published Feb. 28, 2002 (Ex. 1005).

⁴ Simske, U.S. Publ’n No. 2005/0096840 A1, published May 5, 2005 (Ex. 1006).

⁵ Whitsell, U.S. Patent No. 7,203,598 B1, issued Apr. 10, 2007 (Ex. 1007).

⁶ Boies et al., U.S. Patent No. 6,615,133 B2, issued Sept. 2, 2003 (Ex. 1008).

⁷ Peterson, U.S. Patent No. 5,845,227, issued Dec. 1, 1998 (Ex. 1009).

⁸ Craine, U.S. Patent No. 7,027,915 B2, issued Apr. 11, 2006 (Ex. 1010).

the ordinary and customary meaning of such claims as would have been understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner asserts that “[n]o formal claim constructions are presently necessary.” Pet. 5. Patent Owner proposes a construction for the claim term “each of the plurality of cell phones further has a user initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data.” Prelim. Resp. 8–12. Patent Owner refers to this claim term as the “list of authorizations” phrase. *Id.* at 8. For purposes of this Decision, we address the “list of authorizations” phrase below. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe 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))).

1. The “list of authorizations” limitation

The “list of authorizations” phrase (i.e., “each of the plurality of cell phones further has a user initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data”) appears in claim 1. Patent Owner argues that this phrase means “each of the plurality of cell phones further has a user-initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable *the entities’ set forth in the list of authorizations* access to user cell phone location data.” Prelim. Resp. 8.

Patent Owner asserts that its proposed construction “makes clear who/what has ‘access’ enabled/disabled” and “makes clear that there is more than one entity whose access is being enabled/disabled.” *Id.* at 8–9.

To support its proposed construction, Patent Owner provides an annotated version of Figure 54 of the ’028 patent, which is reproduced below. Prelim. Resp. 9.

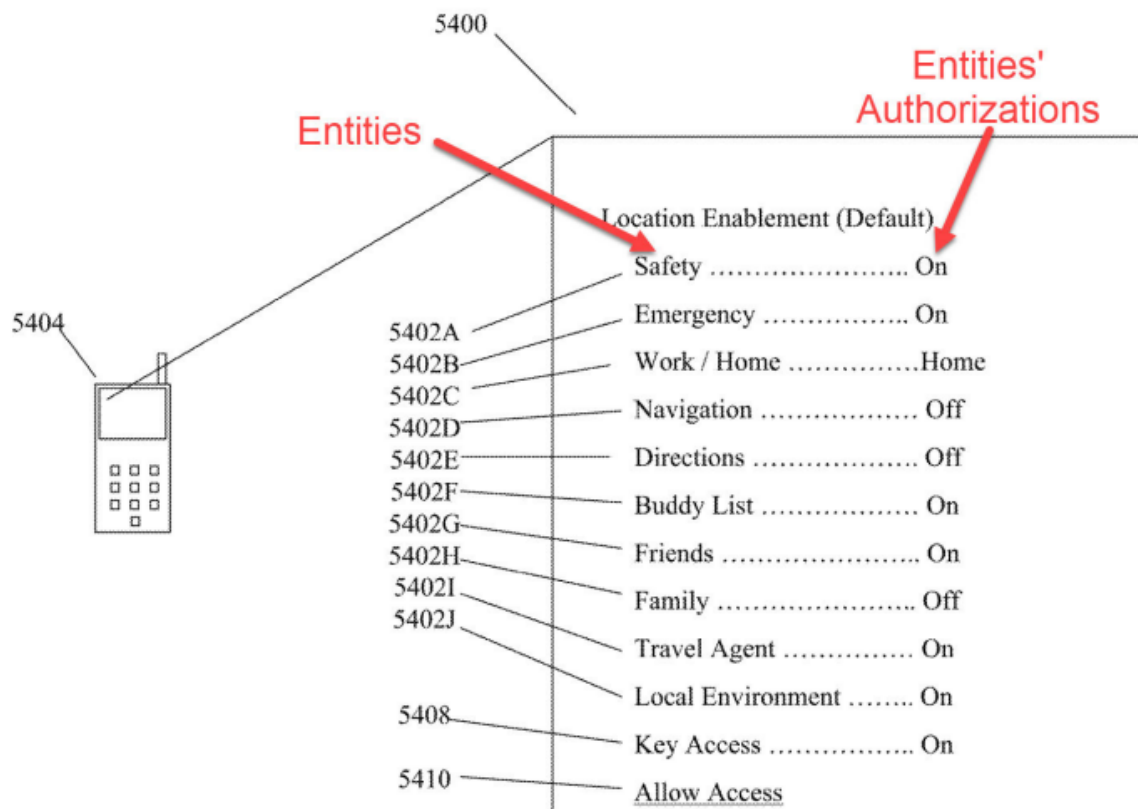


Fig. 54

Figure 54 of the ’028 patent, as annotated by Patent Owner, shows mobile communication facility 5404 (e.g., a cell phone) with user interface 5400. *See* Ex. 1001, 45:18–20, 45:26–29. Patent Owner asserts that user interface 5400 “presents the user with lists of entities (Safety, Emergency, Work/Home, Navigation, etc.) and the authorizations of those entities to access ‘information in the mobile communication facility (e.g. location

information).” Prelim. Resp. 10 (quoting Ex. 1001, 45:37–39); *see also id.* at 9–10 (citing Ex. 1001, 45:26–46:37). Patent Owner further asserts that the ’028 patent “describes the specific example of a ‘buddy list’ . . . and describes how a ‘user may enable or disable this group’s access to information in the mobile communication facility (e.g. location information).” *Id.* at 11; *see* Ex. 1001, 45:35–39.

According to Patent Owner, “Petitioner believes that the ability to enable/disable ‘multiple modes of location data collection’ correspond[s] to the claimed list of authorizations and accordingly that Knockeart’s description of the ability to enable/disable these data collection modes of operation corresponds to the claim language ‘permit a user to selectively enable or disable access to user cellphone location data.’” Prelim. Resp. 11. Patent Owner asserts that the ’028 patent, however, “simply does not discuss enabling/disabling different *modes of data collection* related to a single entity’s access to user cell phone location data and a [person of ordinary skill in the art] would not have understood Claim 1 to cover such.” *Id.* (emphasis added). Patent Owner contends that “a [person of ordinary skill in the art], at the time of the invention, reading Claim 1 and with access to Fig. 54 and the accompanying text, would have come to the conclusion . . . that [the ‘list of authorizations’] phrase concerns enabling/disabling various *entities’ access to user cell phone location data.*” *Id.* at 12 (emphasis added).

In sum, Patent Owner argues that the “list of authorizations” phrase in claim 1 is directed to enabling or disabling access to location data by *entities set forth in the list of authorizations.*

On the record before us, we determine that Patent Owner’s proposed construction is overly narrow. Even if the ’028 patent specification

discloses “lists of *entities* (Safety, Emergency, Work/Home, Navigation, etc.) and the authorizations of those entities to access ‘information in the mobile communication facility (e.g. location information),’” as Patent Owner argues, the specification “is not a substitute for, nor can it be used to rewrite, the chosen claim language.” *See* Prelim. Resp. 10 (emphasis added); *SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004); *see also Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (expressly rejecting “the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment”). We recognize that “understanding the claim language may be aided by the explanations contained in the written description,” but “it is important not to import into a claim limitations that are not a part of the claim.” *SuperGuide*, 358 F.3d at 875. Thus, “a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.” *Id.*

Here, the claim language recites nothing about entities set forth in the list of authorizations, let alone selectively enabling or disabling access to location data by entities set forth in the list of authorizations. *See* Ex. 1001, claim 1 (reciting “list of authorizations that permit a user to selectively enable or disable access to user cellphone location data”). In fact, the claim language says nothing about “who/what has ‘access’ enabled/disabled.” *See* Prelim. Resp. 8–9. As our reviewing court has explained, “it is the *claims*, not the written description, which define the scope of the patent right.” *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed. Cir. 1998). Although Figure 54 of the ’028 patent discloses an embodiment where the

user is presented with a list of entities whose access to location data may be enabled or disabled (e.g., turned on or off), nowhere does the written description limit the meaning of the “list of authorizations” phrase to that embodiment. *See* Ex. 1001, 45:34–39, Fig. 54. The written description does not even use that phrase. Our reviewing court has “cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346–47 (Fed. Cir. 2015) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1328 (Fed. Cir. 2002)). Indeed, the ’028 patent states that “[w]hile [its] invention has been disclosed in connection with the embodiments shown and described in detail, various equivalents, modifications, and improvements will be apparent to one of ordinary skill in the art from the . . . description,” and that “[s]uch equivalents, modifications, and improvements are intended to be encompassed by the . . . claims.” Ex. 1001, 51:3–9.

Moreover, the ’028 patent teaches that, “[i]n embodiments, the user interface provides a plurality of options where the plurality of options relate to at least one of different location based services, different entities, different people, and different locations.” Ex. 1001, 45:22–25; *see also id.* at 45:64–66 (“In embodiments, the plurality of security settings includes categories of at least one of facilities, people, entities, and location services.”). The ’028 patent also teaches that a link on the user interface “may be provided to enable, disable, or otherwise control the access of the [cell phone’s] location.” *Id.* at 45:31–33. Read together, these teachings appear to undercut Patent Owner’s position that claim 1 requires selectively enabling or disabling access to location data by *entities* set forth in the list of

authorizations. The teachings instead appear to indicate that claim 1 encompasses, but is not limited to, selectively enabling or disabling access to location data by *entities* set forth in the list of authorizations. For example, claim 1 also encompasses selectively enabling or disabling access to location data by *people*. *See id.* at 45:22–25, 45:64–66.

2. Summary

As noted above, “we need only construe terms . . . to the extent necessary to resolve the controversy.” *Nidec*, 868 F.3d at 1017. For purposes of this Decision, we do not construe the entire scope of the “list of authorizations” phrase (i.e., “each of the plurality of cell phones further has a user initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data”). Instead, we determine based on the record before us that the “list of authorizations” phrase is not limited to “selectively enabl[ing] or disabl[ing] the *entities*’ set forth in the list of authorizations access to user cell phone location data,” as proposed by Patent Owner. *See* Prelim. Resp. 8 (emphasis added).

B. Alleged Obviousness over *Knockeart* and *Feldman*

Petitioner asserts that claims 1–7, 9, 10, 12–21, 25, 26, 29, and 31 of the ’028 patent would have been obvious over *Knockeart* and *Feldman*. Pet. 6–47. Patent Owner challenges certain aspects of Petitioner’s analysis. Prelim. Resp. 22–33. For the reasons explained below, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its asserted challenge.

1. Overview of Asserted References

Before addressing the parties' arguments, we provide an overview of the asserted references, Knockeart and Feldman.

a. Knockeart

Knockeart describes an information system for motor vehicles.
Ex. 1004 ¶ 2. To illustrate, Figure 1 of Knockeart is reproduced below.

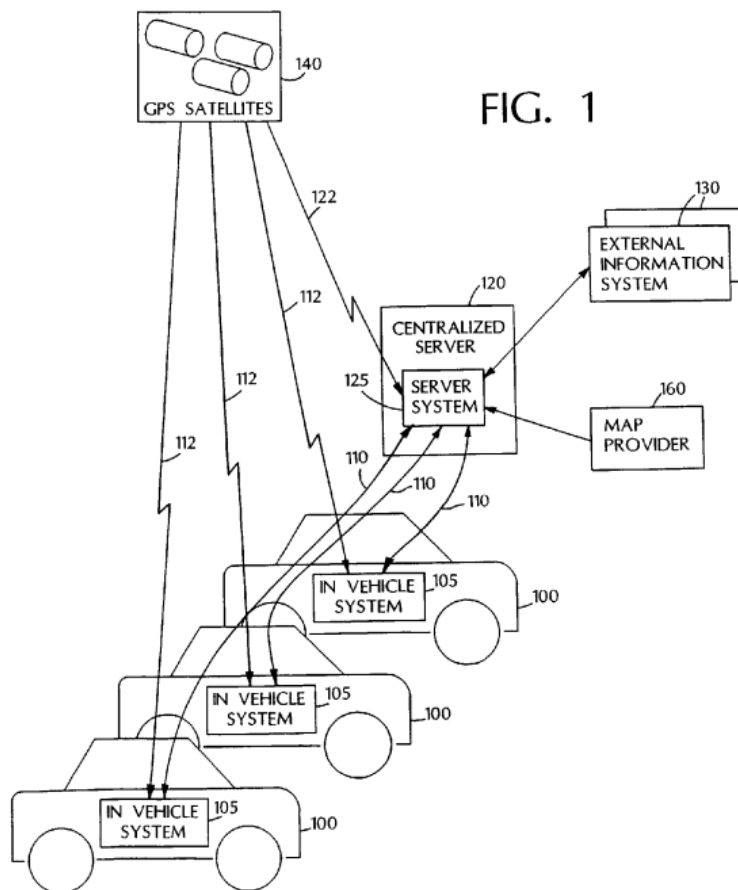


Figure 1 of Knockeart is a diagram showing a vehicle navigation system that provides a route planning and guidance service to the operators of vehicles 100. *Id.* ¶¶ 44, 71. The navigation system includes server system 125 at centralized server 120 and in-vehicle systems 105 installed in vehicles 100. *Id.* ¶ 71. Server system 125 stores a graphic representation of the road

network, which includes nodes interconnected by links that correspond to road segments. *Id.* ¶ 87, Fig. 7. The navigation system also includes a positioning system, where global positioning system (GPS) satellites 140 send signals to the vehicles, enabling the in-vehicle systems to estimate their locations. *Id.* ¶ 71.

Through the navigation service, an operator of a vehicle may specify a desired destination and then be guided by the system to that destination while driving the vehicle. Ex. 1004 ¶ 72. Specifically, the operator enters a destination into in-vehicle system 105, which sends the destination to server system 125. *Id.* ¶¶ 85–86. In-vehicle system 105 also sends the vehicle’s starting location to server system 125. *Id.* ¶ 86. Based on the information from in-vehicle system 105, server system 125 finds the vehicle’s starting link in the graph representation of the road network and computes a “best” path to the destination. *Id.* ¶¶ 88–89. Deciding the “best” path can depend on criteria such as the shortest distance, the shortest time, or the shortest expected speed of travel along links of the roadway graph. *Id.* ¶¶ 89, 317. The planned route is then downloaded from server system 125 to in-vehicle system 105, which tracks the position of the vehicle as it travels to the destination and provides instructions to the operator to guide the operator to the destination. *Id.* ¶¶ 72, 74. In-vehicle system 105 can provide audio and map-based directions to the operator. *Id.* ¶ 117.

When planning routes based on expected travel time, server system 125 uses a traffic database. Ex. 1004 ¶ 317. To populate the traffic database, server system 125 may rely on some or all vehicles 100 as “probes” for collecting traffic information. *Id.* ¶ 318. Knockeart describes two modes of data collection. *Id.* ¶ 319. The first mode involves collecting

traffic profile data of each probe vehicle. *Id.* ¶ 321. In-vehicle system 105 of each probe vehicle collects a history (or profile) of the vehicle speed along links of the road network and stores the information in a link speed log. *Id.* ¶ 321. Server system 125 receives the log information from the probe vehicles, stores it in the traffic database, and uses it to determine the average speed for different links at different times throughout the day. *Id.* ¶¶ 325–327.

The second mode of traffic data collection involves exception reporting. Ex. 1004 ¶ 330. In-vehicle system 105 of each probe vehicle tracks the location of the vehicle as it travels along links of the road network and detects whether a traffic exception has occurred. *Id.* ¶ 337. A traffic exception has occurred if, for example, the travel speed along a link is substantially slower or faster than expected for that link at that time of day. *Id.* When in-vehicle system 105 detects a traffic exception, it sends a message to server system 125 identifying the link and travel speed. *Id.* ¶ 338. Server system 125 receives the exception message and updates the traffic database. *Id.* ¶ 340.

Knockeart explains that “[t]he operator of the vehicle has the option of enabling or disabling either mode of data collection through the user interface of the in-vehicle system.” Ex. 1004 ¶ 324; *see also id.* ¶ 342 (“The operator of a probe vehicle can explicitly enable or disable exception reporting.”).

b. Feldman

Feldman describes “modeling and processing vehicular traffic data and information, and using the modeled and processed vehicular traffic data

and information for providing a variety of vehicular traffic related service applications to end users.” Ex. 1005 ¶ 2. Feldman explains that “prior art techniques are either based on, or, at least include, the use of mobile sensors or electronic devices physically located in or attached to vehicles,” where the “mobile sensors or electronic devices automatically transmit vehicle locations to the computerized central traffic data and handling system” so that “vehicle velocities are relatively simple to calculate.” *Id.* ¶ 7. Feldman further explains,

For obtaining dynamic vehicle location and velocity data and information, . . . such prior art techniques make use of well known global positioning system (GPS) and/or other types of mobile wireless communication or electronic vehicular tracking technologies, such as cellular telephone or radio types of mobile wireless communications networks or systems, involving the use of corresponding mobile wireless devices such as cellular telephones, . . . which are uniquely or specifically designated or assigned to a particular vehicle.

Id. ¶ 8.

Similarly, in Feldman’s system, “[a]cquiring the vehicular traffic data and information from a mobile sensor system is performed by tracking a sample of mobile sensors . . . that are carried in moving vehicles.” Ex. 100 ¶ 55. The “[l]ocations of mobile sensors . . . are obtained from the mobile network,” and “the velocity of a given vehicle on the different road sections of the identified path are calculated.” *Id.* Feldman’s system implements “[d]ata acquisition from cellular phones.” *Id.* ¶ 60. Feldman teaches in particular that “cellular phones that are suspected as being ‘vehicle-carried’ are immediately tracked for their locations,” where “tracking of the ‘moving’ phones is done by polling their locations in known time intervals.” *Id.* ¶¶ 61–62.

2. Independent Claim 1

Turning now to the claims, we address claim 1 in detail. Claim 1 is directed to a “computer program product” and recites various limitations. We start with Petitioner’s arguments regarding these limitations, and then turn to Patent Owner’s arguments in response.

a. “automatically receiving” step

Claim 1 recites “automatically receiving a current location.” Petitioner asserts that “Knockeart’s in-vehicle system ‘track[s] the location of the vehicle’ such as by ‘receiving a reference signal from a positioning system, for example receiving signals from GPS satellites, and computing position data related to the location of the vehicle using the received reference signal.’” Pet. 16–17 (quoting Ex. 1004 ¶¶ 10, 12). Petitioner directs us to where Knockeart describes a GPS receiver that receives signals from GPS satellites and “repeatedly provides location-related information” to an onboard computer. Ex. 1004 ¶ 122 (cited by Pet. 17). Petitioner additionally asserts that, “[i]n another example, Knockeart describes receiving ‘location data related to the vehicle’s current location’ and by the in-vehicle system communicating this information to the server system.” *Id.* (quoting Ex. 1004 ¶ 176).

Patent Owner does not specifically dispute Petitioner’s contentions regarding this limitation. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Knockeart teaches the recited “automatically receiving” step of claim 1. *See* 16–17 (citing, e.g., Ex. 1004 ¶¶ 10, 12, 122, 176).

b. “presenting” step

Claim 1 further recites “presenting a roadway map of an area proximate the current location.” Petitioner asserts that “Knockeart’s server downloads a ‘spot map’ to the vehicle such that ‘[t]he planned route is shown in conjunction with the spot map, as is the vehicle’s DGPS [differential GPS] based location.’” Pet. 17 (quoting Ex. 1004 ¶ 282); Ex. 1004 ¶¶ 138–140 (explaining that “[d]ifferential GPS is based on receiving signals from GPS satellites at a receiver that is at a known location” to “overcom[e] the inaccuracies” in estimated or pseudorange measurements). In Knockeart, a “spot map typically covers only two or three intersections in any direction from the starting location” of the vehicle. Ex. 1004 ¶ 282. Petitioner further directs us to where Knockeart teaches “displaying the received map in conjunction with a representation of the planned route, and a location of the vehicle.” Pet. 17 (citing Ex. 1004 ¶ 10).

Patent Owner does not specifically dispute Petitioner’s contentions regarding this limitation. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that

Knockeart teaches the recited “presenting” step of claim 1. *See* Pet. 17 (citing, e.g., Ex. 1004 ¶¶ 10, 282).

c. “map”

Claim 1 further recites “wherein the map includes at least one route from the current location to a destination based at least in part on a traffic condition.” Petitioner again directs us to where Knockeart teaches “displaying the received map in conjunction with a representation of the planned route, and a location of the vehicle.” Pet. 18 (citing Ex. 1004 ¶ 10). Petitioner also directs us to where Knockeart teaches “receiving traffic related data from a set of vehicles and updating a traffic database using the received traffic related data,” where “[u]pdating the database includes updating speed information associated with multiple road segments in a road network.” *Id.* (citing Ex. 1004 ¶ 30). Petitioner points to Knockeart’s teaching that its system “plan[s] a route through the road network from a starting to a destination location using the speed information associated with the road segments.” *Id.* Petitioner adds that Knockeart further teaches that its “server system may know that certain links are congested with slower than expected speeds for their road classes,” and that “[t]he route planning algorithm would then tend to avoid such a congested link if there are alternative routes that can be taken.” *Id.* at 19 (quoting Ex. 1004 ¶ 254). As discussed above, a link in Knockeart refers to a road segment. Ex. 1004 ¶ 87.

Patent Owner does not specifically dispute Petitioner’s contentions regarding this limitation. *See generally* Prelim. Resp. Nonetheless, the

burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that Knockeart teaches the recited “map” limitation of claim 1. *See* Pet. 17–19 (citing, e.g., Ex. 1004 ¶¶ 10, 30, 254).

d. “traffic condition”

Claim 1 further recites “wherein the traffic condition is at least in part based on a plurality of cell phone speeds estimated through an assessment of multiple locations of each of a plurality of cell phones.” Petitioner relies on the combined teachings of Knockeart and Feldman. Petitioner asserts that “Knockeart discloses use of a ‘traffic database,’ which includes typical speeds that can be used in route planning, and can also include real-time data ‘obtained from probe vehicles[.]’” Pet. 20 (citing Ex. 1004 ¶¶ 170, 318–319, 325). Petitioner points us to where Knockeart teaches that in-vehicle system 105 of each probe vehicle “collects on an ongoing basis a history (a profile) of the speed that the vehicle travels on links of the main roads network (or equivalently the transit times on the links).” *Id.* (quoting Ex. 1004 ¶ 321). Petitioner also points us to where Knockeart teaches that “the in-vehicle system ***tracks the vehicle’s location*** on main roads network,” thereby detecting when the vehicle is traveling along a road segment (i.e., link), and “records the time the vehicle takes to travel from one end to the other of the link and stores a reference to the link, the time of day, and the speed traveled along the link in the link speed log.” *Id.* at 21 (quoting Ex. 1004 ¶ 322) (emphasis added by Petitioner).

Petitioner does not point to any teaching in Knockeart for the “cell phone” aspect of this limitation. Instead, Petitioner relies on Feldman’s description of prior art techniques that use “mobile sensors or electronic devices physically located in or attached to vehicles,” and that obtain “dynamic *vehicle location and velocity data* and information,” where the mobile sensors or electronic devices may be cellular telephones. Pet. 22 (quoting Ex. 1005 ¶¶ 7–8) (emphasis added by Petitioner). Petitioner further directs us to Feldman’s disclosure that these prior art techniques involve “*calculating velocities of vehicles*, for example, by *acquiring series of exact locations* of the vehicles located along roads in known time intervals.” *Id.* (quoting Ex. 1005 ¶ 5) (emphases added by Petitioner).

Referring to Feldman’s own disclosed system, Petitioner adds that Feldman teaches that “cellular phones that are suspected as being ‘vehicle-carried’ are immediately *tracked for their locations*,” and that “[t]he tracking of the ‘moving’ phones is done by *polling their locations in known time intervals*.” Pet. 22 (quoting Ex. 1005 ¶¶ 61–62) (emphases added by Petitioner). According to Petitioner, an ordinarily skilled artisan “would have recognized that such road link travel times would have been used to determine probe vehicle speeds in the combined system, . . . as ‘speed’ is a comparison of time to distance.” *Id.* (citing Ex. 1003 ¶ 81).

Petitioner contends that an ordinarily skilled artisan at the critical time would have “appl[ied] the teachings of Feldman to Knockeart to implement all or a portion of Knockeart’s in-vehicle systems as cellular phones for the purpose of collecting probe vehicle traffic data,” where “the resulting system would have used Feldman’s techniques for collecting traffic information using vehicle-carried cellular phones to populate Knockeart’s traffic

database used to determine fastest routes between starting points and destinations.” Pet. 9–10; *see also id.* at 21–22 (“[I]n the Knockeart-Feldman combination, vehicle-carried cellular phones are used as probes to populate at least some of the traffic information in the traffic database.”). As support, Petitioner reasons,

[B]oth Knockeart and Feldman disclose navigation systems that collect traffic information from probe vehicles to calculate fastest travel routes, and a [person of ordinary skill in the art] would have recognized that applying Feldman’s suggestions to Knockeart’s navigation system would have led to predictable results with a reasonable expectation of success in modifying Knockeart’s system in view of Feldman without significantly altering or hindering the functions performed by Feldman’s system. . . . Indeed, Knockeart expressly contemplates ‘[o]ther embodiments’ not expressly described and Feldman’s cell phone-based traffic data collection technique provides just such an embodiment.

Pet. 15 (quoting Ex. 1004 ¶ 420). Petitioner relies on the declaration testimony of Dr. Braasch. *Id.* (citing Ex. 1003 ¶ 66).

Patent Owner does not specifically dispute Petitioner’s contentions regarding this limitation. *See generally* Prelim. Resp. Rather, Patent Owner challenges Petitioner’s reasoning for combining the teachings of Knockeart and Feldman. Prelim. Resp. 22–27; *see In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”). We address Patent Owner’s arguments below in a separate section.

Based on Petitioner’s argument and evidence, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that its proposed combination of Knockeart and Feldman teaches the recited “traffic condition” of claim 1. *See* Pet. 9–15, 19–23, 22–27 (citing, e.g., Ex. 1003

¶¶ 66, 81; Ex. 1004 ¶¶ 170, 318–319, 321–322, 325, 420; Ex. 1005 ¶¶ 5, 7–8, 61–62).

e. “each of the plurality of cell phones”

Claim 1 further recites “wherein each of the plurality of cell phones further has a user initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data.” As noted above, Patent Owner refers to this limitation as the “list of authorizations” phrase. Prelim. Resp. 8.

Petitioner asserts that “Knockeart discloses that ‘[t]wo modes of data collection are used’ for collecting probe vehicle location/speed data,” and that “[t]he operator of the vehicle has the option of **enabling or disabling either mode of data collection through the user interface** of the in-vehicle system.” Pet. 23 (quoting Ex. 1004 ¶¶ 319, 324) (emphasis added by Petitioner). Petitioner additionally asserts that “Knockeart further describes that the user interface . . . ‘includes multiple push buttons associated with display 242’ that allow the user ‘to ***select alternatives*** shown on display 242, or to scroll the **list** of displayed alternatives’ when selecting between multiple available options.” *Id.* at 24 (quoting Ex. 1004 ¶ 118) (emphases added by Petitioner). Petitioner contends that an ordinarily skilled artisan “would have recognized that the multiple available options for ‘enabling or disabling’ probe location data collection described by Knockeart would have been provided as a ‘list of displayed alternatives’ in the Knockeart-Feldman combination to allow the user to scroll the available options to select one of the available options.” *Id.* at 24–25. Petitioner adds,

Alternatively, it would have been obvious to provide the options provided by Knockeart's user interface for enabling or disabling the multiple modes of location data collection as a 'list' based on Knockeart's teachings for scrolling lists of available options presented by the user interface because the in-vehicle systems of probe vehicles (implemented as cell phones in the Knockeart-Feldman combination) are expressly described as presenting lists for allowing users to make selections and therefore implementing the 'enabling or disabling' options using such lists would have eliminated the need for developing another method of allowing such user selection.

Id. at 25. Petitioner relies on the declaration testimony of Dr. Braasch. *Id.* at 24–25 (citing Ex. 1003 ¶¶ 84–87).

Patent Owner challenges Petitioner's analysis. Prelim. Resp. 28–33. In particular, Patent Owner argues that Knockeart does not teach selectively enabling or disabling access to user location data, as required by the limitation. *Id.* at 28–30. Patent Owner also argues that Knockeart does not teach the recited list of authorizations. *Id.* at 31–33. We address Patent Owner's arguments below.

f. Patent Owner's Arguments

As noted above, Patent Owner makes several arguments. In particular, Patent Owner challenges (i) Petitioner's reasoning for combining the teachings of Knockeart and Feldman, (ii) Petitioner's showing for the claim limitation "selectively enable or disable access user cellphone location data," and (iii) Petitioner's showing for the claim limitation "list of authorizations." Prelim. Resp. 22–33. We address these arguments in turn.

i. Reasoning for Combining Knockeart and Feldman

As discussed above, Petitioner proposes combining Knockeart and Feldman to provide a navigation system where “vehicle-carried cellular phones are used as probes to populate at least some of the traffic information in the traffic database.” Pet. 21–22. Petitioner asserts that “both Knockeart and Feldman disclose navigation systems that collect traffic information from probe vehicles to calculate fastest travel routes,” and that “Knockeart expressly contemplates ‘[o]ther embodiments’ not expressly described and Feldman’s cell phone-based traffic data collection technique provides just such an embodiment.” *Id.* at 15. Petitioner adds that an ordinarily skilled artisan “would have recognized that applying Feldman’s suggestions to Knockeart’s navigation system would have led to predictable results with a reasonable expectation of success in modifying Knockeart’s system in view of Feldman without significantly altering or hindering the functions performed by Feldman’s system.” *Id.*

That Knockeart and Feldman describe mechanisms for traffic data collection, and that the use of Feldman’s vehicle-carried cell phone was a known way to do that, is sufficient reason for combining Knockeart and Feldman. *See* Ex. 1004 ¶¶ 318–319 (describing the use of in-vehicle systems to collect traffic data); Ex. 1005 ¶¶ 7–8, 61 (describing the use of vehicle-carried cell phones to collect traffic data). Petitioner need only show that Feldman’s vehicle-carried cell phone would have been a “suitable option” for implementation in Knockeart’s navigation system. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1381 (Fed. Cir. 2023). Patent Owner does not dispute that using Feldman’s vehicle-carried cell

phone would have provided for traffic data collection in a system like Knockeart's system. *See generally* Prelim. Resp.

Patent Owner argues, however, an ordinarily skilled artisan would “not integrate some or all of Knockeart’s in-vehicle functionality in a cell phone as alleged by Petitioner” because combining Knockeart and Feldman in this way “would remove features from the Knockeart invention and/or result in duplicative equipment.” Prelim. Resp. 23, 25. Patent Owner asserts that “Knockeart’s in-vehicle system is tightly integrated into the vehicle itself,” allowing for “the remote unlocking of the vehicle’s doors in the event the owner is locked out of the vehicle and the remote immobilization of the vehicle in the event the vehicle is stolen.” *Id.* at 23 (citing Ex. 1004 ¶ 381). Patent Owner complains that “Petitioner does not explain or even allege[] that a cell phone from 2004 could implement either of these features by connecting to a vehicle’s internal communication bus.” *Id.* at 24. To illustrate its point, Patent Owner asks, “[i]f a vehicle is stolen and the cell phone is with the rightful owner, how could it possibly communicate with the vehicle to immobilize it?” *Id.* According to Patent Owner, an ordinarily skilled artisan “would realize that implementing Knockeart’s in-vehicle system as a cellular phone for the purpose of collecting probe vehicle traffic data would require one to strip out non-navigation features of Knockeart’s in-vehicle system (*i.e.*, the remote door unlocking and vehicle immobilization systems) that cannot be performed on a cell phone.” *Id.* Patent Owner also contends that “implementing just the navigation portion of Knockeart’s in-vehicle system on a cell phone would only increase costs, as Knockeart’s in-vehicle system would still have to have a cellular modem and transceiver to provide for cellular connectivity

and a GPS receiver to implement the non-navigation features of Knockeart's in-vehicle system." *Id.* at 24–25.

We disagree with Patent Owner. Even if combining Knockeart and Feldman would “remove features,” “result in duplicative equipment,” or “increase costs” (*see* Prelim. Resp. 23–25), Patent Owner essentially alleges that there would be tradeoffs in making the combination; but “[t]he fact that [a] motivating benefit comes at the expense of another benefit . . . should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another.” *See Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000). The relative advantages (e.g., alternative option for implementing traffic data collection) and disadvantages (e.g., removal of non-navigation features, duplicative equipment, increased costs) of adding Feldman’s vehicle-carried cell phone to Knockeart’s navigation system amount to a tradeoff, a decision well within the level of an ordinarily skilled artisan. Indeed, as Petitioner points out, Knockeart states that its “description is intended to illustrate and not to limit the scope of the invention,” and that “[o]ther embodiments are within the scope of the [invention].” Ex. 1004 ¶ 420 (cited by Pet. 15).

Moreover, we note Knockeart’s teaching that “[i]n addition to providing navigation services, *alternative versions* of the vehicle information system provide *additional services* such as roadside assistance, *remote vehicle control*, traffic information, and communication related services.” Ex. 1004 ¶ 376 (emphases added). We read this teaching in Knockeart as contemplating a navigation system without “additional” non-navigation features, including remote vehicle control. Accordingly, Patent Owner’s argument does not undermine Petitioner’s obviousness showing.

Patent Owner further argues that an ordinarily skilled artisan “would not have modified Feldman’s phones with Knockeart’s ability to enable/disable its modes of data collection” because “Feldman’s phones do not have such modes of data collection thus making implementation of Knockeart’s enable/disable feature on Feldman’s phones non-sensical.” Prelim. Resp. 26; *see id.* at 26–27.

We disagree with Patent Owner in this regard as well. Our reviewing court has explained that “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference,” but, “[r]ather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Additionally, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Here, Knockeart teaches using an in-vehicle system for traffic data collection in two different modes, where “[t]he operator of the vehicle has the option of enabling or disabling either mode of data collection through the user interface of the in-vehicle system.” Ex. 1004 ¶¶ 319, 324. Feldman teaches using vehicle-carried cell phones for traffic data collection. Ex. 1005 ¶¶ 7–8, 61. We find that an ordinarily skilled artisan, in implementing Feldman’s vehicle-carried cell phone in Knockeart’s navigation system, would have made the necessary modifications to provide Feldman’s cell phone with Knockeart’s data collection features (e.g., different modes of data collection, option of enabling or disabling either mode) in order to realize the advantages of using Feldman’s cell phone as an alternative way to collect traffic data.

We note Patent Owner’s further argument in response to Petitioner’s alternative theory that an ordinarily skilled artisan “would have been prompted to implement Knockeart’s system to utilize Feldman’s vehicular traffic data collected by tracking ‘vehicle-carried’ cellular telephones as one of the external traffic information sources” for populating the server system’s traffic database. *See* Pet. 9–10. Specifically, Patent Owner argues that “Knockeart’s external information system 130 . . . is only disclosed as receiving traffic information ‘from a government run traffic monitoring authority, and from logging data obtained from probe vehicles,’” and that “[t]hese types of information sources are materially different than some group of cell phones operating outside of Knockeart’s own network.” Prelim. Resp. 25 (citing Ex. 1004 ¶¶ 170, 317). It is not clear, however, why Patent Owner considers the information sources to be “materially different.” Without more, Patent Owner fails to undermine Petitioner’s obviousness showing.

For the reasons given above, we are persuaded that Petitioner’s proffered reasoning for modifying Knockeart’s navigation system to include Feldman’s cell phone, namely, to provide an alternative way to implement Knockeart’s navigation system, is sufficient for purposes of this Decision. *See* Pet. 15 (“Knockeart expressly contemplates ‘[o]ther embodiments’ not expressly described and Feldman’s cell phone-based traffic data collection technique provides just such an embodiment.”); *Intel*, 61 F.4th at 1381 (explaining that the petitioner need only show that the proposed combination would have provided a “suitable option”).

ii. “*selectively enable or disable access to user cellphone location data*”

Patent Owner argues that “Knockeart fails to disclose ‘enabl[ing] or disabl[ing] *access* to user cellphone data.’” Prelim. Resp. 28. According to Patent Owner, “Petitioner is saying that a vehicle operator can enable/disable *access* of location data by the server when, in fact, Knockeart says exactly the opposite.” *Id.* at 29. As support, Patent Owner points to Knockeart’s teaching that “the server system can enable (or request) either type of collection,” for example, “the server system can enable more vehicles if it needs more data, and disable data collection in some vehicles if it is receiving more data than it needs.” *Id.* (quoting Ex. 1004 ¶ 324). Patent Owner reads this teaching in Knockeart to mean “the vehicle operator *preferentially* chooses not to continue to collect the transit times of various links, subject always to the server reenabling data collection.” Prelim. Resp. 29; *see id.* at 29–30. Patent Owner asserts that the “vehicle operator does not prevent the server accessing location data by disabling collection when the server can simply reenable it.” *Id.* at 30.

We disagree with Patent Owner. Knockeart teaches,

The operator of the vehicle has the option of enabling or disabling either mode of data collection through the user interface of the in-vehicle system. Also, the server system can enable (or request) either type of collection. For instance, the server system can enable more vehicles if it needs more data, and disable data collection in some vehicles if it is receiving more data than it needs.

Ex. 1004 ¶ 324 (emphasis added) (cited by Pet. 23; Prelim. Resp. 29). We note that Knockeart also teaches that “[t]he operator of a probe vehicle can explicitly enable or disable exception reporting,” which is one of the aforementioned modes of data collection. *Id.* ¶ 342 (cited by Pet. 19). We

find these teachings in Knockeart support Petitioner’s position that the operator of the vehicle may selectively enable or disable access to location data. *See* Pet. 23–24.

As to Knockeart’s additional teaching that “the server system can enable (or request) either type of collection,” we do not agree with Patent Owner’s reading that the operator can preferentially disable a type of data collection “subject always to the server reenabling data collection.” *See* Prelim Resp. 29, 30. Knockeart does not disclose that the server can *reenable* data collection. Instead, Knockeart says that the server can enable *or request* data collection. If the operator could only disable data collection “subject always” to re-enablement by the server, as Patent Owner contends, then there would be no need for the server to ever *request* data collection. We thus read Knockeart’s teaching that the server can enable or request data collection to mean the server can *enable* data collection when the operator has already enabled data collection, or the server can *request* data collection when the operator has disabled data collection.

For the reasons given above, Patent Owner does not undermine Petitioner’s showing for this specific claim limitation.

iii. “list of authorizations”

Patent Owner argues that “*Knockeart* fails to disclose a ‘list of authorizations’” because “enabling/disabling modes of data collection is not comparable with enabling/disabling certain entities’ access to cell phone location data.” Prelim. Resp. 31. According to Patent Owner, the recited “list of authorizations is a list of which entities can and cannot access the user cell phone location data.” *Id.* at 32 (citing Ex. 1001, Fig. 54); *see also*

id. at 32–33 (“The same device, Knockeart’s server, is accessing Knockeart’s location data in both modes. Since there is only one device ‘accessing’ the location data in Knockeart, there can be no ‘selective’ enablement/disablement of such access because in order to ‘permit a user to *selectively* enable or disable access,’ the user would have to be able to select between two different entities.”).

This argument is based on Patent Owner’s proposed construction of the “list of authorizations” phrase (which recites “each of a plurality of cell phones further has a user initiated permission set comprised of a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data”). As discussed above in the Claim Construction section, however, we reject Patent Owner’s proposed construction. *See supra* Part III.A. Specifically, we determine that the “list of authorizations” phrase is not limited to enabling or disabling *entities’* access to cell phone location data, contrary to Patent Owner’s position. *See supra* Part III.A. Accordingly, Patent Owner’s argument in this regard is unavailing.

Patent Owner acknowledges that “Knockeart discloses a list of ‘data collection modes’ . . . along with the ability to enable or disable them.” Prelim. Resp. 31. According to Patent Owner, however, “modes of data collection as described in Knockeart do not access user cell phone location data.” *Id.* at 32. This argument does not adequately undermine Petitioner’s showing for this claim limitation, which recites “a list of authorizations that permit a user to selectively enable or disable access to user cellphone location data.” Petitioner asserts that “Knockeart discloses that ‘[t]wo modes of data collection are used’ for collecting probe vehicle

location/speed data,” and that “[t]he operator of the vehicle has the option of enabling or disabling either mode of data collection.” Pet. 23 (quoting Ex. 1004 ¶¶ 319, 324) (emphasis by Petitioner omitted). Knockeart further discloses that each probe vehicle uploads the collected data to the server system. Ex. 1004 ¶ 319. These disclosures in Knockeart suggest that by disabling both modes of data collection, the operator of the vehicle would disable data uploads to the server system, and thereby disable access to data by the server system. Accordingly, we find these disclosures satisfy the claim language of this limitation.

On this record, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that the proposed combination of Knockeart and Feldman teaches the recited cell phones of this limitation (which Patent Owner refers to as the “list of authorizations” phrase).

3. Summary

In view of the foregoing, we determine that Petitioner has demonstrated a reasonable likelihood of showing that independent claim 1 would have been obvious over Knockeart and Feldman.

Claims 2–7, 9, 10, 12–21, 25, 26, 29, and 31 depend from claim 1. Patent Owner does not separately dispute Petitioner’s analysis for these dependent claims. *See generally* Prelim. Resp. Having reviewed Petitioner’s arguments and evidence asserting that claims 2–7, 9, 10, 12–21, 25, 26, 29, and 31 would have been obvious over Knockeart and Feldman, (*see* Pet. 25–47), we also determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its assertions as to these dependent claims.

C. Remaining Challenges

Petitioner asserts six additional challenges directed to claims 7, 8, 10, 11, 14, 22–24, 27, 28, 30, and 31, which depend from claim 1. Specifically, Petitioner asserts that claims 7 and 8 would have been obvious over Knockeart, Feldman, and Simske. Pet. 47–50. Petitioner asserts that claims 10, 11, and 30 would have been obvious over Knockeart, Feldman, and Whitsell. *Id.* at 50–53. Petitioner asserts that claims 14 and 22–24 would have been obvious over Knockeart, Feldman, and Boies. *Id.* at 53–59. Petitioner asserts that claim 14 would have been obvious over Knockeart, Feldman, Boies, and Peterson. *Id.* at 59–61. Petitioner asserts that claims 27 and 28 would have been obvious over Knockeart, Feldman, and Peterson. *Id.* at 61–63. Lastly, Petitioner asserts that claim 31 would have been obvious over Knockeart, Feldman, and Craine. *Id.* at 64–66.

Patent Owner does not separately dispute Petitioner’s analysis for these remaining grounds. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Having reviewed the parties’ arguments and evidence, including the arguments discussed above for claim 1, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on the remaining asserted challenges.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated on the record before us a reasonable likelihood that it will prevail in showing at least one of the challenged claims of the ’028 patent is

unpatentable. We institute trial on all challenged claims and all asserted grounds of unpatentability. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1353 (2018) (“The agency cannot curate the claims at issue but must decide them all.”); 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”). We have not, however, made a final determination with respect to the patentability of the challenged claims or the constructions of any claim terms.

V. ORDER

For the reasons given, it is

ORDERED that *inter partes* review is instituted as to all challenged claims of the '028 patent, namely, claims 1–31, based on all challenges presented in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this Decision.

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PETITIONER:

Timothy W. Riffe
Patrick J. Bisenius
FISH & RICHARDSON P.C.
riffe@fr.com
bisenius@fr.com

PATENT OWNER:

Barry J. Bumgardner
BARRY BUMGARDNER LAW, PLLC
barry@barrybumlaw.com

Jeffrey R. Ambroziak
FISHERBROYLES LLP
jeffrey.ambroziak@fisherbroyles.com