

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNITED SERVICES AUTOMOBILE ASSOCIATION,
Petitioner,

v.

AUTO TELEMATICS LTD.,
Patent Owner.

IPR2024-00779
Patent 10,198,878 B2

Before GEORGE R. HOSKINS, FRANCES L. IPPOLITO, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

O'HANLON, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

United Services Automobile Association (“Petitioner”) filed a Petition for *inter partes* review of claims 1–27 (“the challenged claims”) of U.S. Patent No. 10,198,878 B2 (Ex. 1001, “the ’878 patent”). Paper 2 (“Pet.”), 1. Auto Telematics Ltd. (“Patent Owner”) did not file a Preliminary Response. On October 17, 2024, we instituted an *inter partes* review of the challenged claims on all grounds raised in the Petition. Paper 6. Neither party filed briefs after institution, and neither party requested oral hearing.

For the reasons that follow, we conclude that Petitioner has proven by a preponderance of the evidence that claims 1–27 of the ’878 patent are unpatentable.

B. Real Parties in Interest

Petitioner identifies itself as the sole real party in interest. Pet. 85.

Patent Owner identifies itself as the sole real party in interest. Paper 5, 2.

C. Related Matters

The parties indicate that the ’878 patent is not the subject of any other district court proceeding. Pet. 85; Paper 5, 2. The parties note other petitions for *inter partes* review in which Petitioner challenged Patent Owner’s patents that are related to the ’878 patent and in which we instituted *inter partes* review, namely IPR2023-00518, IPR2023-00768, IPR2023-00857, and IPR2023-00911. Pet. 85–86; Paper 5, 2.

D. The Challenged Patent

The '878 patent discloses a mobile device adapted for installation to a vehicle and configured to log driving information associated with how the vehicle is driven. Ex. 1001, 1:22–27. The '878 patent acknowledges that data logging devices for road vehicles exist, but asserts that they are difficult and costly to install. *Id.* at 1:34–58. The '878 patent purports to improve upon known data logging devices by using the driver's mobile telecommunications device, such as a smart phone, loaded with an application to provide data logging functionality. *Id.* at 2:15–26.

The mobile device contains a sensor set, including an image capture module, an accelerometer, a GPS receiver, and an audio capture module, for sampling physical data. Ex. 1001, 15:47–53. The device uses data captured by the sensors to derive driving information that is used to determine the occurrence of a driving incident, such as a collision. *Id.* at 13:36–46. For example, the accelerometer provides information regarding the pitch, yaw, and roll of the vehicle, which data may be used to determine the g-forces to which the vehicle has been subjected. *Id.* at 15:63–16:2. This data is useful in determining the severity of a collision. *Id.* at 16:2–3. The data captured by the sensors can also be used to monitor the driver's driving performance and determine a profile for the driver, which an insurance company may use to determine the driver's risk assessment on which insurance premiums are based. *Id.* at 13:46–49, 22:9–20.

E. The Challenged Claims

Petitioner challenges claims 1–27 of the '878 patent. Pet. 1. Claims 1, 26, and 27 are independent. Claim 1 is illustrative of the

challenged claims and is reproduced below with some changes to indentation for readability.

1. A mobile telecommunications device configured to log driving information associated with a vehicle, the mobile telecommunications device comprising:
 - a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof;
 - a user interface;
 - a processor and;
 - a memory;the mobile telecommunications device being configured to:
 - determine, based on at least one of the inputs received by the user interface and sensor data from the device's sensor set, a start of a driving period during which the mobile device is removably attached to the vehicle and the vehicle is in use;
 - process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven; and
 - store a selection of the driving information to the memory;wherein the driving information is derived without data from the vehicle sensors, and the mobile telecommunications device is further configured to:
 - interface with an external device, the external device having access to external driving information associated with a condition of the vehicle; and,
 - to receive at least a portion of the external driving information from the external device.

Ex. 1001, 31:44–32:5.

F. Instituted Grounds of Asserted Unpatentability

The Petition relies on the following prior art references:

Name	Reference	Exhibit
Curry	WO 2010/042545 A2, published April 15, 2010	1005
Tamir	US 7,821,421 B2, issued October 26, 2010	1006
Balachandran	US 6,073,004, issued June 6, 2000	1007
Thompson	Chris Thompson et al., “Using Smartphones to Detect Car Accidents and Provide Situational Awareness to Emergency Responders,” Mobilware 2010, LNICST 48, pp. 29–42, 2010	1008
Willis	WO 2007/114716 A1, published October 11, 2007	1009
Berkobin	US 2008/0255888 A1, published October 16, 2008	1010
Rabu	US 8,682,399 B2, issued March 25, 2014	1013
Katayama	EP 1 914 691 A1, published April 23, 2008	1024

We instituted trial based on all asserted claims and grounds of unpatentability as follows:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 5, 6, 8–14, 18–24, 26	103(a) ¹	Curry, Rabu, Katayama
27	103(a)	Curry, Rabu, Katayama, Berkobin
4	103(a)	Curry, Rabu, Katayama, Tamir
6, 7, 17	103(a)	Curry, Rabu, Katayama, Balachandran

¹ The application resulting in the ’878 patent claims priority to a date prior to when the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011), took effect. Thus, we refer to the pre-AIA version of section 103.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
15, 16	103(a)	Curry, Rabu, Katayama, Thompson
25	103(a)	Curry, Rabu, Katayama, Willis

Pet. 1–2. Petitioner submits a declaration of William R. Michalson, Ph.D. (Ex. 1003, “Michalson Declaration”) in support of its contentions.

II. ANALYSIS

A. Principles of Law

1. *Inter Partes Review*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). Petitioner bears the burden of persuasion to prove unpatentability of each challenged claim by a preponderance of the evidence. 35 U.S.C. § 316(e). This burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

2. *Obviousness*

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 the 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 skill in the art, and (4) when in evidence, any objective evidence of nonobviousness.² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)). “The patent’s purpose can also be informative.” *Id.*

Petitioner contends that a person having ordinary skill in the art at the time of the invention (“POSITA”) would have had

at least a Bachelor’s of Science Degree (or equivalent) in an academic area emphasizing electrical engineering, computer engineering, computer science, or a related technical field, and about 2-3 years of experience in the field of telematics systems

² The parties have not directed us to any such objective evidence.

(e.g., familiarity with control and diagnostic systems, navigation systems and wireless communication technology).

Ex. 1003 ¶ 15; Pet. 11 n.4 (citing same). Petitioner further contends that “[a] greater amount of education, i.e., a doctorate in an academic area emphasizing electrical engineering, computer engineering, computer science, or a related technical field, would compensate for fewer years of work experience.” Ex. 1003 ¶ 15; Pet. 11 n.4.

Based on the arguments presented and the cited references, we find Petitioner’s definition of the level of ordinary skill reasonable and for purposes of this Decision, adopt it as our own.

C. Claim Construction

In an *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b), including construing the claims in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” and “after reading the entire patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc). In addition to the specification and prosecution history, we also consider use of the terms in other claims and extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Id.* at 1312–17. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term. *Id.* at 1315. We also consider “[a]ny prior claim construction

determination concerning a term of the claim in a civil action . . . that is timely made of record” in this proceeding. 37 C.F.R. § 42.100(b).

“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (alteration in original) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner asserts that “no express constructions are required,” but argues that, “[b]ased on plain meaning, the recited ‘driving period’ references a time period ‘during which [a] mobile device is removably attached to the vehicle and the vehicle is in use.’” Pet. 3 (second alteration in original) (citing Ex. 1003 ¶¶ 63, 140). According to Petitioner, “[t]hese attributes may be satisfied by a start of a monitoring period, whether at the onset of vehicle driving or whether instead before or thereafter.” *Id.* at 4 (citing Ex. 1003 ¶ 142).

We note that the claim language of independent claim 1 recites “determine . . . a start of a driving period during which the mobile device is removably attached to the vehicle and the vehicle is in use.” Ex. 1001, 31:55–59. Independent claims 26 and 27 contain substantially similar recitations. *See id.* at 34:14–16, 34:43–45. The express language of the claims recites that the “start of a driving period” is during the period in which the mobile device is removably attached to the vehicle and the vehicle is in use, but does not otherwise specify any particular time at which the driving period begins or ends.

The ’878 patent discloses that there are several ways to register the start of a driving period. For example, “[t]he start of a driving period *may be manually entered* by the user via the application’s graphical user interface

(GUI).” Ex. 1001, 18:65–67 (emphasis added). Or, “the start of the driving period may be automated” such that “the mobile device 17 may be configured to initiate the driving period once sensor data above a minimum threshold value is recorded, indicative of the vehicle being in motion.” *Id.* at 18:67–19:4. The ’878 patent further provides an example of the start of a driving period that initiates “once a velocity greater than 20 kilometers per hour is detected.” *Id.* at 19:4–6. In this regard, we understand the ’878 patent to disclose the start of a “driving period” after a threshold velocity is reached, even though the vehicle is in operation and in use prior to reaching that velocity.

Accordingly, we agree with Petitioner’s contention that the claim language “leaves open the possibility of the driving period corresponding to the beginning, middle or end of, a vehicle’s operation.” Pet. 3–4.

We determine that no additional claim terms require express construction.

D. Overview of the Asserted Prior Art

1. Curry

Curry describes “monitoring and controlling the use of a mobile computing device.” Ex. 1005, code (57). Curry’s system “includes a data server containing a model of a road network specifying traffic routes at a selected location,” and a “mobile wireless computing device . . . configured [to] wirelessly communicate with the data server.” *Id.* at 2:3–5.³ Curry’s

³ Our citations to Curry refer to the original pagination rather than to the page numbers added by Petitioner at the bottom center of every page in the exhibit. Petitioner also appears to use the original pagination. *See, e.g.*, Pet. 5–7. Petitioner’s witness, Dr. Michalson, appears to cite to both sets of pagination intermittently. For consistency, in our citations to the Michalson

system further stores information from a GPS receiver and an accelerometer sensor in the mobile device, such as location, speed, and acceleration, and uses the information to calculate a driver safety statistic based on when and where the mobile device was used and the motion of the device. *See id.* at 2:6–30.

2. *Rabu*

Rabu “relates generally to portable media devices and in particular to determining a docking status of a portable media device using data from one or more motion sensors.” Ex. 1013, 1:7–10. Rabu’s portable media device (“PMD”) can receive input from one or more motion sensors, such as an accelerometer and a gyroscope. *Id.* at 7:11–13. “[T]he input can indicate orientation angle and motion information of the PMD.” *Id.* at 7:14–15. The PMD can determine a holder status and can determine whether it is in a moving vehicle, in a stationary vehicle, being handled by a moving person, or being handled by a stationary person. *Id.* at 7:15–16, 7:22–26. “[T]he PMD can select a mode of operation based on the holder status and the holder motion status.” *Id.* at 3:1–3.

3. *Katayama*

Katayama describes a driving monitor that records driver behavior and “a surrounding situation” during a period before and after an accident. Ex. 1024 ¶ 1. Katayama’s driving recorder includes an information processing device that includes a data receiving section, a temporary data storage section, a situation data recording section, and a data administration

Declaration, we attempt to convert all references to Curry’s original pagination.

section. *Id.* ¶¶ 31, 44. The “data administration section 804 determines whether or not the content of the situation data stored in the temporary data storage section 802 meets the predetermined condition,” and if so, the situation data is “transferred from the temporary data storage section 802 to the situation data recording section 803.” *Id.* ¶ 46.

4. Berkobin

Berkobin’s disclosure relates to “determining driver behavior [by] receiving vehicle performance data, determining a driver safety metric based on the vehicle performance data, and transmitting the safety metric to a remote host.” Ex. 1010 ¶ 2. “[A]n embedded GPS and cellular transceiver . . . support real-time, remote driver and vehicle performance metrics.” *Id.* ¶ 21. As an example, Berkobin’s apparatus includes vehicle-mounted transceivers. *Id.* ¶ 25. The apparatus “can interface and monitor various vehicle systems and sensors to determine vehicle conditions.” *Id.* ¶ 38. “[S]ubsystems can include a BlueTooth transceiver . . . to interface with devices such as phones” and “user inputs[] such as [an] emergency button . . . caus[ing a] processor 106 to initiate a voice and data connection from the vehicle to a central monitoring station . . . referred to as a remote call center.” *Id.* ¶ 44. “Data such as GPS location and occupant personal information can be transmitted to the call center.” *Id.* The apparatus “can transmit vehicle performance data upon a triggering event such as, but not limited to vehicle crash indication, acceleration above a threshold, speed above a threshold, and the like.” *Id.* ¶ 54. Berkobin discloses the use of artificial intelligence, such as neural networks, in its methods and systems. *Id.* ¶ 31.

5. *Tamir*

Tamir discloses the collection of driving information from a plurality of vehicles and the evaluation of “driving behavior of a first vehicle based on information from at least one other vehicle or to a statistical analysis of multiple other vehicles.” Ex. 1006, 2:19–23. Tamir describes that, in some embodiments, “samples are collected at a dynamically adjusted rate” and the “rate of sampling is optionally determined according to the location of the driving, for example accumulating more samples at areas where there [are] many accidents or near intersections.” *Id.* at 9:10–20. Tamir further describes that, “when it is determined that the driver is driving relatively daringly, a higher sampling rate is used.” *Id.* at 20:62–21:1.

6. *Balachandran*

Balachandran describes “enabling emergency call initiations in response to the detection of a vehicle accident.” Ex. 1007, code (57). More specifically, Balachandran relates to “the use of a cellular telephone for automatically initiating an outgoing call in response to a vehicle accident.” *Id.* at 1:6–9. Balachandran describes the importance of “automatically initiating an emergency call through a cellular telephone system in response to a vehicle accident without the need for subscriber initiation.” *Id.* at 1:27–30. Balachandran’s system “includes a plurality of sensors 10 strategically located about a vehicle to detect an accident involving the vehicle.” *Id.* at 2:19–21. In the event of an accident that warrants an emergency call, “the processor activates a timer 35 located within the cellular telephone 15,” and the “timer 35 provides a preselected time delay before initiating an outgoing emergency call in response to detection of a vehicle accident.” *Id.* at 2:50–56. An “audio or visual indication notifies the

passengers of activation of the timer 35 and ceases with expiration or cutoff of the timer” to provide “the passengers in the vehicle a period of time to gather their wits after an accident.” *Id.* at 2:56–60. “After the time delay period expires the processor 30 initiates emergency call setup.” *Id.* at 2:64–66.

7. *Thompson*

Thompson is a university publication (“Institute for Software Integrated Systems, Vanderbilt University”) titled “Using Smartphones to Detect Car Accidents and Provide Situational Awareness to Emergency Responders.” Ex. 1008, 1.⁴ Thompson purports to provide “contributions to the study of using smartphone-based accident detection systems” and “solutions to key issues associated with detecting traffic accidents, such as preventing false positives by utilizing mobile context information and polling onboard sensors to detect large accelerations” and “the architecture of [a] prototype smartphone-based accident detection system.” *Id.*

Thompson explains that “[b]uilding a smartphone-based wireless mobile sensor network for accident detection system is hard . . . because phones can be dropped (and generate false positives) and the phone is not directly connected to the vehicle.” Ex. 1008, 2. Thompson further explains that “conventional in-vehicle accident detection systems rarely incur false positives because they rely on sensors, such as accelerometers and airbag sensors, that directly detect damage to the vehicle.” *Id.* Thompson purports to provide a solution by showing “how smartphones in a wireless mobile sensor network can capture the streams of data provided by their

⁴ Our citations herein refer to the pagination added by Petitioner to the bottom, center of each page.

accelerometers, compasses, and GPS sensors to provide a portable ‘black box’ that detects traffic accidents and records data related to accident events, such as the G-forces (accelerations) experienced by the driver.” *Id.*

8. *Willis*

Willis generally relates to “a method of determining the proximity of a first radio frequency device to a second radio frequency device” and “a method for the control of a switch based on the proximity to each other of a first radio frequency device and a second radio frequency device.”

Ex. 1009, 2:5–9. As an example, Willis discloses an embodiment that provides “proximity detection of the phone coming within 2 meters of the vehicle in any manner and from any direction.” *Id.* at 15:28–29.

E. Asserted Obviousness Based on Curry, Rabu, and Katayama

Petitioner argues that claims 1–3, 5, 6, 8–14, 18–24, and 26 would have been obvious in view of Curry, Rabu, and Katayama. Pet. 5–66. In support of its showing, Petitioner relies upon the Michalson Declaration. *Id.* (citing Ex. 1003). We have reviewed Petitioner’s assertions and supporting evidence. As noted above, Patent Owner did not file any papers to contest Petitioner’s contentions. We determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that these claims would have been obvious in view of Curry, Rabu, and Katayama.

1. *Independent Claim 1*

Petitioner relies on Curry to disclose a mobile telecommunications device substantially as recited in claim 1, relies on Rabu to teach using accelerometer data to determine if a phone is docked, and relies on Katayama to teach sensing data external to the mobile device. Pet. 28–47.

a. The Preamble

Claim 1 recites “[a] mobile telecommunications device configured to log driving information associated with a vehicle.” Ex. 1001, 31:44–45. Petitioner refers to this recitation as element “1.1” and maps Curry’s mobile phone 106, loaded with client 110, to the recited mobile telecommunications device. Pet. 28–29 (citing Ex. 1005, 1:1–27, 2:1–3:28, 6:5–29, 7:20–8:33, 9:15–11:18, code (57), Fig. 1; Ex. 1003 ¶ 122). Petitioner argues that client 110 allows the phone to log driving activity by “process[ing] ‘raw data’ from a driving period to derive information associated with a user’s driving behavior . . . and . . . us[ing] the derived information to generate a ‘driving safety score’ for the user.” *Id.* at 29–30 (citing Ex. 1005, 1:1–27, 2:1–3:28, 6:5–7:2, 7:29–9:26, 12:27–33, code (57), Fig. 1; Ex. 1003 ¶¶ 123–124).

Curry discloses that mobile phone 106 is a mobile telecommunications device because it communicates wirelessly with data server 104 and it allows the user to make and receive telephone calls and text messages. *See* Ex. 1005, code (57), 1:1–27, 2:4–5, 2:24–27, 6:5–8, 6:23–24, 6:30–8:2, 7:21–23, Fig. 1. The phone includes a downloaded software client 110 that can record location, speed, and acceleration data from GPS sensor 114 and accelerometer 116 that are embedded within the phone. *Id.* at 7:21–33. The phone’s evaluation module can use this data to generate a safety score. *Id.* at 6:5–15.

Accordingly, for the foregoing reasons, to the extent the preamble is limiting, Curry supports Petitioner’s contentions.

b. The Sensor Set Recitation

Claim 1 recites “a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof.” Ex. 1001, 31:47–49. Petitioner refers to this recitation as element “1.2” and argues that Curry’s mobile phone features embedded sensors, including accelerometer 116, which Petitioner maps to the recited accelerometer, and GPS receiver 114, which Petitioner maps to the recited positioning module. Pet. 30 (citing Ex. 1005, 1:23–27, 2:2–15, 6:24–7:2, 7:30–8:3, 9:16–26, 10:15–25, Fig. 1; Ex. 1003 ¶ 125).

Curry discloses that “mobile phone[] 106 [is] equipped with GPS 114 and/or accelerometer 116 sensors.” Ex. 1005, 6:30–7:1; *see also id.* at 6:5 (disclosing that the “GPS and accelerometer sensors [are] embedded in [the] mobile phone[]”). The mobile phone stores information from the GPS receiver and the accelerometer, such as location, speed, and acceleration, and Curry’s system uses this information to calculate a driver safety statistic, based on when and where mobile phone 106 was used and the motion of mobile phone 106. *Id.* at 2:6–13, 2:24–26, 6:5–15.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

c. The User Interface Recitation

Claim 1 recites “a user interface.” Ex. 1001, 31:50. Petitioner refers to this recitation as element “1.3” and argues that Curry’s mobile phone 106 includes “a ‘graphical user interface’ configured to display data and to enable user interactions . . . including receiving a phone call while driving, and manually switching activity modes.” Pet. 31–32 (emphasis omitted)

(citing Ex. 1005, 7:5–27, 8:5–27, 9:15–26, 12:20–26, 15:7–22, 20:23–25; Ex. 1003 ¶¶ 127–131).

We conclude that Petitioner’s contentions as to the recited “user interface” are supported by the evidence of record. In particular, we agree with Petitioner’s contention that Curry’s mobile phone 106 (specifically) features a graphical user interface to display data and enable user actions, such as receiving phone calls and manually switching activity modes. *See* Pet. 31–32. This is reflected by the Curry disclosures cited by Petitioner. *See id.* As a first example, the cited disclosures indicate that mobile phone 106 provides “talking” and “texting” functionality. Ex. 1005, 6:5–8, 6:23–26, 7:10–11, 8:7–20. As a second example, the cited disclosures indicate that “[a] user can download the required software from the server 104 to the mobile phone 106 to set up the client unit on the phone” by generating “a request from the client unit [110] on the mobile phone [106].” *Id.* at 7:20–27. As a third example, the cited disclosures indicate that “the user of the phone [106]” may activate “a driving safety monitoring program on a mobile phone client [110].” *Id.* at 12:20–26. In each of these ways, Curry indicates that mobile phone 106 includes a user interface, as recited in claim 1.

Thus, Dr. Michalson testifies (with quotes from Curry) that:

A POSITA would have understood and found obvious that the Curry-Rabu-Katayama phone includes a user interface. For example, Curry notes that a “graphical *user interface*” can be installed on a “smart phone,” indicates that the “graphical user interface” can be “configured to display the driver motion data cache, the user permission data, and the driver safety statistic to . . . selected individuals,” and additionally describes various examples of user interactions with a phone that a POSITA would have understood to be enabled through a user interface. USAA-1005, 8:5-27 (“A user can download the required software from the server 104 to the mobile phone 106

to set up the client unit on the phone”), 20:23-25, 9:5-11 (“the mobile phone . . . may be used while driving, walking or remaining still”), 9:13-20 (“[t]he phone can . . . signal to the driver . . . so that the driver can decide whether to . . . take [a] call or call back later”), 10:15-26 (“[i]f the status of the mobile phone user is recognized as driving, the mobile phone can automatically switch to the GPS navigation mode”).

Ex. 1003 ¶ 128 (alterations in original).

We acknowledge that a portion of the Curry disclosures cited by Petitioner and Dr. Michalson for the recited “user interface” states “[a] graphical user interface can be installed on a data input device 102” and refers to user interactions via “an interactive user control website” at data server 104, as opposed to mobile phone 106. Ex. 1005, 7:5–6, 8:23–28. Nonetheless, we conclude that other disclosures in Curry, summarized above, reflect that Curry’s mobile phone 106 also has a user interface.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

d. The Processor Recitation

Claim 1 recites “a processor.” Ex. 1001, 31:51. Petitioner refers to this recitation as element “1.4” and argues that the processes of Curry’s mobile phone 106 “may be ‘implemented in software for execution by various types of processors.’” Pet. 32 (citing Ex. 1005, 5:3–10). Petitioner argues that an ordinarily skilled artisan would understand Curry’s disclosure of downloading software for mobile client 110 to the mobile phone and recording of sensor data to local motion data cache 118 “for further processing” to indicate that the mobile phone includes a processor. *Id.* (citing Ex. 1005, 2:22–27, 6:3–10, 6:23–26, 7:20–8:3, Fig. 1; Ex. 1003 ¶¶ 132–135).

Curry discloses that mobile phone 106 downloads a “mobile device control module” or client unit 110 to be operated on mobile phone 106, using “various types of processors.” Ex. 1005, 2:13–14, 5:3–4, 6:8–13, 7:21–27, Fig. 1.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

e. The Memory Recitation

Claim 1 recites “a memory.” Ex. 1001, 31:52. Petitioner refers to this recitation as element “1.5” and argues that an ordinarily skilled artisan would understand that Curry’s mobile phone 106 includes a memory

at least because Curry explains that “the term ‘mobile phone’ can include any type of electronic mobile computing device,” and because a POSITA would have understood that “[a]t the most basic level, a computer is a device consisting of . . . [a] processor . . . [a] memory to store both data and programs . . . [and a] mechanism for transferring data”

Pet. 32–33 (alterations in original) (citing Ex. 1005, 5:3–10, 6:23–26; Ex. 1003 ¶ 136). Petitioner argues that Curry discloses downloading software for client unit 110 and argues that an ordinarily skilled artisan “would have understood both that the downloading of a program to a phone implies the existence of internal memory within the phone to which the program is downloaded, and that the term ‘cache’ refers to local memory.” *Id.* at 33 (citing Ex. 1005, 2:24–26, 7:20–8:3, Fig. 1; Ex. 1003 ¶ 138).

Curry describes how mobile phone 106 “stores” executable computer code “in different locations” such as a “cache,” which demonstrates a memory in mobile phone 106. Ex. 1005, 2:24–26, 5:3–20, 7:26–9:3.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

f. The Determine Recitation

Claim 1 recites,

the mobile telecommunications device being configured to:
determine, based on at least one of the inputs received by the
user interface and sensor data from the device's sensor set, a
start of a driving period during which the mobile device is
removably attached to the vehicle and the vehicle is in use.

Ex. 1001, 31:53–59. Petitioner refers to this recitation as element “1.6” and presents two alternative mappings. Pet. 34–38. For the first alternative, Petitioner argues that Curry's mobile phone 106 determines the start of a driving period during which the phone is located within a moving vehicle based on user inputs received when a user accepts a phone call or manually switches between activity modes, and motion sensor data generated by the phone's accelerometer. *Id.* at 34–35 (citing Ex. 1005, 6:5–22, 7:30–8:33, 12:20–13:26, 15:7–22, Fig. 3; Ex. 1003 ¶ 146). Petitioner argues that “Rabu would have motivated [an ordinarily skilled artisan] to enhance Curry's phone by configuring it to leverage orientation data from the same accelerometer to determine whether the phone is removably attached to the vehicle.” *Id.* at 35 (citing Ex. 1013, 3:1–10, 4:21–33, 8:13–10:42, 15:7–22, Figs. 1, 4, 5, 7, 8; Ex. 1003 ¶ 145).

For the second alternative, Petitioner argues that Curry's mobile phone 106 determines the start of a driving period based on user input of accepting an incoming call or text or placing an outgoing call, and sensor data generated by the GPS sensor and accelerometer upon such interaction with the phone to determine whether the user is talking or texting while driving. Pet. 36–37 (citing Ex. 1005, 15:7–22, Fig. 4; Ex. 1003 ¶ 147). Petitioner relies on Rabu to teach using accelerometer data to determine whether the phone is attached to a docking station to differentiate whether

the phone is hand-held or attached to the vehicle. *Id.* at 37 (citing Ex. 1013, 1:36–52, 6:49–7:6; Ex. 1003 ¶ 148).

Petitioner argues that it would have been obvious to integrate “Rabu’s dock status sensing and associated mode-shifting capabilities into Curry’s phone . . . to promote safe driving.” Pet. 11 (citing Ex. 1003 ¶¶ 88–89). Petitioner argues that this modification would allow Curry’s mobile phone to determine, upon a user accepting a call or switching activity modes, the phone’s operating mode and, if appropriate, restrict phone interactions. *Id.* at 11–15 (citing Ex. 1005, 2:1–3:28, 6:5–22, 7:29–11:18, 12:20–17:3, code (57), Figs. 1, 3, 4, 6; Ex. 1013, 1:36–2:14, 3:1–10, 4:21–33, 5:53–7:6, 8:1–4, 8:13–10:42, 12:26–43, 15:7–22, Figs. 1, 4, 5, 7, 8; Ex. 1003 ¶¶ 89–101). Petitioner asserts additional benefits resulting from the combination. *Id.* at 15–16.

As discussed above, Curry’s system includes a mobile client unit 110 on mobile phone 106, which is equipped with GPS 114 and accelerometer 116 sensors, and wireless connection 108. Ex. 1005, 6:30–7:23. Curry teaches that, “[b]y utilizing GPS and accelerometer sensors embedded in mobile phones to monitor driving safety performance, an integrated and economical solution can be created to detect and prevent unsafe driving.” *Id.* at 6:5–8. Curry further discloses that a “monitoring mode” may be activated by the user, such as by receiving or making a call. *Id.* at 12:20–26. During this monitoring period, Curry’s “GPS receiver 314 can collect location and speed data of the mobile device” and “accelerometer 316 can collect acceleration/deceleration data in different axes.” *Id.* at 12:27–29. Curry adds that “[e]ach motion measurement from the GPS sensor and accelerometer can be associated with a timestamp, and

stored in a local motion data cache 304 for each pre-specified sampling interval.” *Id.* at 12:29–31. In addition, referring to Figure 4, Curry teaches,

Right after an *incoming phone or text message is received or an outgoing phone call is made*, the GPS sensor and accelerometer can start to record a motion time series.

Regardless if the phone communication process (i.e. phone call or text message) is complete or not, the sensors can continue to collect the data for an extended time period, e.g. 6 minutes, to determine the type of the current activity.

Id. at 15:7–13 (emphasis added).

Based on at least this disclosure, we agree with Petitioner that taking an incoming phone call, texting a message, or placing an outgoing phone call, as Curry describes, teaches or suggests “inputs received by the user interface” as recited in claim 1. *See* Pet. 35 (“Curry describes multiple embodiments in which a phone determines a start of a driving period during which the phone is located within a moving vehicle, based on user inputs received through the phone’s user interface . . . and motion sensor data generated by a phone’s embedded accelerometer . . .”). Moreover, we agree that Curry’s monitoring mode may be activated by one of these user actions *and* the “sensor data from the device’s sensor set” (as recited in claim 1) that is in the form of GPS and accelerometer data. *See* Ex. 1005, 15:7–13.

Next, we determine Petitioner has sufficiently explained that Rabu teaches “the mobile device is removably attached to the vehicle and the vehicle is in use,” as recited in the Determine Recitation, because:

- (1) Rabu’s PMD can be docked and undocked to a holder on a vehicle;
- (2) holder status can be calculated based on orientation angle; (3) the PMD can determine if the PMD is in a moving vehicle; and (4) the PMD selects a mode of operation based on the PMD motion status.

In particular, Rabu teaches that a PMD may have a holder status, which can indicate whether the PMD is being held or if the PMD is docked. *See* Ex. 1013, 2:52–55. Rabu discloses that “the PMD *can determine holder status by calculating the orientation angle of the PMD with respect to a surface*, e.g., ground, dock, etc. The value of the orientation angle can be used to determine the holder status.” *Id.* at 1:66–2:2 (emphasis added). Referring to Figures 1–3, Rabu further teaches that a PMD may be configured to connect to a dock (e.g., automobile dock, vehicle holder) and that the orientation angle of a PMD “when it is being held by a person will be different than the orientation angle when PMD 100 is docked in a dock.” *Id.* at 3:38–41, 3:59–67. The orientation angle “can be measured by the internal accelerometer and gyroscope of PMD 100.” *Id.* at 3:49–50. Rabu further teaches that the PMD selects modes of operation based on the PMD motion status. *Id.* at 2:8–11, 5:53–60, Fig. 5.

In addition, Dr. Michalson explains on behalf of Petitioner that, [t]o further promote safe driving, Curry suggests correlating different activity modes (e.g., stop, driving) with different operating modes (e.g., different levels of restrictions on phone use), and accounting for the context of phone usage when generating a driving score for a particular driver. For example, in one embodiment, Curry contemplates an all-or-nothing approach to restrictions on phone activity when phone 106 is placed in a monitoring operating mode, it elsewhere recognizes that such an approach is not always appropriate, and that it can be better to correlate different driving contexts with different phone restrictions.

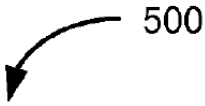
Ex. 1003 ¶ 91 (citing Ex. 1005, 2:3–3:28, 15:8–16:33). Dr. Michalson further testifies that an ordinarily skilled artisan would have looked to Rabu for a more nuanced approach because “Rabu’s defined modes of operation include appropriate levels of restrictions on phone use.” *Id.* ¶¶ 92–95. According to Dr. Michalson, if Rabu’s PMD “is being held by the driver,”

then it can “prevent the driver from sending or receiving text messages while driving.” *Id.* ¶ 95 (citing Ex. 1013, 12:38–43). Or, if “the phone is held within a dock located within the vehicle,” an ordinarily skilled artisan would have found it obvious to “provide a basis for changing the phone’s mode of operation to one involving relatively fewer restrictions to phone use.” *Id.* (citing Ex. 1013, 3:1–10, 4:21–33, 6:39–43, Figs. 1, 4). Dr. Michalson further explains,

The Curry-Rabu combination would have increased user tolerance for Curry’s monitoring techniques. For example, Rabu’s docking status enabled a determination of when phone 106 is docked within a moving vehicle, which can then be inferred to mean that a user is not presently using phone 106 for texting when the vehicle is being driven. Rabu’s docking status would have also improved Curry’s use of an estimated context of mobile phone use in identifying unsafe driving behaviors. For example, the docking status would have enabled differentiation between (i) a user holding and using the phone while driving and (ii) using the phone while docked and while driving. The second scenario in this example is less likely to distract the user and less likely to be determined to represent an unsafe driving behavior.

Id. ¶ 98 (citing Ex. 1005, 6:5–22, 7:5–18, 10:3–14; Ex. 1013, 1:36–2:14).

Dr. Michalson’s testimony is consistent with the disclosures of Curry and Rabu. For example, Curry contemplates switching between communication mode and GPS mode depending on the complexity of the driving conditions. Ex. 1005, 14:18–21. Curry further discloses that commercial fleet drivers may need to communicate with dispatchers or other drivers using a cell phone while driving. *Id.* at 14:8–10. Rabu specifically addresses the need for a similar multi-modal approach for PMDs. For example, Rabu’s Figure 5 is reproduced below:



PMD Modes	Description
A	PMD handheld while located in a moving vehicle.
B	PMD resting in a moving vehicle
C	PMD handheld while person is in motion.
D	PMD docked in a moving vehicle
E	PMD docked in a desktop dock and stationary
F	PMD resting on a stationary surface
G	PMD docked in a stationary vehicle

FIG. 5

Figure 5 is a table listing various modes of operation of Rabu’s PMD. *See* Ex. 1013, 2:28–30. As shown in Figure 5, Rabu teaches PMD modes A through G, with each mode being selected based on the motion status of the PMD. *See id.* at 5:53–56.

Accordingly, for the foregoing reasons, Curry and Rabu support Petitioner’s contentions. We determine that Petitioner sets forth reasoning with rational underpinning as to why a person having ordinary skill in the art would have combined the teachings of Curry and Rabu. *See* Pet. 11–17.

g. The Process Recitation

Claim 1 recites “the mobile telecommunications device being configured to . . . process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven.” Ex. 1001, 31:60–62. Petitioner refers to this recitation as element “1.7” and argues that Curry’s mobile phone 106 processes data recorded by accelerometer 116 “to derive ‘driving behavior’ information, e.g., ‘talking . . . or texting . . . while driving’ and ‘speeding, abnormal

acceleration, abnormal deceleration, and taking sharp turns.” Pet. 39 (alterations in original) (citing Ex. 1005, 6:5–29, 7:21–27, 7:30–8:33, 9:15–26, 10:3–17; Ex. 1003 ¶ 150). Petitioner argues that Curry’s mobile phone processes this data during the driving period because user activity mode recognition program 120 “estimates the context of mobile phone use”; ‘[f]or example . . . driving, walking or remaining still.” *Id.* (alterations in original) (citing Ex. 1005, 8:1–11). Petitioner argues that Curry’s mobile phone processes this information to generate a driving safety score. *Id.* at 40 (citing Ex. 1005, 3:1–6, 6:13–17, 7:29–9:12, 10:3–18, 12:3–19, 12:27–33, code (57); Ex. 1003 ¶ 152).

As noted above, Curry discloses that, during its monitoring period, GPS receiver 314 and accelerometer 316 collect data. Ex. 1005, 12:20–29. Curry further discloses that this motion data can include data captured “other than when phone calls are answered or made” and is used to determine unsafe driving behavior such as speeding, abnormal accelerations, abnormal decelerations, and sharp turns. *Id.* at 2:32–3:5, 8:23–28. Curry uses this captured data to calculate a driver safety statistic, which can be reported to the data server. *Id.* at 2:24–3:6. This calculation is performed by the driving safety evaluation module, which can be located on the phone. *Id.* at 6:13–15, 11:6–18. Curry also discloses activity mode recognition program 120 of mobile phone client 110 processing raw sensor data to determine the context of the mobile phone use, such as whether the phone is being used while driving, walking, or remaining still. *Id.* at 7:30–8:11.

Furthermore, Curry discloses that, “[i]n the post-processing stage, the activity mode recognition module can be used to determine the context of a phone call to a selected user based on previously collected motion data, and adjust the related safety score for the user if a violation is identified.”

Ex. 1005, 10:7–10. The activity mode recognition module is a component of Curry’s phone. *Id.* at Fig. 3.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

h. The Store Recitation

Claim 1 recites “the mobile telecommunications device being configured to . . . store a selection of the driving information to the memory.” Ex. 1001, 31:63–64. Petitioner refers to this recitation as element “1.8” and presents two alternative mappings. Pet. 43–45. For the first alternative, Petitioner argues that “the plain meaning of a ‘selection of the driving information’ is not limited to a selection of a subset of the same, but instead is broad enough to encompass selection of some or all of that information.” *Id.* at 43. Petitioner argues that it would have been obvious to an ordinarily skilled artisan “to store all or a subset of the derived driving information in the memory of the Curry-Rabu-Katayama phone, and thus, to store a selection of the driving information to the memory.” *Id.* (citing Ex. 1003 ¶ 158).

For the second alternative, Petitioner argues that, “to the extent that this limitation is narrowly interpreted,” it would have been obvious to an ordinarily skilled artisan “to store in the Curry-Rabu-Katayama phone a subset of . . . the recorded sensor data and derived driving behavior information” because

Curry explains that “motion data cache can be compared with the user permission data to enable a driver safety statistic to be calculated,” indicating that specific aspects of recorded sensor data are more useful for storage and transmission to safety data server 104 (e.g., motion data and related derived information indicating possible use violations, and/or unsafe driving behaviors).

Pet. 44 (citing Ex. 1005, 2:24–3:6, 6:5–22, 7:29–9:12, 12:20–15:6, Fig. 1; Ex. 1003 ¶ 159).

Based on our review of the record, we agree with Petitioner’s position that Curry’s mobile phone 106 stores a selection of driving information to memory. For example, Curry states that “the mobile phone client 110 can record location, speed and acceleration data from sensors embedded in [mobile phone 106], such as a GPS sensor 114 and accelerometer 116,” in “local motion data cache 118” of mobile phone 106. Ex. 1005, 7:29–8:3, Fig. 1. Based on the present record, we agree with Petitioner’s position that a person of ordinary skill in the art would have been motivated in some instances to configure Curry’s mobile phone 106 to store *less than all* of the driving information data recorded by the mobile phone’s sensors, such as only the data that indicates possible use violations or unsafe driving behavior. *See* Pet. 44. This contention is supported by Curry’s discussions concerning the relative importance of some driving information over other driving information. *See* Ex. 1005, 2:24–3:11, 6:5–8, 12:31–13:4, 14:8–15:6. This includes, as Dr. Michalson testifies, storing: (1) only data that reflects “possible violations of use” or “unsafe driving behavior,” or (2) only data that a particular person, such as the driver’s parents or insurance company, is interested in receiving. Ex. 1003 ¶¶ 158–160.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

i. The Vehicle Sensors Recitation

Claim 1 recites “wherein the driving information is derived without data from the vehicle sensors.” Ex. 1001, 31:65–66. Petitioner refers to this recitation as element “1.9” and argues that an ordinarily skilled artisan “would have found it obvious to configure a Curry-Rabu-Katayama phone to

derive driving information based on its recorded sensor data alone when considering Curry's disclosures of data obtained by embedded sensors (e.g., accelerometer 116) being used to derive the driving information." Pet. 45 (citing Ex. 1005, 1:1–27, 2:24–3:11, 6:5–22, 7:29–9:12, 12:20–15:6, code (57), Figs. 1, 3; Ex. 1003 ¶ 162). Petitioner asserts that, "[i]n those disclosures, Curry never once describes or suggests leveraging the vehicle's sensors." *Id.*

We determine that Petitioner has provided adequate reasoned explanations with citations to evidence that support its position that Curry's mobile phone 106 derives its driving information without data from vehicle sensors. Curry teaches expressly that "[a]n embedded accelerometer and a GPS receiver are included in the wireless device." Ex. 1005, 2:6–7. Curry further teaches that "[w]hen a call is made or received using a mobile phone 106, the mobile phone client 110 can record location, speed and acceleration data from sensors *embedded* in the wireless device, such as a GPS sensor 114 and accelerometer 116." *Id.* at 7:30–33 (emphasis added). This data is recorded in the phone's local motion data cache 118 and is used by the phone's user activity mode recognition program 120 to determine the "context of mobile phone use." *Id.* at 7:30–8:11.

Based on Curry's express disclosure, Dr. Michalson testifies that Curry focuses "on leveraging motion data obtained from sensors embedded within the mobile phone (e.g., accelerometer 116, GPS receiver 114) to derive the driver safety information." Ex. 1003 ¶ 162 (citing Ex. 1005, 1:1–27, 2:24–3:11, 6:5–22, 7:29–9:12, 12:20–15:6, code (57), Figs. 1, 3). As such, Dr. Michalson concludes that an ordinarily skilled artisan "would have understood there to be no need to use data from vehicle sensors to derive Curry's driving information because its phone includes all of the

necessary sensors, processing, and memory to derive driving information.”
Id. ¶ 163.

Accordingly, for the foregoing reasons, Curry supports Petitioner’s contentions.

j. The Interface Recitation

Claim 1 recites “the mobile telecommunications device is further configured to: interface with an external device, the external device having access to external driving information associated with a condition of the vehicle.” Ex. 1001, 31:66–32:3. Petitioner refers to this recitation as element “1.10” and maps Katayama’s vehicle sensors to the recited external device. Pet. 46 (citing Ex. 1024 ¶¶ 34, 64, Fig. 6). Petitioner argues that it would have been obvious to an ordinarily skilled artisan “to configure a phone to obtain data from vehicle sensors as this configuration would have improved the accuracy of monitoring for unsafe driving behaviors.” *Id.* (citing Ex. 1003 ¶ 165). Dr. Michalson testifies that this combination “enables association of a detected unsafe driving behavior (as described in Curry) and a detected risk incident (as described in Katayama), thereby enabling confirmation of correlations between certain driving behaviors (talking on the phone while driving) and occurrence of risk accidents.” Ex. 1003 ¶ 108.

Katayama discloses a driving recorder comprising “data receiving section 801 [that] receives . . . situation data . . . concerning the behavior, the surrounding situation or the like of the motor vehicle V.” Ex. 1024 ¶ 45. Situation data includes “outside image data, acceleration data, speed data and position data while the vehicle is driving.” *Id.* ¶ 3. “[D]ata receiving section 801 receives data also from a[n] automobile speed meter 10 incorporated into the vehicle, the door 11, the emergency brake 12 and the

ignition switch 13” *Id.* ¶ 64. The collection of this data allows the recorder to determine whether an accident or risk incident occurs. *Id.* ¶¶ 13–16, 19–20, 31.

Accordingly, for the foregoing reasons, Katayama supports Petitioner’s contentions. We determine that Petitioner sets forth reasoning with rational underpinning as to why a person having ordinary skill in the art would have combined the teachings of Curry, Rabu, and Katayama. *See, e.g.,* Pet. 46; Ex. 1003 ¶ 108; *see also* Pet. 23–28.

k. The Receive Recitation

Claim 1 recites “the mobile telecommunications device is further configured to . . . receive at least a portion of the external driving information from the external device.” Ex. 1001, 32:4–5. Petitioner refers to this recitation as element “1.11” and argues that, because “Katayama teaches using [position data, speed data, brake data, and door open/close data] collected by external vehicle sensors to detect accidents, in the Curry-Rabu-Katayama combination, the phone would have been similarly configured to receive at least a portion of the data collected by external vehicle sensors.” Pet. 47 (citing Ex. 1024 ¶¶ 13, 24; Ex. 1003 ¶ 166).

As explained above regarding the Interface Recitation, Katayama’s driving recorder uses data collected from vehicle sensors to determine whether an accident or risk incident occurs. *See* Ex. 1024 ¶¶ 3, 13–16, 19–20, 45, 64. Katayama further discloses that this data is useful for after-the-fact analysis and should be moved from temporary data storage section 802 to situation data storage section 803. *Id.* ¶ 15.

Accordingly, for the foregoing reasons, Katayama supports Petitioner’s contentions.

1. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 1 would have been obvious in view of the combination of Curry, Rabu, and Katayama.

2. *Dependent Claims 2, 3, 5, 6, 8–14, and 18–24*

Claims 2, 3, 5, 6, 8–14, and 18–24 depend, directly or indirectly, from claim 1. Petitioner contends that the combination of Curry, Rabu, and Katayama teaches or suggests the recitations of these claims and supports these contentions with declaration testimony. Pet. 48–66 (citing Ex. 1003).

We determine that Petitioner’s contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 2, 3, 5, 6, 8–14, and 18–24 would have been obvious in view of the combination of Curry, Rabu, and Katayama. *See In re NuVasive*, 841 F.3d 966, 974 (Fed. Cir. 2016) (“The Board, having found the only disputed limitations together in one reference, was not required to address undisputed matters.”); Paper 7, 10 (cautioning that “arguments not raised in the response may be deemed waived”).

3. *Independent Claim 26*

Independent claim 26 recites a mobile telecommunications device and contains recitations that are substantially identical to those of independent claim 1, the only substantive difference being claim 26 reciting that the mobile device is removably *affixed* to the vehicle and claim 1 reciting that the mobile device is removably *attached* to the vehicle. *Compare* Ex. 1001, 31:44–32:5, *with id.* at 34:1–29.

Petitioner relies on its arguments advanced for claim 1 to argue that claim 26 would have been obvious. Pet. 47–48.

For the reasons set forth in § II.E.1 above regarding claim 1, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 26 would have been obvious in view of the combination of Curry, Rabu, and Katayama.

F. Asserted Obviousness Based on Curry, Rabu, Katayama, and Berkobin

Petitioner argues that claim 27 would have been obvious in view of Curry, Rabu, Katayama, and Berkobin. Pet. 66–69. In support of its showing, Petitioner relies upon the Michalson Declaration. *Id.* (citing Ex. 1003). We have reviewed Petitioner’s assertions and supporting evidence. As noted above, Patent Owner did not file any papers to contest Petitioner’s contentions. We determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that these claims would have been obvious in view of Curry, Rabu, Katayama, and Berkobin.

Independent claim 27 recites a mobile telecommunications device and contains recitations that are substantially similar to those of independent claim 1, but further requires the device be configured to derive driving information using a neural network on the device to determine whether the driving information represents an acceptable or unacceptable driving pattern. Ex. 1001, 34:30–62. For the recitations common to claim 1, Petitioner relies on its arguments advanced for claim 1. Pet. 68. We focus our analysis below on the additional features of claim 27.

Claim 27 recites “the processing involving the use of a neural network on the mobile telecommunications device to determine whether the driving

information represents an acceptable or unacceptable driving pattern.”
Ex. 1001, 34:48–52. Petitioner relies on Berkobin to teach using a neural network to process sensor data and evaluate driving information. Pet. 69 (citing Ex. 1010 ¶¶ 2, 31). Petitioner argues that “[t]echniques for using artificial intelligence to evaluate driver information” and “the improvements offered by artificial intelligence” were “well-known by the Critical Date.” *Id.* at 67 (citing Ex. 1003 ¶ 202; Ex. 1010 ¶ 31; Ex. 1025 ¶ 47; Ex. 1014 ¶ 94). Petitioner argues that it would have been obvious to modify Curry’s mobile phone 106 “to employ artificial intelligence to identify unsafe driving behaviors from recorded vehicle motion data.” *Id.* (citing Ex. 1003 ¶ 202).

Berkobin discloses an apparatus for tracking driver behavior. Ex. 1010 ¶ 20. The apparatus includes a driver behavior determination system. *Id.* ¶ 53. The apparatus “can transmit vehicle performance data upon a triggering event such as, but not limited to vehicle crash indication, acceleration above a threshold, speed above a threshold, and the like.” *Id.* ¶ 54. This vehicle performance data can include, for example, acceleration, deceleration, location, speed, weather, and telephone usage data. *Id.* ¶ 77. A driving safety metric can be determined based on the vehicle performance data. *Id.* ¶ 75. The system can use artificial intelligence, such as neural networks, in making such determinations. *Id.* ¶ 31. Dr. Michalson testifies that employing such artificial intelligence in Curry’s phone would improve the accuracy of identifying unsafe driving behavior. Ex. 1003 ¶ 203.

Accordingly, for the foregoing reasons, Berkobin supports Petitioner’s contentions. We determine that Petitioner sets forth reasoning with rational underpinning as to why a person having ordinary skill in the art would have

combined the teachings of Curry, Rabu, Katayama, and Berkobin. *See, e.g.*, Pet. 69; Ex. 1003 ¶ 203; *see also* Pet. 67–68.

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 27 would have been obvious in view of the combination of Curry, Rabu, Katayama, and Berkobin.

G. Petitioner’s Other Asserted Grounds of Unpatentability

Petitioner argues that: claim 4 would have been obvious in view of Curry, Rabu, Katayama, and Tamir (Pet. 69–71); claims 6, 7, and 17 would have been obvious in view of Curry, Rabu, Katayama, and Balachandran (*id.* at 71–77); claims 15 and 16 would have been obvious in view of Curry, Rabu, Katayama, and Thompson (*id.* at 77–83); and claim 25 would have been obvious in view of Curry, Rabu, Katayama, and Willis (*id.* at 83–85).

We determine that Petitioner’s contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that: claim 4 would have been obvious in view of Curry, Rabu, Katayama, and Tamir; claims 6, 7, and 17 would have been obvious in view of Curry, Rabu, Katayama, and Balachandran; claims 15 and 16 would have been obvious in view of Curry, Rabu, Katayama, and Thompson; and claim 25 would have been obvious in view of Curry, Rabu, Katayama, and Willis. *See In re NuVasive*, 841 F.3d at 974; Paper 7, 10.

III. CONCLUSION⁵

Based on the evidence of record and Petitioner's arguments, Petitioner has shown, by a preponderance of the evidence, that claims 1–27 of the '878 patent are unpatentable. In summary,

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 5, 6, 8–14, 18–24, 26	103(a)	Curry, Rabu, Katayama	1–3, 5, 6, 8–14, 18–24, 26	
27	103(a)	Curry, Rabu, Katayama, Berkobin	27	
4	103(a)	Curry, Rabu, Katayama, Tamir	4	
6, 7, 17	103(a)	Curry, Rabu, Katayama, Balachandran	6, 7, 17	
15, 16	103(a)	Curry, Rabu, Katayama, Thompson	15, 16	

⁵ 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	Claims Shown Unpatentable	Claims Not Shown Unpatentable
25	103(a)	Curry, Rabu, Katayama, Willis	25	
Overall Outcome			1–27	

IV. ORDER

Accordingly, it is

ORDERED that claims 1–27 of the '878 patent have been shown to be unpatentable; and

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

IPR2024-00779
Patent 10,198,878 B2

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