

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNITED SERVICES AUTOMOBILE ASSOCIATION,
Petitioner,

v.

AUTO TELEMATICS LTD.,
Patent Owner.

IPR2023-00518
Patent 9,633,487 B2

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

IPPOLITO, *Administrative Patent Judge*.

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

I. INTRODUCTION

United Services Automobile Association (“Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting *inter partes* review of claims 1–13 of U.S. Patent No. 9,633,487 B2 (Ex. 1001, “the ’487 patent”). Petitioner also filed a paper ranking two Petitions¹ filed against the ’487 patent. Paper 2. Auto Telematics Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2022). An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Moreover, a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

Upon consideration of the Petition, the Preliminary Response, and the evidence of record, we conclude that the information presented shows a reasonable likelihood that Petitioner will prevail in showing the unpatentability of at least one of the challenged claims at issue.

Pursuant to § 314, we hereby institute an *inter partes* review as to the challenged claims 1–13 of the ’487 patent.

A. Related Matters

According to the parties, the ’487 patent is the subject of a civil action in *Auto Telematics Ltd. v. United Services Automobile Association*, 6:22-cv-00474-ADA-DTG, W.D. Tex.), filed May 11, 2022. Pet. 89–90; Paper 5, 1.

¹ This Petition and the Petition in IPR2023-00519.

The parties also identify the second petition directed to the '487 patent, IPR2023-00519. Pet. 90; Paper 5, 2.

B. The '487 Patent (Ex. 1001)

The '487 patent relates generally to “a mobile device adapted for installation to a vehicle and configured to log . . . driving information, for example, video footage associated with how the vehicle is driven.”

Ex. 1001, 1:21–24. This information may be utilized “to determine the cause of an event such as an accident, to modify driver behaviour and/or to determine insurance premiums.” *Id.* at 1:24–27.

The '487 patent describes that “data logging devices exist for road vehicles,” and can be used “to determine the cause of traffic accidents or other vehicle-related events, whether these stem from a vehicle malfunction or driver negligence.” *Id.* at 1:38–45. However, these devices are often “integrated with the car data network,” and “difficult and costly to install.” *Id.* at 1:38–50.

The '487 patent thus proposes a “mobile telecommunications device adapted for installation to a vehicle and configured to log driving information associated with the vehicle when driven.” *Id.* at 1:61–2:11. According to the '487 patent, “the use of a mobile telecommunication device enables a data logging device to be conveniently and inexpensively retrofitted to a vehicle.” *Id.* at 2:13–15.

To log the data, the adapted device operates by “registering the start of the driving period during which the mobile device is installed to the vehicle and the vehicle is being driven by the driver.” *Id.* at 3:20–22. This prevents logging information needlessly. *Id.* at 3:23–24. Preferably, the registration is “in response to an initialisation input,” such as user input, or

automatic, “in response to the mobile device being installed to the vehicle and/or the vehicle being driven.” *Id.* at 3:31–38. “For example, if the sensor data reflects a detected speed above a predetermined threshold—for example, 20 kilometers per hour—then this can be used to trigger the start of the driving period.” *Id.* at 3:41–44.

Figure 2, reproduced below, shows a schematic presentation of an automobile with a mobile device installed for logging. *Id.* at 12:57–59.

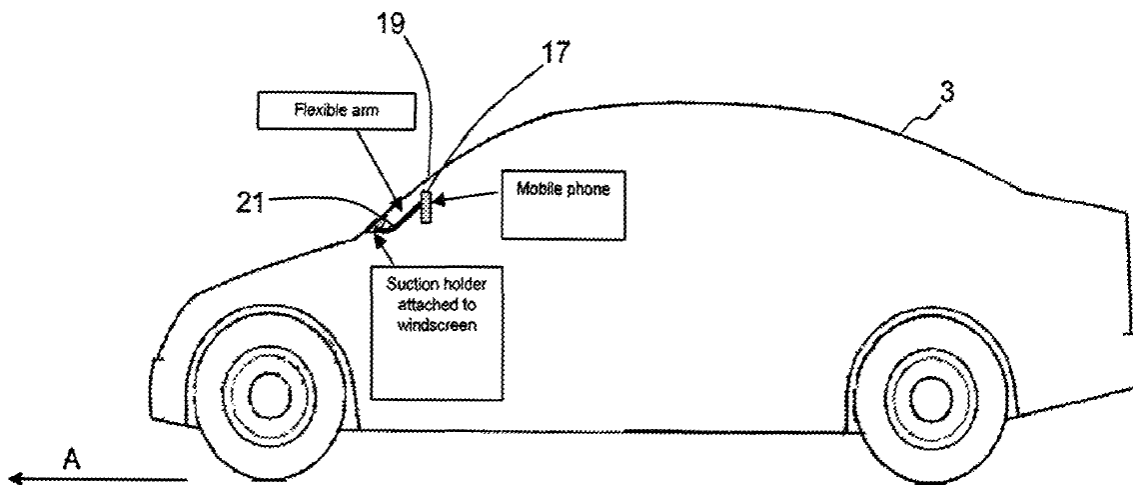


Figure 2, reproduced above, shows a preferred arrangement of the mobile telecommunications device 17 within the automobile 3. *Id.* at 15:1–4.

C. Challenged Claims

Petitioner challenges claims 1–13. Pet. 1. Claim 1 is the sole independent claim, and is reproduced below with Petitioner’s indentations and bracketed identifications:

1. [1.1] A mobile telecommunications device configured to log driving information associated with a vehicle,
[1.2] 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;
- [1.3] a user interface;
- [1.4] a processor; and
- [1.5] a memory;
- [1.6] the mobile telecommunications device configured to:
determine, based on 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;
- [1.7] process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven;
- [1.8] store a selection of the driving information to the memory;
- [1.9] wherein the driving information is derived without data from vehicle sensors, and
- [1.10] the mobile telecommunications device is controlled by a downloaded application to control the mobile device to detect occurrence of a predetermined event and in response take at least one predetermined action.

Ex. 1001, 31:42–67; Pet. x.

D. Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 5, 9, 11–13	103(a)	Curry ² , Rabu ³
3, 4	103(a)	Curry, Rabu, Balachandran ⁴

² WIPO Application Pub. No. WO 2010/042545 A2, published April 15, 2010 (Ex. 1005) (“Curry”).

³ U.S. Patent No. 8,682,399 B2, issued March 25, 2014 (Ex. 1013) (“Rabu”).

⁴ U.S. Patent No. 6,073,004, issued June 6, 2000 (Ex. 1007) (“Balachandran”).

6–8	103(a)	Curry, Rabu, Katayama ⁵
10	103(a)	Curry, Rabu, Tamir ⁶
1, 2, 12, 13	103(a)	Forstall ⁷ , Rabu, Langle ⁸
3, 4	103(a)	Forstall, Rabu, Langle, Balachandran
6–8	103(a)	Forstall, Rabu, Langle, Katayama
5, 9, 11	103(a)	Forstall, Rabu, Langle, Warren ⁹
10	103(a)	Forstall, Rabu, Langle, Tamir

Pet. 1–2. In addition to the references listed above, Petitioner relies on the Declaration of Dr. William R. Michalson (Ex. 1003). *See, e.g.*, Pet. 1.

II. ANALYSIS

A. Claim Construction

We construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their plain and ordinary meaning as would have been understood by a person of

⁵ European Patent Application Publication No. EP 1,914,691 A1, published April 23, 2008 (Ex. 1024) (“Katayama”).

⁶ U.S. Patent No. 7,821,421 B2, issued October 26, 2010 (Ex. 1006) (“Tamir”).

⁷ U.S. Patent Application Pub. No. 2009/0005975 A1, published January 1, 2009 (Ex. 1028) (“Forstall”).

⁸ Lonnie Langle & Ram Dantu, “Are You a Safe Driver”, 2009 International Conference on Computational Science and Engineering, IEEE, Vancouver, BC, Canada, 2009, pp. 502–507 (Ex. 1029) (“Langle”).

⁹ U.S. Patent Application Pub. No. 2006/0053038 A1, published March 9, 2006 (Ex. 1030) (“Warren”).

ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Petitioner asserts that “no express constructions are required in this proceeding.” Pet. 3. However, Petitioner contends, as to the term “driving period,” that “the claim leaves open the possibility of the driving period corresponding to the beginning, middle or end of, a vehicle’s operation.” *Id.* Petitioner thus contends that “this claim term establishes just two ‘driving period’ attributes: (1) ‘the mobile device is removably attached to the vehicle’ and (2) ‘the vehicle is in use.’” *Id.* at 4 (citing Ex. 1003 ¶ 132). “These 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.*

According to Patent Owner, Petitioner’s proposed construction of “driving period” is “flawed because it introduces unsupported limitations for the driving period not included in the claims.” Prelim. Resp. 13. Patent Owner contends “Petitioner’s characterization of the start of a driving period as a ‘monitoring period’ that starts at any time with respect to the onset of driving, Pet. at 4, is simply an inaccurate generalization of ‘driving period’ that has no basis in the specification or claims.” *Id.* Patent Owner further represents that the district court declined to adopt similar limitations proposed by Petitioner in the related proceeding, *Auto Telematics Ltd. v. United Services Automobile Association*, 6:22-cv-00474-ADA-DTG (W.D. Tex.). *Id.* at 12 n.2. Additionally, Patent Owner asserts that “the terms ‘driving period’ and ‘start of a driving period’ should be construed consistent with its plain and ordinary meaning.” *Id.* at 14.

We do not need to construe any terms expressly to reach our decision. *See Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

B. Alleged Obviousness

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor.” *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016).

We note that, with respect to the fourth *Graham* factor, the current record in this proceeding does not include any argument or evidence directed to secondary considerations of nonobviousness. The analysis below addresses the first three *Graham* factors.

C. Level of Ordinary Skill in the Art

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner's expert, Dr. Michalson, proposes that

a person of ordinary skill in the art in this matter would have had at least a Bachelor 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 (e.g., familiarity with control and diagnostic systems, navigation systems and wireless communication technology).

Ex. 1003 ¶ 15.

Dr. Michalson further proposes “[m]ore education, e.g., 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.” *Id.*

Patent Owner does not dispute this level of skill. Prelim. Resp. 12.

For purposes of this Decision, we adopt the proposal of Petitioner's expert, which comports with the teachings of the '487 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

D. Prior Art References

1. Curry (Ex. 1005)

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. Curry’s system further stores information from GPS and accelerometer sensors 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 wireless computing device was used and the motion of the device. *Id.* at 2:6–30.

Figure 1, reproduced below, illustrates Curry’s system.

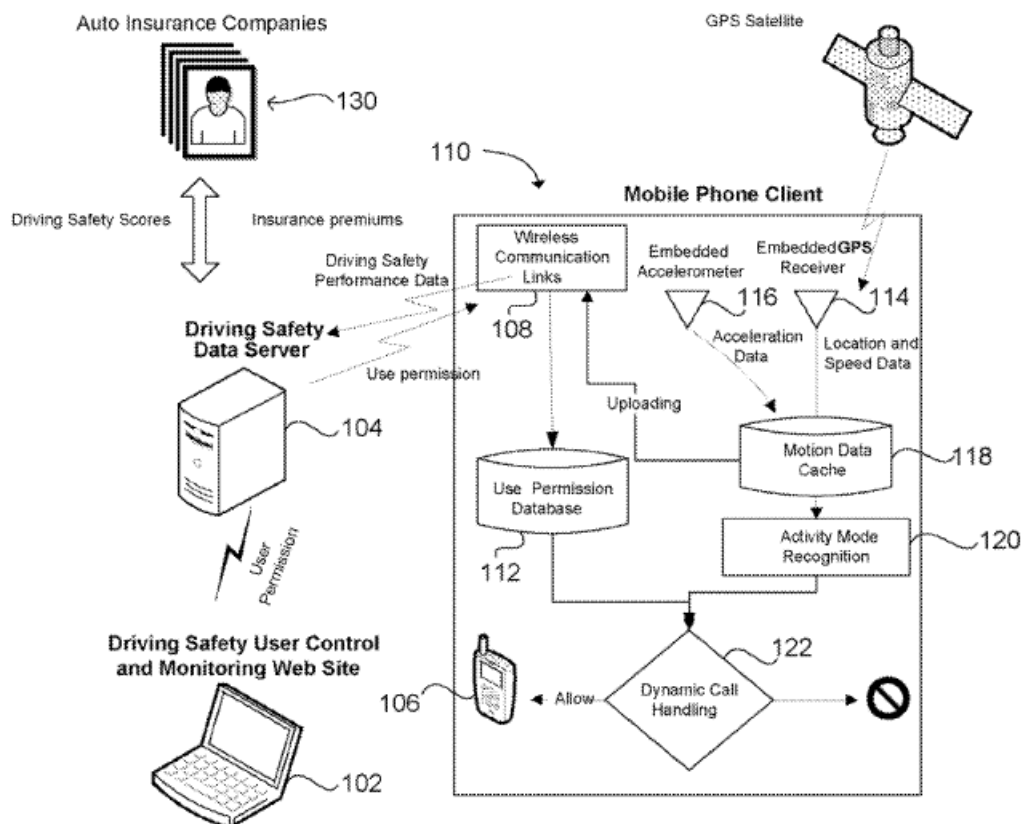


Figure 1 shows data server 104, user control web site 102, and mobile client 110 unit on a GPS-enabled mobile phone 106, with GPS 114, accelerometer 116 sensors, and wireless connection 108. *Id.* at 6:30–7:23.

2. *Rabu (Ex. 1013)*

Rabu is directed to “[m]ethods for operating a portable media device” (“PMD”) where “the portable media player can determine a motion status and select a mode of operation based on the motion status.” Ex. 1013, Abstract. Figure 6, reproduced below, shows a flow diagram of Rabu’s method. *Id.* at 2:33–35.

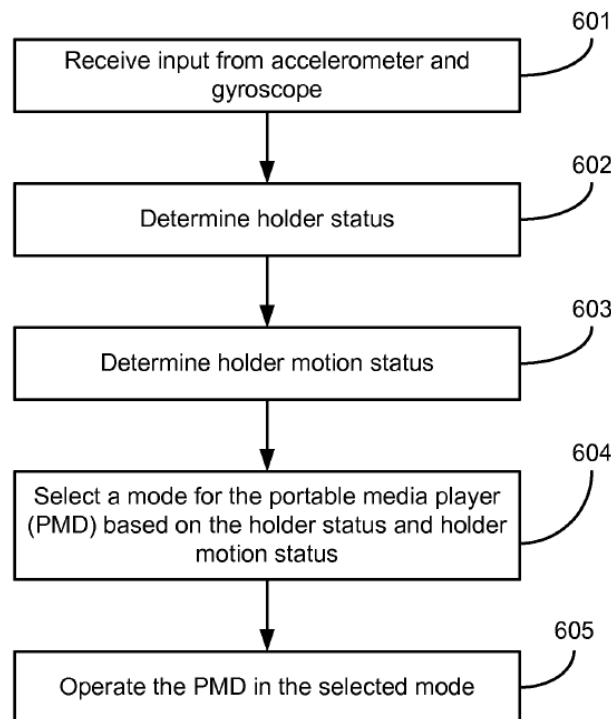


Figure 6, reproduced above, shows the main steps of the invention’s operation. *Id.* As shown above, at block 601, the PMD can receive input from one or more motion sensors, e.g., an accelerometer and a gyroscope. Ex. 1013, 7:11–13. “[T]he input can indicate orientation angle and motion information of the PMD.” *Id.* at 7:14–15. At block 602, the PMD can

determine a holder status and at block 603, the PMD can determine whether it is in a moving vehicle, in a stationary vehicle, being handled by a moving person, or being handled a stationary person. *Id.* at 7:15–16, 7:22–26.

3. *Balachandran (Ex. 1007)*

Balachandran describes “enabling emergency call initiations in response to the detection of a vehicle accident.” Ex. 1007, Abstract. 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 1:27–29. 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.

4. *Katayama (Ex. 1024)*

Katayama describes a driving monitor that records driver behavior and “a surrounding situation” during a period before and after an accident.

Ex. 1024 ¶ 1. Figure 5 of Katayama, reproduced below, is a functional block diagram of the invention.

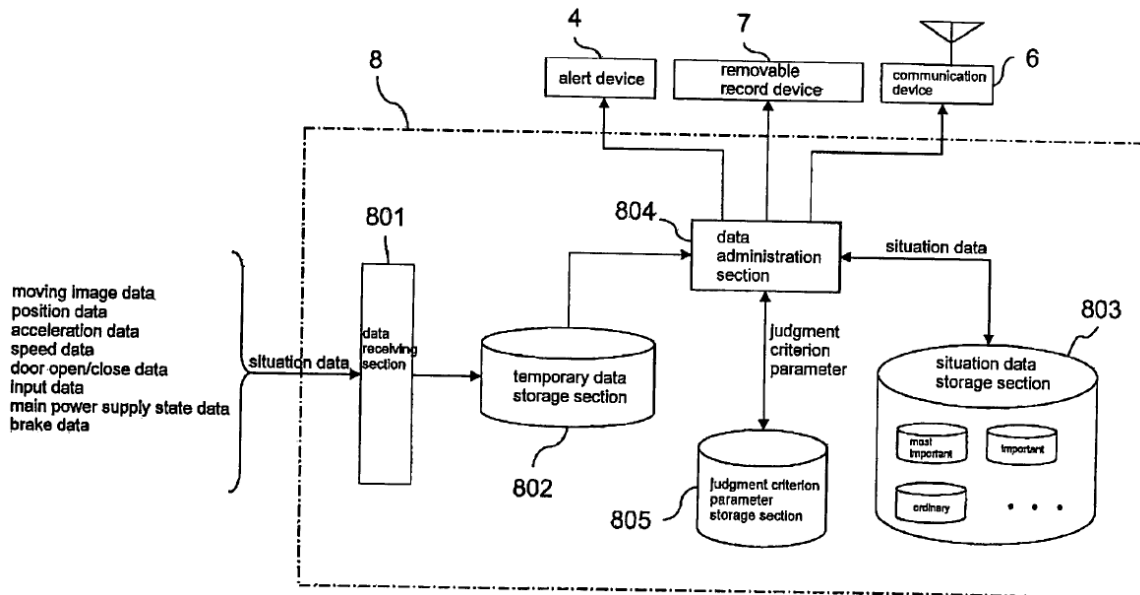


Figure 5 shows information processing device 8, which includes data receiving section 801, temporary data storage section 802, situation data recording section 803, and data administration section 804. *Id.* ¶¶ 31, 44.

Katayama discloses that “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.

5. *Tamir (Ex. 1006)*

Tamir teaches 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. *Langle (Ex. 1029)*

Langle discloses the use of accelerometers and compasses in cell phones “to aid in safe driving practices and detection of emergencies.” Ex. 1029, 1. Langle describes that “[m]obile phones which have embedded accelerometers may be used for risk level detection while riding in a vehicle.” *Id.* According to Langle, “[p]rogramming with accelerometers on the Android platform is straightforward and supports three axes.” *Id.* Langle further describes using accelerometers to assess safe and unsafe braking, acceleration, and lane changes. *Id.* at 1–4.

7. *Forstall (Ex. 1028)*

Forstall describes mobile device aided navigation, and the use of dead reckoning to estimate the location of a mobile device. Ex. 1028, Abstract, ¶ 2. For example, Forstall describes navigation based on device position, received sensor data, and an interpretation of the received sensor data as corresponding to movement along a pathway defined by map data. *Id.* ¶ 6. Specifically, “[s]ensor data from accelerometers, a compass, gyroscopes, and impact sensors can be used alone or in combination to, for example, measure the movement of the device 100 from a point of origin or known location (a ‘fix’) to determine the device’s location relative to the fix.” *Id.* ¶ 62. The “mobile device 100 can be, for example . . . a cellular telephone, . . . a smart phone,” or any of several possible other devices. *Id.* ¶ 24. The mobile device may include different types of sensors, such as a proximity

sensor 168, ambient light sensor 170, accelerometer 172, compass 173, and gyroscope 175. *Id.* ¶¶ 35–36.

8. *Warren (Ex. 1030)*

Warren is directed to the collection of “driver characteristic data” and the generation of a “driver score based on the collected driver characteristic data,” where the “driver score can then be applied in the calculation of insurance premiums or risk analysis.” Ex. 1030 ¶ 4.

Warren proposes that “a vehicle monitor is installed or coupled to a vehicle to be monitored,” where the “vehicle monitor collects data from various sensors to identify vehicle operation data,” and “[b]ased at least in part on the vehicle operation data, a driver score is calculated.” *Id.* ¶ 12.

E. Obviousness Based on Curry and Rabu

Petitioner asserts that each of claims 1, 2, 5, 9, and 11–13 of the ’487 patent would have been obvious over Curry and Rabu. Pet. 6–39.

For the reasons discussed below, we are persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge as to at least claim 1.

1. *Independent Claim 1*

a. mobile telecommunication device [1.1], sensor set [1.2], user interface [1.3], processor [1.4], and memory [1.5]

Independent claim 1 is generally directed to a mobile telecommunications device configured to log driving information associated with a vehicle, the mobile telecommunications device [1.1] including “a sensor set” [1.2], “a user interface” [1.3], “a processor” [1.4], and “a memory” [1.5]. Ex. 1001, 31:41–50. The sensor set comprises “an image

sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof.” *Id.* at 31:45–47.

For these limitations, Petitioner refers to Curry’s Figure 1 that depicts Mobile Phone Client unit 110 on GPS-enabled mobile phone 106. Pet. 19 (citing Ex. 1005, Abstract, 2:22–27, 7:5–29, 8:21–27, Fig. 1). Petitioner asserts that Curry’s client 110 includes accelerometer 116 and GPS receiver 114 that are sensors. *Id.* at 21 (citing Ex. 1005, 3:2–15, 2:23–27, 7:24–8:2, 8:30–9:3, 10:16–26, 11:15–25, Fig. 1). Petitioner further contends that Curry teaches data from these sensors and driving information derived from that data are used to “monitor driving safety performance,” to “prevent unsafe driving behaviors,” and to “generate driving score[s].” *Id.* at 21–22 (citing Ex. 1005, 7:5–8:2; Ex. 1003 ¶ 120).

Additionally, Petitioner contends that Curry’s client unit 110 features a graphical user interface used to display data and to enable user interactions. *Id.* at 22. According to Petitioner, “Curry describes various examples of UI-enabled user interactions including receiving a phone call while driving, and manually switching activity modes.” *Id.* (citing Ex. 1005, 7:5–27, 8:5–27, 9:5–26, 10:15–26, 12:20–26, 15:7–22, 20:23–25; Ex. 1003, ¶¶ 121–123).

Petitioner further contends that Curry teaches a user can download software to the mobile phone to set up client unit 110 and that client unit 110 can record location, speed, and acceleration data from sensors to local motion data cache 118 for further processing. *Id.* (citing Ex. 1005, 3:24–26, 8:20–27). Petitioner contends that a POSITA would have understood this disclosure to teach or suggest the existence of a processor within the phone. *Id.*; Ex. 1005, 2:22–27, 6:3–10, 8:20–27; Ex. 1003 ¶¶ 124–125.

Petitioner adds that Curry describes “memory devices” (“memory”) that store sensor data, derived information, and “executable code.” Pet. 23 (citing Ex. 1003 ¶¶ 126–129; Ex. 1005, 6:11–20) (emphasis omitted).

Patent Owner does not provide any arguments specific to these limitations. *See* Prelim. Resp. 17.

Based on our review of the preliminary record, we agree with Petitioner’s position. Curry’s Figure 1, reproduced below, illustrates Curry’s system.

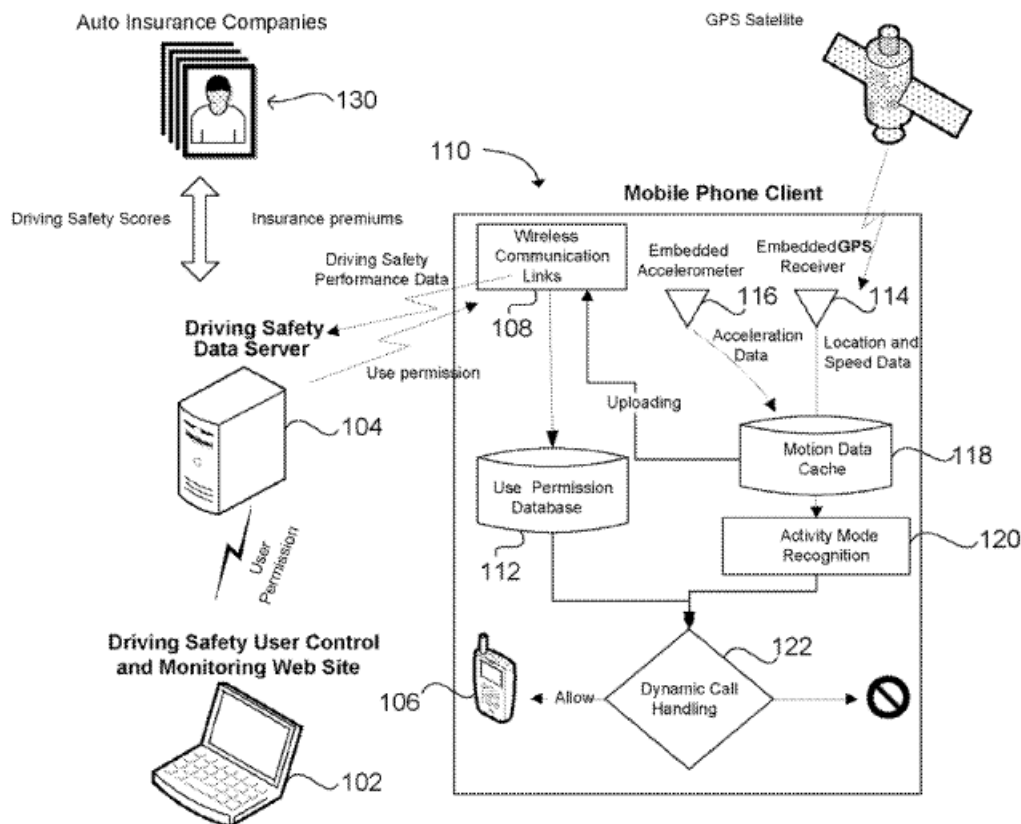


Figure 1 shows data server 104, user control web site 102, and mobile client unit 110 on GPS-enabled mobile phone 106, with GPS 114 and accelerometer 116 sensors, and wireless connection 108. Ex. 1005, 6:30–7:23. Curry teaches the storing of information from GPS and accelerometer sensors in the mobile device, such as location, speed, and

acceleration, and the use of this information to calculate a driver safety statistic, based on when and where the wireless computing device was used and the motion of the device. *Id.* at 2:6–30. Curry further discloses that the “mobile device control module can be downloaded and operated on the wireless device.” *Id.* at 2:13–14.

b. “determine, based on 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” [1.6]

Claim 1 also requires that the mobile telecommunications device is configured to “determine, based on 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, 13:51–56.

i. Petitioner’s Contentions

For this limitation, Petitioner asserts that Curry’s client 110 enables phone 106 to determine, “based on user inputs (e.g., accepting phone call, manually changing activity modes) and sensor data (e.g., ‘location, speed, and acceleration data’) whether an associated vehicle is being driven.” Pet. 24 (citing Ex. 1005, 6:5–22, 8:5–11, 7:30–8:33, 15:7–22).

Petitioner explains that Curry’s phone determines a start of a driving period when the phone is located within a moving vehicle, “based on user inputs received through the phone’s user interface (e.g., a user accepting a phone call, or manually switching between activity modes using the phone’s

touch screen and GUI) and motion sensor data generated by a phone's embedded accelerometer.” *Id.*

Petitioner further argues that Curry discloses two modes of operation: (1) a “communication” operating mode that allows for normal phone usage and (2) “a GPS monitoring/navigation” mode that restricts calling, texting, and/or software capability on phone 106 to promote driving safety. *Id.* at 12–13 (citing Ex. 1005, 9:15–10:14, 12:20–15:22, Figs. 3–4). Petitioner explains that Curry's phone 106 may switch between the operating modes based on the driving activity. *Id.* at 13 (citing Ex. 1005, 12:20–13:4, 15:18–22; Ex. 1003 ¶ 102). For example, Petitioner argues that “Curry further 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 phone usage context when generating a user driving score.” *Id.* at 13–14 (citing Ex. 1005, 2:3–28, 15:8–16:33).

Petitioner further asserts that Rabu teaches an accelerometer in a PMD, to determine whether the PMD is docked, resting on a surface, being handled by a person, or located in a moving/stationary vehicle. *Id.* at 8 (citing Ex. 1013, Abstract, 1:1–52, 1:60–2:11, 3:11–28, 6:49–7:6, Figs. 1–8). Petitioner adds that Rabu uses these determinations to choose modes of operation for the PMD to promote driver safety. *Id.* (citing Ex. 1013, 1:53–59, 8:13–10:42, Fig. 5; Ex. 1003 ¶ 70).

Petitioner explains that a POSITA would have configured Curry's phone with “Rabu's dock status sensing and associated mode-shifting capabilities, thereby enhancing the Curry[] phone's ability to promote safe driving.” *Id.* at 11 (citing Ex. 1003 ¶ 100). Petitioner contends this is because “Rabu describes leveraging a ‘generally conventional’

accelerometer like Curry's to determine a phone's orientation angle and motion status, for purposes of discerning phone usage context, and changing the phone's operating mode to appropriately account for that context." *Id.* at 14 (citing Ex. 1013, 3:1–10, 4:21–33, Figs. 1, 4; Ex. 1003 ¶ 105).

Additionally, Petitioner provides several specific reasons why it would have been obvious to enhance Curry's system based on Rabu's teachings:

1. increased user tolerance for Curry's monitoring mode, based on more user-friendly levels of restrictions enabled upon a determination that Curry's phone is docked within a vehicle, relative to those present when Curry's phone is undocked (USAA-1003, ¶ 110; USAA-1005, 7:5-22, 8:5-18, 11:3-14; USAA-1013, 1:36-2:14);
2. increased likelihood of user participation in Curry's monitoring mode, with correspondingly improved safety for the user, passengers, and others (USAA-1003, ¶111; USAA-1005, 7:5-22, 8:5-18, 11:3-14; USAA-1013, 1:36-2:14);
3. enhanced reliability of motion detection and related determinations of user driving behaviors based on data obtained from sensors within a docked phone relative to an undocked phone (USAA-1003, ¶112; USAA-1005, 3:24-4:6, 7:5-22, 8:23-28; USAA-1013, 2:61-3:10, 3:46-4:3, 5:61-6:21; USAA-1012, 59:34-43);
4. generation of more nuanced user driving scores taking into account whether the user violated permissions by using the phone in a handheld mode, or instead used the phone only while docked (USAA-1003, ¶113; USAA-1005, 7:5-22, 9:31-33, 10:3-12, 11:3-14, 13:3-19; USAA-1013, 2:61-3:10, 3:46-4:3, 5:61-6:21); and
5. enhanced utility for third parties in leveraging those more nuanced driving scores in, for example, determining insurance premiums (USAA-1003, ¶113; USAA-1005, 4:7-11, 7:5-22, 10:3-12, 11:26-12:2; USAA-1013, 2:61-3:10, 3:46-4:3, 5:61-6:21).

Id. at 16–17 (citing (Ex. 1003 ¶ 109).

ii. Patent Owner's Contentions

Patent Owner makes three main arguments. These are: (1) Petitioner does not adequately and clearly “map portions of Curry and/or Rabu to every element of the claims in any section of the Petition,” (Prelim. Resp. 18–24); (2) Petitioner has provided insufficient rationale to combine Curry and Rabu because Petitioner’s rationales are generic and conclusory, (*id.* at 24–34); and (3) Petitioner’s rationales to combine Curry and Rabu are based on impermissible hindsight (*id.* at 34–42).

iii. Discussion

For the purposes of institution, Petitioner has sufficiently explained with supporting evidence how the asserted combination of Curry and Rabu teaches or suggests this limitation.

As discussed above, Curry’s system includes a mobile client unit 110 on GPS-enabled mobile phone 106, with GPS 114, 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 12:20–25. 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 that

[r]ight 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 15:8–13 (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. 24 (“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 (e.g., a user accepting a phone call, or manually switching between activity modes using the phone’s touch screen and GUI) 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” that is in the form of GPS and accelerometer data. *See* Ex. 1005, 15:8–13.

Patent Owner contends that Curry’s monitoring mode is triggered by a phone call being received or made, regardless of driving status. Prelim. Resp. 19 (citing Ex. 1005, 12:20–26). Patent Owner contends that a POSITA would not understand the start of a driving period could be triggered by a phone call and that Curry’s “receipt of a call is not determined

by a sensor, but rather by the communications module being activated.” *Id.* at 20. Patent Owner adds that “a phone call might never even be placed or received, in which case a driving period under Petitioner’s construction of Curry and Rabu would never start.” *Id.*

Based on the preliminary record, we consider Patent Owner’s reading of Curry to be too narrow. As discussed, Curry teaches the use of GPS and accelerometer sensors embedded in mobile phones “to monitor *driving* safety performance” and provide “an integrated and economical solution . . . to detect and prevent unsafe *driving* behavior such as talking on or texting with mobile phones *while driving*.” Ex. 1005, 6:5–6 (emphases added). Curry expressly discloses that the features described in the reference apply to monitoring driving and driving safety. That being the case, we are not persuaded by Patent Owner’s assertion that a POSITA would consider Curry to lack “a start of a driving period” because a phone call may never be placed or received. *See* Prelim. Resp. 20. Rather, Curry specifically teaches that a phone call may be placed or received during the driving of a vehicle, which then activates the monitoring mode.

We are also not persuaded that a phone call is excluded from the scope of claim 1. *See id.* (“[E]ven if Petitioner argues that the start of a driving period could be triggered by a phone call in order to collect data for determining an activity mode, a POSITA would understand that this is not what is intended nor recited by the ’487 patent claims when read as a whole.”). Patent Owner does not direct us to where or how the language of claim 1 supports its position. Nor does Patent Owner provide any other evidence to bolster this position. Whereas Petitioner has provided arguments supported by citations to Curry’s disclosure that are consistent

with our understanding of the cited disclosure and the express claim language. Claim 1 requires that the mobile telecommunications device is configured to “determine, based on the inputs received by the user interface and sensor data from the device’s sensor set, a start of a driving period.” At this stage, Petitioner has sufficiently explained that a phone call either placed or answered provides a user interface input that is used with GPS and accelerometer sensors to start the recording of a “motion time series.” Ex. 1005, 15:8–10. Nonetheless, to the extent that there is a disagreement regarding claim scope or construction, the parties are invited to brief this issue during the trial.

Next, we determine that Petitioner has sufficiently explained that Rabu teaches the limitation “the mobile device is removably attached to the vehicle and the vehicle is in use” 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 holder motion status.

In particular, Rabu teaches that a PMD may have a holder status, which can indicate how the PMD is being held and whether the PMD is in motion. Ex. 1013, 2:52–60. 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. In some embodiments, the PMD can determine a frequency spectrum associated with its current motion based on inputs from the accelerometer and the gyroscope. Based on the determined frequency spectrum, the PMD can determine whether it is in a moving vehicle, in a

stationary vehicle, being held by a moving person, or being held by a stationary person.

Id. at 1:66–2:8 (emphases 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. Rabu further teaches that the PMD selects modes of operation based on the holder motion status. *Id.* at 2:8–11, Fig. 5.

In addition, Petitioner’s expert Dr. Michalson explains 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. USAA-1005, 2:3-3:28, 15:8-16:33. 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, [and] 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. USAA-1005, 2:3-3:28, 15:8-16:33.

Ex. 1003 ¶ 103. Dr. Michalson further testifies that a POSITA 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.”

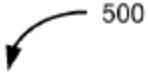
Id. ¶ 107. According to Dr. Michalson, if Rabu’s phone “is being held by the driver,” then it can “prevent the driver from sending or receiving text messages while driving.” *Id.* (citing Ex. 1013, 12:38–43). Or, if “the phone is held within a dock located within the vehicle, a POSITA would have found it obvious to decide to change 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 that

[t]he Curry-Rabu combination would have increased user tolerance for Curry’s monitoring techniques. USAA-1005, 7:5-22, 8:5-18, 11:3-14; USAA-1013, 1:36-2:14. For example, Rabu’s docking status enabled a determination of when a phone is docked within a moving vehicle, which can then be inferred to mean that a user is not presently using the phone 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, knowing 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. ¶ 110.

Based on the preliminary record, 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, 14:19–21. 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 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. Ex. 1013, 2:28–30. As shown in Figure 5, Rabu teaches PMD modes A through G, each mode selected based on the motion status of the PMD. *See id.* at 5:53–56.

Patent Owner contends Petitioner provides insufficient, conclusory rationale or relies solely on impermissible hindsight for the asserted combination. Prelim. Resp. 24–42. For example, Patent Owner contends that the “use of an accelerometer and ‘phone use restrictions’ as generic features of both Curry and Rabu do not sufficiently explain why a POSITA would look to combine these references.” *Id.* at 27; *see also id.* at 28 (“Petitioner argues that the individual elements were known in the cited prior art references and that combining those references would have yielded the claimed invention, [but] Petitioner does not explain why a POSITA would have combined those elements in the claimed manner.” (emphasis omitted)); *id.* at 31 (“Petitioner spends much of the Petition explaining what the combined Curry-Rabu phone could possibly do, but none of the Petition explain[s] why a POSITA would have been motivated by either of the references to combine them to arrive at the claims of the ’487 patent.”). However, as discussed, Petitioner explains in detail that Curry discloses

situations in which mode switching may be appropriate and that a POSITA would have looked to Rabu's multi-modal, dockable PMD to provide a driver more options for switching between modes to achieve better user compliance/tolerance. Ex. 1005, 15:8–21; Ex. 1013, Fig. 5; Ex. 1003 ¶¶ 103, 110.

Patent Owner does acknowledge that Petitioner provides several advantages for the asserted combination. Prelim. Resp. 29–30. According to Patent Owner, Petitioner argues that

“[a POSITA] would have found obvious integration of Rabu's dock status sensing and associated mode-shifting capabilities into Curry's phone, thereby enhancing the Curry[] phone's ability to promote safe driving.” Pet. at 11 (citing USAA-1003, ¶100). As another example, Petitioner states, “if the phone is docked within a moving vehicle, a POSITA would have found it obvious to change the phone's operating mode to one involving relatively fewer restrictions.” Pet. at 15. As a further example, Petitioner states, “consistent with Curry's description of allowing drivers to ‘talk[] while driving through headsets,’ a POSITA would have found it obvious to, upon receipt of user inputs, leverage motion and orientation data from the same accelerometer already present in Curry's phone 106 to determine that a driver may utilize a docked phone's speaker mode while driving.” *Id.* at 15-16.

Id. at 29 (some alterations in original). Nonetheless, Patent Owner contends that “[w]hile these statements may identify what might be gained by the combination, they provide absolutely no motivation for the combination other than impermissible hindsight.” *Id.* at 29–30. Yet, Patent Owner does not adequately explain why we must ignore the advantages and benefits that Petitioner asserts a POSITA would understand results from addressing a problem identified in Curry with features disclosed in Rabu's system.

Rather, at this stage, between the parties, Patent Owner's arguments are the more conclusory of the two.

Moreover, we note that Petitioner's arguments are supported by Dr. Michalson's testimony that "configuring Curry's systems to leverage Rabu's teachings would have required only routine programming knowledge, which was well within the skill of a POSITA prior to the Critical Date." Ex. 1003 ¶ 115. Dr. Michalson asserts that "Rabu and Curry both use the same type of hand-held phone and contain the same types of internal sensors (GPS, accelerometers)" and "the change would have amounted to nothing more than the use of a known technique to improve similar devices—in each instance a smart phone equipped with a generic accelerometer—in a similar way, and combining prior art elements according to known methods to yield the predictable results described above." *Id.*

Patent Owner takes issue with this aspect of Dr. Michalson's testimony because "this argument merely recognizes that the POSITA could have done it, not would have done it, given the very different purpose of Rabu for detecting docking status using frequency analysis of motion sensor data." Prelim. Resp. 28–29 (emphasis omitted). In this regard, we understand Dr. Michalson's testimony to support the notion that a POSITA would have had a reasonable expectation of success for achieving the asserted modification. *See* Ex. 1003 ¶¶ 115–116. As such, Dr. Michalson's opinion supports Petitioner's position that a POSITA "could have done it." Indeed, that is the point of the testimony, which complements Dr. Michalson's statements elsewhere detailing the advantageous reasons for why a POSITA "would have done it." *See id.* ¶¶ 100–114.

Patent Owner further argues that “[w]hereas Rabu requires the use of frequency data to make these specific distinctions and determinations, such use of frequency data would have been considered not only unnecessary but technically overkill by a POSITA, both for the ’487 patent and for Curry.” Prelim. Resp. 37. Patent Owner contends that Curry “has no need for the use of frequency data like Rabu does” because Curry teaches “receiving GPS data only when a phone call is received or made, while in a driving mode, to mitigate the power burden of always-on GPS while permitting or restricting phone use based on the driving mode.” *Id.* Patent Owner adds that Curry teaches away from the combination with Rabu because Curry seeks to reduce power consumption by turning off the GPS when the mobile phone is in standby mode or is not charged. *Id.* at 38 (citing Ex. 1005, 3:2–4:28, 14:28–15:7).

Patent Owner further contends that “[n]othing in Curry suggests that using the frequency spectrum of Rabu to determine how a vehicle is being driven would instead be better than using always-on GPS or other positioning for mitigating Curry’s cited power consumption issues such that it would make technical sense to put Curry and Rabu together to arrive at the ‘487 Patent.” *Id.* at 40. Patent Owner also contends that a POSITA would have been discouraged to combine Curry with Rabu because Rabu’s frequency spectrum positioning determination would likely require even more processing power than Curry’s system alone. *Id.* (citing Ex. 1013, 4:15–5:14).

Based on the preliminary record, we do not agree that Curry teaches away from the proposed combination. Here, Curry teaches that the GPS receiver in the mobile phone is “typically turned off by default when a

mobile phone is in standby mode or . . . is not charged.” Ex. 1005, 13:28–30. Curry teaches this reduces battery consumption because the GPS receiver is re-activated only right after a phone call is made or received. *Id.* at 13:32–33. Curry also teaches that this approach causes delays and problems with reliability. Specifically, Curry discloses that

[i]f the position of the current phone call is different from the position of the previous phone call, which is most likely to occur for a talking-while-driving user, then the *GPS receiver needs a cold start, which takes about from 30 seconds to 2 minutes*. If the user only takes a couple of seconds to answer the phone call or view the text message, after the communication process completes, *the GPS sensor may . . . not [have] received any reliable GPS location data yet, or may not have sufficient data to make a high quality estimation for user activity mode*.

Id. at 13:33–14:7 (emphases added). In other words, Curry discusses both the advantages and disadvantages of turning the GPS receiver off when the phone is not in use. Curry does not discourage or discredit the “always-on” GPS mode. *Id.* at 13:30–32. Rather, Curry merely discusses alternative ways to operate the GPS, including the benefits of reduced power consumption offset by the issues of delays and compromised reliability. *Id.* “[A] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Mouttet*, 686 F.3d 1332, 1333–34 (Fed. Cir. 2012). “[T]he ‘mere disclosure of alternative designs does not teach away.’” *Id.* at 1334. “[J]ust because better alternatives exist in the prior art,” the Federal Circuit has explained, “does not mean that an inferior combination is inapt for obviousness purposes.” *Id.*

Patent Owner further contends that “a POSITA would not have looked to Rabu for insight to arrive at the ‘487 claims because the use of frequency spectrum data to determine motion and orientation of a phone would not have been necessary to arrive at the claims of the ‘487 patent.” Prelim. Resp. 39 (citing Ex. 1001, Abstract). According to Patent Owner, “the frequency spectrum technology would have been considered excessive by a POSITA at the time of the ‘487 invention.” *Id.*

We note initially that Patent Owner has offered little evidence on this point beyond attorney argument. *Id.* at 40. On the other hand, for the purposes of institution, Petitioner has articulated a reasoned explanation why a POSITA would have been motivated to modify Curry’s wireless device with Rabu’s device holder and multi-modal operation features. For example, Petitioner has explained in detail that Curry contemplates the need for multi-modal operation for nuanced driving conditions and that Rabu discloses methods for doing so. *See* Ex. 1005, 14:8–31; Ex. 1013, Fig. 5. Moreover, as discussed, Petitioner has provided citations to the references along with corroborating testimony from Dr. Michalson that support its arguments for why and how a POSITA would have combined the prior art disclosures with a reasonable expectation of success. *See* Ex. 1003 ¶¶ 100–116. Thus, for the purposes of institution, Petitioner’s position is better supported by the preliminary record. The parties are, however, encouraged to develop the record on these issues during trial.

- c. process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven [1.7]*

Claim 1 further requires that the mobile telecommunications device is 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, 31:57–59.

With respect to this limitation, Petitioner contends that Curry’s activity mode recognition module 306 uses recorded time stamped data to estimate the type of activity (e.g., driving, walking, running or remaining substantially still) in real-time to allow users to receive or make a call, text, or use software programs. Pet. 29 (citing Ex. 1005, 12:20–13:26, Fig. 3; Ex. 1003 ¶ 143). Petitioner adds that a POSITA would have found it obvious to process sensor data during the driving period to derive possible violations of mobile phone use or unsafe driving behavior. *Id.* at 30 (citing Ex. 1005, 7:5–22, 8:29–10:12, 13:20–16:6, Figs. 1, 3; Ex. 1015, 233–250; Ex. 1003 ¶ 144).

In the Preliminary Response, Patent Owner relies primarily on the same arguments discussed above with respect to limitation 1.6. Prelim. Resp. 16–41. For the same reasons discussed above, we are not persuaded by Patent Owner’s arguments with regard to limitation 1.7.

Based on our review of the preliminary record, we agree with Petitioner’s position. Curry 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. The data can be recorded to a local motion data cache 118 for further

processing Based on collected data in the motion data cache 118, a user activity mode recognition program 120 estimates the context of mobile phone use. For example, the mobile phone or other electronic device may be used while driving, walking or remaining still. The user activity mode recognition program can be used to determine if the use of a mobile phone in the related context violates the pre-set permission policies.

Ex. 1005, 7:29–8:11 (emphases added). Further, Curry teaches that “[i]f a phone call is received at the mobile phone 106 and the user mode is recognized as driving, a dynamic call handling program 122” in communication with activity mode recognition program 120 can enable phone 106 “to communicate to a caller that the mobile phone user is currently driving.” *Id.* at 8:14–18. Referring to Figure 3, Curry discloses that “[i]f the activity mode is recognized in *real-time*, the dynamical call handling module 308 can allow or disallow users to receive or make a call, text a message, play games, or use other components or software programs on a . . . mobile phone.” *Id.* at 13:5–8 (emphasis added).

In addition, consistent with this disclosure, Dr. Michalson opines that a POSITA would have found it obvious that Curry’s “client application 110 causes Curry’s phone to process sensor data from [the] phone’s sensor set during the determined driving period to derive ‘possible violations of mobile phone use or unsafe driving behavior’ (driving information associated with how the vehicle is driven).” Ex. 1003 ¶ 144 (emphasis omitted).

d. store a selection of the driving information to the memory [1.8]

Claim 1 further requires that the mobile telecommunications device is configured to “store a selection of the driving information to the memory.” Ex. 1001, 31:60–61.

For this limitation, Petitioner contends that Curry stores information derived from processed sensor data (“selection of driving information”) to memory (e.g., motion data cache 118, local memory) (“memory”) prior to transmission (e.g., to driving safety data server 104). Pet. 31 (citing Ex. 1003 ¶ 146; Ex. 1005, 7:5–22, 8:29–10:12, 13:20–16:6, Figs. 1, 3).

Patent Owner does not provide any arguments specific to this limitation.

Based on our review of the preliminary record, we agree with Petitioner’s position. See Pet. 31–32; Ex. 1005, 7:30–33.

e. wherein the driving information is derived without data from vehicle sensors [1.9]

Claim 1 further recites “wherein the driving information is derived without data from vehicle sensors.” Ex. 1001, 31:62–63.

Petitioner argues that Curry’s wireless device processes sensor data during a driving period to derive driving information. Pet. 33 (citing Ex. 1003 ¶ 149; Ex. 1005, 7:5–22, 8:29–10:12, 13:20–16:6, Fig. 1). Additionally, Petitioner argues that “[a] POSITA would have found it obvious to configure a Curry-Rabu 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.” *Id.* (citing Ex. 1003 ¶ 151; Ex. 1005, Abstract, 2:1–27, 3:24–4:11, 7:5–22, 8:29–10:12, 13:20–16:6, Figs. 1, 3).

Patent Owner relies largely on arguments and evidence discussed above with respect to limitations 1.6 and 1.7. However, Patent Owner further contends “Petitioner erroneously suggests that Curry’s silence on a

particular topic or feature somehow provides sufficient reason for a POSITA to search out Rabu.” Prelim. Resp. 32. Patent Owner also contends that Petitioner speculates Curry’s “lack of any suggestion” creates a “specific motivation” to use device sensor data instead of vehicle sensor data. *Id.* at 32–33.

For the purposes of this Decision, we determine Petitioner has provided adequate reasoned explanations with citations to evidence that support its position. 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). The data from the embedded device sensors are recorded in the motion data cache 118 and used by user activity mode recognition program 120 to determine the “context of the mobile phone use.” *Id.* at 8:6–7. Based on the express disclosure, Dr. Michalson testifies that Curry focuses “on leveraging motion data obtained from sensors embedded in the mobile phone (e.g., accelerometer 116, GPS receiver 114) to derive the driver safety information.” Ex. 1003 ¶ 152 (citing Ex. 1005, Abstract, 2:1–27, 3:24–4:11, 7:5–22, 8:29–10:12, 13:20–16:6, Figs. 1, 3). As such, Dr. Michalson asserts “a POSITA 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 the driving information.” *Id.*

At this stage, we do not find Petitioner's position to be solely based on impermissible hindsight, conclusory statements, or speculation. As discussed above, Dr. Michalson's testimony is consistent with and supported by Curry's express disclosure. Nonetheless, the parties are encouraged to fully develop the record on this issue during trial.

f. the mobile telecommunications device is controlled by a downloaded application to control the mobile device to detect occurrence of a predetermined event and in response take at least one predetermined action [1.10]

Claim 1 further recites that "the mobile telecommunications device is controlled by a downloaded application to control the mobile device to detect occurrence of a predetermined event and in response take at least one predetermined action." Ex. 1001, 31:63–67.

Petitioner contends that Curry's client 110 is downloaded from server 104 onto wireless device 106. Pet. 34 (citing Ex. 1005, 7:5–29, 9:5–11, 8:21–9:33). Petitioner further explains that Curry teaches an incoming phone call or text message while a user is driving a vehicle is a "predetermined event" that starts the data collection, i.e., a predetermined action. *Id.* at 35–36 (citing Ex. 1005, 16:7–22). Alternatively, Petitioner contends that "sensor data collected by the phone is used to identify unsafe driving behaviors ('predetermined event') and, in response, transmit driver safety information to server 104 ('predetermined action') and/or adjust phone restrictions in real-time ('predetermined action')." *Id.* at 36 (citing Ex. 1005, 11:15–25, 12:20–13:26, Fig. 3) (emphasis omitted).

Patent Owner does not provide any arguments specific to these limitations beyond those discussed above.

Based on our review of the preliminary record, we agree with Petitioner's position. *See* Pet. 35–36.

g. Conclusion

We have reviewed Petitioner's contentions and evidence, along with Patent Owner's arguments against institution, and conclude that Petitioner has shown a reasonable likelihood of prevailing with respect to unpatentability of independent claim 1 over the asserted combination of Curry and Rabu.

2. Dependent Claims 2, 5, 9, and 11–13

Claims 2, 5, 9, and 11–13 depend from independent claim 1. Petitioner relies on the same rationale discussed above for the combination of Curry and Rabu. *See* Pet. 36–39.

We have reviewed Petitioner's contentions for the challenges to dependent claims 2, 5, 9, and 11–13. Patent Owner has not yet substantively addressed these claims beyond the arguments discussed with respect to claim 1. Prelim. Resp. 42. Because we find Petitioner meets its burden for institution as to independent claim 1, we do not address the dependent claims at this time.

F. Obviousness Based on Curry, Rabu, and Balachandran

Petitioner asserts that dependent claims 3 and 4 are unpatentable as obvious over Curry, Rabu, and Balachandran. Pet. 39–43. Patent Owner has not yet substantively addressed these claims beyond the arguments discussed with respect to claim 1. Prelim. Resp. 41–42. We have reviewed Petitioner's contentions. Because we find Petitioner meets its burden for institution as to independent claim 1, we do not address the dependent claims 3 and 4 at this time.

G. Obviousness Based on Curry, Rabu, and Katayama

Petitioner asserts that dependent claims 6–8 are unpatentable as obvious over Curry, Rabu, and Katayama. Pet. 40–50. Patent Owner has not yet substantively addressed these claims beyond the arguments discussed with respect to claim 1. Prelim. Resp. 41–42. We have reviewed Petitioner’s contentions. Because we find Petitioner meets its burden for institution as to independent claim 1, we do not address the dependent claims 6–8 at this time.

H. Obviousness Based on Curry, Rabu, and Tamir

Petitioner asserts that dependent claim 10 is unpatentable as obvious over Curry, Rabu, and Tamir. Pet. 50–52. Patent Owner has not yet substantively addressed these claims beyond the arguments discussed with respect to claim 1. Prelim. Resp. 41–42. We have reviewed Petitioner’s contentions. Because we find Petitioner meets its burden for institution as to independent claim 1, we do not address the dependent claim 10 at this time.

I. Obviousness Based on Forstall, Rabu, and Langle

Petitioner asserts that each of claims 1, 2, 12, and 13 of the ’487 patent would have been obvious over Forstall, Rabu, and Langle. Pet. 52–72.

a. Petitioner’s Contentions

Independent claim 1 recites a mobile telecommunications device “configured to log driving information associated with a vehicle, the mobile telecommunications device comprising” a sensor set, a user interface, a processor, and a memory. Ex. 1001, 31:42–50.

For these limitations, Petitioner contends that Forstall teaches a cellular phone or smartphone that provides adaptive mobile device

navigation where the device position is stored in memory. Pet. 60 (citing Ex. 1028 ¶¶ 6, 24, Fig. 1; Ex. 1003 ¶ 205). Petitioner asserts that Forstall teaches that sensor data is received from integrated motion sensors (e.g., accelerometer 172, compass 173, and gyroscope 175) and then compared to map data for the device's location. *Id.* at 60–61 (citing Ex. 1028 ¶¶ 61, 65–71; Ex. 1003 ¶¶ 206–207). Petitioner adds that Forstall teaches a navigation application that displays map display 500 (e.g., user interface) with a path from origin 502 to destination 510. *Id.* at 62 (citing Ex. 1028 ¶¶ 27, 72; Ex. 1003 ¶ 209). Petitioner further contends that Forstall discloses processors for interpreting sensor data and memory 350 for storing information relating to “adaptive mobile device navigation,” such as “device position.” *Id.* at 63–64 (citing Ex. 1028 ¶¶ 6, 55–56, 74, 210; Ex. 1003 ¶¶ 211–212).

Claim 1 further recites that the mobile telecommunications device is configured to “determine, based on 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, 31:51–56.

For this limitation, Petitioner argues that Forstall teaches the “start of a driving period” is based on a user's interaction with map display 500 when the user may specify a desired destination for directions from a point of origin. Pet. 65 (citing Ex. 1028 ¶¶ 4, 72; Ex. 1003 ¶ 214). Petitioner further argues that the “start of a driving period” is based on Forstall's sensor data from the device's sensor set because the start of the navigation period (“start of a driving period”) is determined based on data collected by integrated

sensors to determine a device's "point of origin." *Id.* at 67–69 (citing Ex. 1028, Fig. 11, ¶¶ 4, 42, 72–73, 82–83; Ex. 1003 ¶¶ 215–216).

Petitioner relies on Rabu's teaching of "an automobile dock," or "vehicle holder," that allows the cell phone to be "removably attached to the vehicle," during a navigation period where a vehicle is traveling along a navigation path. Pet. 69 (citing Ex. 1013, 3:11–45, Figs. 1–2, Ex. 1003 ¶ 217). Petitioner contends that a POSITA would have modified Forstall's system with Rabu's multi-modal operation features to improve the transition of "operational modes (walking mode, vehicle mode) by detecting a 'dock status' indicating attachment to 'automobile dock' or 'vehicle holder' (as taught in Rabu)." *Id.* (citing Ex. 1003 ¶ 217; Ex. 1028 ¶¶ 64–65, 68, 70–71; Ex. 1013, 3:1–10, 4:21–33, 8:13–10:42, Figs. 1, 4, 5, 7, 8). Petitioner adds that a

POSITA would have found obvious that determining that a mobile device is docked in a moving vehicle provides a basis for changing the operational mode to "vehicle mode," which then enables position measurement using a "default dead reckoning mode."

Id. at 58 (citing Ex. 1003 ¶ 192; Ex. 1028 ¶¶ 64, 70; Ex. 1013, 3:1–10, 4:21–33, Figs. 1, 4).

Claim 1 further recites that the mobile telecommunications device is 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, 31:57–59.

For this limitation, Petitioner contends that Langle evaluates sensor data (e.g., accelerometer measurements) to identify driving safety data indicating safe and unsafe driving behaviors ("driving information associated with how the vehicle is driven"). Pet. 69–70 (citing Ex. 1029,

1–3, Figs. 2, 4; Ex. 1003 ¶ 218). Petitioner contends that mobile-based navigation systems, like Forstall’s navigation application, were known to increase the risk of accidents because “a user may view navigation information while driving.” *Id.* at 59 (citing Ex. 1003 ¶ 201; Ex. 1031 ¶ 2; Ex. 1005, 1:3–8). Petitioner contends that “[t]his safety risk would have motivated a POSITA to venture beyond Forstall’s disclosure to well-known vehicle monitoring systems specifically concerned with safety.” *Id.*

Petitioner adds that Langle describes a technique “to predict accident-related risks.” *Id.* (citing Ex. 1029, 1; Ex. 1003 ¶ 203). Petitioner argues a POSITA would have had a reasonable expectation of success in incorporating Langle’s safety techniques into Forstall’s mobile device because Langle recognizes that “[p]rogramming with accelerometers . . . is straightforward and supports three axes.” *Id.* (citing Ex. 1003 ¶ 204 (citing Ex. 1032, 323–24; Ex. 1031 ¶¶ 14–18; Ex. 1077, 3–12)) (alterations in original).

Claim 1 further requires that the mobile telecommunications device is configured to “store a selection of the driving information to the memory.” Ex. 1001, 31:60–61.

For this limitation, Petitioner contends that Forstall’s memory 350 stores driving safety data (“store a selection of the driving information to the memory”). Pet. 70 (citing Ex. 1003 ¶¶ 219–220; Ex. 1029, 6; Ex. 1028 ¶¶ 55–56).

Claim 1 further recites “wherein the driving information is derived without data from vehicle sensors.” Ex. 1001, 31:62–63.

Petitioner argues that driving safety data is derived without data from vehicle sensors since Forstall and Langle each teach data collection and

processing techniques using only data from smartphone sensors. Pet. 70 (citing Ex. 1028 ¶¶ 6–7, 61; Ex. 1029, 1–2; Ex. 1003 ¶ 221; Ex. 1031 ¶ 10).

Claim 1 further recites that “the mobile telecommunications device is controlled by a downloaded application to control the mobile device to detect occurrence of a predetermined event and in response take at least one predetermined action.” Ex. 1001, 31:63–67.

For this limitation, Petitioner contends that Forstall teaches the download of a navigation application that monitors the location information of the device. Pet. 70–71 (citing Ex. 1028 ¶¶ 30–33, 42, Fig. 5; Ex. 1003 ¶ 222). Petitioner further argues that the asserted combination would detect driving behaviors “described in Langle (e.g., unsafe acceleration, unsafe braking).” *Id.* at 71 (citing Ex. 1003 ¶ 223; Ex. 1029, 1). According to Petitioner, a “POSITA would have also found it obvious that detection of an unsafe driving behaviors results in initiating access to emergency services (*‘take at least one predetermined action’*).” *Id.* (citing Ex. 1003 ¶ 223; Ex. 1023; Ex. 1046).

b. Patent Owner’s Contentions

In response to Petitioner’s contentions, Patent Owner presents three main categories of arguments: (1) Forstall is non-analogous art; (2) “Petitioner fails to establish that a POSITA would be motivated to combine the cited prior references in the manner proposed in the Petition”; and (3) even if combined the prior art references would not yield the claimed invention. Prelim. Resp. 42–43; *see also id.* at 42–59.

c. Discussion

i. Non-analogous Art

Patent Owner argues that Forstall is non-analogous art because Forstall addresses navigation systems and has no connection to the field of monitoring the manner in which a vehicle is driven. Prelim. Resp. 43–44. Petitioner has not yet addressed whether Forstall is analogous art. The parties are invited to further develop the record on this issue during trial. *See Sanofi-Aventis Deutschland GmbH, v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1379 (Fed. Cir. 2023) (“A petitioner is not required to anticipate and raise analogous art arguments in its petition; instead a petitioner can use its reply to ‘respond to arguments raised in the corresponding opposition, patent owner preliminary response, patent owner response, or decision on institution.’”).

ii. Reason for combination

With respect to limitation 1.7 of claim 1, Petitioner contends that Langle evaluates sensor data (e.g., accelerometer measurements) to identify driving safety data indicating safe and unsafe driving behaviors (“driving information associated with how the vehicle is driven”). Pet. 69–70 (citing Ex. 1029, 1–3, Figs. 2, 4; Ex. 1003 ¶ 218). Petitioner contends that because Forstall and Langle both use embedded sensors, a POSITA would have looked to Langle to improve safety in Forstall during navigation. *Id.* at 59 (citing Ex. 1029, 1; Ex. 1003 ¶ 203).

Considering the disclosure of Forstall and Langle, we preliminarily agree with Patent Owner that there is a question as to whether Petitioner has sufficiently explained the asserted combination of Forstall, Rabu, and Langle. While Langle discloses mathematical modeling of driving behavior

using mobile device sensor data, it is not clear what specific teachings in Langle that Petitioner contends would be “straightforward” to program into Forstall to improve safety during navigation.

Generally, Langle is directed to the potential use of mobile phone sensors in aiding “safe driving practices and detection of emergencies.” Ex. 1029, 1. Langle teaches that “[i]n this paper, we used the multiple sensors in a Google phone to classify safe versus unsafe driving.” *Id.* This classification was done by the authors by collecting the measurements from sensors and modeling driving behavior. To do so, Langle provides detailed mathematical calculations, performed by the authors, to model several different driving behaviors. *Id.* at 1–5. For example, Langle teaches that

we calculated the displacement in the axis perpendicular to the trajectory of vehicle and used it to classify safe and unsafe lane changes. The direction of the phone with respect to the motion of the vehicle is important during calibration of the above measurements, so we used 2D and 3D rotation matrices for transforming device orientation. Future work includes calibration of braking distance, lane changes, and reliable transformation of phone orientation with respect to trajectory of the vehicle.

Id. at 1 (emphases added).

Dr. Michalson opines that “it would have been within the capabilities of a POSITA to implement the use of accelerometers for vehicle safety monitoring since such features were conventional by the Critical Date.” Ex. 1003 ¶ 204 (citing Ex. 1032; Ex. 1031 ¶¶ 14–18). But, even assuming that programming with accelerometers is “straightforward,” it is unclear what specific “safety technique(s)” in Langle that Petitioner contend applies to Forstall. *See* Pet. 59 (citing Ex. 1003 ¶ 204; Ex. 1032, 323–24; Ex. 1031 ¶¶ 14–18; Ex. 1077, 3–12). As discussed, Langle discloses multiple detailed

calculations performed by the authors of the paper using data collected from mobile device sensors. In some instances, the authors observed that their modeling showed “safe” versus “unsafe” acceleration. In other instances, Langle cautions that the methods examined in the paper are preliminary and that “[g]eneral classification is possible given [a mobile phone’s] GPS speed sensor and triple-axis accelerometer, but the hardware may not be accurate enough to perform other measurements such as braking distance and lane change width reliably.” Ex. 1029, 5. Langle further acknowledges that “[s]ensor data collection with the mobile phone requires some extra considerations regarding device placement.” *Id.* at 4.

That being the case, we question whether Petitioner has sufficiently explained why or how a POSITA would modify Forstall’s mobile device navigation system to include/implement some or all of Langle’s teachings.

We nonetheless institute review of this ground. *See* 37 C.F.R. § 42.108 (“When instituting *inter partes* 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 invite the parties to develop the record on the issues discussed above during trial.

J. Obviousness Based on Forstall, Rabu, Langle, and Balachandran

Petitioner contends that dependent claims 3 and 4 would have been obvious over Forstall, Rabu, Langle, and Balachandran. Pet. 72–74.

Patent Owner does not substantially address these limitations beyond what is discussed above with respect to independent claim 1. Prelim. Resp. 56 (“Adding additional references to the Forstall-Rabu-Langle combination for claims 3–11 does not change the patentability of claim 1 and thus the patentability of any of these dependent claims.”).

For the same reasons discussed above, we institute review on this ground, although we have the same question on the sufficiency of the Petition's showing based on Forstall, Rabu, and Langle.

K. Obviousness Based on Forstall, Rabu, Langle, and Katayama

Petitioner also argues that dependent claims 6–8 would have been obvious over Forstall, Rabu, Langle, and Katayama. Pet. 74–79.

Patent Owner does not substantially address these limitations beyond what is discussed above with respect to independent claim 1.

For the same reasons discussed above, we institute review on this ground, although we have the same question on the sufficiency of the Petition's showing based on Forstall, Rabu, and Langle.

L. Obviousness Based on Forstall, Rabu, Langle, and Warren

Petitioner asserts that dependent claims 5, 9, and 11 would have been obvious over Forstall, Rabu, Langle, and Warren. Pet. 79–83.

Patent Owner does not substantially address these limitations beyond what is discussed above with respect to independent claim 1.

For the same reasons discussed above, we institute review on this ground, although we have the same question on the sufficiency of the Petition's showing based on Forstall, Rabu, and Langle.

M. Obviousness Based on Forstall, Rabu, Langle, and Tamir

Petitioner further argues that dependent claim 10 would have been obvious over Forstall, Rabu, Langle, and Tamir. Pet. 83–85.

Patent Owner does not substantially address these limitations beyond what is discussed above with respect to independent claim 1.

For the same reasons discussed above, we institute review on this ground, although we have the same question on the sufficiency of the Petition’s showing based on Forstall, Rabu, and Langle.

III. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314

In the Petition, Petitioner contends that we should not exercise our discretion under 35 U.S.C. § 314 to deny institution. Pet. 85–89. Patent Owner did not address discretionary denial in its Preliminary Response. After the Petition was filed, Petitioner submitted a stipulation, which states that

USAA and Noblr^[10] hereby stipulate that if the PTAB institutes IPR2023-00518 based on the grounds in attached Appendix A, USAA and Noblr will not pursue for the instituted claims, in the District Court proceedings, the same grounds or any grounds that could have reasonably been raised before the PTAB in the IPR2023-00518 petition.

Ex. 1083, 1 (citing *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 13–20 (PTAB Dec. 1, 2020) (precedential)). Exhibit 1083 shows that Petitioner is not relying on Curry, Rabu, Katayama, Tamir, Balachandran, Forstall, Langle, and Warren to argue for the invalidity of the ’487 patent in the related district court litigation. We do note that the proffered stipulation applies to the “instituted claims,” which in this case are all the claims, claims 1–13, in the ’487 patent. As such, we understand the stipulation applies to all claims that could have been challenged in the ’487 patent, because all of claims 1–13 have in fact been challenged in the Petition. Pet. 1–2. In this way, Petitioner’s stipulation is consistent with and commensurate in scope with a *Sotera* stipulation. The Director’s *Interim*

¹⁰ “Noblr” refers to Noblr Reciprocal Exchange, which Petitioner has identified as a real party-in-interest in this proceeding. Paper 8.

Procedure For Discretionary Denials In AIA Post-Grant Proceedings With Parallel District Court Litigation, issued June 21, 2022 (“Guidance Memo”), states that

[c]onsistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.

Guidance Memo, 7–8. For this reason, we will not deny institution in view of the parallel district court litigation.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner demonstrates a reasonable likelihood of prevailing with respect to at least one of the claims challenged in the Petition. Accordingly, *inter partes* review of the ’487 patent shall proceed in this case on all of the grounds raised in the Petition. *See SAS Inst.*, 138 S. Ct. at 1359–60 (holding that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (stating that the decision whether to institute *inter partes* review requires “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

Our determination in this Decision is not a final determination on either the patentability of any challenged claims or the construction of any claim term. The factual findings set forth in this Decision are preliminary and provided for the sole purpose of deciding whether to institute a review. Any final findings will be based on the full trial record, including any information presented by Patent Owner in a timely filed response to the Petition. *See TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed.

Cir. 2016) (noting that “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial”) (quoting 35 U.S.C. § 314(a) and comparing *id.* with § 316(e)).

ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–13 of the ’487 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the ’487 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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