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In re Patent of: Andrew William Wright
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BEHAVIOUR

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PETITION FOR *INTER PARTES* REVIEW OF
UNITED STATES PATENT NO. 10,198,879

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EXHIBITS

USAA-1001	U.S. Patent No. 10,198,879 to Wright (“the ‘879 Patent”)
USAA-1002	Excerpts from the Prosecution History of the ‘879 Patent (“the Prosecution History”)
USAA-1003	Declaration and Curriculum Vitae of Dr. William Michalson
USAA-1004	Original Complaint for Patent Infringement in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. May 11, 2022)
USAA-1005	International Publication No. WO 2010/042545 to Curry et. al (“Curry”)
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USAA-1008	Thompson et. al, “Using Smartphones to Detect Car Accidents and Provide Situational Awareness to Emergency Responders,” Mobilware 2010, LNICST 48, pp. 29–42, 2010 (“Thompson2010”)
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- USAA-1066 Order Granting Motion for Entry of Scheduling Order in *Auto Telematics Ltd. v. United Services Automobile Association*, 6:22-cv-00474 (W.D. Tex. September 16, 2022)
- USAA-1067 U.S. District Court Statistics (Dec. 31, 2022), *available at* https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile1231.2022.pdf
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(W.D. Tex. December 19, 2022)

USAA-1069	Plaintiff's Claim Construction Response Brief in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. January 12, 2023)
USAA-1070	USAA's Reply Claim Construction Brief in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. January 25, 2023)
USAA-1071	Plaintiff's Claim Construction Sur-Reply Brief in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. February 6, 2023)
USAA-1072	Joint Claim Construction Statement in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. February 7, 2023)
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USAA-1075	Plaintiff Auto Telematics Ltd.'s Preliminary Infringement Contentions and Identification of Document Production Accompanying Disclosure in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. August 26, 2022)
USAA-1076	United Services Automobile Association's Preliminary Invalidity Contentions in <i>Auto Telematics Ltd. v. United Services Automobile Association</i> , 6:22-cv-00474 (W.D. Tex. October 21, 2022)
USAA-1077	Internet Archive of Waze User Manual
USAA-1078	Internet Archive of iPhone User Guide

USAA-1079	Internet Archive of iPhone 3G Technical Specification
USAA-1080	Internet Archive of iPhone User Guide for iPhone and iPhone 3G
USAA-1081	Internet Archive of Instruction Sheet for iPhone 3G

LISTING OF CHALLENGED CLAIMS

Claim	Identifier	Claim Language
1	[1.1]	A mobile telecommunications device configured to log driving information associated with a vehicle, the mobile telecommunications device comprising:
	[1.2]	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 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;
	[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; and
	[1.8]	store a selection of the driving information to the memory;
	[1.9]	wherein the driving information is derived without data from the vehicle sensors, and
	[1.10]	the mobile telecommunications device is controlled by a downloaded application to control the mobile device to process the driving information to generate a driving score associated with a particular driver.
2	[2]	A mobile telecommunications device according to claim 1, wherein the mobile telecommunications device is controlled by the downloaded application to control the mobile device to detect occurrence of a predetermined event and in response take at least one predetermined action.

Claim	Identifier	Claim Language
3	[3]	A mobile telecommunication device according to claim 2, wherein predetermined action is storing driving information associated with that event to the memory.
4	[4]	A mobile telecommunication device according to claim 2, wherein predetermined action is storing driving information captured at a higher sampling rate than when an event is not detected.
5	[5]	A mobile telecommunication device according to claim 2, wherein predetermined action is transmitting driving information via a wireless telecommunication module of the mobile telecommunication device to a remote system.
6	[6.1]	A mobile telecommunications device according to claim 2, wherein the predetermined action comprises providing feedback to a user to indicate that an event has been detected,
	[6.2]	the mobile telecommunications device being configured to receive a user interaction to confirm or deny whether the detected event has actually occurred following said feedback.
7	[7.1]	A mobile telecommunications device according to claim 6, wherein the feedback comprises notifying a user that a further action has been scheduled, and will be taken within a predetermined period,
	[7.2]	the mobile telecommunications device being further configured to receive a user interaction to confirm or deny whether the further scheduled action should be taken within a predetermined period.
8	[8.1]	A mobile telecommunications device according to claim 2, wherein the predetermined action comprises communicating to a remote system that an event has been detected,
	[8.2]	the mobile telecommunications device being further configured to receive from the remote system a request to transmit to the remote system selected portions of the

Claim	Identifier	Claim Language
		driving information associated with the detected event.
9	[9.1]	A mobile telecommunications device according to claim 2, wherein the memory comprises: a long term memory for persistently storing driving information and a short term memory for transiently storing driving information,
	[9.2]	wherein the short term memory receives driving information at a higher update rate than the long term memory,
	[9.3]	the mobile telecommunications device being further configured to: write driving information to the short term memory at a predetermined update rate during the driving period in a predetermined sequence; and,
	[9.4]	overwrite the driving information previously written to the short term memory in accordance with the predetermined sequence.
10	[10.1]	A mobile telecommunications device according to claim 9, wherein the mobile telecommunications device is controlled by the downloaded application to control the mobile device to detect an occurrence of a predetermined event and
	[10.2]	in response transfer data from the short term memory to the long term memory.
11	[11]	A mobile telecommunications device according to claim 2, wherein the device is controlled by the downloaded application to manage voice-calls incoming to the mobile telecommunications device during a driving period.
12	[12]	A mobile telecommunications device according to claim 2, wherein the device is controlled by the downloaded application to enable a hands-free mode of operation on detection of the driving period.
13	[13]	A mobile telecommunications device according to claim 12, wherein the hands-free mode of operation comprises enabling voice-activated commands on the mobile

Claim	Identifier	Claim Language
		device.
14	[14.1]	A mobile telecommunications device according to claim 2, wherein the device is controlled by the downloaded application to detect the occurrence of a predetermined event of significance, such as a crash, and
	[14.2]	in response to store driving information associated with that event to the memory.
15	[15.1]	A mobile telecommunications device according to claim 2, wherein the device is controlled by the downloaded application to detect the occurrence of a predetermined event of significance, such as a crash, and
	[15.2]	in response to transmit driving information associated with that event via the wireless telecommunication module to a remote data-logging system.
16	[16]	A mobile telecommunications device according to claim 2, wherein the at least one predetermined action comprises providing the user with options to control the mobile device to take further actions.
17	[17]	A mobile telecommunications device according to claim 1, 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.
18	[18]	A mobile telecommunications device according to claim 17, further arranged to interface with the external device wirelessly.
19	[19]	A mobile telecommunications device according to claim 1, wherein the mobile telecommunications device utilizes its own power supply.
20	[20]	A mobile telecommunications device according to claim 1, wherein the mobile telecommunications device is a smartphone.
21	[21.1]	A non-transitory computer readable medium having

Claim	Identifier	Claim Language
		instructions comprising a software application stored thereon, wherein the instructions are configured to be executed on a processor of a mobile telecommunications device to enable the mobile telecommunications device to log driving information associated with a driver of a vehicle, the mobile telecommunications device including
	[21.2a]	a display;
	[21.3]	a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof;
	[21.4]	the processor; and
	[21.5]	a memory, wherein the instructions, upon execution by the processor, enable the mobile telecommunications device to:
	[21.2b]	present a user interface on the display;
	[21.6]	determine, based on at least one of the inputs received by the user interface and/or sensor data from the sensor set, a start of a driving period during which the mobile telecommunications device is removably attached to a vehicle and the vehicle is being driven by the driver;
	[21.7]	process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven;
	[21.8]	store a selection of the driving information to the memory; and
	[21.9]	generate a driving score associated with the driver,
	[21.10]	wherein the driving information is derived without data from vehicle sensors.
22	[22]	A non-transitory computer readable medium according to claim 21, wherein execution of the instructions further enables the mobile telecommunications device to

Claim	Identifier	Claim Language
		detect occurrence of a predetermined event and in response take at least one predetermined action.
23	[23]	A non-transitory computer readable medium according to claim 22, wherein predetermined action is storing driving information associated with that event to the memory.
24	[24]	A non-transitory computer readable medium according to claim 22, wherein predetermined action is storing driving information captured at a higher sampling rate than when an event is not detected.
25	[25]	A non-transitory computer readable medium according to claim 22, wherein predetermined action is transmitting driving information via a wireless telecommunication module of the mobile telecommunication device to a remote system.
26	[26.1]	A non-transitory computer readable medium according to claim 22, wherein the predetermined action comprises providing feedback to a user to indicate that an event has been detected,
	[26.2]	the mobile telecommunications device being configured, via execution of the instructions, to receive a user interaction to confirm or deny whether the detected event has actually occurred following said feedback.
27	[27.1]	A non-transitory computer readable medium according to claim 26, wherein the feedback comprises notifying a user that a further action has been scheduled, and will be taken within a predetermined period,
	[27.2]	the mobile telecommunications device being further configured to receive a user interaction to confirm or deny whether the further scheduled action should be taken within a predetermined period.
28	[28.1]	A non-transitory computer readable medium according to claim 22, wherein the predetermined action comprises communicating to a remote system that an event has been detected,

Claim	Identifier	Claim Language
	[28.2]	wherein execution of the instructions further enables the mobile telecommunications device to receive from the remote system a request to transmit to the remote system selected portions of the driving information associated with the detected event.
29	[29]	A non-transitory computer readable medium according to claim 22, wherein execution of the instructions further enables the mobile telecommunications device to manage voice-calls incoming to the mobile telecommunications device during a driving period.
30	[30]	A non-transitory computer readable medium according to claim 22, wherein execution of the instructions further enables the mobile telecommunications device to enable a hands-free mode of operation on detection of the driving period.
31	[31]	A non-transitory computer readable medium according to claim 30, wherein the hands-free mode of operation comprises enabling voice-activated commands on the mobile device.
32	[32.1]	A non-transitory computer readable medium according to claim 22, wherein execution of the instructions further enables the mobile telecommunications device to detect the occurrence of a predetermined event of significance, such as a crash, and
	[32.2]	in response to store driving information associated with that event to the memory.
33	[33.1]	A non-transitory computer readable medium according to claim 22, wherein execution of the instructions further enables the mobile telecommunications device to detect the occurrence of a predetermined event of significance, such as a crash, and
	[33.2]	in response to transmit driving information associated with that event via the wireless telecommunication module to a remote data-logging system.
34	[34]	A non-transitory computer readable medium according

Claim	Identifier	Claim Language
		to claim 22, wherein the at least one predetermined action comprises providing the user with options to control the mobile device to take further actions.
35	[35.1]	A non-transitory computer readable medium according to claim 21, wherein the memory comprises: a long-term memory for persistently storing driving information and a short-term memory for transiently storing driving information,
	[35.2]	wherein the short-term memory receives driving information at a higher update rate than the long-term memory,
	[35.3]	wherein execution of the instructions further enables the mobile telecommunications device to: write driving information to the short-term memory at a predetermined update rate during the driving period in a predetermined sequence; and,
	[35.4]	overwrite the driving information previously written to the short-term memory in accordance with the predetermined sequence.
36	[36]	A non-transitory computer readable medium according to claim 35, wherein execution of the instructions further enables the mobile telecommunications device to detect an occurrence of a predetermined event and in response transfer data from the short-term memory to the long-term memory.
37	[37]	A non-transitory computer readable medium according to claim 21, wherein execution of the instructions further enables the mobile telecommunications device to: interface with an external device, the external device having access to external driving information associated with a condition of the vehicle; and, receive at least a portion of the external driving information from the external device.
38	[38]	A non-transitory computer readable medium according

Claim	Identifier	Claim Language
		to claim 37, further arranged to interface with the external device wirelessly.
39	[39]	A non-transitory computer readable medium according to claim 21, wherein the mobile telecommunications device utilizes its own power supply.
40	[40]	A non-transitory computer readable medium according to claim 21, wherein the mobile telecommunications device is a smartphone.
41	[41]	A non-transitory computer readable medium according to claim 21, wherein the processing step comprises determination of at least one of: vehicle acceleration events and vehicle braking events.
42	[42]	A non-transitory computer readable medium according to claim 41, wherein processing step comprises determination of vehicle swerving events and the determination of such events occurs when data from the sensor set accords with preset parameters.
43	[43]	A non-transitory computer readable medium according to claim 21, wherein the processing step comprises determination of both vehicle acceleration events and vehicle braking events.
44	[44]	A non-transitory computer readable medium according to claim 43, wherein processing step comprises the determination of vehicle swerving events and the determination of such events occurs when data from the sensor set accords with preset parameters.
45	[45.1]	A non-transitory computer readable medium according to claim 21, wherein the mobile telecommunications device further comprises a proximity sensor and
	[45.2]	the instructions, upon execution by the processor, enable the mobile telecommunications device to detect the

Claim	Identifier	Claim Language
		proximity of the mobile telecommunications device to the vehicle.
46	[46.1]	A mobile telecommunications device configured to log driving information associated with a vehicle, the mobile telecommunications device comprising:
	[46.2]	a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof;
	[46.3]	a user interface;
	[46.4]	a processor and;
	[46.5]	a memory;
	[46.6]	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;
	[46.7]	process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven; and
	[46.8]	store a selection of the driving information to the memory;
	[46.9]	wherein the driving information is derived without data from the vehicle sensors and
	[46.10]	the mobile telecommunications device is configured to process the sensor data by determination of at least one of: vehicle acceleration events; and vehicle braking events;
	[46.11]	wherein the determining of such events occurs when data from the sensor set accords with predefined threshold values; and

Claim	Identifier	Claim Language
	[46.12]	wherein the mobile telecommunications device is controlled by a downloaded application to control the mobile device to process the driving information to generate a driving score associated with a particular driver.
47	[47]	A mobile telecommunications device according to claim 46, wherein the mobile telecommunications device is configured to process the sensor data by determination of vehicle swerving events and the determination of such events occurs when data from the sensor set accords with preset parameters.
48	[48]	A mobile telecommunications device according to claim 46, wherein the mobile telecommunications device is configured to process the sensor data by determination of both vehicle acceleration events and vehicle braking events.
49	[49]	A mobile telecommunications device according to claim 48, wherein the mobile telecommunications device is configured to process the sensor data by determination of vehicle swerving events and the determination of such events occurs when data from the sensor set accords with preset parameters.
50	[50.1]	A mobile telecommunications device according to claim 46, wherein the mobile telecommunications device further comprises a proximity sensor and
	[50.2]	the mobile telecommunications device is configured, upon execution of the instructions by the processor, to enable the mobile telecommunications device to detect the proximity of the mobile telecommunications device to the vehicle.
51	[51.1]	A non-transitory computer readable medium having instructions comprising a software application stored thereon, wherein the instructions are configured to be executed on a processor of a mobile telecommunications

Claim	Identifier	Claim Language
		device to enable the mobile telecommunications device to log driving information associated with a driver of a vehicle,
	[51.2a]	the mobile telecommunications device including a display;
	[51.3]	a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof;
	[51.4]	the processor; and
	[51.5]	a memory, wherein the instructions, upon execution by the processor, enable the mobile telecommunications device to:
	[51.2b]	present a user interface on the display;
	[51.6]	determine, based on at least inputs received by the user interface and sensor data from the sensor set, a start of a driving period during which the mobile telecommunications device is removably attached to a vehicle and the vehicle is being driven by the driver;
	[51.7]	process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven;
	[51.8]	store a selection of the driving information to the memory; and
	[51.9]	generate a driving score associated with the driver,
	[51.10]	wherein the driving information is derived without data from vehicle sensors and comprises the determination of at least one of: vehicle acceleration events; and vehicle braking events;
	[51.11]	wherein the determination of such events occurs when data from the sensor set accords with predefined threshold parameters.
52	[52.1]	A non-transitory computer readable medium according to claim 51, wherein the derived driving information

Claim	Identifier	Claim Language
		may further comprise the determination of vehicle swerving events and
	[52.2]	the determination of such events occurs when data from the sensor set accords with predefined threshold parameters.
53	[53.1]	A non-transitory computer readable medium according to claim 51, wherein the mobile telecommunications device further includes a proximity sensor, and
	[53.2]	the instructions, upon execution by the processor, further enable the mobile telecommunications device to detect the proximity of the mobile telecommunications device to the vehicle.
54	[54.1]	A mobile telecommunications device configured to log driving information associated with a vehicle, the mobile telecommunications device comprising:
	[54.2]	a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof;
	[54.3]	a user interface;
	[54.4]	a processor and;
	[54.5]	a memory;
	[54.6]	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 affixed to the vehicle and the vehicle is in use;
	[54.7]	process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven; and
	[54.8]	store a selection of the driving information to the memory;

Claim	Identifier	Claim Language
	[54.9]	wherein the driving information is derived without data from the vehicle sensors, and
	[54.10]	the mobile telecommunications device is controlled by a downloaded application to control the mobile device to process the driving information to generate a driving score associated with a particular driver.
55	[55.1]	A mobile telecommunications device configured to log driving information associated with a vehicle, the mobile telecommunications device comprising:
	[55.2]	a sensor set comprising an image sensor, an audio sensor, an accelerometer or a positioning module, or a combination thereof;
	[55.3]	a user interface;
	[55.4]	a processor and;
	[55.5]	a memory;
	[55.6]	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 affixed to the vehicle and the vehicle is in use;
	[55.7]	process the sensor data from the sensor set during the driving period to derive driving information associated with how the vehicle is driven,
	[55.8]	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; and,
	[55.9]	store a selection of the driving information to the memory;
	[55.10]	wherein the driving information is derived without data from the vehicle sensors,

Claim	Identifier	Claim Language
	[55.11]	and the mobile telecommunications device is controlled by a downloaded application to control the mobile device to process the driving information to generate a driving score associated with a particular driver.

United Services Automobile Association (“Petitioner” or “USAA”) petitions for *Inter Partes* Review (“IPR”) of claims 1-55 (“Challenged Claims”) of U.S. Patent No. 10,198,879 (“the ’879 Patent”).

I. REQUIREMENTS FOR IPR

A. Grounds for Standing

USAA certifies that the ’879 Patent is available for IPR. USAA is not barred or estopped from requesting this review challenging the Challenged Claims on the below-identified grounds. USAA was served with a complaint of infringement of the ’879 Patent less than one year ago. USAA-1004.

B. Challenge and Relief Requested

USAA requests IPR and cancellation of the Challenged Claims on the grounds below. In support, a declaration from Dr. William Michalson¹ (USAA-1003) is furnished herewith.

Ground	Claims	Basis
1A	1-3, 5, 6, 8, 11-13, 19-23, 25, 28-31, 39-44, 46-49, 51, 52, 54	§103: Curry, Rabu
1B	4, 24	§103: Curry, Rabu, Tamir
1C	6, 7, 16, 26, 27, 34	§103: Curry, Rabu, Balachandran

¹ Dr. Michalson is a professor in Robotics Engineering at the Worcester Polytechnic Institute.

Ground	Claims	Basis
1D ²	9, 10, 14, 15, 17, 18, 32, 33, 35-38	§103: Curry, Rabu, Katayama
1E	14, 15, 32, 33	§103: Curry, Rabu, Thompson2010
1F	45, 50, 53	§103: Curry, Rabu, Willis
1G	55	§103: Curry, Rabu, Berkobin

The '879 patent was filed 3/9/2017, and claims priority, via several applications, to GB Pat. App. No. 1021292.6 filed 12/15/2010 ("Critical Date"). USAA does not concede that the Challenged Claims are entitled to the claimed priority, but applies prior art before the alleged date. USAA-1003, ¶¶13-15, 26-29.³ The applied references are prior art:

Reference	Date(s)	Basis
Curry	4/15/2010	§102(a)
Rabu	12/15/2009	§102(e)

² Features recited by claims 14, 15, 32, and 33 are also disclosed by Katayama, as indicated in the citations to Katayama provided in this ground. *See* USAA-1024, [0039], [0046], [0050], [0051], [0063], [0075]. Because Curry-Rabu-Katayama incorporates the teachings of Katayama in the manner discussed in §III.D.1, Curry-Rabu-Katayama also renders claims 14, 15, 32, and 33 obvious.

³ In its Infringement Complaint, Patent Owner ("PO") stated "[t]he '879 Patent...claims priority to PCT Application No. to PCT Application No. PCT/GB2011/052492, filed on December 15, 2011." USAA-1004, 10.

Reference	Date(s)	Basis
Tamir	2/1/2007 10/26/2010	§102(b) §102(a)
Balachandran	6/6/2000	§102(b)
Katayama	4/23/2008	§102(b)
Thompson2010	7/2/2010	§102(a)
Willis	10/11/2007	§102(b)
Berkobin	10/16/2008	§102(b)

C. Claim Construction

Because the Challenged Claims are obvious under any reasonable interpretation, no express constructions are required in this proceeding. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); USAA-1068-1073.

As discussed in §III.A.2, *infra*, 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 use⁴

Based 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.” USAA-1003, ¶¶62, 123. Though the namesake of the “driving period” suggests driving, because the two claim parameters defining the

⁴ Claims 21, 46, 51, and 54-55 recite the same/similar language.

“driving period” are “removably attached...*and* the vehicle is in use,” the claim leaves open the possibility of the driving period corresponding to the beginning, middle or end of, a vehicle’s operation. USAA-1003, ¶124. The ’879 patent specification is similarly unbounded, as it expressly recognizes several driving period options that are untethered from, e.g., the beginning of the user driving the vehicle: “the mobile device [] register[s] the start of a driving period in response to an initialisation input,” which may be “the user manually executing the application on the mobile device[,]” “the mobile device being installed to the vehicle and/or the vehicle being driven.” USAA-1001, 3:32-62; USAA-1003, ¶124.

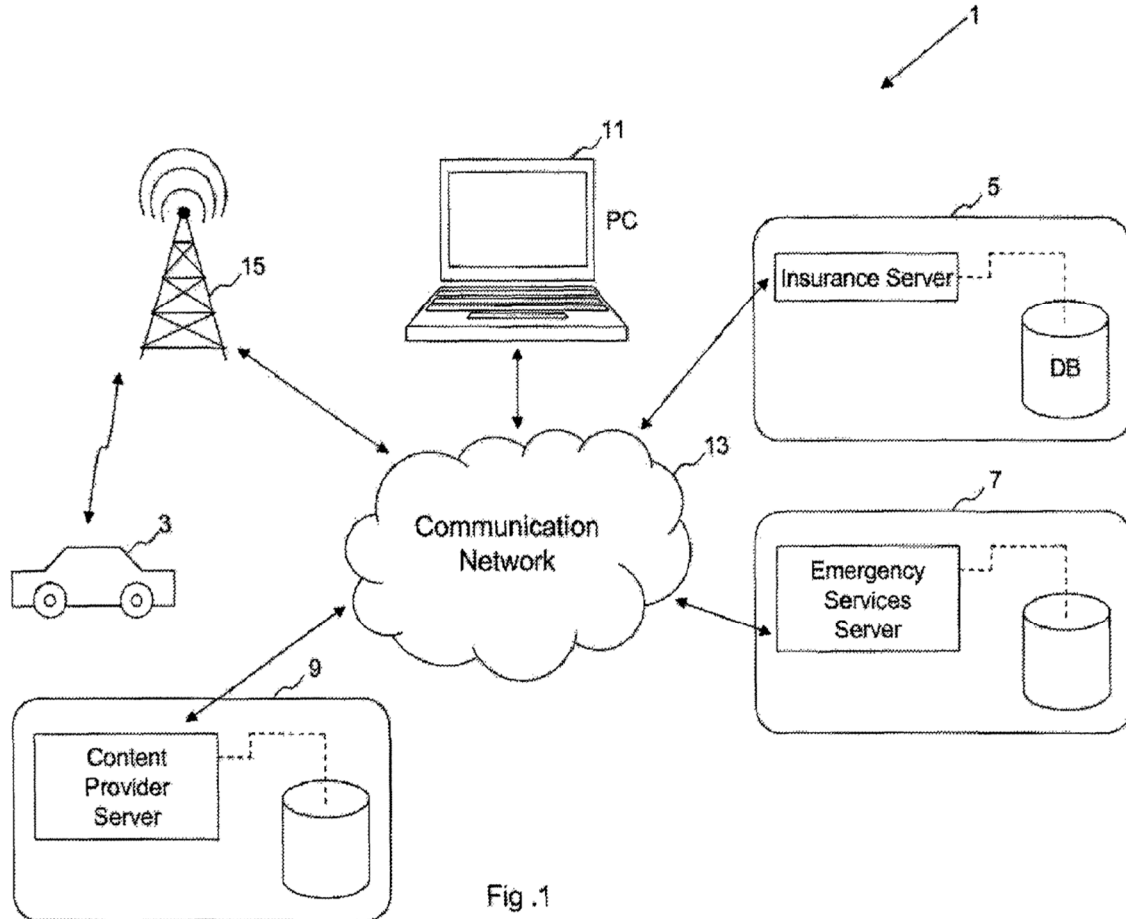
Thus, this claim term establishes two distinct “driving period” attributes: (1) “the mobile device is removably attached to the vehicle” and (2) “the vehicle is in use.” USAA-1003, ¶125. These attributes may be satisfied by a start of a monitoring period, whether at the onset of vehicle driving or whether instead before or thereafter. *Id.*

II. THE ’879 PATENT

A. Specification

The ’879 patent is directed to a mobile device that conventionally “monitor[s] and process[es] sensor data” to “derive driving information” related to “a driver’s driving performance.” USAA-1001, 1:22-30, 1:49-58, 13:36-56; 13:18-35; ; USAA-1003, ¶¶30-61.

Figure 1 shows an exemplary system:



USAA-1001, Fig. 1

B. Prosecution History

During prosecution, the Examiner rejected the claims over U.S. Pub. Nos. 2010/0030540 (“Choi”), 2010/0157061 (“Katsman”), and 2012/0166583 (“Koonce”). *See* USAA-1002, 117-36. This petition addresses claim features distinguished during prosecution using new combinations of prior art, none of which were previously considered. USAA-1003, ¶62.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. [GROUND 1A] – Curry-Rabu Renders Claims 1-3, 5, 6, 8, 11-13, 19-23, 25, 28-31, 39-44, 46-49, 51, 52, 54 Obvious

1. Curry-Rabu Combination

(a) *Curry*

Curry describes using a “mobile wireless computing device” with embedded accelerometers and/or positioning sensors (e.g., an “iPhone 3G smart phone[]”) to “detect and prevent unsafe driving behavior[s]”, and generate related “driving safety...score[s]” for determining insurance premiums. USAA-1005, Abstract, 2:1-27, 3:24-4:6, 4:7-11, 7:5-22, 9:31-33, Fig. 1; USAA-1003, ¶64.

Curry’s Fig. 1 (reproduced below), illustrates an exemplary system including a centrally managed driving safety data server 104 in wireless communication with a “mobile phone” 106, which “can include any type of electronic mobile computing device that may be used while traveling in a vehicle.” USAA-1005, 6:23-29, 7:21-27. A client application 110, which can be downloaded “from the server 104 to the mobile phone 106,” enables phone 106 to determine, based on “location, speed, and acceleration data from” an embedded “GPS sensor 114 and accelerometer 116” whether the vehicle is being driven, and to process “raw data” from a driving period to derive information associated with a user’s driving behavior, including whether the phone is being used while driving, and whether the user engages in behaviors such as “speeding, abnormal acceleration, abnormal

deceleration, and taking sharp turns.” *Id.*, 6:5-22, 8:5-11, 7:30-8:33; USAA-1003, ¶65.

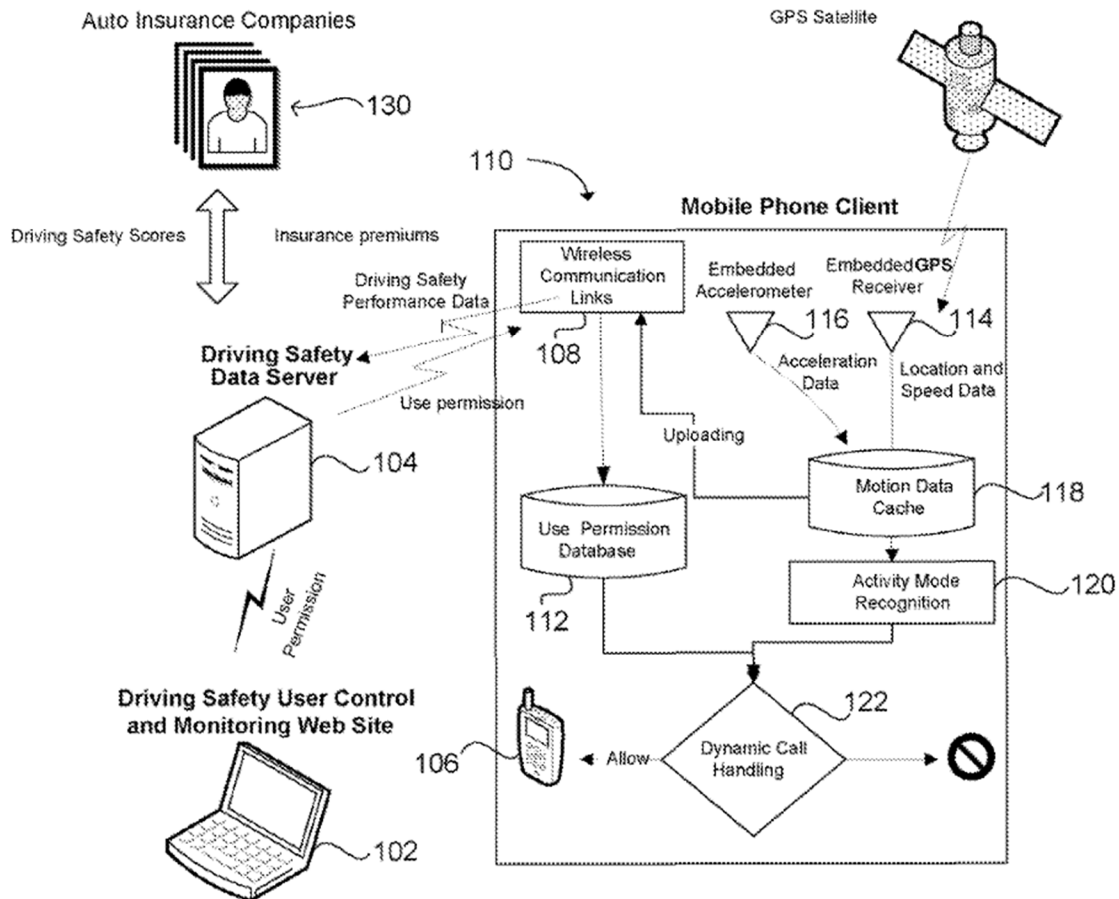


FIG. 1

USAA-1005, Fig. 1

Raw data and derived driving behavior information is stored in mobile phone 106 (e.g., in a “motion data cache 118” and a “driving safety performance database 324”), and mobile client 110 processes stored information both to determine a mode within which the mobile phone should operate (e.g., “a GPS

monitoring/navigation mode” or “a communication mode”), and to generate a “driving safety score” for the user that can be wirelessly communicated to third parties. *Id.*, Abstract, 2:1-3:6, 7:29-11:18, 12:27-13:26, 16:1-17:4, Figs. 1, 3, 6; USAA-1003, ¶66.

(b) *Rabu*

Rabu likewise uses an accelerometer within a “portable media device” (“PMD”) (e.g., “smart phone”). USAA-1013, Abstract, 1:1-52, 1:60-2:11, 3:11-28, 6:49-7:6, Figs. 1-8. Rabu leverages the accelerometer both to determine whether the PMD is located in a moving or stationary vehicle, and to determine whether the PMD “is in a dock, resting on a surface, or being handled by a person.” *Id.* Based on those determinations, Rabu “choose[s] a particular mode of operation” for the PMD that can promote driver safety by restricting problematic phone interactions. USAA-1013, 1:53-59, 8:13-10:42, Fig. 5; USAA-1003, ¶¶67-70. For example, as explained with respect to processing illustrated by Figs. 7 and 8 (below), if the PMD is “docked in a moving vehicle,” an operating mode with relatively few restrictions might be chosen. USAA-1013, 8:13-10:42, Figs. 5, 7, 8; USAA-1003, ¶71. Conversely, “if the PMD determines that [it] is being held” while driving, the PMD can for example “prevent the driver from sending or receiving text messages.” USAA-1013, 12:26-43; USAA-1003, ¶71.

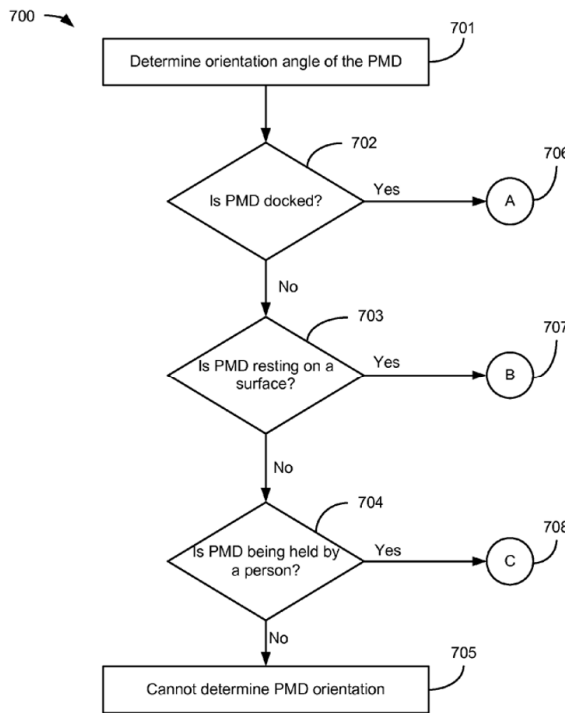


FIG. 7

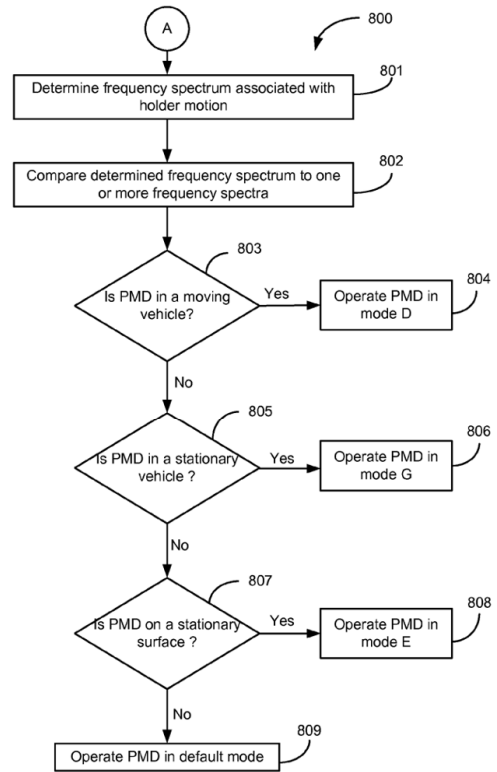


FIG. 8

Rabu's PMD is mounted using an "automobile dock." USAA-1013, 3:11-45, Figs. 1, 2. Figures 1-3 (below) show PMD 100 "coupled to dock 200" and positioned "at an angle 302..." *Id.*, 3:46-50. Rabu leverages this "orientation" angle to confirm whether the PMD is coupled to dock 200, and to switch to an associated operating mode. USAA-1013, 3:29-4:4, 8:13-24, Figs. 2, 7, 3:46-4:4; USAA-1003, ¶68.

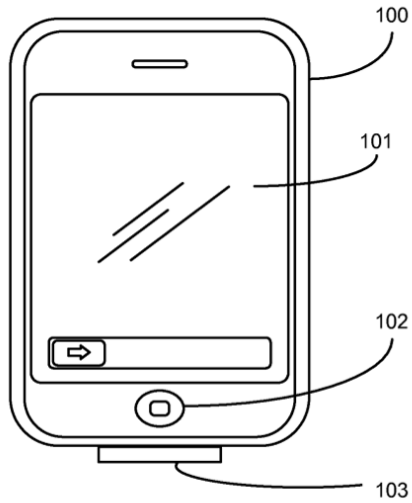


FIG. 1

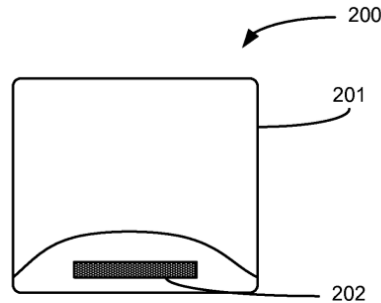


FIG. 2

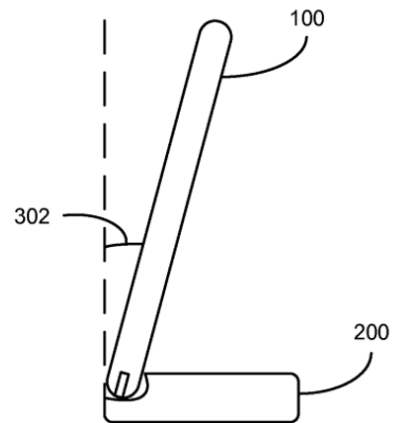
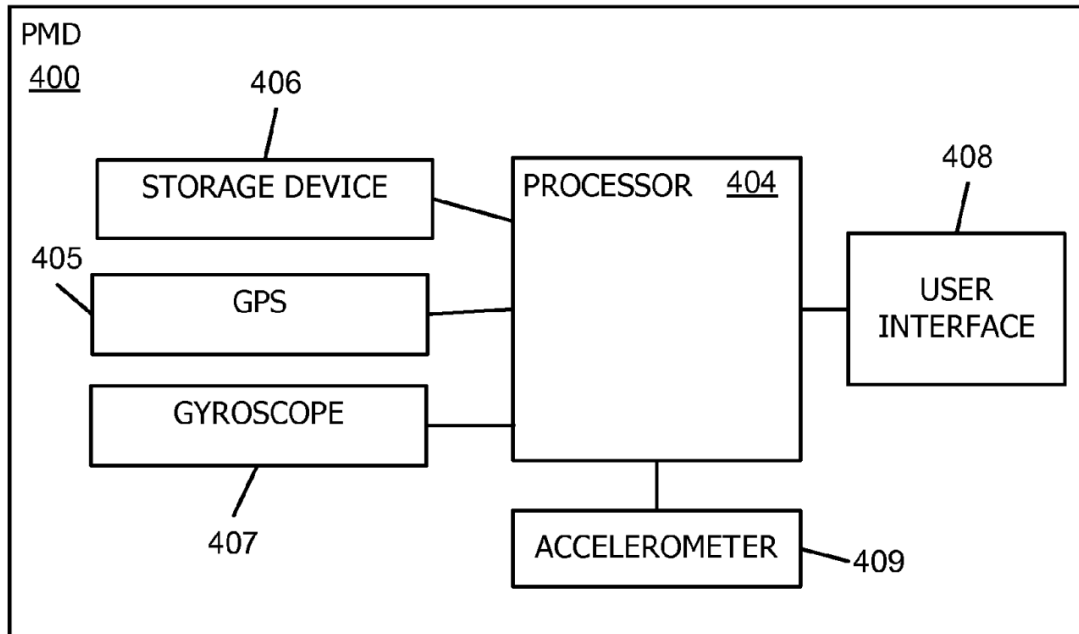


FIG. 3

USAA-1013, Fig. 1

Figure 4 (below) shows PMD 400 with processor 404, user interface 408, accelerometer 409, (GPS) device 405, and storage device 406. USAA-1013, 4:15-20. Processor 404 uses accelerometer 409 to determine the PMD's motion status and orientation angle. USAA-1013, 3:1-28, 4:21-40, Figs. 1, 4; USAA-1003, ¶¶69.



USAA-1013, Fig. 4

(c) *Curry-Rabu*

A person of ordinary skill in the art (“POSITA”)⁵ would have found obvious the integration of Rabu’s dock-status sensing and associated mode-shifting capabilities into Curry’s phone to promote safe driving. USAA-1003, ¶¶88-89. As explained below, the resulting Curry-Rabu device would define and determine different types of driving periods based on user inputs and sensor data, and restrict phone use and/or adjust driving scores depending on a type of driving period determined. *Id.*

For example, the Curry-Rabu phone would leverage orientation and motion

⁵ USAA-1003, ¶¶14-15 (defining a POSITA)

data from its accelerometer to determine both vehicle motion and phone docking status upon a user accepting a phone call while the vehicle is in use, or manually switching from a stationary to driving activity mode through interactions with the phone's user interface. USAA-1003, ¶89; USAA-1013, 3:1-10, 4:21-33, 8:13-10:42, 15:7-22, Figs. 1, 4-5, 7-8. Consistent with both Curry and Rabu, the Curry-Rabu phone would appropriately restrict phone interactions depending on the determined status. USAA-1005, 16:30-17:7, Figs. 3, 6; USAA-1013, 8:13-10:42, Fig. 5; USAA-1003, ¶89.

In greater detail, the Curry-Rabu phone's client would, from phone sensor data, determine operating mode and derive driving behavior information. USAA-1005, Abstract, 3:1-4:6, 7:5-22, 8:29-12:18, 13:27-14:26, 17:1-18:4, Figs. 1, 3, 6. The derived driving behavior information would indicate whether/how the user interacts with the phone while driving, and whether the user engages in other risky behaviors such as speeding. *Id.*; USAA-1003, ¶90.

Curry describes two modes: (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. USAA-1005, 10:15-11:14, 13:20-16:22, Figs. 3, 4. Phone 106 switches between these operating modes, for instance, based on an "activity mode" (e.g., "remaining substantially still" or "driving") that can be activated by the

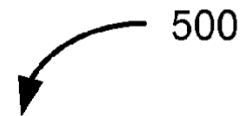
phone's user and/or in response to sensor data. USAA-1005, 13:20-14:4, 16:18-22; USAA-1003, ¶91. User inputs can, for example, "change[] the activity mode...from stop to driving," and "the system uses acceleration data...to determine the change...and then further estimate the motion type before or after the change." USAA-1005, 12:20-26, 15:18-22, Fig. 3. "Access to...calling, texting, and...applications" can be restricted, and "driver safety data can be communicated," "based on the activity mode...." USAA-1005, 16:30-17:7, Figs. 3, 6.

Curry further suggests correlating different activity modes with different operating modes, and accounting in nuanced ways for phone usage context when determining driving scores and phone usage restrictions. USAA-1003, ¶92; USAA-1005, 2:3-3:28, 15:8-16:33. This and description of benefits would have motivated a POSITA to seek related practical solutions for implementation. USAA-1005, Abstract, 2:3-3:28, 15:8-16:33; USAA-1003, ¶93.

As explained below, the POSITA would have found relevant solutions and further motivations within Rabu, and would have expected success in incorporating Rabu's solutions within Curry. USAA-1003, ¶94. For example, Rabu describes discerning phone usage context from accelerometer data indicating phone orientation angle and motion status, and changing the phone's operating mode to account for that context. USAA-1013, 3:1-10, 4:21-33, Figs. 1, 4; USAA-1003,

¶94. For instance, Rabu's Fig. 5 (below) and related description suggests switching operating modes based on determining that the phone is "docked in a moving vehicle." USAA-1013, 1:36-2:14, 5:53-7:6, 8:13-10:42, 12:26-38, Figs. 5, 7, 8; USAA-1003, ¶94.

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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

USAA-1013, Fig. 5

From this and related description, it would have for example been obvious to change the phone's operating mode to one involving relatively fewer restrictions if the phone is docked within a moving vehicle. USAA-1003, ¶¶95-96; USAA-1013, 3:1-10, 4:21-33, 6:39-43, 12:38-43, Figs. 1, 4. Consistent with Curry and Rabu's descriptions it would have further been obvious to, upon receipt of user inputs, leverage motion and orientation data from Curry's accelerometer to allow usage of a docked phone's speaker mode while driving. USAA-1003, ¶96; USAA-1005, 15:14-17; USAA-1013, 6:39-43, Fig. 5.

Accordingly, the combined disclosures of Curry and Rabu would have motivated a POSITA to supplement Curry's teachings of initiating a motion estimation process for determining the start of a driving period based on user inputs (e.g., a user's interactions with the phone's user interface when accepting a phone call) and sensor data to include, e.g., using accelerometer motion and orientation data to differentiate between defined driving periods in which phone 106 is hand-held, and those in which phone 106 is instead docked. USAA-1003, ¶¶96-97; USAA-1005, 15:14-17; USAA-1013, 5:61-6:21, 6:39-43, 8:1-4; Figs. 3-4, 5-8.

The POSITA would have found obvious that enhancing Curry's system based on Rabu's teachings would introduce multiple additional advantages (USAA-1003, ¶97), including:

1. increased user tolerance for Curry's monitoring mode, based on safe but user-friendly levels of restrictions enabled through determination of docking status (USAA-1003, ¶98; 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 (USAA-1003, ¶99; 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

based on data obtained from sensors within a docked phone relative to an undocked phone (USAA-1003, ¶100; 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 usage violations related to docking status (USAA-1003, ¶101; 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 more nuanced driving scores in, for example, determining insurance premiums (USAA-1003, ¶101; 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).

These among other advantages would have amply motivated a POSITA to integrate Rabu's teachings into Curry in a manner enabling Curry's phone 106 both to determine, based on user inputs and sensor data, a start of a driving period during which phone 106 is docked within a moving vehicle, and to make corresponding adjustments to phone 106's operating modes, determinations of user driving behaviors, and generation of user driving scores. USAA-1003, ¶102; USAA-1005, 10:15-11:14, 13:20-16:22, 17:30-18:7, Figs. 3, 4, 6; USAA-1013, 24:8-3:10.

Moreover, configuring Curry's systems to leverage Rabu's teachings would have required only routine programming knowledge well within the skill of a POSITA prior to the earliest effective filing date. USAA-1003, ¶103. Indeed, 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. *KSR v. Teleflex*, 550 U.S. 398, 417 (2007); USAA-1003, ¶103.

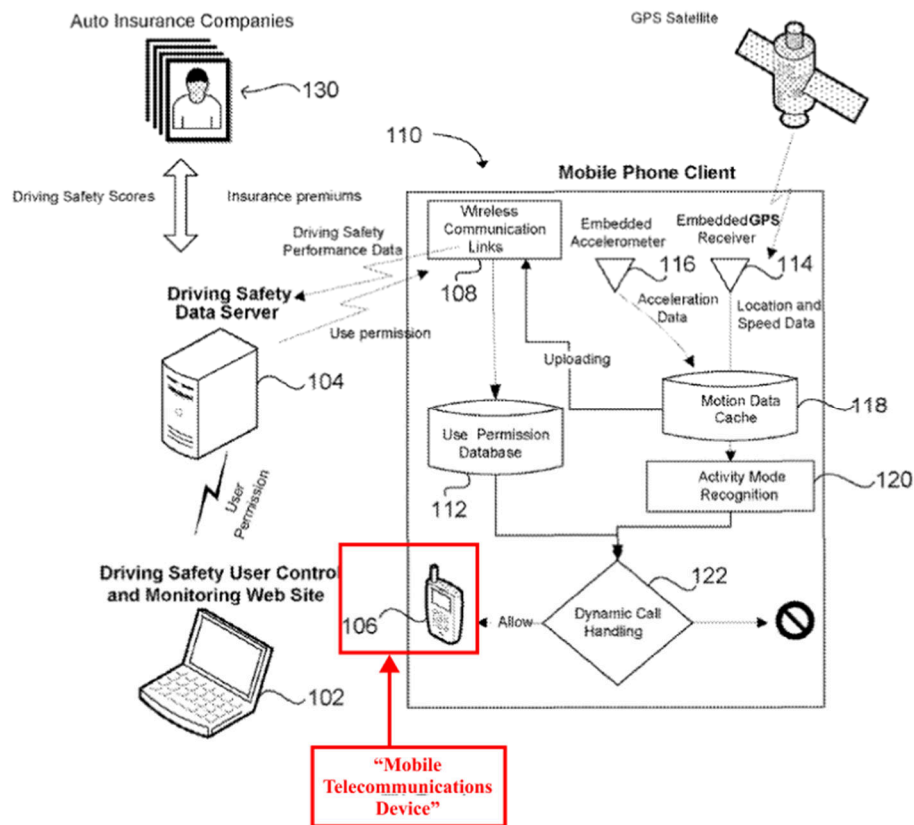
Furthermore, the elements of the resulting Curry-Rabu system would each perform functions they had been known to perform prior to the combination—phone 106 would perform the same functions to adjust operating mode based on user inputs and sensor data, to derive driving information, and to generate user scores but, as taught by Rabu, would leverage both orientation and motion data from its included accelerometer when performing those functions. USAA-1003, ¶104. Accordingly, a POSITA would have naturally expected success when incorporating Rabu's teachings into Curry's systems, as described above. *Id.*

2. Claim 1

[1.1]

Even if the preamble were properly limiting (it is not), Curry-Rabu (§III.A.1(c)) renders it obvious. As shown below, the Curry-Rabu system includes

a phone (“*mobile telecommunications device*”), which may be “any type of electronic mobile computing device that may be used while traveling in a vehicle”; for example, an “iPhone 3G smart phone[.]” USAA-1005, Abstract, 2:1-27, 3:1-4:28, 7:5-29, 8:21-27, 10:15-12:18, Fig. 1; USAA-1013, 3:11-28, 4:15-20, Figs. 1, 4; USAA-1003, ¶¶105-108.



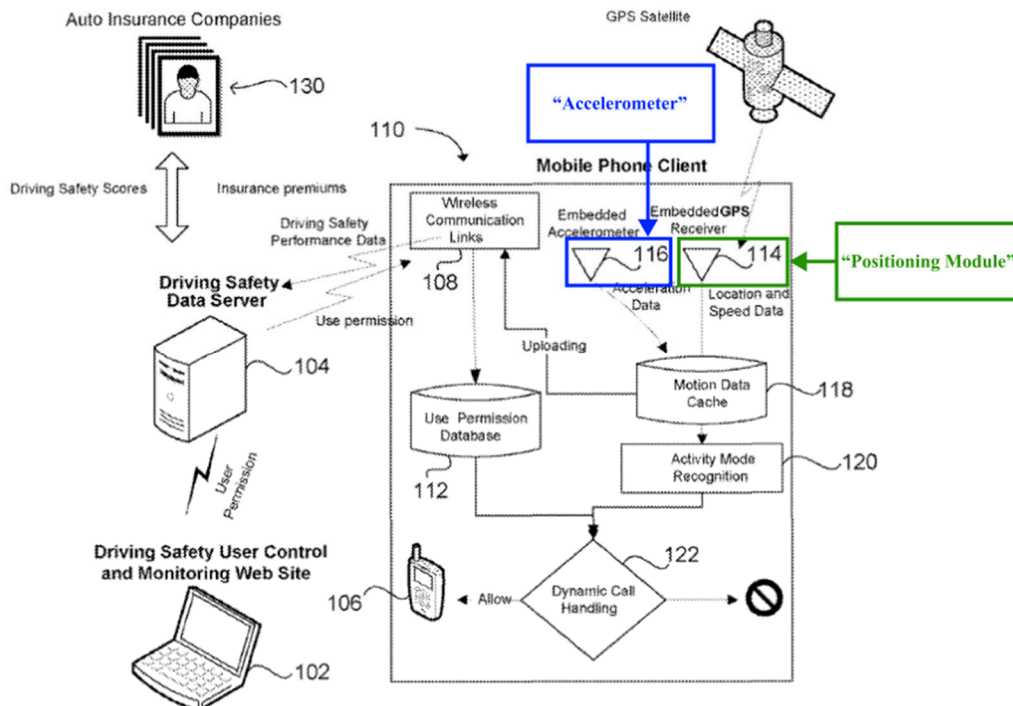
USAA-1005, Fig. 1 (annotated)

Curry further describes a client application 110 that can be downloaded “from the server 104 to the mobile phone 106,” and that enables a phone to determine, based on user inputs and “location, speed, and acceleration data from” embedded “GPS sensor 114 and accelerometer 116,” whether a vehicle within

which the phone is located is being driven. USAA-1005, 7:20-8:33. Client 110 additionally enables the phone to process “raw data” from a driving period to derive information associated with a user’s driving behavior (“***log driving activity associated with a vehicle***”), and to use the derived information to generate a “driving safety score” for the user. USAA-1005, Abstract, 6:5-7:2, 7:29-9:26, 12:27-33; USAA-1003, ¶108.

[1.2]

The Curry-Rabu phone features embedded sensors (“***a sensor set***”), including accelerometer 116 (“***accelerometer***”) and GPS receiver 114 (“***positioning module***”). USAA-1003, ¶109; USAA-1005, 2:2-15, 6:24-7:2, 7:30-8:3, 9:16-26, 10:15-25, 11:23-27, Fig. 1; USAA-1079, 2-3; USAA-1080, 87, 88, 108; *see also* USAA-1013, 3:11-28, 4:15-58, Figs. 1, 4.



Curry, Fig. 1 (annotated)

Data from Curry-Rabu phone's sensors and driving information derived from that data is used, for example, to "monitor driving safety performance," to "prevent unsafe driving behaviors," and to "generate driving score[s]." USAA-1005, 6:5-7:2; USAA-1003, ¶110.

[1.3]

The Curry-Rabu phone features a "graphical *user interface*" (USAA-1005, 7:20-27, 8:5-18, 20:15-17) configured to display data (*id.*, 21:23-25) and to enable user interactions. Curry describes various examples of UI-enabled user interactions including receiving a phone call while driving, and manually switching activity modes. USAA-1005, 7:5-27, 8:5-27, 9:5-26, 10:15-26, 12:20-26, 15:7-22,

20:23-25; USAA-1003, ¶¶111-115; *supra* [1.1]; (§III.A.1(c)).

[1.4]

The Curry-Rabu phone's processes may be "implemented in software for execution by various types of processors." USAA-1005, 6:3-10. For example, "[a] user can download...required software...to the mobile phone [] to set up the client unit [110]," and "client 110 can record location, speed and acceleration data from [embedded] sensors...to a local motion data cache 118 for further processing." USAA-1005, 3:24-26, 8:20-27. Based on data stored in a "local" cache within the phone "for further processing," and other references to "mobile computing," a POSITA would have considered the existence of a processor within the same phone to have been implicitly disclosed, and if not, obvious. USAA-1005, 8:20-27, Fig. 1; USAA-1015, 237-250. USAA-1003, ¶¶116-119; USAA-1005, 2:22-27, 6:3-10; USAA-1015, 4; USAA-1079, 2-8; USAA-1013, 3:11-28, 4:15-20, 5:3-14, Figs. 1, 4; USAA-1016, ¶¶[0046]-[0063], FIG. 3.

[1.5]

A POSITA would have understood and found obvious that the Curry-Rabu phone 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....” USAA-1003, ¶120;
USAA-1005, 6:3-10; USAA-1015, 4.

For instance, the “iPhone 3G” described by Curry as an exemplary mobile phone including GPS and accelerometer sensors, further included flash memory for internal storage. USAA-1005, 2:22-27; USAA-1079, 1-2; *see also* USAA-1013, 3:11-28, 4:15-20, 5:15-33, Figs. 1, 4; USAA-1016, ¶¶[0046]-[0063], FIG. 3; USAA-1003, ¶121.

Moreover, Curry expressly describes that “[a] user can download...required software...to the mobile phone 106 to set up the client unit [110] on the phone,” and that “the mobile phone client 110 can record location, speed and acceleration data from sensors embedded in the wireless device...to a local motion data cache 118 for further processing.” USAA-1005, 3:24-26, 8:20-27. A POSITA 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. USAA-1003, ¶122; USAA-1005, 3:24-26, 8:20-27, Fig. 1; USAA-1015, 233-250, 606, 614, 622.

Curry additionally describes “further processing” of data stored in cache 118 by a “user activity mode recognition program 120,” the transmission of “activity mode estimation results” from mobile phone 106 to a driver safety data server, and the display through “an interactive website” of derived driving behavior

information including “possible violations of mobile phone use or unsafe driving behavior.” USAA-1005, 8:29-9:28. From this and related description, a POSITA would have understood and found obvious that driving behavior information derived from sensor data is stored locally in a memory on the Curry-Rabu phone prior to its later transmission and display. USAA-1003, ¶123; USAA-1005, 7:5-22, 8:29-9:28, 13:20-16:6, Fig. 3.

[1.6]

As explained in §III.A.1(c), a POSITA would have configured the Curry-Rabu phone to determine, based on user inputs and orientation and motion data from an accelerometer, a start of a driving period during which the phone is removably attached to the vehicle via a docking station and the vehicle is in use. USAA-1003, ¶127; USAA-1005, Abstract, 2:3-3:28, 10:15-11:14, 13:20-16:33, 17:30-18:7, Figs. 1, 3, 4, 6; USAA-1013, 3:1-10, 4:21-33, 8:13-10:42, Figs. 1, 4-5, 7-8. Curry-Rabu thereby meets each of the requirements imposed by [1.6] (discussed in §I.C) in multiple ways.

For example, the limitation is first met by a configuration of the Curry-Rabu phone in which the phone uses orientation and motion data from its accelerometer to determine both vehicle motion and phone docking status upon, e.g., a user accepting a phone call while driving (i.e., concurrent use of orientation data and user input data). USAA-1003, ¶128.

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; in each instance, and as above described, Rabu would have motivated a POSITA 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. USAA-1003, ¶129; USAA-1013, 3:1-10, 4:21-33, 8:13-10:42, 15:7-22, Figs. 1, 4-5, 7-8.

As shown in Figure 1 (below), client 110 enables a phone 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. USAA-1005, 7:5-22, 9:5-11, 8:30-9:33, 16:7-22; *see also* USAA-1005, 13:20-14:26, FIG. 3; USAA-1003, ¶130. Client 110 also processes "raw data" from a driving period to derive driving behavior information, including whether the phone is unsafely used during the driving period, and whether the user engages in other unsafe behaviors such as speeding. USAA-1005, 7:5-22, 9:5-11, 8:30-9:33, 16:7-22; USAA-1003, ¶130.

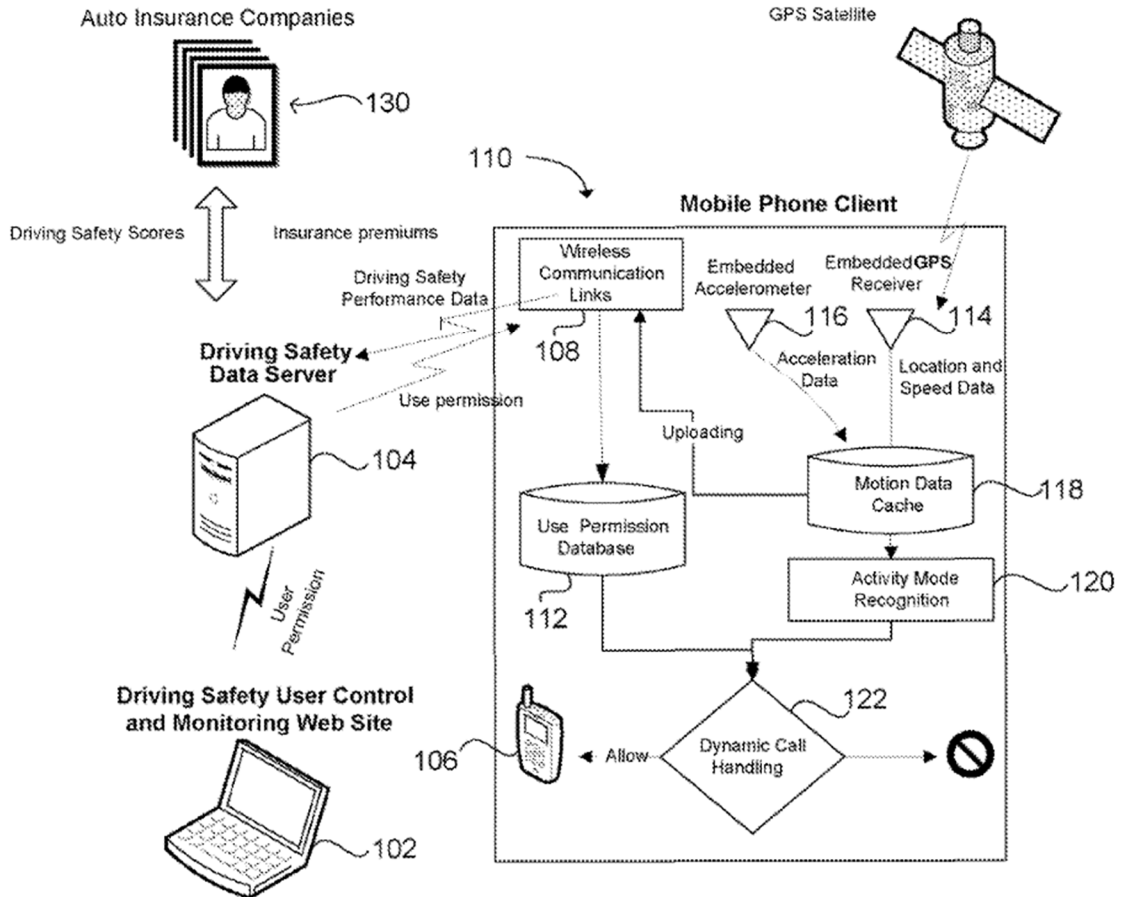


FIG. 1

USAA-1005, Fig. 1

As another example, in connection with Curry's Fig. 4 (below), Curry describes determining the start of a driving period based on a combination of user inputs received in relation to a call or text and motion data from the phone's sensor set. USAA-1005, 16:7-22. "Right after an incoming phone [call] or text message is received or an outgoing phone call is made" (i.e., right after receipt of user inputs), "the GPS sensor and accelerometer...start to record a motion time series... to determine the type of the current activity," so as to allow identification of "risky

behaviors of" talking or texting while driving and adjustment of driving score.

USAA-1005, 16:7-22; USAA-1003, ¶131.

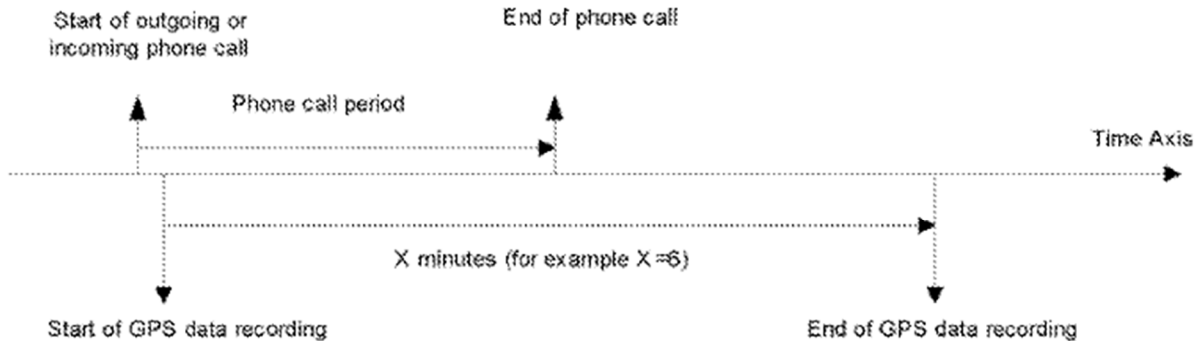


FIG. 4

USAA-1005, Fig. 4

As explained in §III.A.1(c), the POSITA would have found obvious that extending these and other teachings of Curry to further leverage orientation data from the phone's embedded accelerometer to determine a start of a driving period during which the phone is removably attached to the moving vehicle via a docking station, would enable the phone to differentiate instances in which the phone is hand-held during a driving period from those in which the phone is instead removably attached to the vehicle during the driving period. USAA-1003, ¶132; USAA-1005, 15:14-17; USAA-1013, 1:36-52, 6:49-7:6. As noted, that capacity for differentiation would in turn have enabled the enhanced Curry-Rabu phone to make corresponding adjustments to phone access restrictions associated with the phone's operating modes, to determinations of user driving behaviors, and to

generation of user driving scores, with multiple additional advantages flowing therefrom. USAA-1003, ¶132; USAA-1005, 10:15-11:14, 13:20-16:22, 17:30-18:7, Figs. 3, 4, 6; USAA-1013, 5:61-6:21, 6:39-43, 8:1-4; Figs. 3, 4, 5-8.

Accordingly, the POSITA would have configured the Curry-Rabu phone to determine a start of a driving period during which the phone is docked while the vehicle is being driven. USAA-1003, ¶133; USAA-1005, Abstract, 2:3-3:28, 10:15-11:14, 13:20-16:33, 17:30-18:7, Figs. 1, 3, 4, 6; USAA-1013, 3:1-10, 4:21-33, 8:13-10:42, Figs. 1, 4-5, 7-8.

[1.7]

The Curry-Rabu phone processes sensor data (e.g., motion and orientation data) recorded by its embedded sensors (e.g., accelerometer 116) during the driving period to derive “driving behavior” information, e.g., “talking...or texting...while driving” and “speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns.” USAA-1003, ¶¶134-135; USAA-1005, 7:13-29, 8:21-27, 8:30-9:33, 10:15-26, 11:3-17.

In Fig. 1, client 110 further enables a phone to process the derived driving information to generate “driving safety performance data” for the user, including a “driving safety score” that can be wirelessly communicated to third parties such as auto insurance companies. USAA-1003, ¶136; USAA-1005, Abstract, 3:1-3:6, 7:13-17, 8:29-10:12, 11:3-17, 13:27-33.

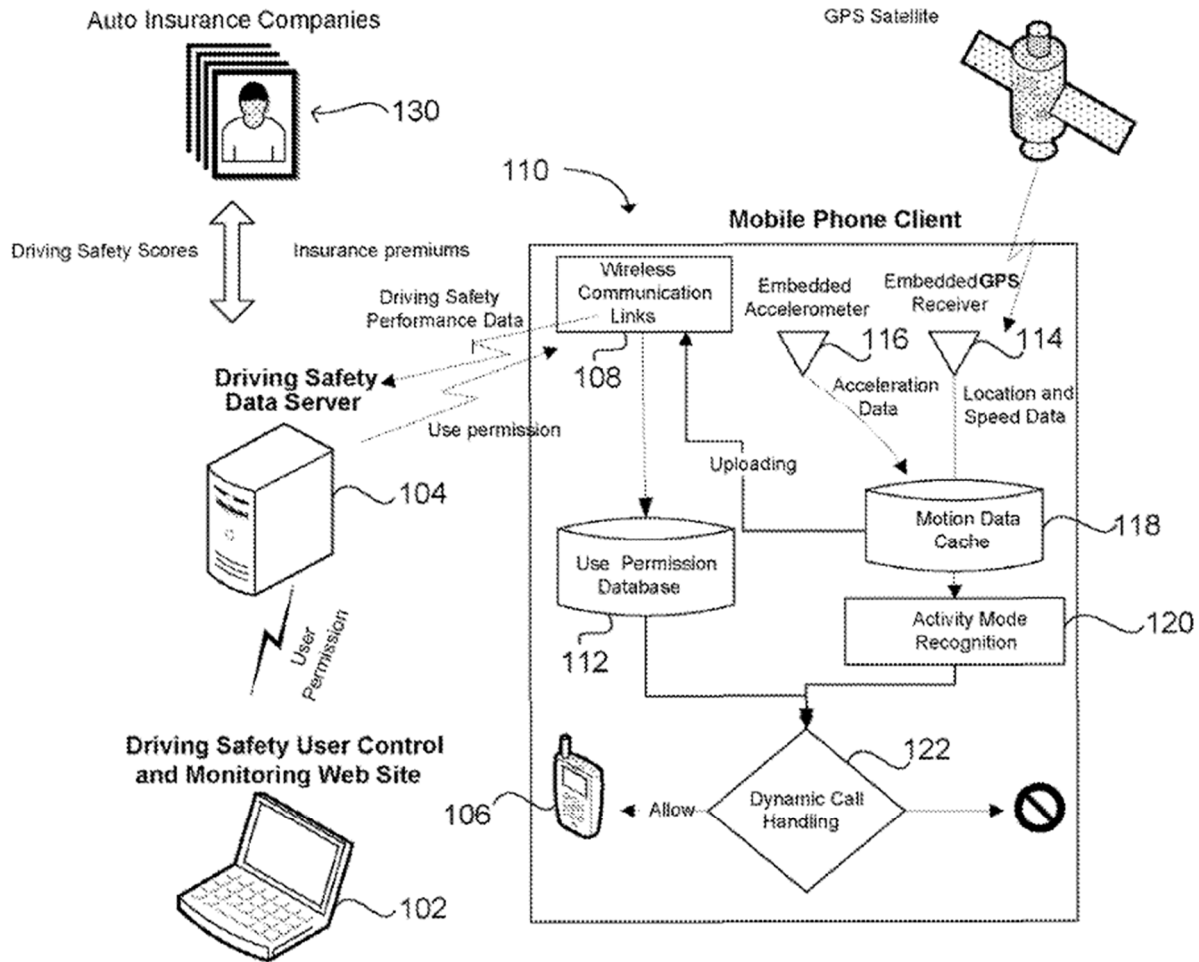


FIG. 1

USAA-1005, Fig. 1

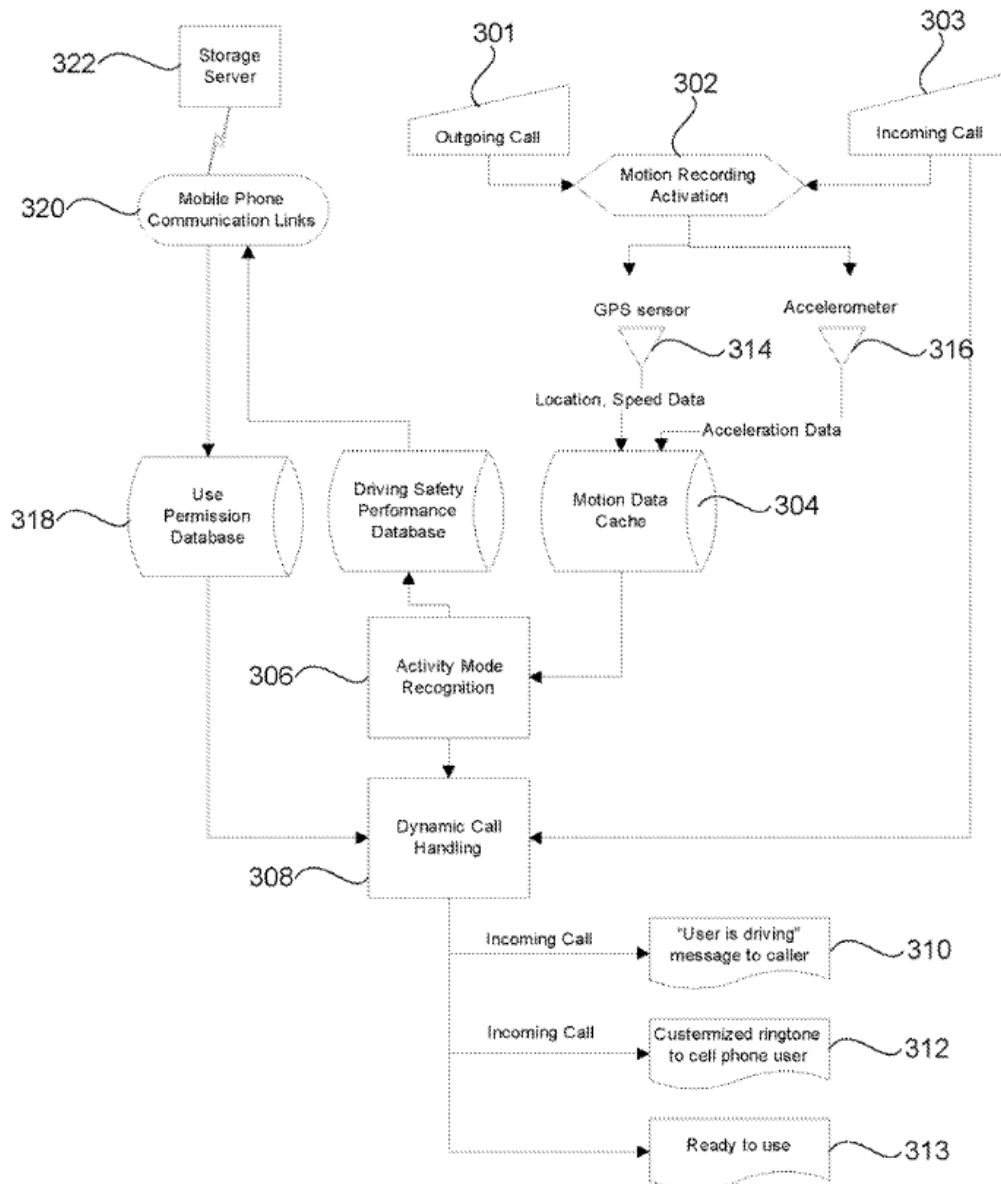
Curry explains, for example, that “[w]hen a call is made or received using...mobile phone 106, the mobile phone client 110 can record location, speed and acceleration data from [embedded] sensors...to a local motion data cache 118 for further processing.” USAA-1005, 8:29-9:1. “The local data cache can be used to store raw data for an extended...period of time in order to provide sufficient information for a user activity mode recognition program 120,” which “estimates

the context of mobile phone use”; “[f]or example...driving, walking or remaining still.” USAA-1005, 9:1-11. “Through mobile phone communication links, motion data and activity mode estimation results of a user of the mobile phone 106 can be transmitted to the driving safety data server 104, and further displayed through an interactive user control website to enable visualization of possible violations of mobile phone use or unsafe driving behavior such as speeding, abnormal deceleration and sharp turns.” USAA-1005, 9:22-28; USAA-1003, ¶137.

A POSITA would have understood and found obvious that client application 110 causes the Curry–Rabu phone to process sensor data from 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*), and to store a selection of that driving information to local memory (e.g., motion data cache 118 and/or another local memory accessed by activity mode recognition module 120 and/or wireless communication links 108) prior to its transmission to the driving safety data server 104. USAA-1003, ¶138; USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Figs. 1, 3; USAA-1015, 233-250.

With Fig. 3, Curry explains that “[e]ach motion measurement” is associated “with a timestamp” and stored “in a local motion data cache 304 for each pre-specified sampling interval.” USAA-1005, 13:27-31. An “activity mode recognition module 306” uses the “recorded time stamped data to estimate the type

of activity” (e.g., “driving, walking, running or remaining substantially still”) “*in real-time*,” both “to allow or disallow users to receive or make a call, text...or use...software programs,” and to derive driving information that is stored in local memory. USAA-1005, 13:20-14:26, Fig. 3; USAA-1003, ¶139.



USAA-1005, Fig. 3

For example, data from cache 304 and module 306 signaling whether the mobile phone is “available for use” and/or “traveling at a high rate of speed” can be stored in the mobile phone’s “local driving safety performance database 324,” and can be transmitted to an “outside storage server 322” through “mobile phone communication links 320.” USAA-1005, 10:3-14, 12:31-13:26; USAA-1003, ¶140.

From this and related description, a POSITA would have found obvious processing sensor data during the driving period to derive “possible violations of mobile phone use or unsafe driving behavior[.]” USAA-1005, 7:5-22, 8:29-10:12, 11:3-14, 13:20-16:6, Figs. 1, 3; USAA-1015, 233-250; USAA-1003, ¶141.

[1.8]

The Curry-Rabu phone stores a selection of driving information derived from processed sensor data to local memory (e.g., motion data cache 118) prior to transmission (e.g., to driving safety data server 104). USAA-1003, ¶142; USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Figs. 1, 3; USAA-1015, 233-250. From Curry, a POSITA would have found it obvious to store all or a subset of the derived driving information in the memory of the Curry-Rabu phone, and thus, to store a selection of the driving information to the memory. USAA-1003, ¶142. Notably, 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.

Still, to the extent that this limitation is narrowly interpreted, a POSITA would have found obvious to store in the Curry-Rabu phone a subset of (i.e., selection of) the recorded sensor data and derived driving behavior information since, e.g., 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). USAA-1003, ¶142. USAA-1005, 3:24-4:6, 7:5-22, 8:29-10:12, 13:20-16:6, Fig. 1; USAA-1015, 233-250. A POSITA would have also recognized a variety of entities to which recorded data is relevant and thereby found obvious to implement Curry-Rabu to store specific aspects of recorded situation data unique to a particular entity. USAA-1005, 4:8-11; USAA-1003, ¶143.

A POSITA would have also found obvious that data stored in local memory includes “a selection of the driving information,” at least insofar as Curry describes driving information as being derived from timestamped motion data associated with pre-specified sampling intervals, and further describes the potential to mark activity estimation results for a given interval for further processing at later times. USAA-1003, ¶144; USAA-1005, Abstract, 2:1-27, 3:24-4:6, 4:7-11, 7:5-22, 8:29-

10:12, 11:3-14, 12:29-16:6, Figs. 1, 3.

[1.9]

As discussed for [1.7], the Curry-Rabu phone processes sensor data during a driving period to derive driving information. USAA-1003, ¶145; USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Fig. 1. Curry also describes “a driving safety monitoring program on a mobile phone client” including an “activity mode recognition module 306” that processes “recorded time stamped” data from the mobile phone’s sensor set during a determined driving period to derive driving information. USAA-1005, 13:20-14:26; USAA-1003, ¶145.

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. USAA-1003, ¶146; USAA-1005, Abstract, 2:1-27, 3:24-4:11, 7:5-22, 8:29-10:12, 13:20-16:6, Figs. 1, 3. In those disclosures, Curry never once describes or suggests leveraging the vehicle’s sensors. *Id.* To this point, a POSITA would have understood and found obvious from Curry that vehicle sensor data is not necessary to derive driving information as Curry instead discloses leveraging sensors, processors, and memory found in the Curry-Rabu phone to derive the driving information. USAA-1005, 11:15-25; USAA-1013, 1:36-2:14; USAA-1003, ¶147. This remains true

even if a POSITA were to consider Curry's disclosure to be open-ended given other disclosures relating to other types of data distinct from the recorded sensor data. *Compare* USAA-1005, 15:24-32 *with* USAA-1005, 8:29-10:12, 13:20-14:26, Figs. 1, 3; USAA-1003, ¶148.

[1.10]

Curry's Fig. 1 (reproduced below), illustrates a driving safety data server 104 in wireless communication with a "mobile phone"; a client application 110, which can be downloaded from server 104 to the phone (*downloaded application*) enables the phone to process sensor data from a driving period to derive information associated with a user's driving behavior, including whether the phone is being used while driving, and whether the user engages in behaviors such as "speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns." USAA-1005, 6:5-29, 8:5-11, 7:21-8:33; USAA-1003, ¶149.

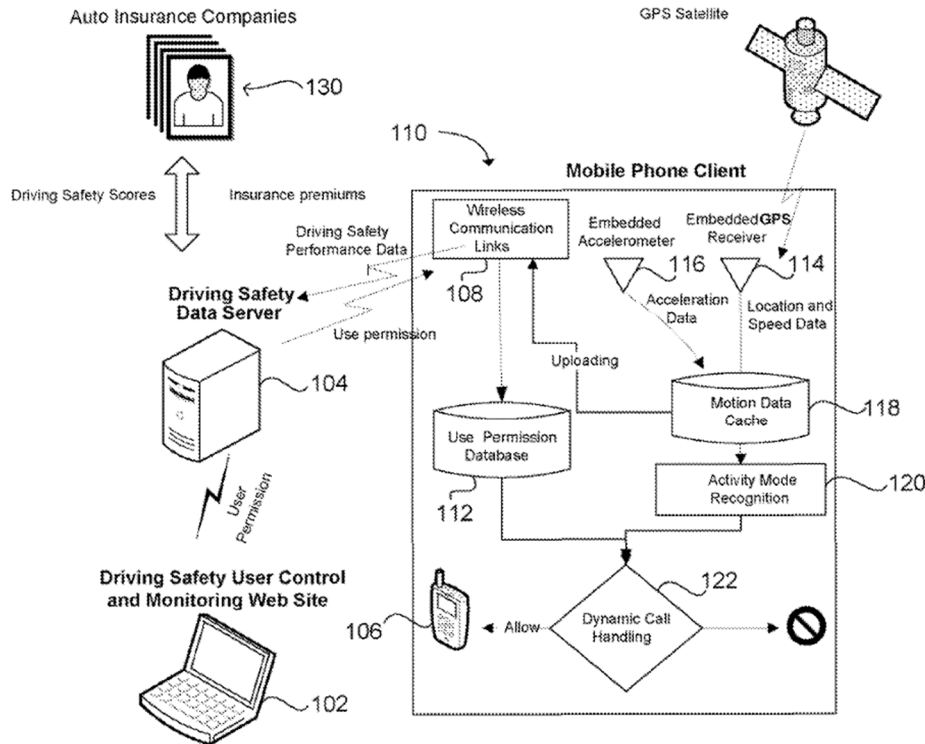


FIG. 1

USAA-1005, Fig. 1

Derived driving behavior information is stored in the phone, and client 110 processes the stored information both to determine a mode within which the phone should operate, and to generate a “driving safety score” for the user that can be wirelessly communicated to third parties (*control the mobile device to process the driving information to generate a driving score associated with a particular driver*). USAA-1005, Abstract, 2:1-3:6, 6:5-22, 7:29-11:18, 12:3-19, 12:27-13:26, 15:13-18, 16:1-17:4, 10:7-10 (“the activity mode recognition module can...determine the context of a phone call...and adjust the related safety score for the user if a violation is identified”), Figs. 1, 3, 4, 6; USAA-1003, ¶150.

Curry, for example, describes calculating driving safety scores based on driving behavior information derived from sensor data, including “unsafe behaviors of talking-while-driving and texting-while-driving,” which are “associated with different point penalties.” USAA-1005, 12:3-19. The resulting safety scores can be used, for example, “by consumers and insurance agencies to determine insurance premiums for related drivers.” USAA-1005, 6:5-22; USAA-1003, ¶151. In at least this way, Curry-Rabu renders obvious [1.10]. USAA-1003, ¶151.

3. Claim 21, 46, 51, 54

Curry-Rabu renders these claims obvious in the same manner as explained above for the corresponding claim 1 limitations listed in the table below. USAA-1003, ¶152.

Claim 1 Limitation	Corresponding Limitations
[1.1] ⁶	[21.1], [46.1], [51.1], [54.1]
[1.2]	[21.3], [46.2], [51.3], [54.2]
[1.3]	[46.3], [54.3]
[1.4]	[21.4], [46.4], [51.4], [54.4]
[1.5]	[21.5], [46.5], [51.5], [54.5]
[1.6] ⁷	[21.6], [46.6], [51.6], [54.6]
[1.7]	[21.7], [46.7], [51.7], [54.7]
[1.8]	[21.8], [46.8], [51.8], [54.8]
[1.9]	[21.10], [46.9], [51.10], [54.9]
[1.10]	[21.9], [46.12], [51.9], [54.10]

[21.1]/[51.1]

As discussed for [1.5], the Curry-Rabu phone includes a memory that stores both data and programs and provides a mechanism for transferring data. USAA-

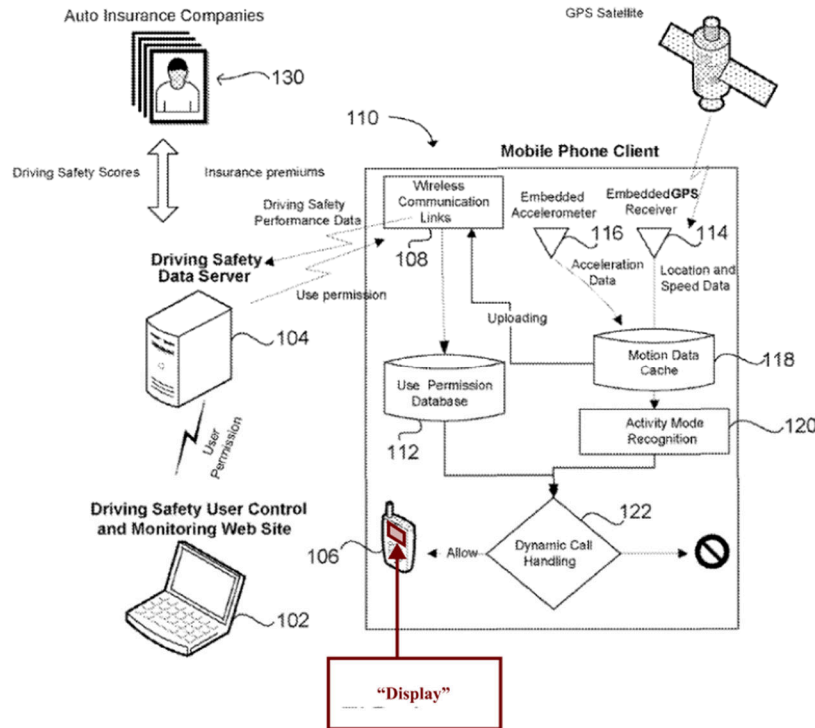
⁶ Preambles [1.1] and [54.1] describe a “mobile telecommunications device,” while preambles [21.1] and [51.1] describe a “non-transitory computer readable medium.” While none of the preambles are limiting, the Curry-Rabu combination renders them obvious, as discussed in Sections III.A.2 ([1.1], [54.1]) and III.A.3 ([21.1], [51.1]). USAA-1003, ¶152.

⁷ Limitation [54.6] differs from limitation [1.6] by a single word (“affixed” in [54.6] compared to “attached” in [1.6]). The ’879 patent specification does not distinguish the two terms “affix” versus “attach.” USAA-1003, ¶152.

1005, 6:3-10. Curry also describes that “[a] user can download...required software...to the mobile phone 106 to set up the client unit [110] on the phone,” thereby rendering obvious that the local memory is a “*non-transitory computer readable medium having instructions comprising a software application stored thereon.*” USAA-1005, 2:22-27; USAA-1003, ¶153. Curry further describes various examples of executable code, such as “[m]odules [that] may also be implemented in software for execution by various types of processors.” USAA-1005, 7:3-20.

[21.2a]/[51.2a]

See [1.3], *supra*. A POSITA would have understood that the Curry-Rabu phone includes a display (“*display*”) through which a user interacts with client 110, as shown below. USAA-1005, 8:5-18; USAA-1003, ¶154.



USAA-1005, Fig. 1 (annotated)

[21.2b]/[51.2b]

As discussed for [1.3] and [21.2a], the Curry-Rabu phone features a graphical *user interface*.” USAA-1005, 8:20-27, 9:5-18, 21:15-17. Further, a POSITA would have understood that the Curry-Rabu phone includes a display (“*display*”) through which a user interacts with client 110. *Id.*, 9:5-18. Further, since the graphical user interface enables user interaction, a POSITA would have found it obvious that the Curry-Rabu phone “*present[s]*” the graphical user interface on the display. *Id.*, 8:5-27, 9:5-27, 10:5-26, 11:15-26, 13:20-26, 16:7-22, 21:23-25; USAA-1003, ¶155.

[46.10]

The Curry-Rabu phone collects accelerometer data, which a POSITA would have understood includes a magnitude of acceleration (“***vehicle acceleration events***”) and a magnitude of deceleration (“***vehicle braking events***”). Curry describes that information from GPS and accelerometer sensors are combined to “precisely identify the type of activity.” USAA-1005, 17:1-23. Acceleration measurements are processed to calculate “the magnitude of acceleration/deceleration,” which is then used to select an activity mode from “walking, running, driving, and stationary.” *Id.*; USAA-1003, ¶156; *see id.*, cl. 19 (“abnormal acceleration, abnormal deceleration”).

[46.11]/[51.11]

Sensor data collected by the Curry-Rabu phone (including acceleration data) is processed relative to threshold acceleration values (“***predefined threshold values***”). As discussed for [46.10], accelerometer data indicates a magnitude of acceleration and a magnitude of deceleration (“***events***”). USAA-1005, 17:1-23. These measurements are used to identify an activity mode (e.g., “walking, running, driving, and stationary”) associated with the phone. *Id.* Because this technique involves analyzing measured values within a numerical range to identify one of three discrete modes, a POSITA would have understood and/or found obvious that the technique involves one or more threshold acceleration values (which are used

for classification). *See, id.*, 3:24-4:6, cl. 19; USAA-1003, ¶157.

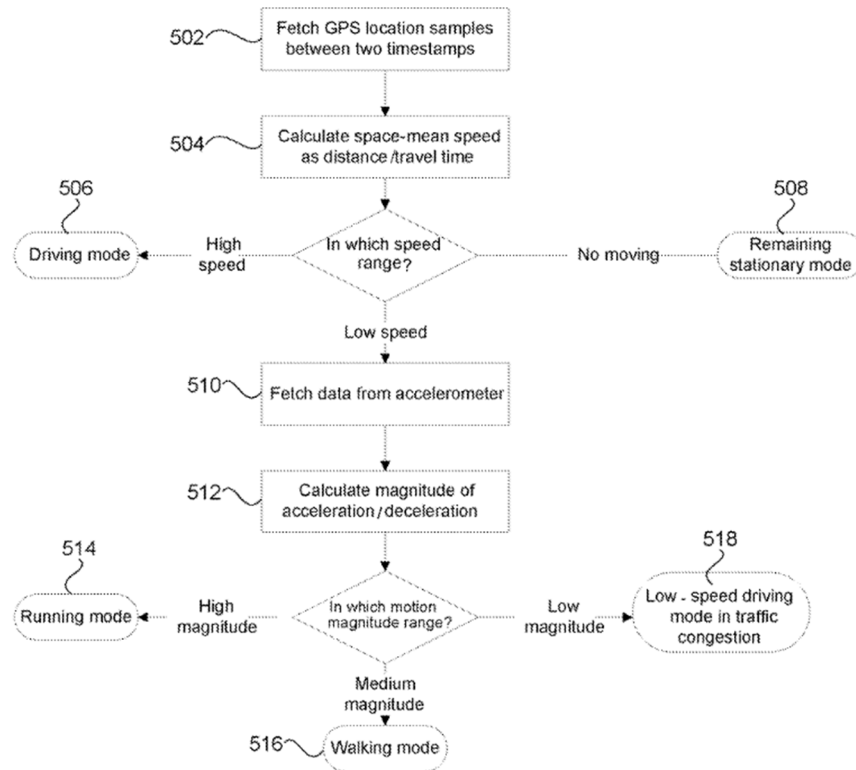


FIG. 5

USAA-1005, Fig. 5

4. Claims 2, 3, 5, 6, 8, 11-13, 19, 20, 41, 42

[2]

This claim recites generic language and Curry therefore satisfies it in various ways. For example, sensor data collected by the Curry-Rabu phone is used to identify unsafe driving behaviors (“*detect occurrence of a predetermined event*”) and then transmit driver safety information to server 104 (“*take at least one predetermined action*”). USAA-1005, 10:15-25. As another example, the Curry-

Rab phone determines that a context associated with driver safety information indicates that a driver is talking or texting while driving (“*detect occurrence of a predetermined event*”) and then adjusts a safety score for the driver based on the detected activity (“*take at least one predetermined action*”). *Id.*, 10:3-14; USAA-1003, ¶¶158-159.

[3]

As discussed for [1.1] and [1.5], data collected by embedded sensors of the Curry-Rabu phone is stored in motion data cache 118 (“*storing driving information associated with that event to the memory*”), which a POSITA would have understood is one example of a predetermined action performed based on detecting unsafe driving activity or determining that a driver is talking or texting while driving. USAA-1005, 3:24-6:6, 8:30-9:3; USAA-1003, ¶160.

[5]

As discussed for [2], the Curry-Rabu phone can determine that a driver is talking or texting while driving (“*detect occurrence of a predetermined event*”). USAA-1005, 11:15-25. The phone can upload driver safety information stored in motion data cache 118 to server 105 for additional processing via wireless connection 108 (“*transmitting driving information via a wireless telecommunication module of the mobile telecommunication device to a remote system*”). USAA-1005, 8:21-27, 9:23-28; USAA-1003, ¶161.

[6.1]

As discussed for [2], the Curry-Rabu phone can determine that a driver is talking or texting while driving (“***detect occurrence of a predetermined event***”). USAA-1005, 11:15-25. Upon detecting an incoming call, the phone provides options to a driver when in driving mode, including playing different ringtones (“***providing feedback to a use to indicate that an event has occurred***”). USAA-1005, 14:5-16; USAA-1003, ¶162.

[6.2]

As discussed for [2], the Curry-Rabu phone can determine that a driver is talking or texting while driving (“***detect occurrence of a predetermined event***”). USAA-1005, 11:15-25. The phone then provides options to a driver and subsequently receives user input relating to one of the options (“***receive a user interaction to confirm or deny whether the detected event has actually occurred following said feedback***”). USAA-1005, 14:5-16; USAA-1003, ¶163.

[8.1]

As discussed for [5], the Curry-Rabu phone determines that driver safety information represents a potential unsafe driving behavior (“***event***”) and in response, transmits the driver safety information to server 104 (“***communicating to a remote system that an event has been detected***”). USAA-1005, 8:21-27, 9:23-28, 11:15-25, USAA-1003, ¶164.

[8.2]

A POSITA would have found it obvious that the Curry-Rabu phone receives a request from server 104 to transmit monitored information (“***request to transmit to the remote system selected portions of the driving information associated with the detected event***”). USAA-1003, ¶¶165-166; USAA-1005, 3:2-15. Further, “[c]ommunication protocols between a mobile device and a server were well-known the Critical Date” and “[t]he specific configuration of these communication protocols was also an obvious design choice by the Critical Date because systemsthat enabled various types of communication between devices were well-known by the Critical Date.” USAA-1003, ¶165 (citing USAA-1041, 11).

[11]

As discussed for [6.1], the Curry-Rabu phone is controlled by client 110 (“***the device is controlled by the downloaded application***”) and outputs different ringtones when the phone is in driving mode, which is one example of “***manag[ing] voice-calls incoming to the mobile telecommunications device during a driving period.***” USAA-1005, 14:5-16; USAA-1003, ¶167. As another example, a POSITA would have understood that the Curry-Rabu phone includes “dynamic call handling module 308,” which provides call management functionality, such as “determin[ing] if the [phone] is allowed to function based on use permission data 318.” USAA-1005, 14:5-16.

[12]

As discussed for [6.1] and [11], the Curry-Rabu phone is controlled by client 110 (“*the device is controlled by the downloaded application*”) and placed in driving mode. USAA-1005, 14:5-16; USAA-1003, ¶168. A POSITA would have understood that the driving mode is an example of “*hands-free mode of operation*” since Curry teaches that it can be used to “disable the [phone] from making or receiving calls...” USAA-1005, 4:16-28. A POSITA would have recognized that, in the context of vehicle monitoring, a hands-free mode refers to preventing use of a mobile device by a driver while driving, which the Curry accomplishes through placing the phone in a driving mode and preventing the receipt of incoming calls. USAA-1003, ¶¶168-169. The Curry-Rabu can be placed in a driving mode “when it is identified that the user is driving based on the information from the accelerometer and GPS receiver.” USAA-1005, 4:16-28. The Curry-Rabu phone is placed in the driving mode “*on detection of*” a vehicle being monitored while in motion (“*driving period*”). USAA-1003, ¶168.

[13]

As discussed for [12], the Curry-Rabu phone includes a dynamic call handling module to place the phone in a driving mode. USAA-1005, 14:5-28. A POSITA would have configured the Curry-Rabu phone to “*enable[e] voice-activated commands*” since the phone encompasses “any type of electronic mobile

computing device that may be used while traveling in a vehicle.” USAA-1003, ¶170; USAA-1005, 7:23-29. Curry also references the Apple iPhone 3G smartphone, which a POSITA would have understood is an example of a phone that is configured to enable voice-activated commands. USAA-1005, 2:22-27; USAA-1003, ¶170 (citing USAA-1034, 55-56).

[19]

A POSITA would have understood and/or found obvious that the Curry-Rabu phone includes a device battery (“*power supply*”) given Curry’s non-limiting disclosure of the phone encompassing “any type of electronic mobile computing device that may be used while traveling in a vehicle.” USAA-1003, ¶171; USAA-1005, 7:23-29. Curry also references the Apple iPhone 3G smartphone, which a POSITA would have understood is an example of phone that includes a battery. USAA-1005, 2:22-27; USAA-1003, ¶171 (citing USAA-1039, 2).

[20]

A POSITA would have understood and/or found obvious that the Curry-Rabu is “*a smartphone*”) given Curry’s non-limiting disclosure of a phone encompassing “any type of electronic mobile computing device that may be used while traveling in a vehicle.” USAA-1003, ¶172; USAA-1005, 7:23-29. Curry also recognizes that “the next generation of mobile phones” includes “cell phones, smart phones,” further reinforcing that the phone can also be implemented as a

smartphone. USAA-1005, 2:22-27.

[41]

As discussed for [46.10], *supra*, the Curry-Rabu phone collects accelerometer data, which a POSITA would have understood includes both a magnitude of acceleration (“*vehicle acceleration events*”) and a magnitude of deceleration (“*vehicle braking events*”). USAA-1005, 17:1-23, cl. 19; USAA-1003, ¶173.

[42]

A POSITA would have found it obvious that the Curry-Rabu phone is configured to detect sharp turns (“*vehicle swerving events*”) since Curry teaches that “[t]he driver safety statistic can also be decreased based on driving behavior, such as...taking sharp turns.” USAA-1005, 3:24-6:6, cl. 19; USAA-1003, ¶174. Further, “[a] POSITA would have also understood that detection of vehicle swerving events using accelerometer data was well-known by the Critical Date.” USAA-1003, ¶174 (citing USAA-1014, [0027]-[0036]; USAA-1015, [0035], [0202]-[0205]; USAA-1016, [0075]).

Moreover, sensor data collected by the Curry-Rabu phone (including acceleration data) is processed relative to threshold values (“*preset parameters*”). USAA-1005, 3:24-4:6, 17:1-23, cl. 19; USAA-1003, ¶175. Further, “[a] POSITA would have understood that techniques for detecting abnormal turns based on

preset parameters were well-known by the Critical Date.” USAA-1003, ¶175
(citing USAA-1029, USAA-1045, [00019], [00184], [00195]).

5. Additional Claims

These claims are obvious in the same manner as explained above for the corresponding claims listed in the table below. USAA-1003, ¶176.

Claim Limitation	Corresponding Limitations
[2]	[22]
[3]	[23]
[5]	[25]
[8.1]-[8.2]	[28.1]-[28.2]
[11]	[29]
[12]	[30]
[13]	[31]
[19]	[39]
[20]	[40]
[42]	[44], [47], [49], [52]
[41] ⁸	[43], [48]

⁸ Claims 43 and 48 require determinations of “both” “vehicle acceleration events” and “vehicle braking events,” while claim 41 requires determinations of “at least one of” these features. As explained for [41], the Curry-Rabu combination renders the narrower requirements of claims 43 and 48 obvious. USAA-1003, ¶176.

B. [GROUND 1B] – Curry-Rabu-Tamir Renders Claims 4 and 24 Obvious

1. Curry-Rabu-Tamir Combination

(a) *Tamir*

Tamir is a U.S. patent focused on a traffic information system that evaluates driver behavior in a vehicle. USAA-1006, Abstract. It discloses a data collection technique in which “samples are collected at a dynamically adjusted rate[,]” by determining sampling rate “according to the location of the driving...” *Id.*, 9:10-20. For example, data collection can involve “accumulating more samples at areas where there are many accidents or near intersections.” *Id.* The sampling rate can also be adjusted according to “the time of day, date, and/or external conditions, such as weather conditions,” and “the driving behavior of the vehicle,” e.g., “increasing the sampling rate when reckless driving is identified.” *Id.*; *see id.*, 20:52-21:11; USAA-1003, ¶72.

(b) *Proposed Combination*

Curry describes 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-specific sampling interval.” USAA-1005, 13:27-33. Thus, while Curry contemplates sampling intervals for motion recording process, it does not specifically address the sampling rates used for recording. A POSITA looking to implement Curry’s motion recording process would have therefore

looked to well-known data collection techniques the types of motion data collected by the Curry system (e.g., accelerometer data, position data). USAA-1003, ¶¶177-178.

In doing so, a POSITA would have recognized that it was well-known by the Critical Date to employ data collection techniques in vehicle monitoring systems with variable data sampling rates. USAA-1003, ¶179. As discussed in §III.B.1, Tamir discloses one example in which a sampling rate is adjusted based on conditions associated with data collection (e.g., location of driving, driving behavior). USAA-1006, 9:10-20, 20:52-21:11. A POSITA would have recognized that incorporating Tamir’s data collection technique into the Curry system would have improved Curry’s motion recording process by, for example, allowing “lower power consumption and less wear and tear of” phone 106, as taught in Tamir. USAA-1006, 20:52-21:2. Further, Dr. Michalson explains that “dynamic sampling rates were known to provide several advantages to data processing in vehicle monitoring systems, such as maintaining measurement precision, high adaptation to different driving conditions, and increased responsiveness.” USAA-1003, ¶179 (citing USAA-1017, 5:61-6:9, 9:3-7; USAA-1018, [0019]; USAA-1019, 5:1-3).

2. Claims 4, 24

[4]/[24]

As discussed in §III.B.1, the Curry-Rabu-Tamir combination would have

provided a vehicle monitoring system configured to use Tamir's data collection technique to improve Curry's motion recording process using variable sampling rates. USAA-1006, 9:10-20, 20:52-21:11. Tamir describes that "the sampling rate is adjusted according to the driving pattern of vehicle 15" and that "when it is determined that the driver is driving relatively daringly, a higher sampling rate is used." *Id.*, 20:52-21:2. Tamir also contemplates adjusting data collection "at special occasions, such as when an accident is possible." *Id.* A POSITA would have therefore understood and/or found it obvious that in scenarios in which phone 106 of the Curry-Rabu-Tamir combination detects an unsafe driving behavior ("*and event*"), a higher sampling rate is used for data collection relative to other scenarios ("*driving information captured at a higher sampling rate than when an event is not detected*"). USAA-1003, ¶180.

C. [GROUND 1C] – Curry-Rabu-Balachandran Renders Claims 6, 7, 16, 26, 27, and 34 Obvious

1. Curry-Rabu-Balachandran Combination

(a) Balachandran

Balachandran describes an emergency response technique focused on "enabling emergency call initiations in response to the detection of a vehicle accident." USAA-1007, Abstract. This involves an activation signal transmitted between vehicle sensors that detect an accident and a cellular telephone used for an emergency call. *Id.*, 1:34-47. The emergency call activation signal "activates a

timer for delaying initiation of an outgoing call to an emergency number, such as 911.” *Id.* Once the timer expires, the cellphone “initiates an emergency call setup to the mobile switching center servicing the telephone unit.” *Id.*, 1:48-67. Further, the cellphone can provide “[a]n audio or visual indication [that] notifies the passengers of activation [a] timer 35 and ceases with expiration or cutoff of the timer.” *Id.*, 2:46-63; USAA-1003, ¶73.

(b) *Proposed Combination*

While Curry contemplates emergency scenarios (e.g., accidents) may occur, it does not disclose specific embodiments focused on detecting an emergency or actions performed by phone 106 in response to a detected emergency. USAA-1005, 4:16-28, 10:16-26, cl. 9; USAA-1003, ¶¶181-182. Curry instead is primarily focused on detecting unsafe driver behaviors that may result in an emergency, such as “talking on or texting with mobile phones while driving.” USAA-1005, 7:5-22.

Yet Curry also provides a broader motivation towards “programs and initiatives to reduce traffic-related fatalities and injuries.” *Id.*, 2:9-21. And, it expresses a concern for “motorized vehicle accidents and deaths[,]” which it addresses by proposing techniques that “reduce potentially catastrophic accidents for which [a] company may be responsible.” *Id.*, 11:26-12:2. A POSITA would have therefore understood that emergency response techniques advance Curry’s overall motivation to reduce casualties resulting from vehicular accidents. USAA-

1003, ¶183.

Further, given the lack of specific embodiments directed to emergency response features within Curry, a POSITA looking to implement Curry would have looked to supplement its disclosure using emergency response techniques that were well-known by the Critical Date. USAA-1003, ¶184. As discussed in §III.C.1, Balachandran is one example disclosing a technique where emergency call is initiated by a cellphone in response to detection of a vehicle accident. USAA-1006, Abstract. A POSITA would have been motivated to modify Curry's phone 106 to perform Balachandran's emergency response technique and thereby enable phone 106 to prevent casualties resulting from a vehicle accident. USAA-1003, ¶184.

A POSITA would have performed this modification since Balachandran's emergency response technique would have advanced Curry's overall motivation to reduce casualties resulting from vehicular accidents. For example, the Curry-Balachandran combination would have enabled phone 106 to provide life-saving capabilities in scenarios where a vehicle accident occurs even though motion data recorded by phone 106 indicates safe driving behaviors (e.g., not texting or calling while driving). *Id.* Further, because Curry describes that phone 106 is capable of communicating and/or sharing safety evaluation data with other external systems (e.g., server 104, insurance company 130), a POSITA would have perceived

configuring phone 106 to incorporate the emergency response techniques described Balachandran as an implementation detail. USAA-1005, 9:23-10:12; USAA-1003, ¶185. A POSITA would have had a reasonable success in combining Curry and Balachandran without invention since “several vehicle monitoring systems by the Critical Date were similarly capable of providing emergency response techniques.” USAA-1003, ¶185 (citing USAA-1021, USAA-1022, USAA-1023).

2. Claims 6, 7, 16, 34

[6.1]

Balachandran describes sensors configured to detect an accident (“*event [that] has been detected*”). USAA-1007, 2:16-27, 4:5-21. Upon detecting an accident, cellphone initiates an emergency call after a timeout period. *Id.*, Abstract, 2:64-3:6. The cellphone provides “[a]n audio or visual indication [that] notifies the passengers of activation of [a] timer 35 and ceases with expiration or cutoff of the timer.” *Id.*, 2:46-63. The cellphone also “provides an audible indication” of “initiat[ing] [an] emergency call setup[.]” *Id.* Notifications relating to timer 35, such as audio or visual output, are used to indicate an accident has been detected (“*providing feedback to a user*”). USAA-1003, ¶186 (citing USAA-1005, 9:23-28).

A POSITA would have also found it obvious to configure the Curry-Rabu-Balachandran phone to provide visual notifications relating to accident detection

since the device provided by the combination already includes a touch screen (as discussed for [1.6]). USAA-1003, ¶187; USAA-1005, 8:5-18. Balachandran describes an interface 45 enabling a user to interact with a cellphone after detection of an accident and a POSITA would have recognized that touch screens were ubiquitous for enabling device-user interaction in mobile device-based accident systems by the Critical Date. USAA-1007, 2:64-3:6; USAA-1003, ¶¶188-189 (citing USAA-1008, 32-34⁹); *Id.*; USAA-1005, 8:5-18.

[6.2]

A POSITA would have found it obvious that such user interaction involves a user providing input relating to a detected accident (“*receive a user interaction to...deny whether the detected event has actually occurred following said feedback*”) since touch screens were ubiquitous for enabling device-user interaction in mobile device-based accident systems by the Critical Date. USAA-1003, ¶190. Further, Balachandran teaches that a cellphone provides a “*visual indication* [that] notifies the passengers of activation of timer” relating to a detected accident. USAA-1003, ¶190; USAA-1007, 2:46-63.

[7.1]

Thus, the Curry-Rabu-Balachandran phone would have notified a user that an emergency call has been scheduled (“*further action [that] has been*

⁹ Citations to USAA-1008 refer to page numbers identified in the document

scheduled”) after a time period specified by a timer (the action “*will be taken with a predetermined period*”). USAA-1003, ¶191; USAA-1005, 8:5-18.

[7.2]

As discussed for [6.2], the Curry-Rabu-Balachandran phone would have received a user abort command relating to an emergency call. USAA-1006, 2:64-3:6, 4:22-31; USAA-1003, ¶192; USAA-1005, 8:5-18. Thus, Curry-Rabu-Balachandran phone would have been configured to receive a user abort command (“*user interaction...to deny whether the further action should be taken*”) relating to an emergency call to be initiated after a time period specified by a timer (the action “*will be taken with a predetermined period*”). USAA-1003, ¶192.

[16]/[34]

As discussed for [6.1] and [6.2], Balachandran describes initiating a timeout period upon detecting an accident and allowing a user to interact with a cellphone via interface 45 during the timeout period. USAA-1007, 2:16-27. The cellphone provides “[a]n audio or visual indication [that] notifies the passengers of activation of [a] timer 35 and ceases with expiration or cutoff of the timer.” *Id.*, 2:46-63.

During the timeout period, the user can “cancel initiation of an emergency call...if no emergency assistance is required.” *Id.*, 2:16-27, 4:5-21. Since cancellation is initiated by the user via interface 45, a POSITA would have found it obvious that interface 45 “*provid[es] the user with [an] option[] to control the mobile device to*

take further action[]” (e.g., configuring the cellphone to end timer 35 and cancel initiation of an automated emergency call). USAA-1003, ¶193.

A POSITA would have also found it obvious to configure the phone of the combination to provide a user with additional options, such as confirming, via interface 45, that an accident has occurred. *Id.* A POSITA would have found it obvious to configure interface 45 in the same manner to provide an option for the user to voluntarily confirm an accident. Such a configuration would have been advantageous as it would allow a cellphone to initiate an emergency call immediately and without requiring expiration of the timeout period, as described in Balachandran. *Id.* Similar configurations of accident detection systems were also well-known by the Critical Date. USAA-1003 ¶194 (citing USAA-1008, 32-34).

3. Claims 26, 27

These claims are obvious in the same manner as explained above for the corresponding claims listed in the table below. USAA-1003, ¶195.

Claim Limitation	Corresponding Limitations
[26.1]	[6.1]
[26.2]	[6.2]
[27.1]	[7.1]
[27.2]	[7.2]

**D. [GROUND 1D] – Curry, Rabu, and Katayama Renders
Claims 9, 10, 14, 15, 17, 18, 32, 33, 35-38 Obvious**

1. Curry-Rabu-Katayama Combination

(a) *Katayama*

Katayama describes a “driving recorder” that records “situation data” that indicates the “surrounding situation or the like of a motor vehicle during a certain period before and after a time of an accident or...risk incident....” USAA-1024, [0001], [0011], [0058]; USAA-1003, ¶74.

Through “after-the-fact analysis” of recorded data, the recorder can for example provide insights into behavior that may have contributed to a given accident or “risk incident.” USAA-1024, [0001]-[0002]; USAA-1003, ¶75.

Figure 2 (below) shows an exemplary driving recorder 1.

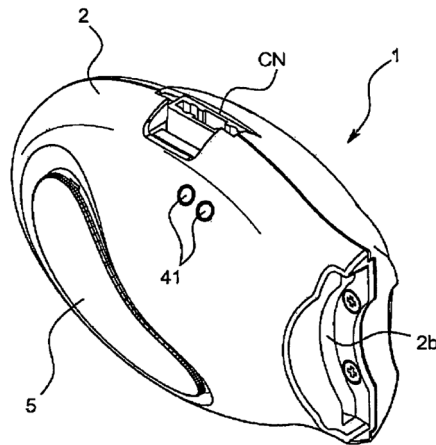


Fig.2

USAA-1024, Fig. 2

Recorder 1 detects accidents and/or risk incidents based on “situation data” that includes both sensor data and information derived therefrom, including “acceleration data” and “position data.” USAA-1024, [0013]; USAA-1003, ¶76.

As shown in Figure 5, the recorder is controlled by “CPU 81 in accordance with programs stored in...internal memory 82.” USAA-1003, ¶77.

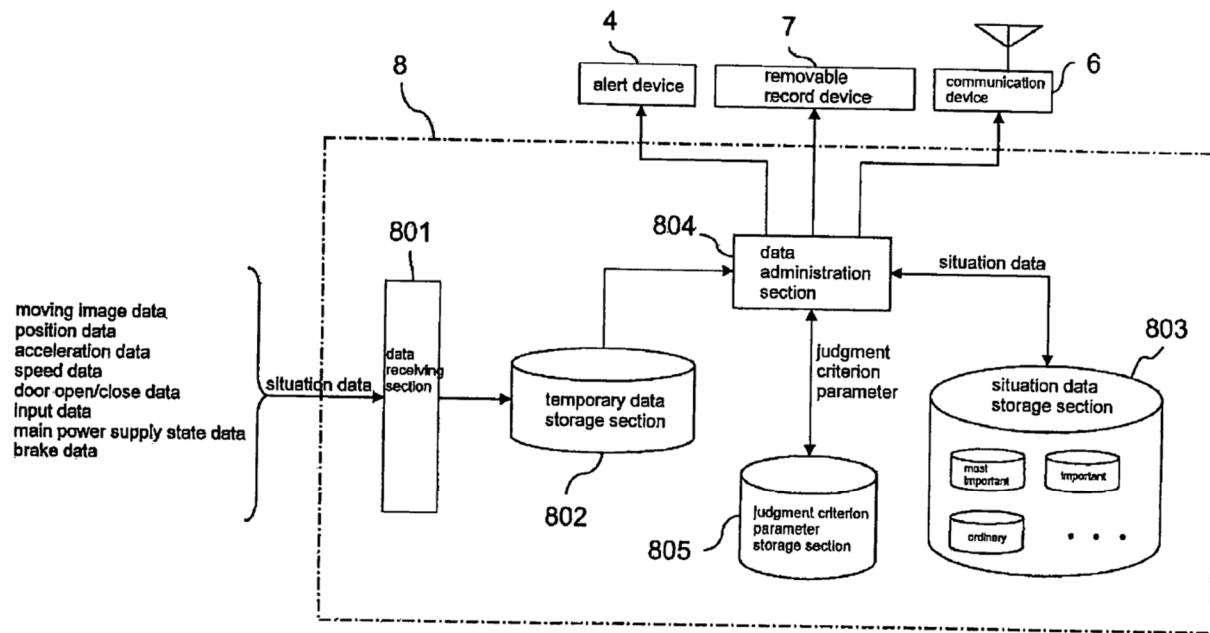


Fig.5

USAA-1024, Fig. 5

Memory 82 features multiple sections, including “temporary data storage section 802” and “situation data storage section 803.” *Id.*, [0044]. Relatedly, Katayama describes data handling techniques that enable “effective use” of the memory’s limited capacity, and ensure that “important data will not be erased,” but instead will remain available for easy and accurate “after-the-fact analysis” of

accidents and/or risk incidents. *Id.*, [0016]; USAA-1003, ¶78.

In more detail, data receiving section 801 receives “situation data” including sensor data “at a constant sampling time...in a chronological order and writes the received situation data” in memory 82’s temporary data storage section 802. *Id.*; USAA-1003, ¶79. Due to that area’s limited capacity, “old data is sequentially erased” and replaced over time with “new situation data.” USAA-1024, [0045], [0016]; USAA-1003, ¶79.

To avoid erasing important situation data, section 804 determines at the “time of recording” whether temporarily stored situation data meets predetermined criteria for long term storage. USAA-1024, [0001]-[0002], [0016], [0046]-[0050]; USAA-1003, ¶80. If so, the situation data is, for example, classified with an identifier marking it as “important,” and then transferred with the identifier to long term “situation data recording section 803.” *See* USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; USAA-1003, ¶80. In contrast, situation data marked with an identifier as less than important remains in temporary storage until overwritten. *See* USAA-1024, [0011]-[0016], [0054]; USAA-1003, ¶¶80-82.

(b) *Proposed Combination*

A POSITA would have found obvious enhancement of the Curry-Rabu phone through implementation of Katayama’s teachings on local memory with

several sections (temporary, long term storage), and Katayama's related teachings on data handling, including comparison at the time of recording of digitalized sensor data against judgment criteria representative of specific driving behaviors, and storage in appropriate sections of memory of digitalized data with metadata identifiers indicating determinations made through those comparisons. USAA-1024, [0012], [0015], [0039], [0048], [0049], [0075]; USAA-1003, ¶¶196-203.

Curry explains, for example, that "mobile phone client 110 can record location, speed and acceleration data from sensors embedded in the wireless device...to a local motion data cache 118 for further processing" prior to later transmission of derived information. USAA-1005, 3:24-26, 7:5-22, 8:20-9:28, 13:20-16:6, Figs. 1, 3; USAA-1003, ¶204.

A POSITA would have recognized that important information stored in Curry's local memory may be inadvertently erased and overwritten with new data, and would have recognized in Katayama's teachings a solution that could be applied in the context of the Curry-Rabu phone: partition of the local memory into temporary and long term sections, with storage of information identified as important in the long term section. USAA-1003, ¶206; USAA-1024, [0001]-[0002], [0016], [0044]-[0051], [0057]. This would "enable[] effective use of the memory without erasing important situation data" and "eliminat[e] accumulation of useless data," while at the same time furthering Curry's goals of "detect[ing]

and prevent[ing] unsafe driving behavior[s]” by enabling the Curry-Rabu phone to detect both accidents and “risk incidents.” USAA-1005, Abstract, 2:1-27, 3:24-4:6, 4:7-11, 7:5-22, 9:31-33, Fig. 1; USAA-1024, [0016], [0053], [0044], [0046]; USAA-1003, ¶¶207-209.

A POSITA would have found obvious that the Curry-Rabu-Katayama phone enjoys improved data management with reduced likelihood of erasure of important data. USAA-1003, ¶210; USAA-1005, 3:2-15, 3:24-4:6; USAA-1024, [0014]-[0016], [0045], [0053]. Further, the POSITA would have found obvious that the enhancements would improve the Curry-Rabu-Katayama phone’s safety monitoring, by enabling identification of accidents and “risk incidents,” with corresponding improvements to driving safety metrics. USAA-1005, 1-4:6, 2:3-2:28, 7:5-22, 8:29-12:18, 13:27-14:26, 15:8-16:33, 17:1-18:4; USAA-1024, [0044]-[0046]; USAA-1003, ¶210.

Several advantages would have motivated a POSITA to integrate Katayama into the Curry-Rabu phone. USAA-1003, ¶¶211-217; USAA-1005, 2:2-15, 2:24-3:6, 7:30-8:3; USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0044]-[0050], [0054], [0083].

2. Claims 9, 10, 17, 18, 35-38

[9.1]/[35.1]

As discussed above (§III.D.1(b) and [1.5]), the POSITA would have

configured the Curry-Rabu-Katayama phone's local memory to feature several sections according to, and facilitating use of, Katayama's teachings on data management, including a temporary short term memory section and a long term memory section. USAA-1024, [0044]; USAA-1005, 6:11-20; USAA-1003, ¶218.

As explained in [1.7], the Curry-Rabu-Katayama phone processes sensor data to derive "driving behavior" information. USAA-1005, 7:13-29, 8:21-27, 8:30-9:33, 10:15-26, 11:3-17. Further, the Curry-Rabu-Katayama phone would receive "situation data" including sensor data "at a constant sampling time one after another in a chronological order," and write "the received situation data" in a temporary data storage section within the Curry-Rabu-Katayama phone's local memory. USAA-1024, [0016], [0044]-[0049]; USAA-1003, ¶219.

To avoid erasure of situation data, the POSITA would have further configured the Curry-Rabu phone to "digitalize" temporarily stored situation data for purposes of determining, at the "time of recording," whether that digitalized situation data meets one or more predetermined criteria for long term storage. USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; USAA-1003, ¶220. The POSITA would have also configured the Curry-Rabu-Katayama phone to record situation data determined to be "important" with a metadata "identifier" marking it as such, and to transfer situation data with that identifier from the local memory's temporary storage to its long term recording

section.” USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; USAA-1003, ¶221. The important situation data would be retained to enable “after-the-fact analysis” of, for example, accidents and risk incidents, and would for at least that reason be understood as being “*persistently*” stored. USAA-1024, [0001], [0027], [0046]-[0052].

The POSITA would have also configured the Curry-Rabu-Katayama phone to temporarily store situation data determined to be less than important with a metadata “identifier” marking it as such, until such time as the unimportant situation data is overwritten with new data. USAA-1024, [0011]-[0016], [0054]; USAA-1003, ¶222. Unimportant situation data would be “sequentially erased” as “new situation data is written[,]” and would for at least that reason be understood as being “*transiently*” stored. USAA-1024, [0045]; USAA-1003, ¶222.

A POSITA would have understood and found obvious that both the digitalized “situation data” transiently stored in the Curry-Rabu-Katayama phone’s short term memory section and the digitalized “situation data” persistently stored in the Curry-Rabu-Katayama phone’s long term memory section are derived by processing sensor data received during a driving period (e.g., the driving period discussed above in connection with [1.6]), and constitute “*driving information*” associated with how a vehicle is driven. USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; USAA-1003, ¶¶223-225.

Further, Curry and Katayama each also render this limitation obvious through their respective disclosures of various storage configurations. USAA-1005, 12:3-18, 13:27-14:4; USAA-1024, [1045], [1046]; USAA-1003, ¶¶226-230. *[9.2]/[35.2]*

A POSITA would have understood and found obvious that the situation data sequentially written to the temporary section “one after another” includes both sensor data and information derived therefrom (digitalized sensor data, metadata identifiers) given Katayama’s broader disclosure of the situation data being “automatically classified at a time of recording.” USAA-1003, ¶¶231-232; USAA-1024, [0016]. Katayama teaches that this configuration, “make[s] after-the-fact analysis accurately and easily” and further recognizes that such a configuration ensures that “important data will not be erased” despite circumstances where “a capacity of a memory runs out.” USAA-1024, [0016]. Given that the digitalization of sensor data values and metadata identifiers enables the importance categorizations of situation data, a POSITA would have found it advantageous to implement Katayama’s data handling techniques such that these specific portions of situation data are similarly written into the temporary section one after another. USAA-1003, ¶¶233-234.

A POSITA would have found obvious that the temporary section receives

situation data, including sensor data and derived information (digitalized data, metadata identifiers). USAA-1003, 180. Further, the temporary section obtains data more frequently (“*receives driving information at a higher update rate*”) than the long term storage section. USAA-1024, [0044]-[0046], Fig. 5. In scenarios where data is periodically recorded but no accident is detected, old data stored in the temporary section is more frequently erased relative to situation data transferred to the storage section. USAA-1003, ¶235; *supra* §III.D.1(b).

[9.3]/[35.3]

Katayama describes that “the value (the content) of each situation data is, for example, digitalized in accordance with [a] judgment criterion parameter.” USAA-1024, [0048]. Further, “all” situation data is digitalized, to represent various types of information, such as “whether or not the acceleration (deceleration) exceeds a predetermined judgment criterion, whether or not the acceleration continues for more than or equal to a certain period, whether or not the door is open, whether or not the electric power is supplied from the battery, whether or not the speed of the vehicle exceeds the predetermined upper limit speed, whether or not the speed of the vehicle is not over the predetermined lower limit speed and whether or not the brake is applied.” *Id.*; USAA-1003, ¶¶236-237.

As to storage of digitalized data in appropriate sections of memory, Katayama describes “giv[ing] an identifier to each situation data according to [a]

category” that “may be specified according to an event that is estimated to have occurred[.]” *Id.*, [0012]. The identifier enables a recording device to “store the situation data into a folder (a category) specified” in storage. *Id.*; USAA-1003, ¶238.

Further, as explained for [9.2], a POSITA would have understood and found obvious that the situation data is sequentially written to the temporary section “one after another” given Katayama’s broader disclosure of the situation data being “automatically classified at a time of recording.” USAA-1003, ¶240; USAA-1024, [0016]. Based on the predetermined sampling rate of sensor data collection, it would have been obvious that derived information is written to the temporary section at a corresponding predetermined update rate and while a vehicle is monitored according to a chronological order (“*predetermined sequence*”). USAA-1024, [0044]-[0046], Fig. 5; USAA-1003, ¶239. Indeed, storage configurations in which a predetermined sampling of sensor data involves a predetermined update rate of writing data into storage were well-known by the Critical Date. USAA-1003, ¶241.

[9.4]/[35.4]

A POSITA would have configured the Curry-Rabu-Katayama phone to “eliminat[e] accumulation of useless data” and to make “effective use of the memory without erasing important situation data,” while at the same time

furthering Curry's goals of "detect[ing] and prevent[ing] unsafe driving behavior[s]" and generating related "driving safety...score[s]." USAA-1005, Abstract, 2:1-27, 3:24-4:6, 4:7-11, 7:5-22, 9:31-33, Fig. 1; USAA-1024, [0016], [0053], [0044], [0046]; USAA-1003, ¶242.

For example, the Curry-Rabu-Katayama phone would leverage Katayama's teaching that "[i]f a capacity of the [short term memory section]...runs out, old data is sequentially erased and new situation data is written in" to the short term memory section. USAA-1024, [0045]. A POSITA would have understood that, being "*sequentially* erased," the old data is erased according to the chronological order in which it was written into the short term memory section, which is First in, First Out ("FIFO"), a typical replacement policy commonly used to overwrite old data in a memory when the memory is full. USAA-1003, ¶243; USAA-1027, 70-71; USAA-1039, [0003]-[0004].

[10.1]/[36.1]

The Curry-Rabu-Katayama phone would have classified driving behaviors based on sensor data, and detection of a particular driving behavior represents "*detect occurrence of a predetermined event.*" USAA-1005, 10:15-25; USAA-1003, ¶244.

[10.2]/[36.2]

Katayama describes transferring situation data ("*data*") from temporary data

storage section (“***short term memory***”) to situation data recording section (“***long term memory***”) in response to satisfaction of predetermined conditions associated with accident detection. USAA-1024, [0046]. The conditions can relate to acceleration data, such as “whether or not the acceleration (deceleration) exceeds a predetermined judgement criterion,” or “whether or not the acceleration continues for more than or equal to a certain period...” *Id.*, [0048]. In circumstances where an accident is detected based on acceleration data that also satisfies a predetermined condition for transfer, the situation data is transferred from temporary data storage section 802 to situation data recording section 803 “***in response to***” the accident being detected. USAA-1003, ¶245.

[17]/[37]

Katayama describes a set of vehicle sensors (“***external device***”) configured to sense data related to “the behavior, surrounding situation, and operating condition or the like of [a] motor vehicle V” (“***external driving information associated with a condition of the vehicle***”). USAA-1005, [0034], [0064].

Examples of the vehicle sensors include “automobile speed meter 10 incorporated into the vehicle, the door 11, the emergency brake 12 and the ignition switch 13.” *Id.*, [0064]. In the Curry-Rabu-Katayama combination, a POSITA would have found it obvious to configure a phone to obtain data from vehicle sensors as this configuration would have improved the accuracy of monitoring for unsafe driving

behaviors. USAA-1003, ¶246.

Position data used for accident detection includes “position data indicating a position of the vehicle, speed data indicating a speed of the vehicle, brake data indicating whether or not a brake of the vehicle is activated, door open/close data indicating whether a door is open or closed.” Given that Katayama teaches using 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 (“*external device*”). USAA-1003, ¶246.

[18]/[38]

A POSITA would have found it obvious that, some implementations of the Curry-Rabu-Katayama phone (“*mobile telecommunications device*”) are configured to communicate wirelessly with external vehicle sensors (“*arranged to interface with the external device wirelessly*”). USAA-1003, ¶247. Katayama describes that driving recorder 1 receives data collected by external vehicle sensors (e.g., vehicle speed data, door open/close data, brake data). USAA-1024, [0038]. A POSITA would have understood and/or found obvious to implement a wireless connection with the external vehicle sensors since Katayama’s recorder 1 and Curry’s phone 6 each include wireless modules configured to enable wireless communication with other devices. USAA-1005, 7:5-22; USAA-1024, [0074];

USAA-1003, ¶247 (citing USAA-1045, [00117], [00178], FIG. 41-43).

E. [GROUND 1E] – Curry, Rabu, and Thompson2010 Render Claims 14, 15, 32, and 33 Obvious

1. Curry-Rabu-Thompson2010 Combination

(a) Thompson2010

Thompson2010 offers techniques focused on smartphone-based accident detection applications. It describes “how smartphones in a wireless mobile sensor network can capture the streams of data provided by their 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).” USAA-1008, 30; USAA-1003, ¶83.

Figure 2 shows a smartphone-based accident detection system.

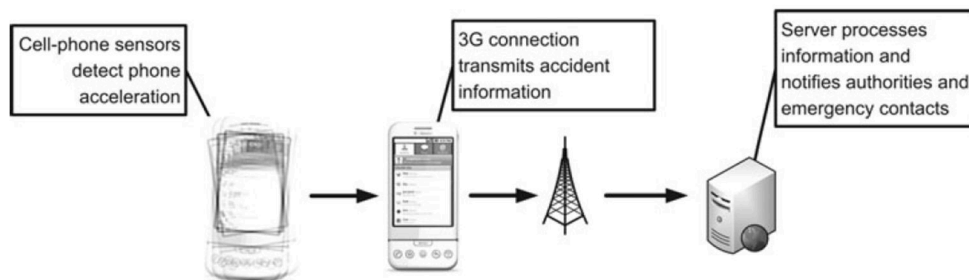


Fig. 2. Smartphone-Based Accident Detection System

USAA-1008, Fig. 2

Thompson’s system employs a client-server architecture in which “sensors built into a smartphone detect a major acceleration event indicative of an accident and utilize the built-in 3G data connection to transmit that information to a central

server.” USAA-1008, 30. The server “then processes the information and notifies the authorities as well as any emergency contacts.” *Id.* This client-server architecture is called “WreckWatch,” which a “mobile client/server application [] developed to automatically detect car accidents.” USAA-1008, 30. WreckWatch is “separated into two main components—the WreckWatch server and the WreckWatch client,” as shown in Figure 3. USAA-1003, ¶84.

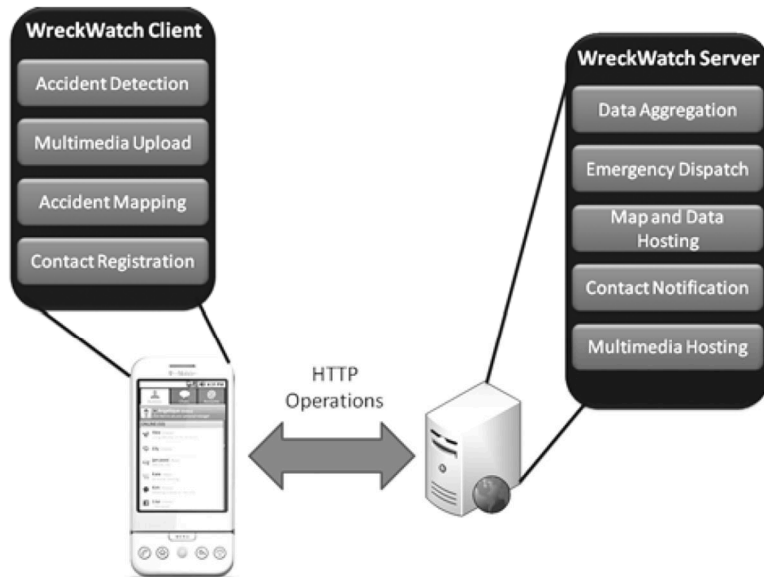


Fig. 3. WreckWatch Architecture Diagram

USAA-1008, Fig. 3

(b) *Proposed Combination*

As discussed in §III.E.1, while Curry contemplates emergency scenarios (e.g., accidents) may occur, it does not disclose specific embodiments focused on detecting an emergency or actions performed by phone 106 in response to a detected emergency. USAA-1005, 3:16-28, 9:16-26, cl. 9. Curry also provides a

broader motivation towards “programs and initiatives to reduce traffic-related fatalities and injuries.” USAA-1005, 2:9-21. And, due to its concern for motorized vehicle accidents and deaths, a POSITA would have understood that accident detection techniques advance Curry’s overall motivation to reduce casualties resulting from vehicular accidents. USAA-1003, ¶¶248-249.

A POSITA looking to implement Curry would have looked to supplement its disclosure using accident detection techniques that were well-known by the Critical Date. USAA-1003, ¶250. As discussed in §III.E.1, Thompson is one example disclosing a smartphone-based accident detection system using smartphone system sensors, such as GPS sensors and accelerometers. USAA-1008, 30, Fig. 2. A POSITA would have been motivated to modify Curry’s phone 106 to perform Thompson’s accident detection technique and thereby enable phone 106 to prevent casualties that may result from a vehicle accident. USAA-1003, ¶250.

A POSITA would have performed this modification since Thompson’s accident detection technique would have advanced Curry’s overall motivation to reduce casualties resulting from vehicular accidents. Moreover, the Curry-Rabu-Thompson2010 combination would have allowed Curry’s motion recording technique to achieve advantages that Thompson describes for smartphone-based accident detection, including “reduc[ing] overall traffic congestion and increas[ing]

the preparedness of emergency responders.” USAA-1008, Abstract. Further, because Curry describes that phone 106 is capable of communicating and/or sharing safety evaluation data with other external systems (e.g., server 104, insurance company 130), a POSITA would have perceived configuring phone 106 to incorporate the client-server architecture described in Thompson as an implementation detail. USAA-1005, 8:23-9-12; USAA-1008, 30, 33-34; USAA-1003, ¶251. A POSITA would have had a reasonable success in combining Curry and Thompson without invention since “several vehicle monitoring systems by the Critical Date were similarly capable of detecting accidents.” USAA-1003, ¶251 (citing USAA-1007).

2. Claims 14, 15, 32, 33

[14.1]/[32.1]

Thompson2010 describes a smartphone configured to detect traffic accidents (“*detect the occurrence of a predetermined event of significance, such as a crash*”). USAA-1008, 30. As discussed in §III.E.1, in the Curry-Rabu-Thompson2010 combination, a phone would have been configured to perform Thompson’s accident detection technique and thereby detect traffic accidents. Thompson describes this is accomplished using “sensors built into a smartphone to detect a major acceleration event indicative of an accident and utilize the built-in 3G data connection to transmit that information to a central server.” USAA-1008,

30; USAA-1003, ¶252; *see also* USAA-1024, [0039], [0075].

[14.2]/[32.2]

A POSITA would have understood and/or found obvious that, in the Curry-Rabu-Thompson2010 combination, motion data cache stores sensor information that is processed by the phone (using Thompson2010’s accident detection technique) to identify a traffic accident (“***store driving information associated with that event to the memory***”). USAA-1005, 3:24-6:6; USAA-1003, ¶253. Curry describes that the motion data cache is “used to record the location, speed, and acceleration of [the phone]...” USAA-1005, 3:24-6:6. Thompson2010 describes that a smartphone executes a “WreckWatch Android client” that runs “[b]ackground services [that] detect accidents by polling smartphone system sensors, such as the GPS receiver and accelerometers[,]” where “[t]he polling rate is configurable at compile-time to meet user needs and to provide the appropriate consumption characteristics.” USAA-1008, 33. Given these disclosures, a POSITA would have found it obvious to configure motion data cache to store raw sensor data used for accident detection (e.g., GPS data, accelerometer data) and data generated through the processing of raw sensor data by the Curry-Rabu-Thompson2010 phone in detecting a traffic accident. USAA-1003, ¶253. Further, “a POSITA would have recognized Thompson’s disclosure of accident image upload to a server suggests that the uploaded accident images (and associated

accident information) are at least temporarily stored in memory prior to upload.”

Id. (citing USAA-1008, 32, Fig. 4); *see also* USAA-1024, [0046], [0050], [0051].

[15.1]/[33.1]

See [14.1], *supra*. USAA-1003, ¶254.

[15.2]/[33.2]

In Thompson2010, a mobile client on a smartphone (WreckWatch client) uploads (“*transmit*”) data associated with a detected accident (“*driving information associated with that event*”) to an associated server (WreckWatch server) (“*a remote data-logging system*”). USAA-1008, 30. As discussed in §III.E.1, in the Curry-Rabu-Thompson2010 combination, client 110 of the phone provides similar functionality as WreckWatch client and server 104 provides similar functionality as WreckWatch server. Thus, the combination would have provided client 110 with functionality for uploading data associated with a detected accident to server 104 (as taught in Thompson2010). USAA-1005, 8:23-29, 9:3-12; USAA-1008, 30, 32-35; USAA-1003, ¶255s.

F. [GROUND 1F] – Curry, Rabu, and Willis Render Claims 45, 50, 53 Obvious

1. Curry-Rabu-Willis Combination

(a) Willis

Willis is an international application publication generally focused on techniques for “determining the proximity of radio frequency devices using the

analysis of a series of receive signal strength indicator (RSSI) values.” USAA-1009, Abstract. Willis recognizes that “RSSI values are used in a range of situations” and “in various radio frequency technologies including General Packet Radio Service (GPRS), Global System for Mobile Communications (GSM), Code division multiple access (CDMA), Bluetooth™, ZigBee™, Wifi 802.11x, and other Radio Frequency Identification (RFID) methods.” *Id.*, 1:23-27. Wilson discloses an exemplary embodiment “applied to measurement of Bluetooth signal strength from a mobile phone inside a stationary vehicle.” *Id.*, 14:25-15:3. This embodiment “provide[s] a proximity detection of the phone coming within 2 meters of the vehicle in any manner from any direction.” *Id.*; USAA-1003, ¶85.

(b) *Proposed Combination*

A POSITA would have understood that the Curry-Rabu phone includes a Bluetooth sensor. USAA-1003, ¶257. Curry defines “mobile phone” in a non-limiting fashion and specifies that it “include[s] any type of electronic mobile computing device that may be used while traveling in a vehicle.” USAA-1005, 7:23-29. Curry also references the Apple iPhone 3G smartphone, which a POSITA would have understood is an example of a phone that includes a Bluetooth sensor. USAA-1005, 2:22-27; USAA-1003, ¶257 (citing USAA-1078, 21-64).

A POSITA would have also understood that proximity detection based on Bluetooth signal strengths (as described in Willis) is an implementation detail

and/or obvious design choice of many (if not all) Bluetooth sensors of mobile devices. USAA-1003, ¶258. In Willis, techniques involve “[t]he use of core Bluetooth™ functionality [that] enables the invention to be used with a broad range of Bluetooth™ capable devices and avoids the incompatibility issues suffered by predecessor devices.” USAA-1009, 31:6-8. Thus, a POSITA would have found it obvious that a Bluetooth sensor in the Curry-Rabu-Willis phone would have been configured to detect a proximity of a car using “the signal strength of the Bluetooth receiver inside [the] car,” as described in Willis. USAA-1009, 19:10-14; USAA-1003, ¶258.

2. Claims 45, 50, 53

[45.1]/[50.1]/[53.1]

Willis describes a mobile device includes a Bluetooth sensor (“*proximity sensor*”) configured to detect proximity of a nearby vehicle using Bluetooth signal strength. USAA-1009, 1:23-27, 14:25-15:3. A POSITA would have found obvious that that the phone includes a Bluetooth sensor and, in the combination, a POSITA would have configured the Bluetooth sensor to detect proximity of a vehicle. *Id.*; USAA-1003, ¶259.

[45.2]/[50.2]/[53.2]

In the Curry-Rabu-Willis combination, a POSITA would have configured a phone with a Bluetooth sensor to detect proximity of a vehicle (“*detect the proximity of the mobile telecommunications device to the vehicle*”) (as taught in

Willis). USAA-1009, 1:23-27, 14:25-15:3; USAA-1003, ¶260.

**G. [GROUND 1G] – Curry, Rabu, and Berkobin Renders
Claim 55 Obvious**

1. Curry-Rabu-Berkobin Combination

(a) Berkobin

Berkobin offers techniques for determining driver behavior based on vehicle operating parameters and adjusting insurance premiums based on the driver behavior. USAA-1010, Abstract. Berkobin also teaches embodiments in which its disclosed techniques “can employ Artificial Intelligence techniques such as machine learning and iterative learning[,]” such as “Bayesian networks, behavior based AI, neural networks, fuzzy systems, evolutionary computation...” *Id.*, [0031]; USAA-1003, ¶86.

(b) Proposed Combination

Techniques for using artificial intelligence to evaluate driver information well-known by the Critical Date. USAA-1003, ¶¶261-262; USAA-1010, [0031]; USAA-1025, [0047]; USAA-1014, [0094]. Also well-known were the improvements offered by artificial intelligence, such as offering superior performance when the inputs are complex, features of the input data cannot be readily discerned, or the relationships between input data are complex and nonlinear. USAA-1003, ¶262. Dr. Michalson explains that “[a]rtificial intelligence algorithms are also sophisticated, automatic, and objective for analysis

of high-dimensional and multimodal motion data.” *Id.* POSITA would have therefore been motivated to employ artificial intelligence to identify unsafe driving behaviors from motion data recorded for a vehicle. USAA-1003, ¶262.

Curry describes evaluating measured accelerometer and GPS data to identify unsafe driving behaviors. USAA-1005, 7:5-22. A POSITA would have perceived the benefit of increasing accuracy of identifying unsafe driving behaviors since Curry expresses a desire to “make driving safety monitoring more reliable.” USAA-1005, 11:3-14. A POSITA would have thereby identified artificial intelligence as an available tool to process motion data in identifying unsafe driving behaviors. USAA-1003, ¶263. A POSITA would be expected to reasonably succeed in doing so since the combination would have involved incorporating a known technique (artificial intelligence) into a known system (Curry’s system). USAA-1003, ¶263.

2. Claim 55

Curry renders these claims obvious the following limitations of claim 55 in the same manner as explained above for the corresponding claim 54 limitations listed in the table below. USAA-1003, ¶264.

Claim 54 Limitation	Corresponding Limitations
[54.1]	[55.1]
[54.2]	[55.2]
[54.3]	[55.3]
[54.4]	[55.4]
[54.5]	[55.5]
[54.6]	[55.6]
[54.7]	[55.7]
[54.8]	[55.9]
[54.9]	[55.10]
[54.10]	[55.11]

[55.8]

The term “neural network” appears once in the ’879 patent specification and relevant disclosure closely repeats the language recited by this claim limitation.

USAA-1001, 6:61-7:3; USAA-1003, ¶265.

Berkobin describes using a neural network to process sensor data and evaluate driving information (“*processing involving the use of a neural network*”). USAA-1010, [0002], [0031]. In the Curry-Rabu-Berkobin combination, the phone would have been configured to use a neural network to determine whether recorded motion data indicates a safe driving behavior (“*an acceptable [driving pattern]*”) or an unsafe driving behavior (“*unacceptable driving behavior*”). USAA-1005, 2:24-3:11, 6:5-22, 8:31-9:12; USAA-1003, ¶266.

IV. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

Consistent with Congressional intent, the goals of *Fintiv*, and Director Vidal’s interim guidance issued June 21, 2022 (“*Director’s Guidance*”), USAA asks the Board to consider this Petition’s challenges. IPR2020-00019, Pap. 11, 6 (PTAB Mar. 20, 2020) (precedential)(“*Fintiv*”). A holistic analysis of the *Fintiv* framework favors institution.¹⁰

Even were that not the case, the Petition presents compelling challenges and, for at least that additional reason, “the PTAB should not discretionarily deny institution under *Fintiv*.” USAA-1065, 3-5; IPR2022-01242, 3, 5-6 (Feb. 27, 2023) (precedential) (“*Commscope*”).

Factor 1 (possibility of a stay) is at worst neutral, as the Board has indicated that it “will not attempt to predict” how a district court might adjudicate a future motion to stay, and neither party has yet requested stay. *Fintiv*, 12; IPR2019-01393, Pap. 24, 7 (June 16, 2020)(“*Sand Revolution*”)(informative); IPR2020-01019 Pap. 12, 14 (PTAB Dec. 1, 2020)(“*Sotera*”)(precedential).

¹⁰ Apart from USAA’s showing that the *Fintiv* factors favor institution, the *Fintiv* framework should not be followed because it is legally invalid. The framework (1) exceeds the Director’s authority, (2) is arbitrary and capricious, and (3) was adopted without notice-and-comment rulemaking.

Factor 2 (proximity of trial date to final written decision) favors institution.

USAA been diligent. PO filed its complaint on 5/11/2022, and this Petition has been prepared concurrent with five other petitions challenging related patents, each filed well in advance of the statutory bar date. IPR2020-00156, Pap. 10, 9 & n.8 (June 15, 2020) (“*Seven*”); USAA-1004.

Although the District Court—one of the busiest patent courts—has set an estimated March 2024 trial date, “scheduled trial dates are unreliable and often change.” USAA-1065, 8; USAA-1066, 5. Thus, “the proximity to trial should not alone outweigh” other relevant factors. *Id.*, 8.

Indeed, applying the District’s median time-to-trial of about 29.5 months (USAA-1067, 37) to the complaint filing date suggests a jury trial in late October 2024. Based on the 18-month IPR schedule, the Board would be expected to issue its Final Written Decision (“FWD”) before November 2024 (i.e., around the same time as the median-expected trial). USAA-1065, 9.

Factor 3 (investment in parallel proceedings) favors institution. This Petition is being filed at an early stage of the litigation, which “has weighed against exercising the authority to deny institution....” *Seven*, 11-13 (quoting *Fintiv*, 11).

Factor 4 (overlap in issues) favors institution because the Petition’s Grounds are materially different from any that might be raised in litigation.

PO presently alleges infringement of the ’879 patent’s claims 1, 2, 4-7, 15,

18-21, and 26. But its contentions are preliminary, and PO has not committed to limiting its assertion to only these claims.

Lacking an indication from PO of the full complement of claims for which infringement will ultimately be alleged by PO in this or future litigation, USAA challenges all claims of the '879 patent. USAA-1075, 6. Accordingly, only this proceeding addresses the patentability of a material number of the Challenged Claims. *Seven*, 21.

Furthermore, to eliminate any doubt as to the absence of meaningful overlap between the Litigation and IPR, USAA stipulates that upon institution of this Petition, USAA will not seek resolution in the District Court of any ground of invalidity utilizing any of Curry, Rabu, Tamir, Balachandran, Katayama, Thompson2010, Willis, or Berkobin. USAA-1074. By this stipulation, Factor 4 weighs heavily against denial of institution because, upon institution, there would be *zero overlap* between the prior art in this IPR and the prior art in District Court. *See* IPR2021-00972 Paper 10, 13-16 (Dec. 8 2021) (“*AliveCor*”); IPR2021-00033, Paper 13, 14 (April 30, 2021).

Factor 5 (overlap in parties) is, at worst, be neutral. The Litigation involves the same parties. The *Fintiv* decision “says nothing about situations in which the petitioner is the same as, or is related to, the district court defendant.” IPR2020-00122, Pap. 15, 10 (Crumbley, dissenting); *Fintiv*, 13-14; *Snap*, 16.

Factor 6 (other circumstances) compels institution. “[T]he PTAB will not deny institution...under *Fintiv*...when a petition presents compelling evidence of unpatentability....” USAA-1065 (*Director’s Guidance*), 3-5, 9; *Fintiv*, 14-15.

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner authorizes charge of fees to Deposit Account 06-1050.

VI. MANDATORY NOTICES UNDER 37 C.F.R § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

United Services Automobile Association (“USAA”) is the real party-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

The ’879 Patent is the subject of a civil action, *Auto Telematics Ltd. v. United Services Automobile Association*, 6:22-cv-00474-ADA-DTG, W.D. Tex., filed May 11, 2022. USAA-1004. USAA is concurrently filing two additional petitions challenging the ’879 patent (IPR2023-00858, IPR2023-00859). USAA is not aware of any other disclaimers, reexamination certificates, or IPR petitions addressing the ’879 Patent.

USAA has also previously filed five IPR petitions challenging patents related to the ’879 patent, including petitions challenging U.S. Pat. No. 9,633,487 (IPR2023-00518, IPR2023-00519) and U.S. Pat. No. 10,192,369 (IPR2023-00768, IPR2023-00769, IPR2023-00770).

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

USAA provides the following designation of counsel.

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D. Service Information

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IPR of U.S. Patent No. 10,198,879
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Dated May 4, 2023

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,968 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated May 4, 2023

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on May 4, 2023, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided via Federal Express, to the Patent Owner, by serving the correspondence address of record as follows:

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