

Petitioner's Oral Hearing Demonstratives

United Services Automobile Association (Petitioner) v. Auto Telematics Ltd. (Patent Owner)

IPR2023-00857 (Patent 10,198,879)

Before Hon. George R. Hoskins, Frances L. Ippolito, and Sean P. O'Hanlon



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Instituted Grounds

Key Obviousness Ground	Claims Challenged
Obviousness over Curry, Rabu	1-3, 5, 6, 8, 11-13, 19-23, 25, 28-31, 39-44, 46-49, 51, 52, 54

Other Obviousness Grounds	Claim(s) Challenged
Obviousness over Curry, Rabu, Tamir	4, 24
Obviousness over Curry, Rabu, Balachandran	6, 7, 16, 26, 27, 34
Obviousness over Curry, Rabu, Katayama	9, 10, 14, 15, 17, 18, 32, 33, 35-38
Obviousness over Curry, Rabu, Thompson2010	14, 15, 32, 33
Obviousness over Curry, Rabu, Willis	45, 50, 53
Obviousness over Curry, Rabu, Berkobin	55

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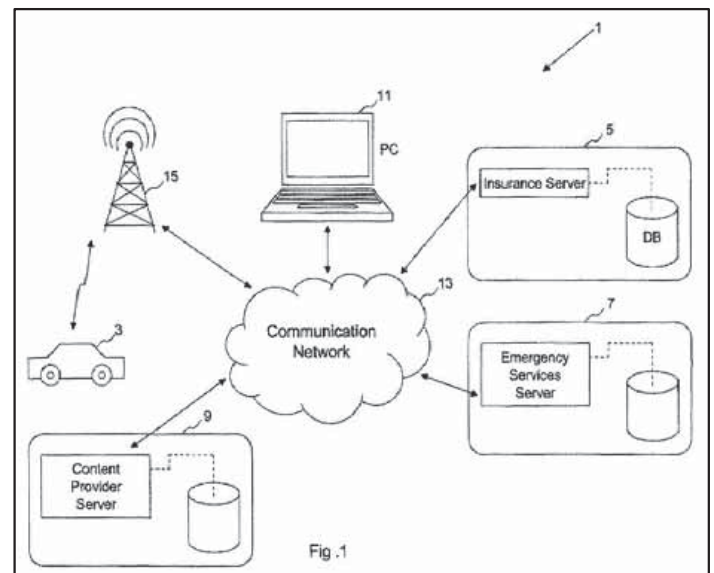
The Challenged Patent

The '879 Patent

(57) ABSTRACT

Methods and systems for logging driving information associated with a vehicle when driven are disclosed. In one aspect, a mobile telecommunications device is provided that is adapted for installation to a vehicle and configured to log driving information associated with the vehicle when driven. The mobile device is arranged to register the start of a driving period during which the mobile device is installed to the vehicle and the vehicle is being driven by a driver. The mobile device is also arranged to process sensor data during the driving period to derive driving information associated with how the vehicle is driven. The mobile device is also arranged to store a selection of the driving information to a memory.

USAA-1001 ('879 Patent), Abstract; see USAA-1003 (Michalson Declaration), ¶156



USAA-1001, Fig. 1; see Pet., 5

The '879 Patent

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

USAA-1001, Claim 1; see Pet., 27-51

Key Asserted Prior Art

Curry

(PCT Patent Publication WO 2010/042545)

Curry (PCT Patent Publication WO 2010/042545)

Petition

“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.”

Pet., 6 (citing USAA-1005 (Curry), Abstract, 2:1-27, 3:24-4:6, 4:7-11, 7:5-22, 9:31-33, Fig. 1; USAA-1003, ¶164)

“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.’”

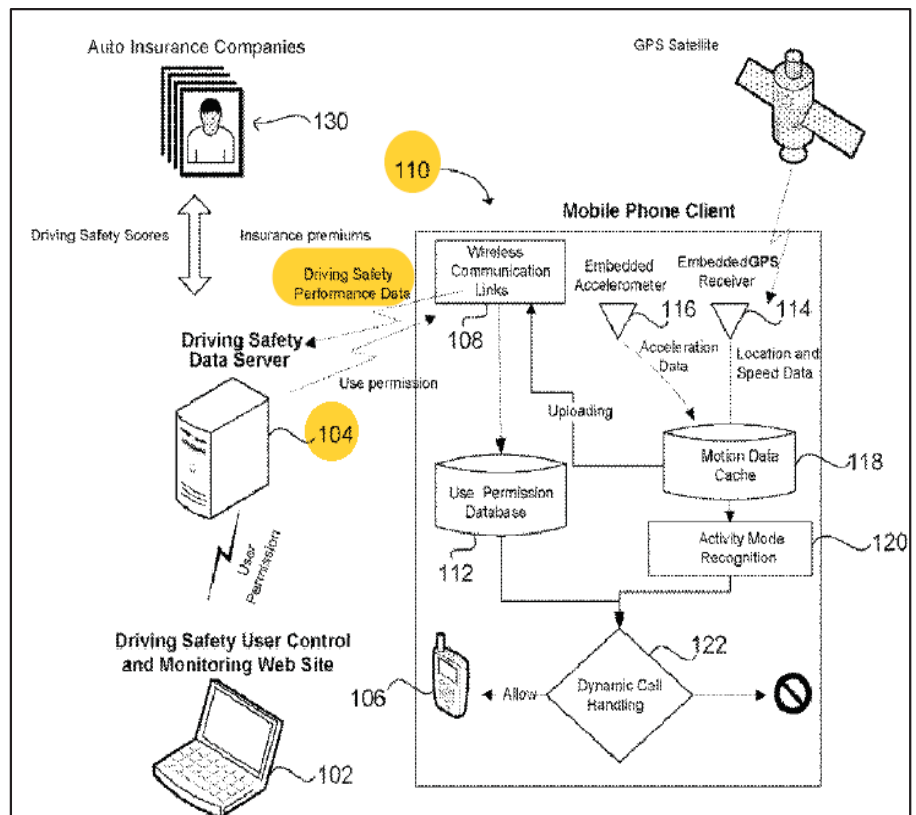
Pet., 6-7 (citing USAA-1005, 6:5-22, 8:5-11, 7:30-8:33; USAA-1003, ¶165)

Curry (PCT Patent Publication WO 2010/042545)

Michalson Declaration

“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.”

USAA-1003, ¶166; Pet., 7-8; USAA-1005, Abstract, 3:1-4:6, 8:29-12:18, 13:27-14:26, 17:1-18:4 (PDF pages), Figs. 1, 3, 6.



USAA-1005, FIG. 1 (annotated); see Reply, 10

Curry (PCT Patent Publication WO 2010/042545)

Curry

“The motion data cache can also be used to record the location, speed, and acceleration of the mobile wireless computing device each time a phone call is transmitted from or received by the wireless device. The data in the motion data cache can be transmitted to and stored on the data server. The data in the motion data cache can be compared with the user permission data to enable a driver safety statistic to be calculated based on when and where the wireless computing device was used and the motion of the device. The driver safety statistic may be decreased for certain user behaviors, such as use of the device while driving a vehicle, and use of the device during restricted time periods. In addition, the wireless device may collect data during periods other than when phone calls are answered or made. For example, the wireless device may collect speed and location information and report that information back to the data server. The driver safety statistic can also be decreased based on driving behavior, such as speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns. The safety statistic can be reported to or calculated at the data server.”

USAA-1005, 3:24-4:6; Pet., 6, 16, 21; USAA-1003, ¶64

Curry (PCT Patent Publication WO 2010/042545)

Curry

“The location of software and firmware used to create the functionality of the system for monitoring and controlling the use of a mobile computing device illustrated in FIG. 1 can be based on a tradeoff between the complexity of the mobile device and the amount of information communicated on the mobile device's network. ... The actual location of the modules, caches, and databases can be decided based on engineering and business needs.”

USAA-1005, 12:3-18; see Pet., 12, 18, 62; USAA-1003, ¶¶89, 105, 107, 210,

“Modules may also be implemented in software for execution by various types of processors.”

USAA-1005, 6:3-4; see Pet., 21

“A driving safety evaluation module can be used to perform a statistical analysis on collected raw driving data. The evaluation module can then calculate corresponding safety scores.”

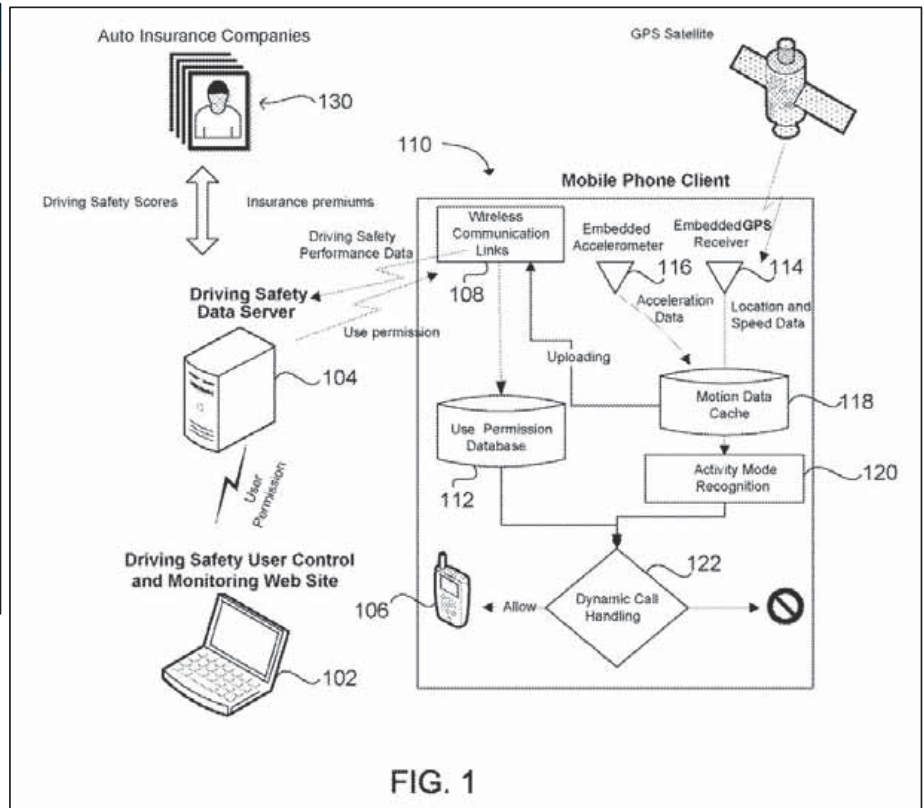
USAA-1005, 7:13-15; see Pet., 6, 12, 15-16, 18, 23-24, 27, 29, 31; Reply, 7, 9, 11-12

Curry (PCT Patent Publication WO 2010/042545)

Curry

“The safety statistic and other information collected by the wireless device can be made available to selected individuals, such as a user's parents or guardian, or desired a third party such as an insurance company. The insurance company can provide the user a discounted rate in return for the user maintaining a safety statistic that is greater than a selected threshold value.”

USAA-1005, 4:7-11, cl. 16; see Pet., 6, 16; 18, 32-33, 62, 68



USAA-1005, FIG. 1; see Reply, 10

Curry (PCT Patent Publication WO 2010/042545)

Petition

“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, ...”

Pet., 24; USAA-1003, ¶129



Reply

“Cited examples of these embodiments include Figure 3 (Pet., 29-30 (citing USAA-1005, 13:20-14:26); USAA-1003, ¶¶ 130, 139-140) and Figure 4 (Pet., 25-26 (citing USAA-1005, 16:7-22); USAA-1003, ¶¶ 131, 132)

Reply, 6

Curry (PCT Patent Publication WO 2010/042545)

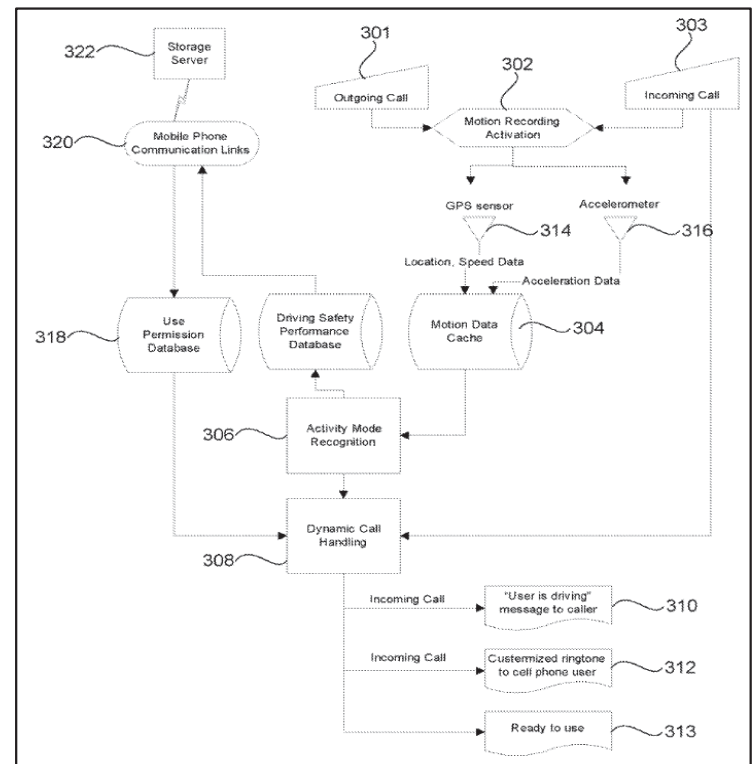
Curry

“FIG. 3 illustrates a flow chart depicting a driving safety monitoring program on a mobile phone client...”

“... The activity mode recognition module 306 can use recorded time stamped data to estimate the type of activity: driving, walking, running or remaining substantially still...”

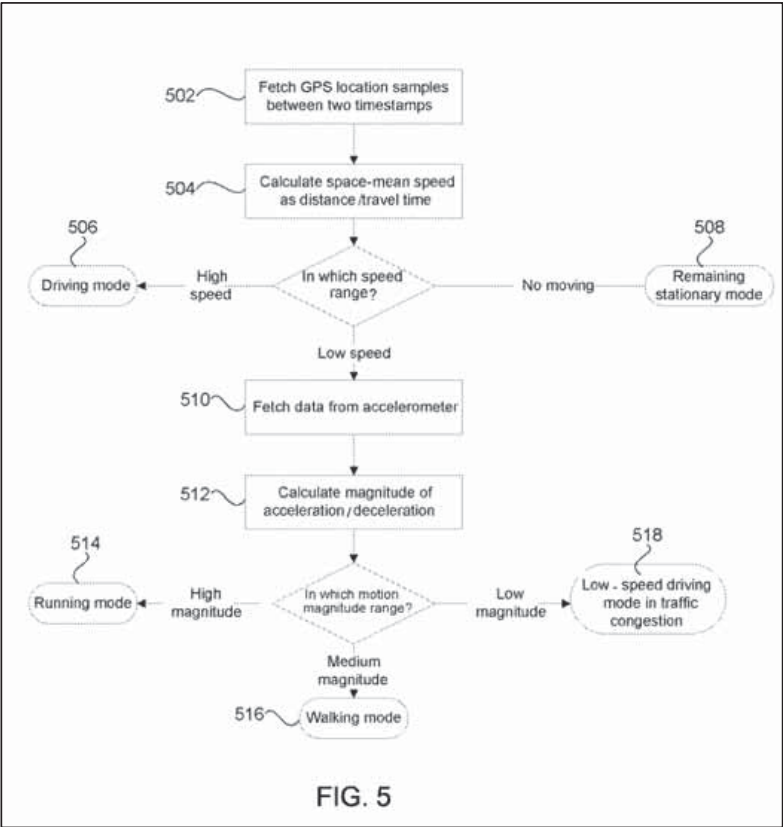
“If the activity mode is recognized in real-time, the dynamical call handling module 308 can allow or disallow users to receive or make a call,...”

USAA-1005, 12:20-13:8; see Pet., 30



USAA-1005, FIG. 3

Curry (PCT Patent Publication WO 2010/042545)



USAA-1005, FIG. 5 (cited in Pet., 41; USAA-1003, ¶157

Curry (PCT Patent Publication WO 2010/042545)

Petition

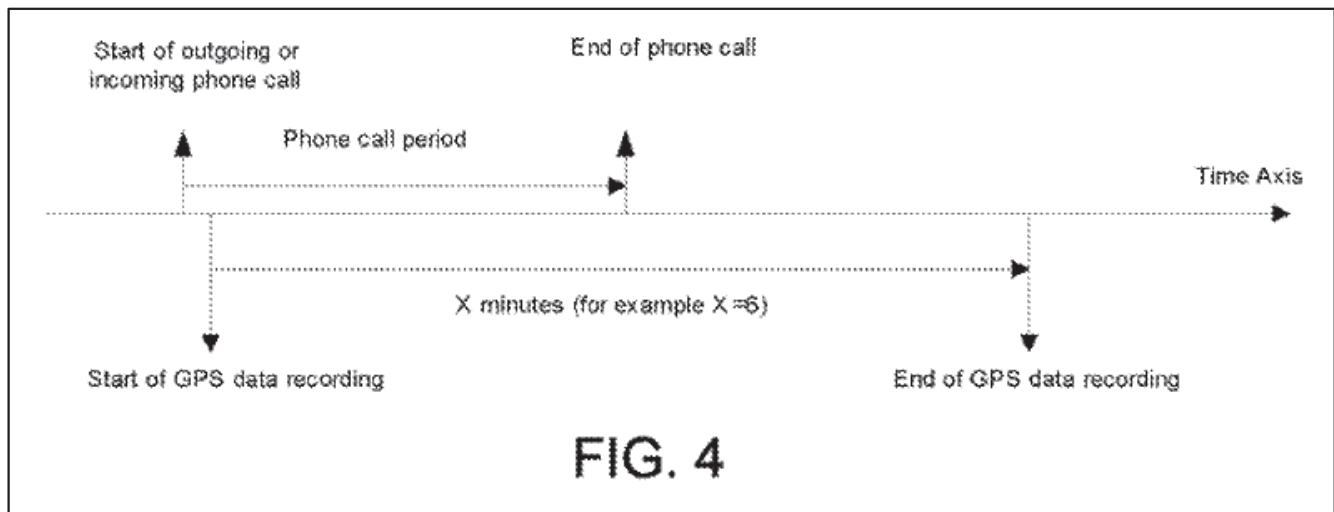
“...Curry describes determining the start of a driving period based on a combination of user inputs received in relation to a call or text and motion data from the phone’s sensor set.”

Pet., 25; USAA-1005, 16:7-22; USAA-1003, ¶131

Curry

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

USAA-1005, 16:7-22; Pet., 25; USAA-1003, ¶131
see also USAA-1005, 3:24-4:6



USAA-1005, FIG. 4; Pet, 26

Curry (PCT Patent Publication WO 2010/042545)

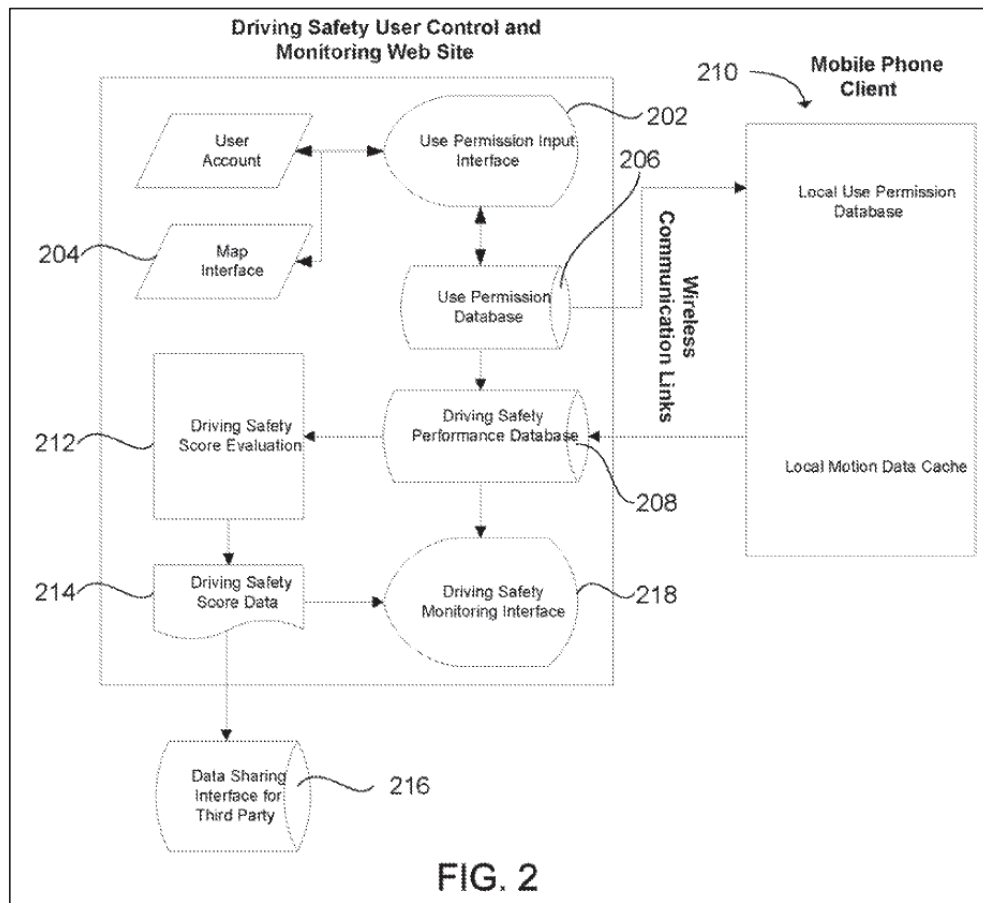


FIG. 2

USAA-1005, FIG. 2; POR, 19, 20, 22; Sur-Reply, 17, 20

Curry (PCT Patent Publication WO 2010/042545)

Michalson Declaration

“Sensor data collected by Curry-Rabu phone (including acceleration data) is processed relative to threshold acceleration values (“*predefined threshold values*”).

USAA-1003, ¶157 (citing USAA-1005, 3:24-4:6, 17:1-23, cl. 19); see Pet., 41

Rabu
(U.S. Pat. No. 8,682,399)

Rabu (U.S. Pat. No. 8,682,399)

Michalson Declaration

“Rabu ... describes using an accelerometer ... embedded within a ‘portable media device’ ... to determine whether the PMD ‘is in a dock, resting on a surface, or being handled by a person’ in addition to whether the PMD ‘is located in a moving vehicle’ or ‘a stationary vehicle.’

USAA-1003, ¶67; Pet., 8; USAA-1013, Abstract, 1:1-52, 1:60-2:11, 3:11-28, 6:49-7:6, Figs. 1-8

Rabu

“Accelerometer 409, which can be of generally conventional design, may be a single axis accelerometer or a multi-axis accelerometer. In some embodiments, accelerometer 409 can be implemented as a micro electromechanical system (MEMS) device embedded in PMD 400. Accelerometer 409 can measure acceleration due to gravity. Based on that measurement, processor 404 can determine the angle it is tilted at with respect to vertical, horizontal, or any other reference plane. In some embodiments, accelerometer 409 can sense the amount of dynamic acceleration. Based on this information, processor 404 can determine a frequency spectrum associated with the holder motion and consequently determine the motion status of PMD 400.

USAA-1013, 4:15-33; Pet., 10; USAA-1003, ¶67

21

Rabu (U.S. Pat. No. 8,682,399)

Michalson Declaration

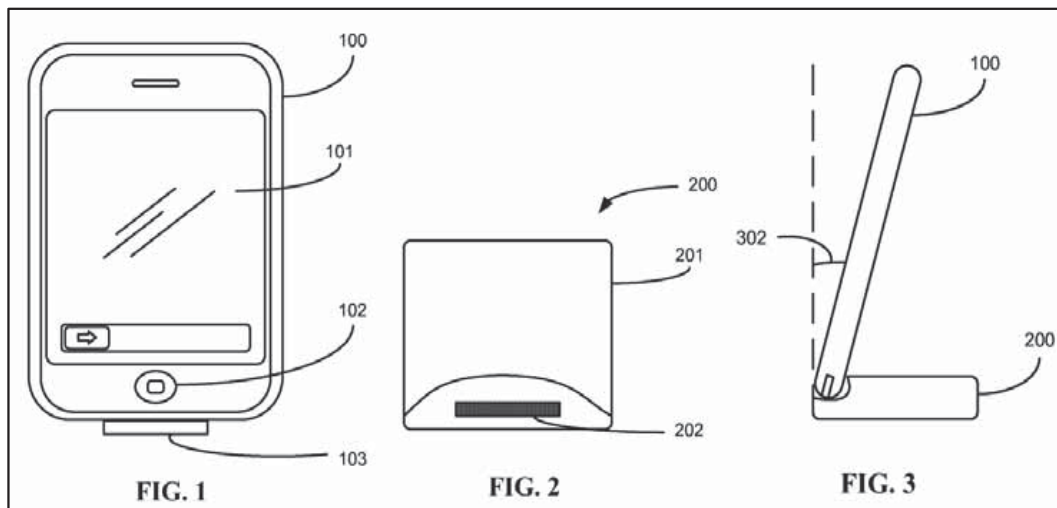
"[A]s shown in Rabu's Figs. 1-3 ... a PMD 100 can be 'coupled to dock 200' such that the PMD 'is at an angle 302 with respect to the dock.'"

USAA-1003, ¶68; Pet., 9; USAA-1013, 3:46-50

Michalson Declaration

"When the PMD detects that it is at a specific angle, the PMD may determine that it is coupled to a specific dock, 'and can switch to an associated mode of operation.'"

USAA-1003, ¶68; Pet., 9; USAA-1013, 3:29-45, 3:46-4:4, 8:13-24, Figs. 2, 7



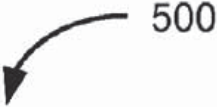
USAA-1013, Figs. 1-3; Pet. 10

Rabu (U.S. Pat. No. 8,682,399)

Petition

“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-1003, ¶94; Pet.,14; 1:36-2:14, 5:53-7:6, 8:13-10:42, 12:26-38, Figs. 5, 7, 8



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

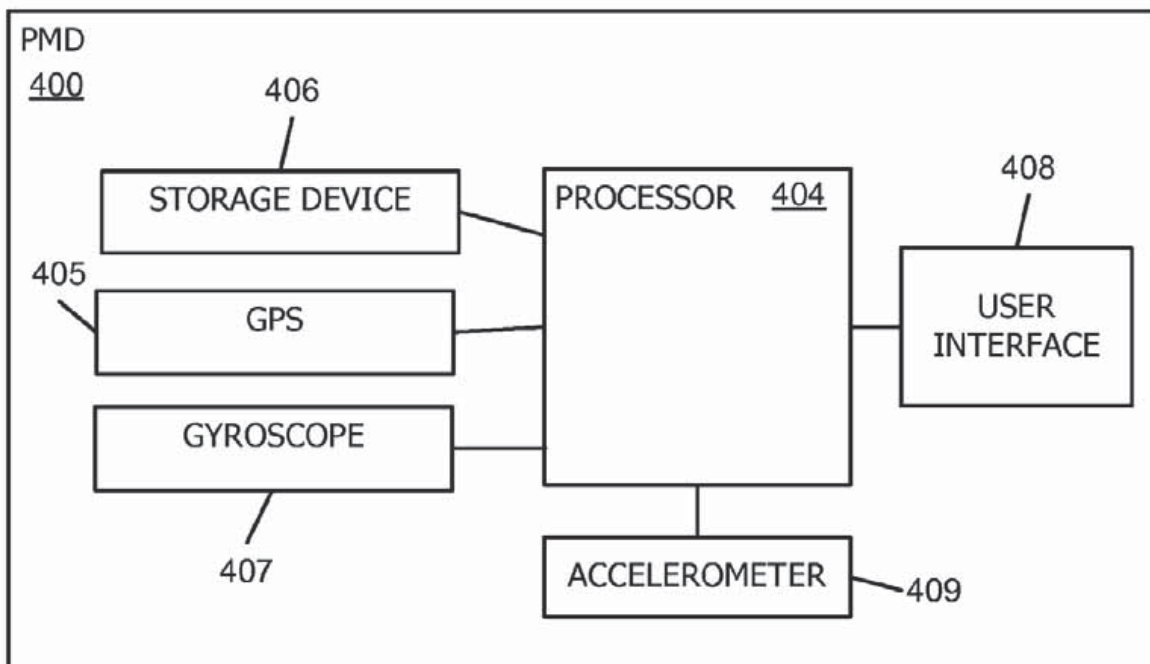
USAA-1013, FIG. 5; Pet. 14

Rabu (U.S. Pat. No. 8,682,399)

Petition

“Processor 404 uses accelerometer 409 to determine the PMD’s motion status and orientation angle.”

Pet., 10; USAA-1013, 3:1-28, 4:21-40, Figs. 1, 4; USAA-1003, ¶69



USAA-1013, Fig. 4; Pet. 11

Rabu (U.S. Pat. No. 8,682,399)

Petition

“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.’ ... Based on those determinations, Rabu ‘choose[s] a particular mode of operation’ for the PMD ...”

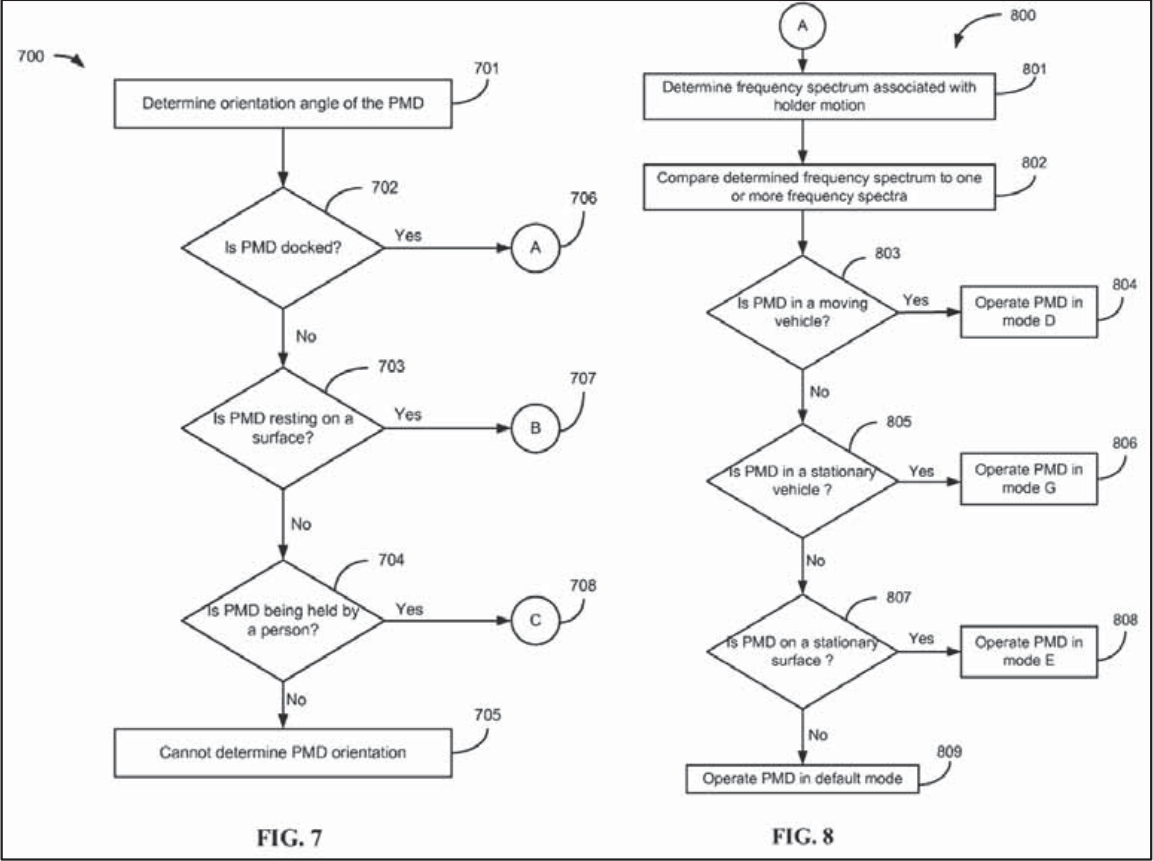
Pet., 8; USAA-1013, Abstract, 1:1-52, 1:53-59, 1:60-2:11, 3:11-28, 6:49-7:6, 8:13-10:42, Figs. 1-8; USAA-1003, ¶¶67-70

Rabu

“In some embodiments, information from the accelerometer and gyroscope can be used to determine the orientation angle.”

USAA-1013, 8:23-25; USAA-1003, ¶68

Rabu (U.S. Pat. No. 8,682,399)



USAA-1013, Figs. 7, 8; see Pet., 9

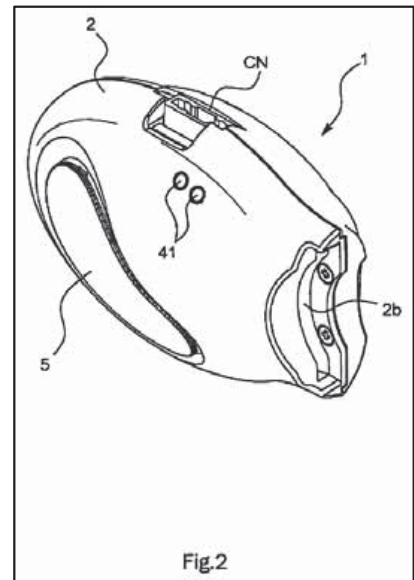
Katayama
(EP Pat. App. Pub. No. 1,914,691)

Katayama (EP Pat. App. Pub. No. 1,914,691)

Katayama

“This invention relates to a driving recorder that records behavior, a surrounding situation or the like of a motor vehicle during a certain period before and after a time of an accident or a hiyari hatto (risk incident), in other words, a case when a driver feels chill because he or she is close to be involved in an accident...”

USAA-1024, [0001]; See Pet., 58; USAA-1003, ¶74



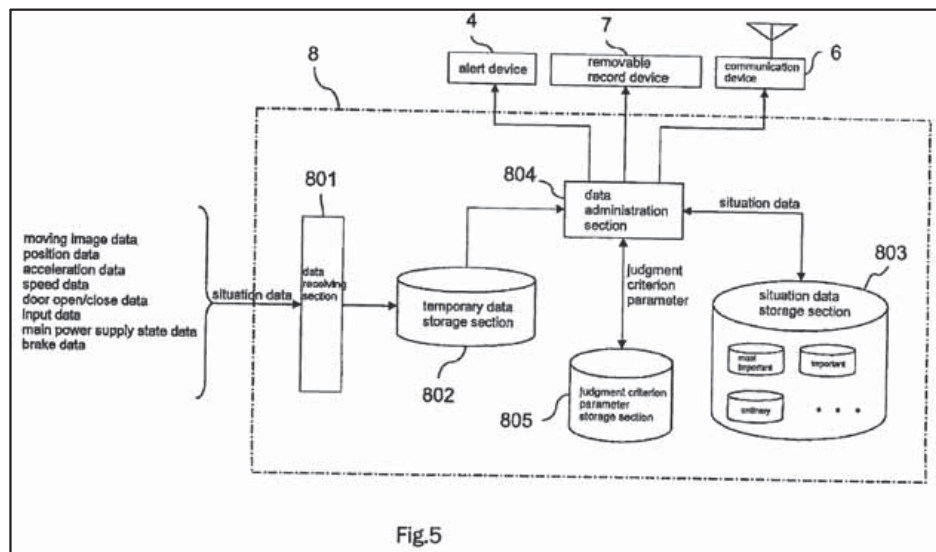
USAA-1024, FIG. 2; Pet., 58

Katayama (EP Pat. App. Pub. No. 1,914,691)

Katayama

“As shown in Fig. 5, each device is controlled or information processed by operating the CPU 81 in accordance with programs stored in a predetermined area of the internal memory 82, and functions as a data receiving section 801, a temporary data storage section 802, a situation data storage section 803, a data administration section 804 and a judgment criterion parameter storage section 805.

USAA-1024, [0044]; see Pet., 59, 61-62; USAA-1003, ¶¶76-78, 206-209



USAA-1024, FIG. 5; Pet. 59

Katayama (EP Pat. App. Pub. No. 1,914,691)

Michalson Declaration

"... data receiving section 801 receives 'situation data' including sensor data 'at a constant sampling time one after another in a chronological order and writes the received situation data' in temporary data storage section 802, which is set in another 'predetermined area of the internal memory 82.' [] Due to that area's limited capacity, 'old data is sequentially erased' and replaced over time with 'new situation data.'"

USAA-1003, ¶79 (citing USAA-1024, [0045], [0016]; see Pet., 60

Katayama

"The data receiving section 801 receives the situation data as being data concerning the behavior, the surrounding situation or the like of the motor vehicle V at a constant sampling time one after another in a chronological order and writes the received situation data one after another in the temporary data storage section 802 set in a predetermined area of the internal memory 82. If a capacity of the temporary data storage section 802 runs out, old data is sequentially erased and new situation data is written in the temporary data storage section 802."

USAA-1024, [0045]; see Pet., 60, 62, 64, 68; USAA-1003, ¶¶77, 79, 198...

Katayama (EP Pat. App. Pub. No. 1,914,691)

Michalson Declaration

“To avoid erasure of situation data that might be useful in determining the cause of an accident or risk incident, data administration section 804 determines at the ‘time of recording whether or not temporarily stored situation data meets one or more predetermined criteria for long term storage. [] If so, the recorded situation data is for example classified with an identifier marking it as ‘important,’ and then transferred with the identifier from ‘temporary data storage section 802’ to long term ‘situation data recording section 803.’”

USAA-1003, ¶80; USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; see Pet., 60

Katayama

“The data administration section 804 determines whether or not the content of the situation data stored in the temporary data storage section 802 meets the predetermined condition. Only in a case that the content meets the predetermined condition, the situation data during a certain period before and after the situation data whose content meets the predetermined condition is transferred from the temporary data storage section 802 to the situation data recording section 803 arranged in the internal memory 82...”

USAA-1024, [0046]; see Pet., 60, 62-64, 66-69, 76; USAA-1003, ¶80

Thompson2010

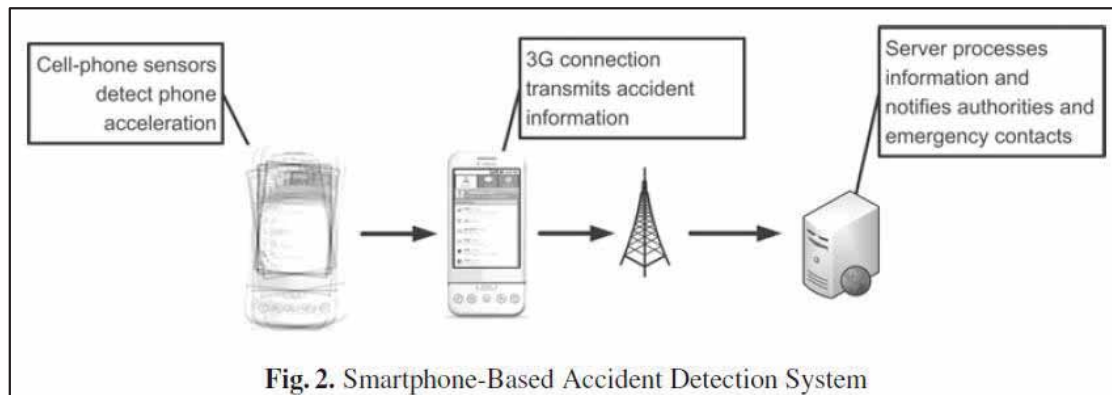
**“Using Smartphones to Detect Car Accidents and Provide
Situational Awareness to Emergency Responders”
Mobilware 2010, LNICST 48, pp. 29–42, 2010**

Thompson2010

Thompson2010

“This paper shows 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; See Pet., 71; USAA-1003, ¶83



USAA-1008, FIG. 2; Pet., 71

Thompson2010

POR

“... Thompson2010 is a rudimentary experimental study limited to significant crashes that filters out and/or ignores certain sensor data that the '879 patent would depend on for event detection.”

POR, 59

Reply

“... AT fails to explain why detection of “significant crashes” is not within claim scope. ... Thompson teaches processing capabilities to ‘detect even minor accidents,’ and further recognizes that a threshold associated with minor accidents is ‘significantly lower than the acceleration required to deploy airbags because of physical environment of the smartphone.’”

Reply, 25-26 (citing USAA-1001, cl. 14, 15, 33:5-18, 34:33-65; USAA-1008, 8)

Thompson2010

“... WreckWatch ignores any acceleration events below 4G’s. This value is designed to detect even minor accidents but filter out a drop or sudden stop and was chosen based on the empirical analysis presented in Section 4. This threshold is significantly lower than the acceleration required to deploy airbags because of physical environment of the smartphone.

Berkobin

U.S. Pat. App. Pub. No. 2008/0255888

Berkobin (U.S. Pat. App. Pub. No. 2008/0255888)

Berkobin

“Provided are methods, systems, and apparatuses for determining driver behavior based on vehicle operating parameters, adjusting insurance premiums accordingly...”

USAA-1010, Abstract; See Pet., 79; USAA-1003, ¶86

“The methods and systems can employ Artificial Intelligence techniques such as machine learning and iterative learning. Examples of such techniques include, but are not limited to, expert systems, case based reasoning, Bayesian networks, behavior based AI, neural networks, fuzzy systems, evolutionary computation (e.g. genetic algorithms), swarm intelligence (e.g. ant algorithms), and hybrid intelligent systems (e.g. Expert inference rules generated through a neural network or production rules from statistical learning).”

USAA-1010, [0031]; Pet., 79; USAA-1003, ¶86

Berkobin (U.S. Pat. App. Pub. No. 2008/0255888)

POR

“... Berkobin relies on vehicle-embedded GPS and a cellular transceiver for vehicle performance metrics. ... Berkobin does not contemplate using a phone for performing the features of its apparatus.

POR, 62-63

Reply

“... as actually proposed in the Petition, the combination leverages Berkobin’s disclosed use of ‘artificial intelligence’ for ‘analysis of high-dimensional and multimodal motion data,’ such as the types of data described in Curry.”

Reply, 26 (citing Pet., 79-80; USAA-1003, ¶¶261-63)

Berkobin

“... The methods and systems can employ Artificial Intelligence techniques such as machine learning and iterative learning. Examples of such techniques include...”

USAA-1010, [0031] (cited in Reply 26; Pet., 79; USAA-1003, ¶¶86)

The Curry-Rabu Combination

The Curry-Rabu Combination

Michalson Declaration

“Curry describes two modes: (1) a ‘communication’ operating mode that allows for normal phone usage and (2) ‘a GPS monitoring/navigation’ mode that can restrict calling, texting, and/or software capability on the phone for purposes of promoting driving safety.”

USAA-1003, ¶90 (citing USAA-1005, 10:15-11:14, 13:20-16:22, Figs. 3, 4);
see Pet., 12

“... Curry suggests correlating different activity modes (e.g., stop, driving) with different operating modes (e.g., different levels of restrictions on phone use), and accounting for the context of phone usage when generating a driving score for a particular user.”

USAA-1003, ¶91 (citing USAA-1005, 2:3-3:28, 15:8-16:33); see Pet., 13

Curry

“... a mobile phone 106 can have two mutually exclusive modes: a GPS monitoring/navigation mode and a communication mode.”

USAA-1005, 10:15-17 (cited in USAA-1003, ¶90)

“There are a number of time-sensitive issues that require commercial fleet drivers (i.e. truck drivers, taxi drivers, delivery drivers, etc.) to communicate with dispatchers or other drivers using a cell phone while driving. ...”

USAA-1005, 15:8-10 (cited in USAA-1003, ¶91)

“To address the above user needs while ensure driving safety, one embodiment of a system for monitoring and controlling the use of a mobile computing device can be configured to dynamically switch communication mode to GPS mode depending on the complexity of driving conditions.”

USAA-1005, 15:18-21 (cited in USAA-1003, ¶91)

The Curry-Rabu Combination

Petition

“A person of ordinary skill in the art (‘POSITA’) 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.”

“... 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.

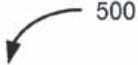
Pet., 11; USAA-1003, ¶¶88-89

Michalson Declaration

“...the result is a device with added functionality capable of defining and determining different types of driving periods based on user inputs and sensor data..., and of appropriately restricting phone use and/or adjusting user driving scores depending on a type of driving period determined.”

USAA-1003, ¶88

Rabu



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; see Pet.,14

Motivation to Combine Curry and Rabu

Michalson Declaration

“...Curry would have motivated a POSITA to seek related practical solutions.”

USAA-1003, ¶92; see Pet., 13

Michalson Declaration

“A POSITA would have readily found relevant solutions within Rabu...”

“... Rabu explains at length that a smart phone processor leveraging a ‘generally conventional’ accelerometer such as that found in Curry’s phone can be used to determine both an orientation angle and motion status of the smart phone, for the purposes of discerning context associated with the phone’s usage and changing the phone’s operating mode...”

USAA-1003, ¶93 (citing USAA-1013, 3:1-10, 4:21-33, Figs. 1, 4); see Pet., 13

Rabu

500

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; see Pet., 14

Multiple Advantages Would Have Motivated the POSITA

Michalson Declaration

“The POSITA would have understood and found obvious that enhancing Curry’s system to define additional driving modes (including one in which the phone is docked, and another in which the phone is undocked), and to appropriately restrict phone use and/or adjust user driving scores depending on a type of driving period determined from user inputs and sensor data, would introduce multiple additional advantages... including:”

“...increased user tolerance for Curry’s monitoring techniques”

“...increased user participation in Curry’s monitoring techniques...”

“...enhanced reliability of motion detection and related determinations of user driving behaviors...”

“...generation of more nuanced safety scores...”

“...enhanced utility for third parties to leverage those more nuanced driving scores...”

USAA-1003, ¶¶97-101; see Pet., 15-16

Motivation to Combine Curry and Rabu

Institution Decision

“Based on the preliminary record, **Dr. Michalson’s testimony is consistent with the disclosures of Curry and Rabu.** For example, Curry contemplates switching between communication mode and GPS mode depending on the complexity of the driving conditions.”

Dec., 31-32 (citing USAA-1005, 15:18-21, 15:8-10))

Reply

“AT has also failed to meaningfully develop the evidentiary record post-institution. It failed to avail itself of the opportunity cross-examine USAA’s expert, Dr. William Michalson.”

Reply, 2

The POSITA Would Have Reasonably Expected Success

POR

“... a POSITA would have had no reasonable expectation of success in combining Rabu with Curry.”

POR, 47

Wilson Testimony

Q: ... the same hardware that's disclosed in Curry to determine motion is also disclosed in Rabu. Correct?

A: The same generic hardware is disclosed. ... the requirements on the Curry hardware – the technical specifications are reasonably well predictable. ...”

USAA-1085, 57:20-58:20 (cited in Reply, 16)

Reply

“The Petition therefore made clear that the Curry-Rabu phone would have consistently leveraged an accelerometer (present in Curry's phone) to enhance the same functions for activity mode recognition by additionally enabling docking status detection.”

Reply, 15

“Rabu likewise describes leveraging a ‘generally conventional’ accelerometer to determine ‘both an orientation angle and motion status of the smart phone’ to ‘determine whether the phone is docked within a moving vehicle.’”

Reply, 18-19 (citing USAA-1003, ¶93 (citing USAA-1013, 3:1-10, 4:21-33, Figs. 1, 4))

The POSITA Would Have Reasonably Expected Success

POR

“... Rabu requires that the ‘determination [of the activity mode be] made based on determining a frequency spectrum associated with the holder motion and comparing that to frequency spectra of known motions.’”

POR, 49

Reply

“Curry and Rabu also confirm that it would have been obvious for the Curry-Rabu phone to use accelerometer data alone to achieve the advantages provided by the combination.”

“... Rabu’s determination of orientation data does not require reliance on frequency spectrum data, ...”

Reply, 18-19; Pet., 11-17; USAA-1003, ¶¶197-217

Michalson Declaration

“...Rabu explains at length that a smart phone processor leveraging a ‘generally conventional’ **accelerometer** such as that found in Curry’s phone can be used to determine both an orientation angle and motion status of the smart phone, ... Rabu describes switching operating modes based on determining that the phone is ‘docked in a moving vehicle’ ...”

USAA-1003, ¶93; see Pet., 13; Reply, 19, 21

The POSITA Would Have Reasonably Expected Success

POR

“... Petitioner impermissibly relies on hindsight and piecemeal construction of the claims for its analysis.”

POR, 51

Michalson Declaration

“Curry suggests a nuanced approach to phone restrictions and to driver scoring that takes into account the context within which a phone is used. But Curry is focused more on functionality than implementation details. As such, Curry would have motivated a POSITA to seek related practical solutions.”

USAA-1003, ¶92 (citing USAA-1005, Abstract, 2:3-3:28, 15:8-16:33)

“A POSITA would have readily found relevant solutions within Rabu, and would have expected success in incorporating Rabu's solutions within Curry.”

USAA-1003, ¶93 (citing USAA-1013, 3:1-10, 4:21-33, 8:13-10:42, Figs. 1, 4, 5, 7, 8)

The POSITA Would Have Reasonably Expected Success

Sur-Reply

“...Curry-Rabu would have been unreliable and ineffective at curing Curry’s shortcomings, and thus a POSITA would not have made the combination.”

Sur-Reply, 25

“... it makes no sense for a POSITA to have looked to Rabu merely for an accelerometer’s orientation data, given Curry’s similar accelerometer and Rabu’s reliability issues.”

Sur-Reply, 24

Wilson Testimony

- Q. So another way of doing – of analyzing motion is Curry’s methodology of using an accelerometer and GPS. Correct?
- A. That is – and Curry’s method also determines motion status – discriminates between driving and nondriving.
- Q. Right. So it’s – but it’s determining whether the person is driving, which means whether the person is in motion in a vehicle. Correct?
- A. Correct.
- Q. Okay. And so, the same hardware that’s disclosed in Curry to determine motion is also disclosed in Rabu. Correct?
- A. The same generic hardware is disclosed.

USAA-1085, 58:7-20 (cited in Reply, 16)

Generally Conventional Accelerometer

Michalson Declaration

“Rabu ... describes using an accelerometer ... embedded within a ‘portable media device’ ... to determine whether the PMD ‘is in a dock, resting on a surface, or being handled by a person’ in addition to whether the PMD ‘is located in a moving vehicle’ or ‘a stationary vehicle.’

USAA-1003, ¶67; Pet., 8; USAA-1013, Abstract, 1:1-52, 1:60-2:11, 3:11-28, 6:49-7:6, Figs. 1-8

Rabu

“Accelerometer 409, which can be of generally conventional design, may be a single axis accelerometer or a multi-axis accelerometer. In some embodiments, accelerometer 409 can be implemented as a micro electromechanical system (MEMS) device embedded in PMD 400. Accelerometer 409 can measure acceleration due to gravity. Based on that measurement, processor 404 can determine the angle it is tilted at with respect to vertical, horizontal, or any other reference plane. In some embodiments, accelerometer 409 can sense the amount of dynamic acceleration. Based on this information, processor 404 can determine a frequency spectrum associated with the holder motion and consequently determine the motion status of PMD 400.

USAA-1013, 4:15-33; USAA-1003, ¶69; Pet., 10

49

Routine Programming Knowledge

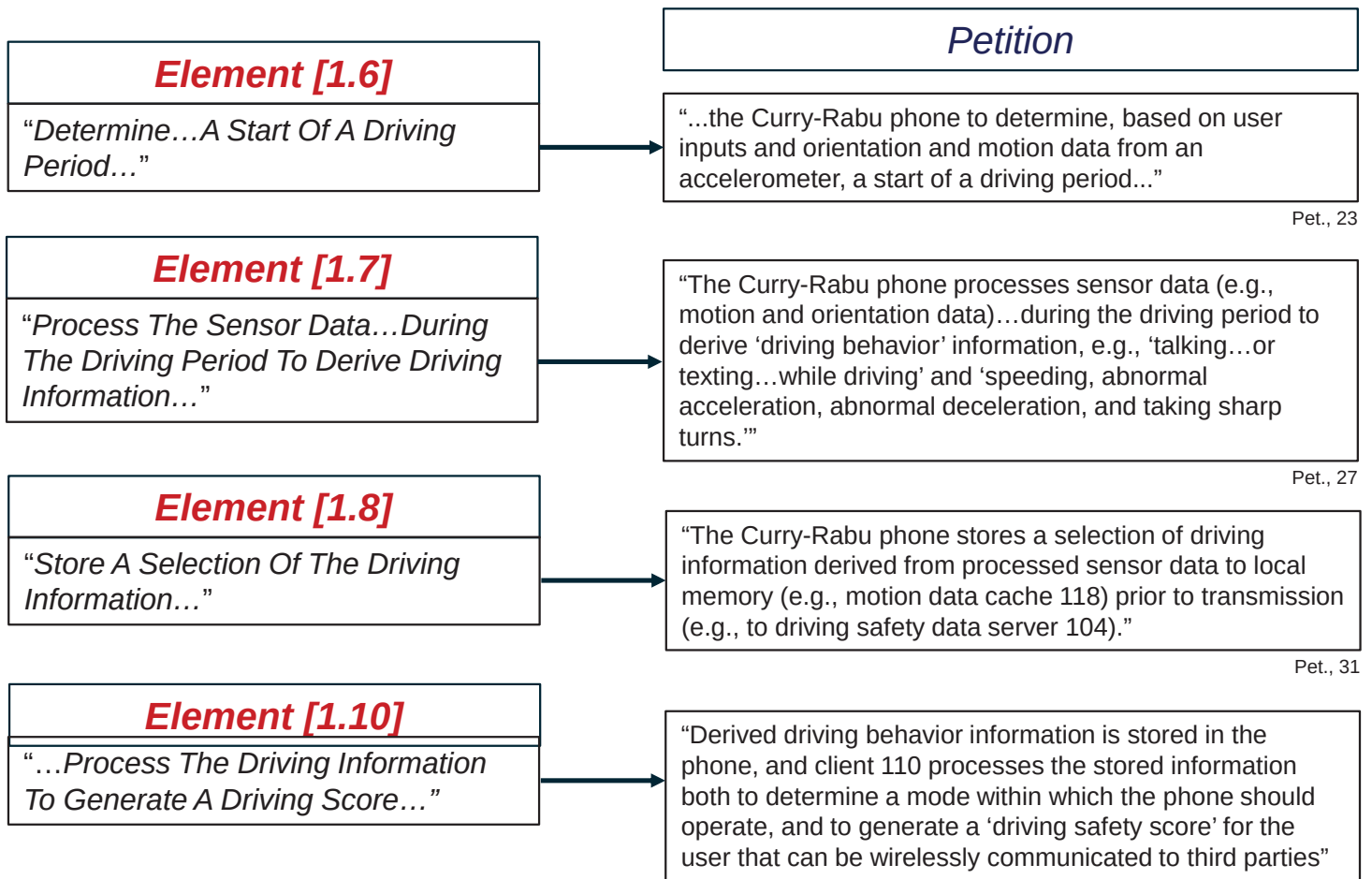
Michalson Declaration

“... configuring Curry’s systems to leverage Rabu’s teachings would have required only routine programming knowledge, which was well within the skill of a POSITA prior to the earliest effective filing date. For example, Rabu and Curry both use the same type of hand-held phone and contain the same types of internal sensors (GPS, accelerometers). 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.”

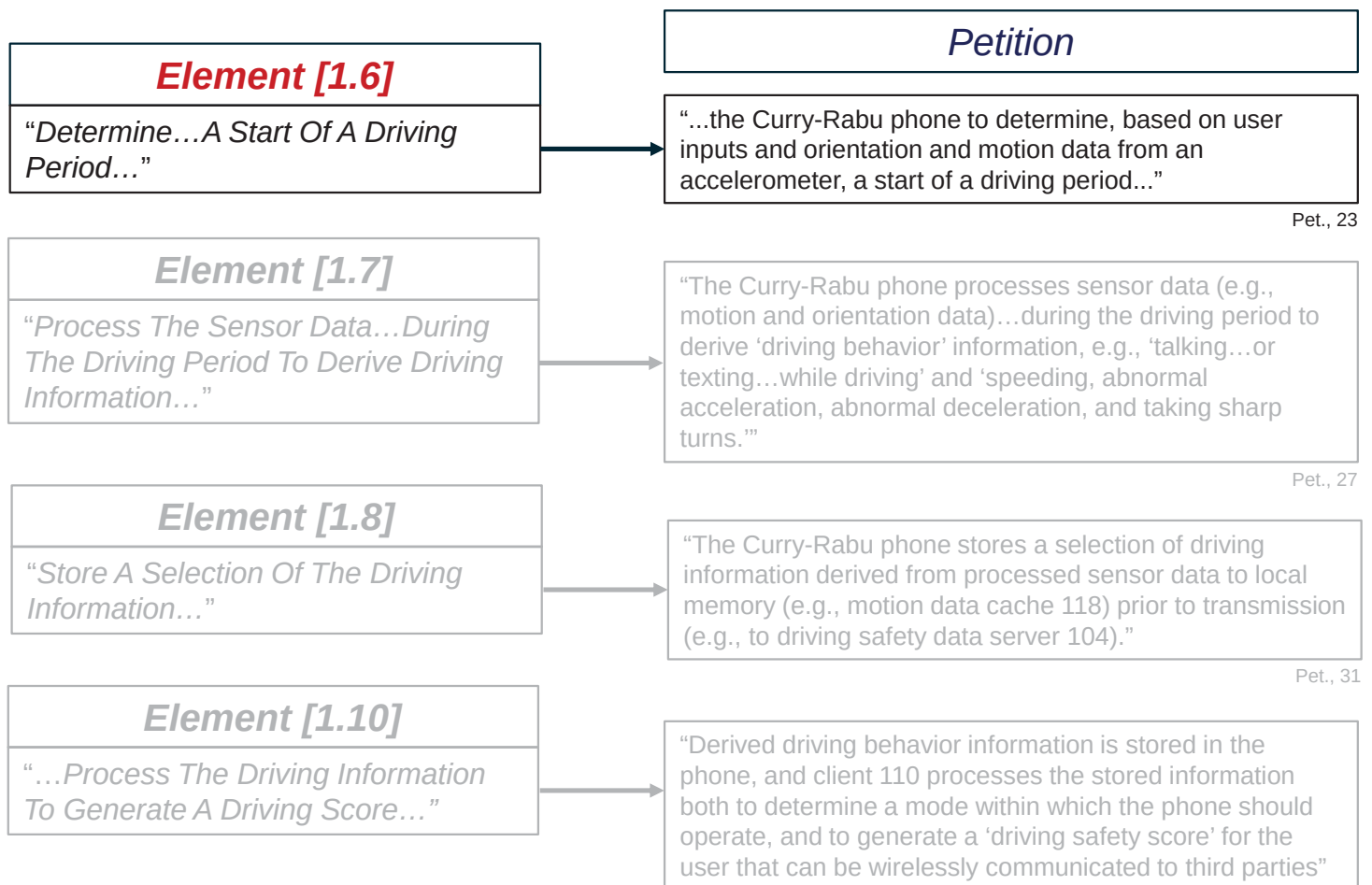
USAA-1003, ¶103; see Pet., 17

Additional Topics for Discussion

Overview



Overview



“Determine A Start Of A Driving Period”

Claim 1

“... 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; ...”

USAA-1001, 31:42-32:2

Petition

“Because the Challenged Claims are obvious under any reasonable interpretation, no express constructions are required in this proceeding.

Pet., 3

“Determine A Start Of A Driving Period”

Petition

“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.’ ... Though the namesake of the ‘driving period’ suggests driving, because the two claim parameters defining the ‘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.”

Pet., 3-4; USAA-1003, ¶124

Petition

“... 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.’ ... 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.”

Pet., 4; USAA-1003, ¶125

“Determine A Start Of A Driving Period”

Institution Decision

“...Patent Owner quotes from a passage in the '879 patent, stating that “if the sensor data reflects a detected speed above a predetermined threshold . . . **this can be used to trigger the start of the driving period.**” Prelim. Resp. 7 (quoting Ex. 1001, 3:37–62). This passage supports Petitioner’s interpretation that the start of the driving period may correspond to the middle of a vehicle’s operation—that is, when the vehicle reaches a predetermined minimum speed.”

Dec., 11

“Determine A Start Of A Driving Period”

'879 Patent

“For example, if the sensor data reflects a detected speed above a predetermined threshold—for example, 20 kilometers per hour—then this can be used to trigger the start of the driving period.”

USAA-1001, 3:42-45 (cited in Reply, 4, 7)

Wilson Testimony

Q. ... Is there a particular speed below which a vehicle isn't considered as being driven?

A. ... So the specifics of exactly when the driving period starts and exactly when it ends are not critical to the analysis or the driving period as perceived by a person of skill in the art.

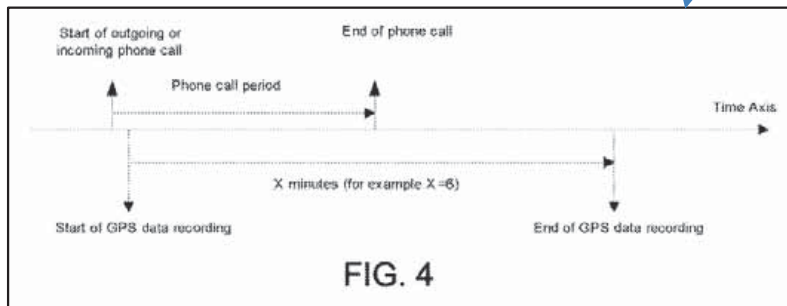
USAA-1084, 99:14-100:10 (cited in Reply, 7 as USAA-1084, 99:7-10)

Curry-Rabu Satisfies “Determin[ing] A Start Of A Driving Period”

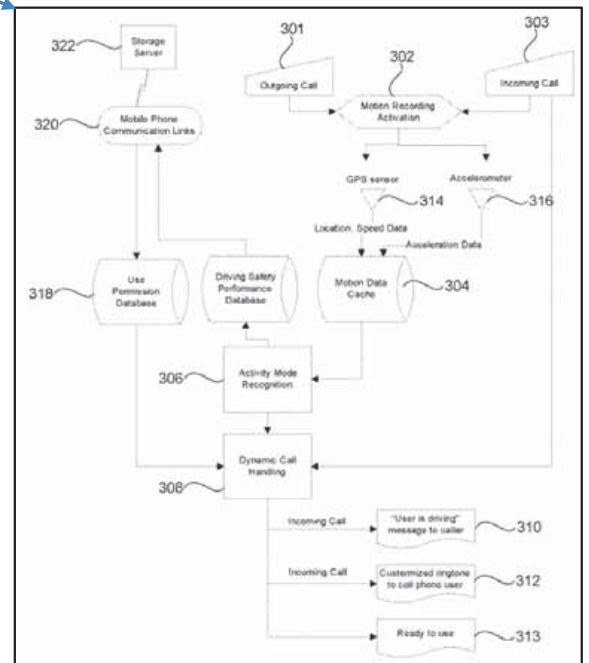
Petition

“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, ...”

Pet., 24 (citing USAA-1003, ¶129)



USAA-1005, FIG. 4; see Pet., 26



USAA-1005, FIG. 3; see Pet., 13, 16, 23-24, 27

Curry-Rabu Satisfies “Determin[ing] A Start Of A Driving Period”

POR

“Curry does not disclose any data collection unrelated to the phone call, and specifically does not disclose any time period for data collection, other than a period starting with a phone call.”

POR, 24

“...Curry’s mobile device does not determine a start of a driving period, or a driving period, as required by the claims; ...”

POR, 25

Curry

“... the motion recording process can be activated 302 on the phone. This may be accomplished by the user of the phone, or through an automated process by the mobile phone client when a selected type of motion is detected. For example, the reporting process may be activated when an outgoing call 301 is made or an incoming call 303 is received.”

USAA-1005, 13:20-26 (cited in Pet., 12-13)

Curry-Rabu Satisfies “*Determin[ing] A Start Of A Driving Period*”

Wilson Testimony

Q. ... And would you agree with me that one type of unsafe driving – indeed, probably the main type of unsafe driving, as contemplated by Curry – is usage of a cell phone while driving?

A. Yes; that is the primary goal of Curry, is to **eliminate or penalize people for the use of a cell phone while driving.**

USAA-1084, 211:3-5 (cited in Reply, 7)

Q. And would you agree with me, then, that use – and it talks about a **safety statistic** that can be calculated and that can be decreased **based on unsafe driving.** Correct?

A. **That is correct.**

USAA-1084, 209:18-22 (cited in Reply, 11)

“Determine A Start Of A Driving Period”

'879 Patent

“A main purpose of the mobile telecommunications device, when arranged within a vehicle in motion, such as the illustrated automobile 3, is to monitor and process sensor data captured by the mobile device, to derive driving information associated with the moving automobile 3. As mentioned previously, this driving information is subsequently used by the mobile device to determine if a driving incident or event has occurred.”

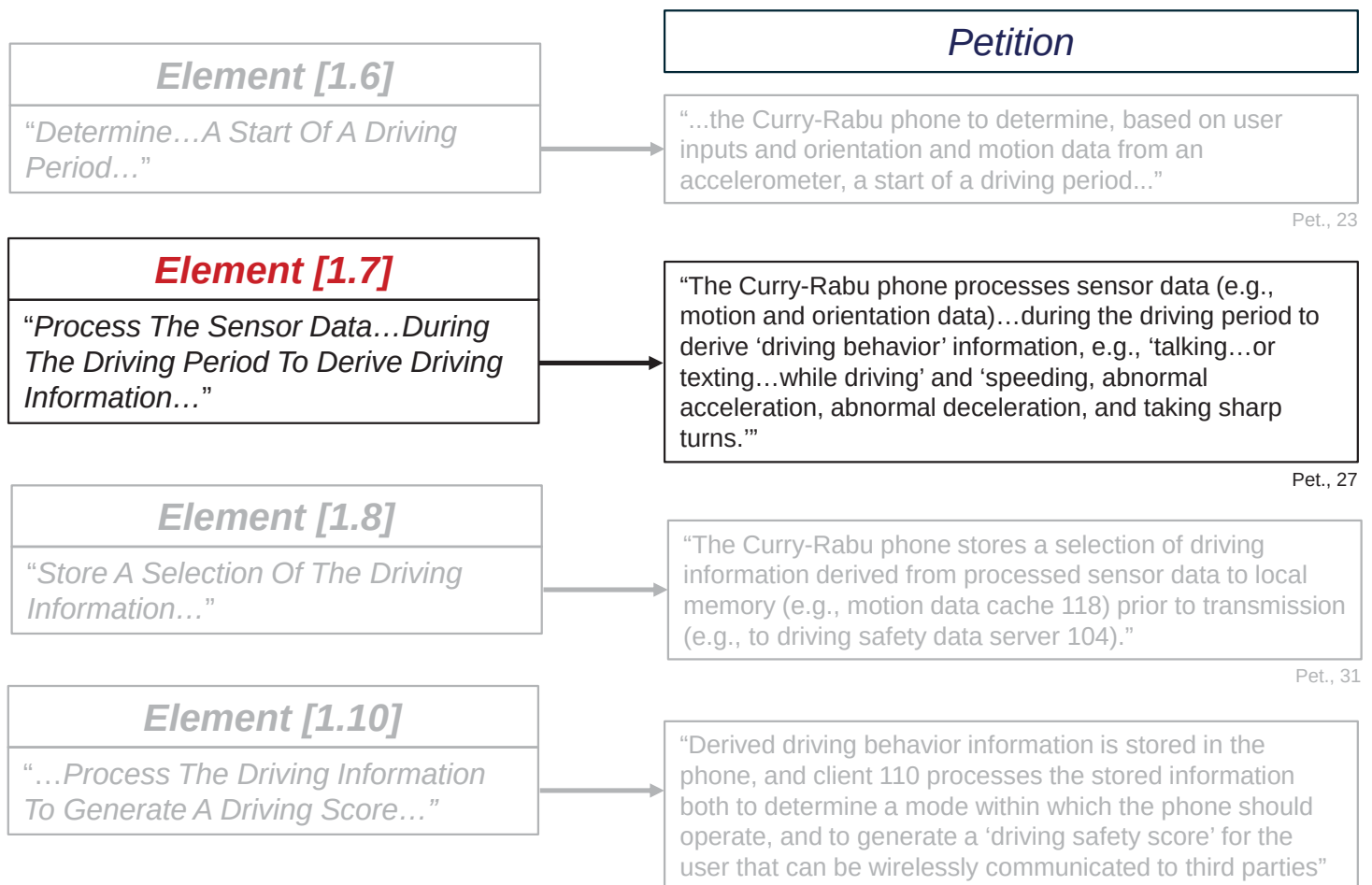
USAA-1001, 13:36-49 (cited in Sur-Reply, 2)

Claim 1

“ ... 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;...”

USAA-1001, Claim 1; see Pet., 17-36

Overview



Curry-Rabu Satisfies “Process[ing] The Sensor Data...To Derive Driving Information”

Petition

“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.”

Pet., 27 (citing USAA-1003, ¶¶134-135; USAA-1005, 7:13-29, 8:21-27, 8:30-9:33, 10:15-26, 11:3-17)

Curry

“... The driver safety statistic can also be decreased based on driving behavior, such as speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns. The safety statistic can be reported to or calculated at the data server.

USAA-1005, 4:3-6; see also *id.*, 8:30-9:33; see Pet., 27

Curry-Rabu Satisfies “*Process[ing] The Sensor Data...To Derive Driving Information*”

POR

“For example, location, speed, and acceleration of the vehicle associated with how the vehicle is driven can be captured and processed, ...”

POR, 2

Curry-Rabu Satisfies “Process[ing] The Sensor Data...To Derive Driving Information”

Petition

“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,’ ...”

Pet., 29-30 (citing USAA-1005, 13:20-14:26, Fig. 3; USAA-1003, ¶139)

Curry

“The activity mode recognition module 306 can use recorded time stamped data to estimate the type of activity: driving, walking, running or remaining substantially still.”

USAA-1005, 13:31-33, see Pet. 29-30

“If the activity mode is recognized in real-time, the dynamical call handling module 308 can allow or disallow users to receive or make a call, ...

USAA-1005, 14:5-6, see Pet. 29-30

Curry-Rabu Satisfies “*Process[ing] The Sensor Data...To Derive Driving Information*”

Curry

“The motion data cache can also be used to record the location, speed, and acceleration of the mobile wireless computing device each time a phone call is transmitted from or received by the wireless device. The data in the motion data cache can be transmitted to and stored on the data server. The data in the motion data cache can be compared with the user permission data to enable a driver safety statistic to be calculated based on when and where the wireless computing device was used and the motion of the device. The driver safety statistic may be decreased for certain user behaviors, such as use of the device while driving a vehicle, and use of the device during restricted time periods. In addition, the wireless device may collect data during periods other than when phone calls are answered or made. For example, the wireless device may collect speed and location information and report that information back to the data server. The driver safety statistic can also be decreased based on driving behavior, such as speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns. The safety statistic can be reported to or calculated at the data server.”

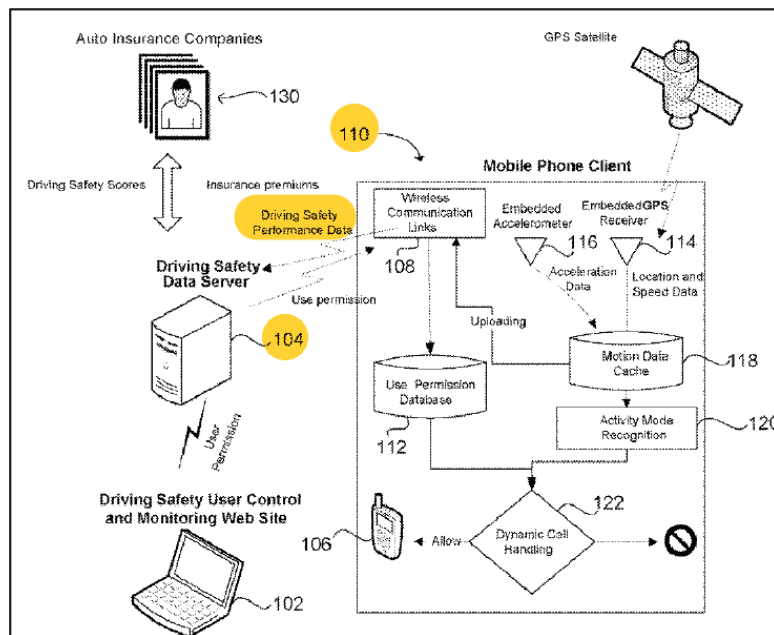
USAA-1005, 3:24-4:6; Pet., 6, 16, 21; USAA-1003, ¶64

Curry-Rabu Satisfies “Process[ing] The Sensor Data...To Derive Driving Information”

Curry

“... The communication links available in the mobile phone can be used to [transmit] driving safety performance data to a central data server.”

USAA-1005, 11:15-25; see Pet., 27, 31, 33; Reply, 9, 13



USAA-1005, FIG. 1 (annotated); see Reply,10

Curry-Rabu Satisfies “*Process[ing] The Sensor Data...To Derive Driving Information*”

Petition

“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[.]’”

Pet., 31 (citing 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)

Curry-Rabu Satisfies “Process[ing] The Sensor Data...To Derive Driving Information”

POR

“... Curry does not disclose or suggest that processing according to the claims is performed on the mobile device itself.”

POR, 39

Curry

“The driver safety statistic can also be decreased based on driving behavior, such as speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns. The safety statistic can be reported to or calculated at the data server.”

USAA-1005, 4:3-6; see Pet., 6, 16; Reply, 8; USAA-103, ¶¶64, 116

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

USAA-1005, 11:3-14; see Pet., 35

“In one embodiment, the driving safety data can be recorded in mobile phones and then transmitted to a centrally managed data server through wireless communication links, ...”

USAA-1005, 7:5-22; see Pet., 6, 23, 29; Reply, 9, 13

Curry-Rabu Satisfies “*Process[ing] The Sensor Data...To Derive Driving Information*”

Curry

“Modules may also be implemented in software for execution by various types of processors.”

USAA-1005, 6:3-4; see Pet., 21

“The term ‘mobile phone’ can include any type of electronic mobile computing device that may be used while traveling in a vehicle.”

USAA-1005, 7:24-26; see Pet., 6, 18

Curry-Rabu Satisfies “Process[ing] The Sensor Data...To Derive Driving Information”

Petition

“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.

Pet., 21 (citing 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)

Michalson Declaration

“... USAA-1015, 237-250 ([a] cache memory is a small, temporary, but fast memory that the processor uses for information it is likely to need again in the very near future’).”

USAA-1003, ¶119 (cited in Pet. 21)

“At the most basic level, a computer is a device consisting of ... [a] processor to interpret and execute programs ... [a] memory... [and a] mechanism for transferring data...’ ... the ‘iPhone 3G’ described by Curry as an exemplary mobile phone including GPS and accelerometer sensors, further included a processor.”

USAA-1003, ¶¶117-118 (citing USAA-1005, 2:22-27, 5:3-10; USAA-1015, 4; USAA-1081, 1-5; USAA-1013, 3:11-28, 4:15-20, 5:3-14, Figs. 1, 4; USAA-1016, ¶¶[0046]-[0063], FIG. 3) (cited in Pet. 21)

Curry-Rabu Satisfies “*Process[ing] The Sensor Data...To Derive Driving Information*”

Wilson Testimony

Q. ... But there is no technical inadequacy that would prevent, for example, the – Curry’s iPhone from performing processing of the data. Right?

A. ... It **had the capability** to do some processing – you know, I agree to that.

USAA-1084, 63:18-64:9 (cited in Reply, 11)

Q. And I understand you to have just stated certain general technical limitations. Specifically, are you aware of a technical limitation that would have prevented a mobile device, as disclosed in Curry, from performing processing on sensor data?

A. Again, it would – as I’ve said, it **certainly can do some processing** on some sensor data.

USAA-1084, 65:21-66:4 (cited in Reply, 11)

Q. And would you agree with me, then, that use – and it talks about a **safety statistic** that can be calculated and that can be decreased **based on unsafe driving**. Correct?

A. **That is correct.**

USAA-1084, 209:18-22 (cited in Reply, 11)

Overview

Petition

Element [1.6]

"Determine...A Start Of A Driving Period..."

"...the Curry-Rabu phone to determine, based on user inputs and orientation and motion data from an accelerometer, a start of a driving period..."

Pet., 23

Element [1.7]

"Process The Sensor Data...During The Driving Period To Derive Driving Information..."

"The Curry-Rabu phone processes sensor data (e.g., motion and orientation data)...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.'"

Pet., 27

Element [1.8]

"Store A Selection Of The Driving Information..."

"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)."

Pet., 31

Element [1.10]

"...Process The Driving Information To Generate A Driving Score..."

"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"

Pet., 35 73

Curry-Rabu Satisfies “Stor[ing] A Selection Of The Driving Information”

POR

“To the extent that Curry stores sensor information, it is solely raw data, not “information derived from processed sensor data,” and certainly not “driving information” as required by claim element [1.8].

POR, 40-41

Curry

“... the driving safety data can be recorded in mobile phones and then transmitted to a centrally managed data server ...”

USAA-1005, 7:8-10; see Pet., 23; USAA-103, ¶123

“When a call is made or received using a mobile phone 106, the mobile phone client 110 can record location, speed and acceleration data from sensors embedded in the wireless device, such as a GPS sensor 114 and accelerometer 116. The data can be recorded to a local motion data cache 118 for further processing.”

USAA-1005, 8:29-9:11; see Pet., 23, 28; Reply, 11-12; USAA-103, ¶137

Curry-Rabu Satisfies “Stor[ing] A Selection Of The Driving Information”

Petition

“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).”

Pet., 31 (citing USAA-1003, ¶142; USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Figs. 1, 3; USAA-1015, 233-250)

“...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).

Pet., 32 (citing 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)

Reply

“... Curry describes various examples of information representing ***driving information*** (e.g., processed speed data, processed accelerometer data, driving safety performance data, driver safety statistics) being processed locally on a mobile device. Further, this information may be **stored locally** prior to transmission to an associated server, confirming local storage of information beyond raw sensor data.”

Reply, 13 (citing USAA-1005, 11:15-25, 8:29-9:11; Pet., 22-23; USAA-1003, ¶¶134-141)

Curry-Rabu Satisfies “Stor[ing] A Selection Of The Driving Information”

Wilson Testimony

Q. Okay. Would operational data exclude processed sensor data?

A. No.

USAA-1084, 223:8-10 (cited in Reply, 13)

Q. But that the operational data may be stored in a data structure?

A. Correct.

Q. Okay. And that data structure would be stored on memory on the mobile phone client?

A. It – I mean, some would be stored there. Some would be stored on the server. They could be stored anywhere. ...

USAA-1084, 223:23-224:5 (cited in Reply, 13)

Q. So let me ask it to you this way: The Curry references discloses that the mobile device has the ability to store data. Right?

A. Correct.

Q. Okay. And such data would be stored in a data structure of some kind. Right?

A. May be stored in a data structure.

Q. Okay. And if the data structure is – and that – and operational data, specifically, could be stored in a data structure of some kind?

A. Yes. Operational data might be stored in a data structure of some kind.

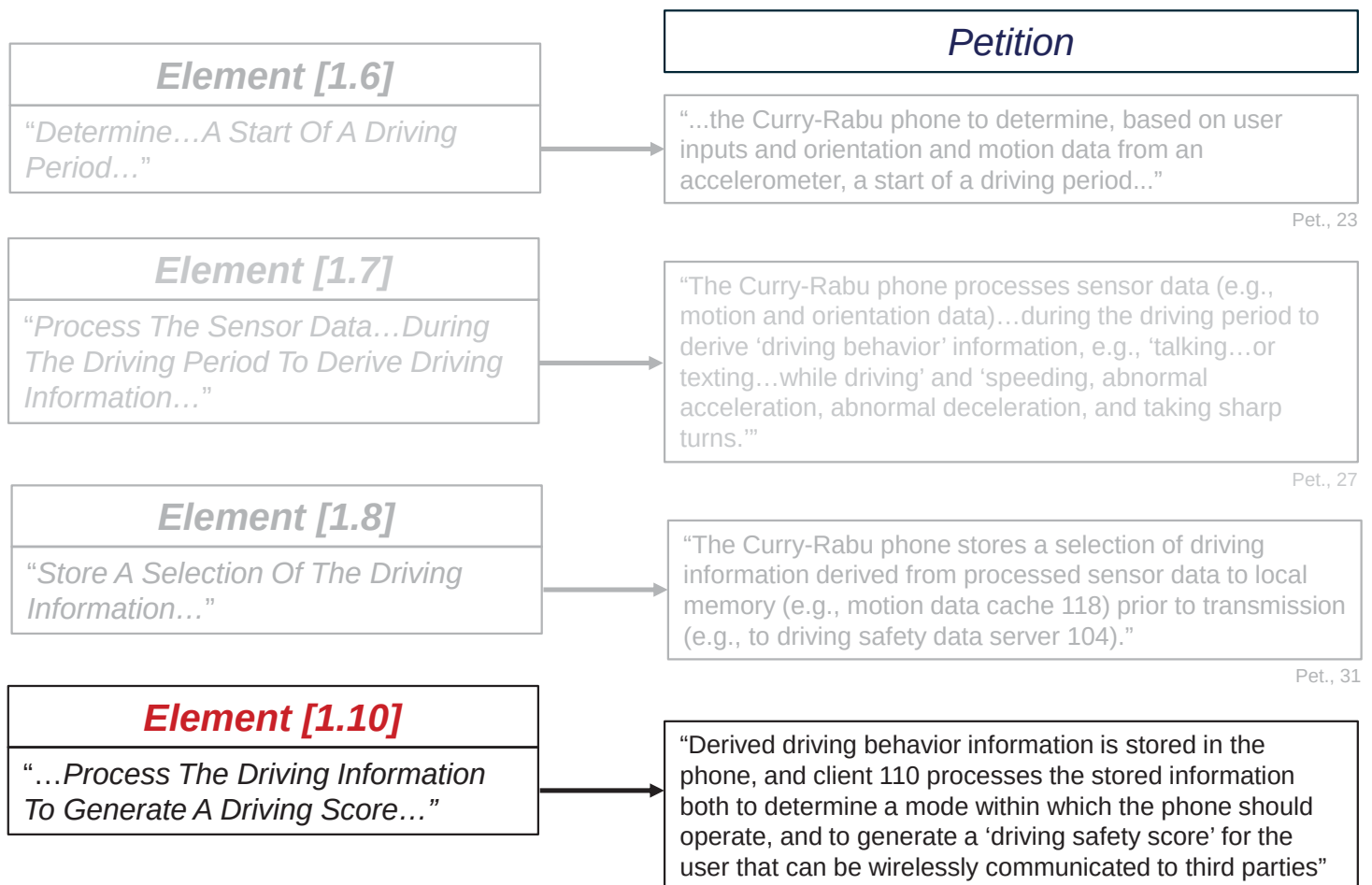
Q. And such – said operational data could be processed sensor data. Right?

A. In a general sense, yes.

USAA-1084, 225:3-17 (cited in Reply page 13 as 223:8-224:17)

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Overview

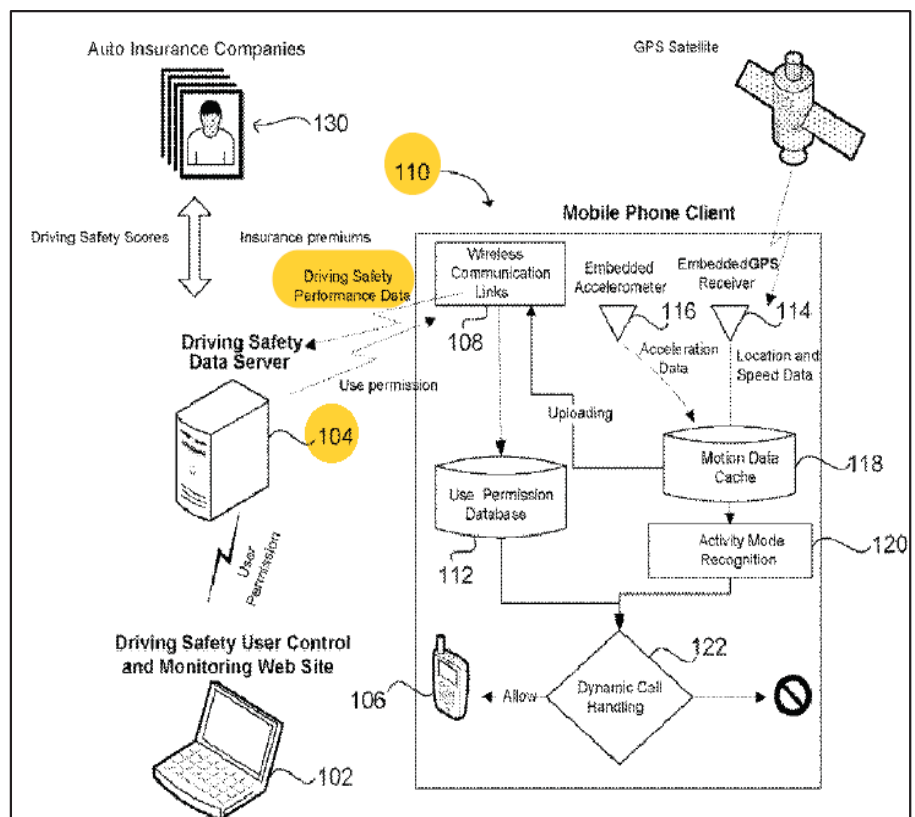


Curry-Rabu Satisfies “Process[ing] The Driving Information To Generate A Driving Score...”

Michalson Declaration

“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.”

USAA-1003, ¶166; Pet., 7-8; USAA-1005, Abstract, 3:1-4:6, 8:29-12:18, 13:27-14:26, 17:1-18:4 (PDF pages), Figs. 1, 3, 6.



USAA-1005, FIG. 1 (annotated); see Reply, 10

Curry-Rabu Satisfies “*Process[ing] The Driving Information To Generate A Driving Score...*”

Curry

“The motion data cache can also be used to record the location, speed, and acceleration of the mobile wireless computing device each time a phone call is transmitted from or received by the wireless device. The data in the motion data cache can be transmitted to and stored on the data server. The data in the motion data cache can be compared with the user permission data to enable a driver safety statistic to be calculated based on when and where the wireless computing device was used and the motion of the device. The driver safety statistic may be decreased for certain user behaviors, such as use of the device while driving a vehicle, and use of the device during restricted time periods. In addition, the wireless device may collect data during periods other than when phone calls are answered or made. For example, the wireless device may collect speed and location information and report that information back to the data server. The driver safety statistic can also be decreased based on driving behavior, such as speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns. The safety statistic can be reported to or calculated at the data server.”

USAA-1005, 3:24-4:6; Pet., 6, 16, 21; USAA-1003, ¶64

Curry-Rabu Satisfies “*Process[ing] The Driving Information To Generate A Driving Score...*”

Curry

“The activity mode recognition module 306 can use recorded time stamped data to estimate the type of activity: driving, walking, running or remaining substantially still.”

USAA-1005, 13:31-33, see Pet. 29-30; USAA-1003, ¶139

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

USAA-1005, 11:3-14; see Pet., 35; USAA-1003, ¶150

Curry-Rabu Satisfies “Process[ing] The Driving Information To Generate A Driving Score...”

Curry

“The location of software and firmware used to create the functionality of the system for monitoring and controlling the use of a mobile computing device illustrated in FIG. 1 can be based on a tradeoff between the complexity of the mobile device and the amount of information communicated on the mobile device's network. ... The actual location of the modules, caches, and databases can be decided based on engineering and business needs.”

USAA-1005, 12:3-18; see Pet., 12, 18, 62; USAA-1003, ¶¶89, 105, 107, 210,

“Modules may also be implemented in software for execution by various types of processors.”

USAA-1005, 6:3-4; see Pet., 21

“A driving safety evaluation module can be used to perform a statistical analysis on collected raw driving data. The evaluation module can then calculate corresponding safety scores.

USAA-1005, 7:13-15; see Pet., 6, 12, 15-16, 18, 23-24, 27, 29, 31; Reply, 7, 9, 11-12

Curry-Rabu Satisfies “Process[ing] The Driving Information To Generate A Driving Score...”

Curry

“The safety statistic and other information collected by the wireless device can be made available to selected individuals, such as a user's parents or guardian, or desired a third party such as an insurance company. The insurance company can provide the user a discounted rate in return for the user maintaining a safety statistic that is greater than a selected threshold value.”

USAA-1005, 4:7-11, cl. 16; see Pet., 6, 16; 18, 32-33, 62, 68

Other Slides

“Determine A Start Of A Driving Period”

Sur-Reply

“Petitioner addresses the start of a recording period, not of the claimed driving period.”

Sur-Reply, 14

Wilson Testimony

Q. ... And would you agree with me that one type of unsafe driving – indeed, probably the main type of unsafe driving, as contemplated by Curry – is usage of a cell phone while driving?

A. Yes; that is the primary goal of Curry, is to **eliminate or penalize people for the use of a cell phone while driving.**

USAA-1084, 211:3-5 (cited in Reply, 6-7)

Institution Decision

“Based on the preliminary record, we consider Patent Owner’s reading of Curry to be too narrow. As discussed above, Curry teaches the use of GPS and accelerometer sensors embedded in mobile phones ‘to monitor *driving* safety performance’ and provide ‘an integrated and economical solution . . . to detect and prevent unsafe *driving* behavior such as talking on or texting with mobile phones *while driving*.’ Ex. 1005, 7:5–8 (emphases added) . Curry expressly discloses that the features described in the reference apply to monitoring driving and driving safety. That being the case, we are not persuaded by Patent Owner’s assertion that an ordinarily skilled artisan would consider Curry to lack ‘a start of a driving period’ because a phone call may never be placed or received. See Prelim. Resp. 34. Rather, Curry specifically teaches that a phone call may be placed or received during the driving of a vehicle, which then activates the monitoring mode.”

Dec. 28 (cited in Reply, 2)

“Determine A Start Of A Driving Period”

Sur-Reply

“Curry may show the start of a phone call and recording period occurring at the time Curry’s phone determines that the phone is in a certain activity mode...”

Sur-Reply, 11

Petition

“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.”

Pet., 29-30 (citing USAA-1005, 13:20-14:26, Fig. 3; USAA-1003, ¶139)

“Process The Sensor Data...To Derive Driving Information”

Sur-Reply

“Curry, at 16:7-22 (FIG. 4), discloses Curry’s phone caching raw sensor data over a limited time period (e.g., 6 minutes) and *post-processing* the data merely to determine activity mode, similar to FIG. 3, for a call that was put through.

Sur-Reply, 13

Curry

“In the extended data collection time period, if the user changes the activity mode, for example, from driving to fully stop, or from stop to driving, the system uses acceleration data from the accelerometer to determine the change of activity mode, and then further estimate the motion type before or after the change.”

USAA-1005, 15:18-22 (cited in Pet., 13)

“Process The Sensor Data...To Derive Driving Information”

Sur-Reply

“Thus, 13:20—14:26 (FIG. 3) of Curry does not disclose determining a start of a driving period or any processing regarding deriving driving information or vehicle behavior during a driving period. At best, this portion of Curry discloses taking a snapshot of activity after a recording period is triggered by a phone call and subsequently handling the call based on the activity and predetermined user permissions.”

Sur-Reply, 12

Curry

“FIG. 3 illustrates a flow chart depicting a driving safety monitoring program on a mobile phone client. If the mobile phone is not in monitoring mode, the motion recording process can be activated 302 on the phone. This may be accomplished by the user of the phone, or through an automated process by the mobile phone client when a selected type of motion is detected.”

USAA-1005, 12:20-26; Pet., 13, 20

“Each motion measurement from the GPS sensor and accelerometer can be associated with a timestamp, and stored in a local motion data cache 304 for each pre-specified sampling interval. The activity mode recognition module 306 can use recorded time stamped data to estimate the type of activity: driving, walking, running or remaining substantially still.”

USAA-1005, 12:29-33; Pet., 29, 32, 49

“Driving Information Associated With How The Vehicle Is Driven”

Sur-Reply

“This “derived driving information” is defined to include more than raw sensor data and, when properly read in the entire claim, includes information regarding ‘how the vehicle is driven,’ including ‘occurrence of a predetermined event.’”

Sur-Reply, 8

Curry

“The activity mode recognition module 306 can use recorded time stamped data to **estimate the type of activity: driving**, walking, running or remaining substantially still.”

USAA-1005, 13:31-33, see Pet. 29-30; USAA-1003, ¶139

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

USAA-1005, 11:3-14; see Pet., 35; USAA-1003, ¶150

“Driving Information Associated With How The Vehicle Is Driven”

Sur-Reply

“**Reaching a threshold speed** at which a vehicle would be considered by a computer to be driving is a practical **approximation of the start of the driving** period and, most importantly, has a **nexus** to driving, whereas **a phone call is untethered to the determination of the start of actual driving.**”

Sur-Reply, 7

Curry

“If only GPS data are used in activity mode recognition, it is easy to identify driving mode when the speed is high (e.g. greater than 15 miles/hour).”

USAA-1005, 16:26-28

“Driving Information Associated With How The Vehicle Is Driven”

Michalson Declaration

“... a POSITA would have found obvious that client 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***).”

USAA-1003, ¶138 (citing USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Figs. 1, 3; USAA-1015, 233-250);
see Pet., 29

“Driving Information Associated With How The Vehicle Is Driven”

Sur-Reply

“While possibly being a *cause* of certain *vehicle* behavior, ‘talking or texting’ is not vehicle behavior detected and processed during the claimed ‘driving period.’”

Sur-Reply, 10

Curry

“The motion data cache can also be used to record the location, speed, and acceleration of the mobile wireless computing device each time a phone call is transmitted from or received by the wireless device.”

USAA-1005, 3:24-26; see Pet., 6, 24, 75

“The driver safety statistic may be decreased for certain user behaviors, such as use of the device while driving a vehicle, and use of the device during restricted time periods.”

USAA-1005, 3:30-32; see Pet., 6, 12, 47

“The driver safety statistic can also be decreased based on driving behavior, such as speeding, abnormal acceleration, abnormal deceleration, and taking sharp turns.”

USAA-1005, 4:3-5; see Pet., 47

“Driving Information Associated With How The Vehicle Is Driven”

Sur-Reply

“The **Board did not address specific arguments regarding vehicle behavior**, only ‘possible violations of mobile phone use or unsafe driving behavior,’ such as ‘talking on or texting with mobile phones while driving,’ which is not ‘driving information associated with how the vehicle is driven.’”

Sur-Reply, 11 (citing Dec. 28)

Institution Decision

“... Curry teaches the use of GPS and accelerometer sensors embedded in mobile phone 106 ‘to monitor *driving* safety performance’ and provide ‘an integrated and economical solution . . . to detect and prevent unsafe *driving* behavior such as talking on or texting with mobile phones *while driving*.’”

Dec. 28 (citing USAA-1005, 7:5-8)

“Driving Information Associated With How The Vehicle Is Driven”

Institution Decision

“Further, Curry teaches,

If a phone call is received at the mobile phone 106 and the user mode is recognized as driving, a dynamic call handling program 122' in communication with activity mode recognition program 120 can enable phone 106 'to communicate to a caller that the mobile phone user is currently driving.'

Id. at 9:14–18. Referring to Figure 3, Curry discloses that '[i]f the activity mode is recognized in *real-time*, the dynamical call handling module 308 can allow or disallow users to receive or make a call, text a message, play games, or use other components or software programs on a . . . mobile phone.' *Id.* at 14:5–8 (emphasis added). ...

In addition, consistent with this disclosure, Dr. Michalson testifies that an ordinarily skilled artisan would have found it obvious that Curry's client application 110 'causes the Curry-Rabu phone to process sensor data from [the] phone's sensor set during the determined driving period to derive 'possible violations of mobile phone use or unsafe driving behavior' (***driving information associated with how the vehicle is driven***).' Ex. 1003 ¶138.”

Dec., 40

The Curry-Rabu Combination

Sur-Reply

“Petitioner walks back its original obviousness position, which relied on Rabu’s frequency analysis...”

Sur-Reply, 21

Petition

“A person of ordinary skill in the art (‘POSITA’) 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.”

Pet., 11 (citing USAA-1003, ¶¶14-15 (defining a POSITA); USAA-1003, ¶¶88-89

Reply

“... **Rabu’s determination of orientation data does not require reliance on frequency spectrum data**, and a POSITA would have found it obvious to leverage this orientation data with motion data—whether obtained using techniques from Rabu or Curry—to provide the benefits of better accounting for phone usage context in the resulting system, including enabling multi-modal operations.”

Reply, 19

The Curry-Rabu Combination

Rabu

“Accelerometer 409, which can be of generally conventional design, may be a single axis accelerometer or a multiaxis accelerometer. In some embodiments, accelerometer 409 can be implemented as a micro electromechanical system (MEMS) device embedded in PMD 400. Accelerometer 409 can measure acceleration due to gravity. Based on that measurement, processor 404 can determine the angle it is tilted at with respect to vertical, horizontal, or any other reference plane.”

USAA-1013, 4:21-29; see Pet., 10, 12-14, Reply, 18

“In some embodiments, the orientation angle is used to determine the holder status.”

USAA-1013, 8:17-18; see Pet., 8-9, 14, 23-24, 27

The Curry-Rabu Combination

Sur-Reply

“...Petitioner repeatedly cites to Rabu’s FIGs. 7 and 8, key parts of Rabu’s “detecting docking status of a portable device using motion sensor data.” *See id.*, 12 (citing **Ex-1013, 8:13—10:42**, describing Rabu’s “methods for operating a portable media device [PMD]...includ[ing] determining...a **frequency spectrum** associated with a motion of the [PMD]. Based on the orientation angle and the **frequency spectrum**, the [PMD] can determine a motion status and select a mode of operation...”).

Sur-Reply, 21

Rabu

“In some embodiments, the orientation angle is used to determine the holder status.”

USAA-1013, 8:17-18

“... the PMD can determine whether the measured orientation angle corresponds to the orientation angle when the PMD is docked in a dock.”

USAA-1013, 8:25-27