

Petitioner's Oral Hearing Demonstratives

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

IPR2023-00911 (Patent 9,311,271B2)

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



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Instituted Grounds

Obviousness Grounds	Claim(s) Challenged
Ground 1A: Obviousness over Curry, Rabu	1
Ground 1B: Obviousness over Curry, Rabu, Katayama	1
Ground 1C: Obviousness over Curry, Rabu, Tamir	3
Ground 1D: Obviousness over Curry, Rabu, McClellan	4
Ground 2: Obviousness over Callopy, Curry	6, 7

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The Challenged Patent

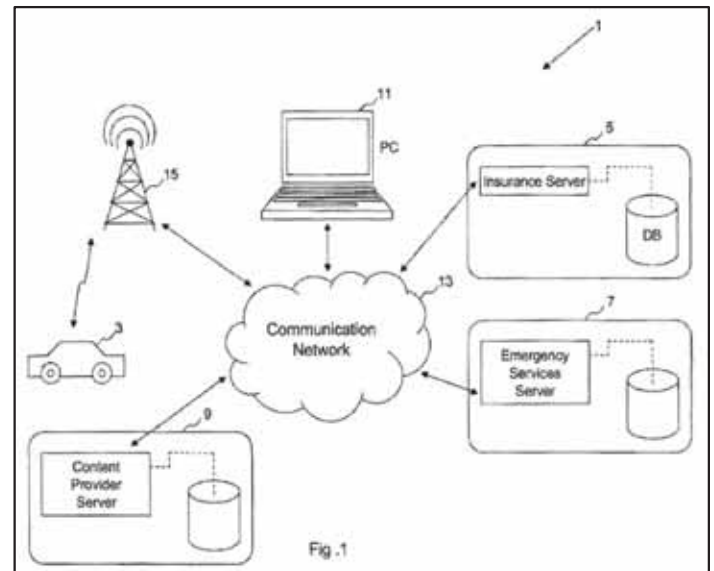
The '271 Patent

(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 ('271 Patent), Abstract; see USAA-1003 (Michalson Declaration), ¶56



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

Claim 1

1. A mobile telecommunications device configured to log driving information associated with a vehicle, the mobile 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 device configured to:
determine, based on inputs received by the user interface and sensor data from the 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;
store a selection of the driving information to the memory,
wherein the driving information is derived without data from vehicle sensors; and,
wherein the mobile communications device is controlled by a downloaded application to control the mobile device to register the start of the driving period in response to an initialization input generated automatically in response to the sensor data having predetermined values, wherein the initialization input is generated in response to sensor data reflecting a detected speed above a predetermined threshold.

USAA-1001, Claim 1; see Pet., 18-41, 48-51

Claim 6

6. A data-logging system for logging driving information received from a remote mobile telecommunications device, the data-logging system comprising a processor and memory, the data logging system comprising:

- a database for storing a plurality of accounts, each account having a unique identifier and the database being arranged to store driving information associated with at least one of a vehicle and a driver;

- a communications interface arranged to communicate with the remote mobile telecommunications device, and receive therefrom:

- a unique identifier for association of the remote mobile telecommunications device with a corresponding one of the plurality of accounts;

- driving information to be logged to that corresponding account, the driving information derived based on inputs received by a user interface of the remote mobile telecommunications device and sensor data from a sensor set of the remote mobile telecommunications device, the driving information derived without data from vehicle sensors; and,

- wherein the driving information comprises at least one of a driving score and sensor data captured and processed by the remote mobile telecommunications device during a driving period during which the remote mobile telecommunications device is removably attached to the vehicle being driven by the driver, the data logging system being further arranged to process the driving information logged to a corresponding account to generate a driving score used to determine a risk profile for at least one of the vehicle and driver.

USAA-1001, Claim 6; see Pet., 67-79,80

Key Asserted Prior Art



Curry

(PCT Patent Publication WO 2010/042545)

Curry Overview

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, ¶172)

“The phone runs a downloadable client 110 to monitor vehicle movement (e.g., evaluating ‘location, speed, and acceleration data’ from an embedded ‘GPS sensor 114 and accelerometer 116’). ... Client 110 also identifies phone usage (e.g., texting/calling while driving) and other risky driving behaviors (e.g., ‘speeding’).

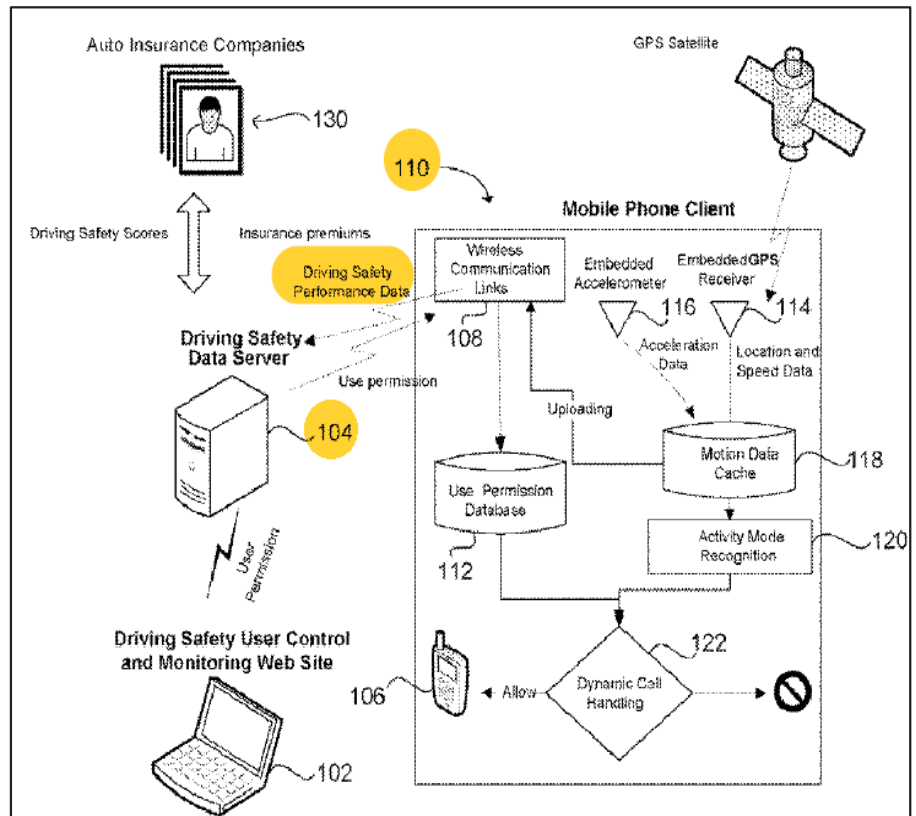
Pet., 6 (citing USAA-1005, 7:5-22, 8:30-34, 8:30-9:33; USAA-1003, ¶173)

Processing and Storage on Curry's Mobile Phone

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, ¶74; Pet., 7; USAA-1005, Abstract, 3:1-4:6, 8:29-11:25, 13:27-14:26, 17:1-18:4 (PDF pages), Figs. 1, 3, 6.



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

Processing and Storage on Curry's Mobile Phone

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, 17, 22; USAA-1003, ¶72

Location of Processing and Storage “Based on A Tradeoff”

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., 7, 12, 19, 36, 46; USAA-1003, ¶¶102, 118, 120, 177

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

USAA-1005, 6:3-4; see Pet., 22-23

“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, 16-18, 21, 29, 62; Reply, 1, 5, 10, 12-13, 24, 28

Curry's Insurance Company Receiving Safety Statistic and Providing Insurance Premium

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, 17, 33, 45, 47, 50

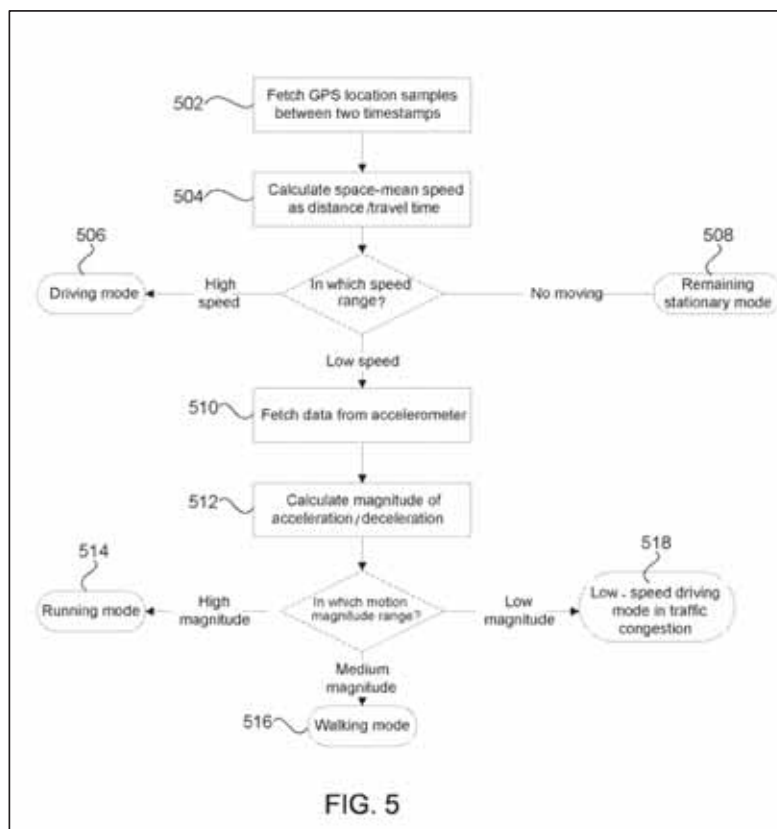
Processing and Storage on Curry's Mobile Phone

Michalson Declaration

“This approach would advantageously enable the Curry-Rabu-Katayama phone to retain, for later transmission ‘to the driving safety data server 104,’ both the sensor data and related derived driving information pertaining to **speeding**, without reliance on the unsafe driver themselves acquiescing to that data and information being automatically reported to the server for purposes of, for example, determining insurance premiums.”

USAA-1003, ¶186 (citing USAA-1005, Abstract, 2:1-27, 3:24-4:6, 4:7-11, 7:5-22, 8:23-28, 9:3133, FIG. 1, 11:3-14; 13:3-19; see also USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]); see Pet., 50

Curry's FIG. 5 Illustrates Local Processing of Sensor Data



USAA-1005, FIG. 5 (cited in Pet., 40; USAA-1003, ¶168)

Curry's Embodiments for "*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., 25; USAA-1003, ¶137



Reply

"Cited examples of these embodiments include Figure 3 (Pet., 26-27 (citing USAA-1005, 12:20-13:26); USAA-1003, ¶¶130, 139-40) and Figure 4 (Pet., 27-28 (citing USAA-1005, 15:7-22); USAA-1003, ¶140)."

Reply, 6

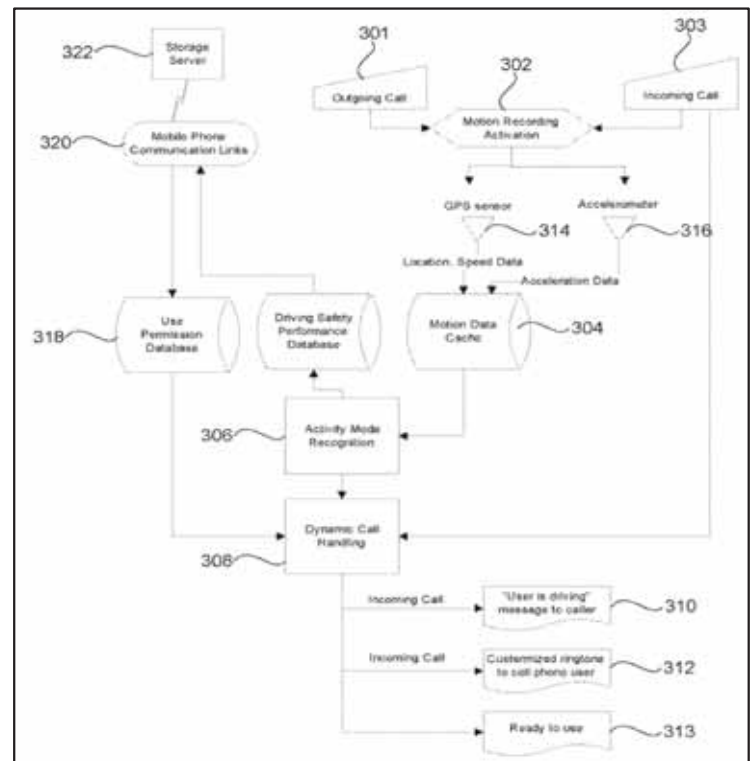
Curry's FIG. 3 Embodiment

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, FIG. 3

USAA-1005, 12:20-13:8; see Pet., 26

Curry's FIG. 4 Embodiment

Petition

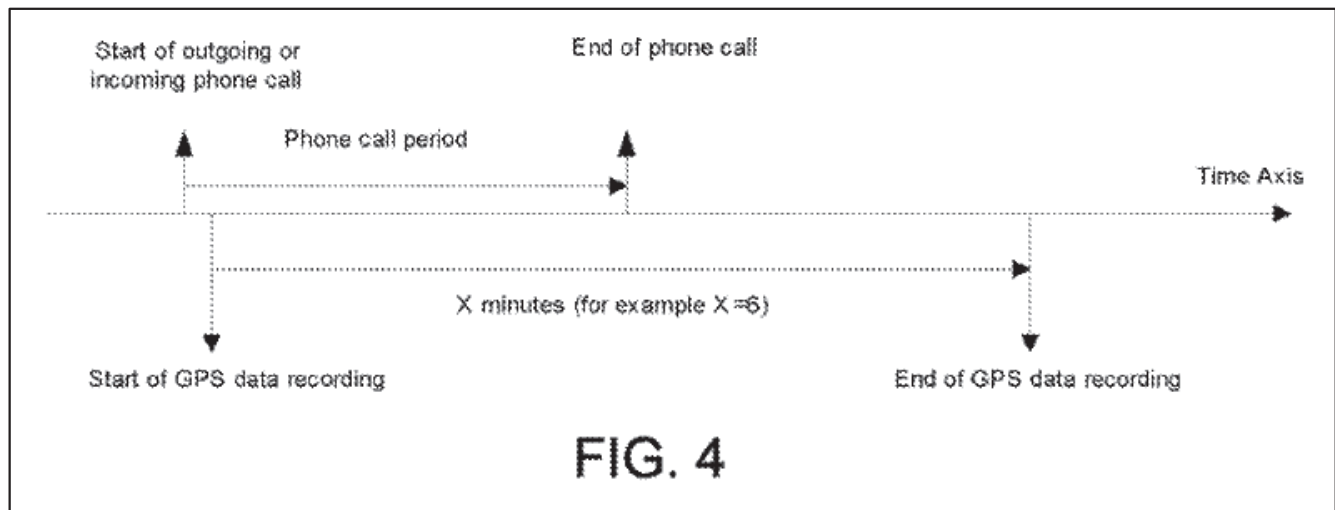
"...Curry describes determining the start of a driving period based on a combination of user inputs received in relation to a call or text and motion data from the phone's sensor set."

Pet., 27; USAA-1005, 15:7-22; USAA-1003, ¶140

Curry

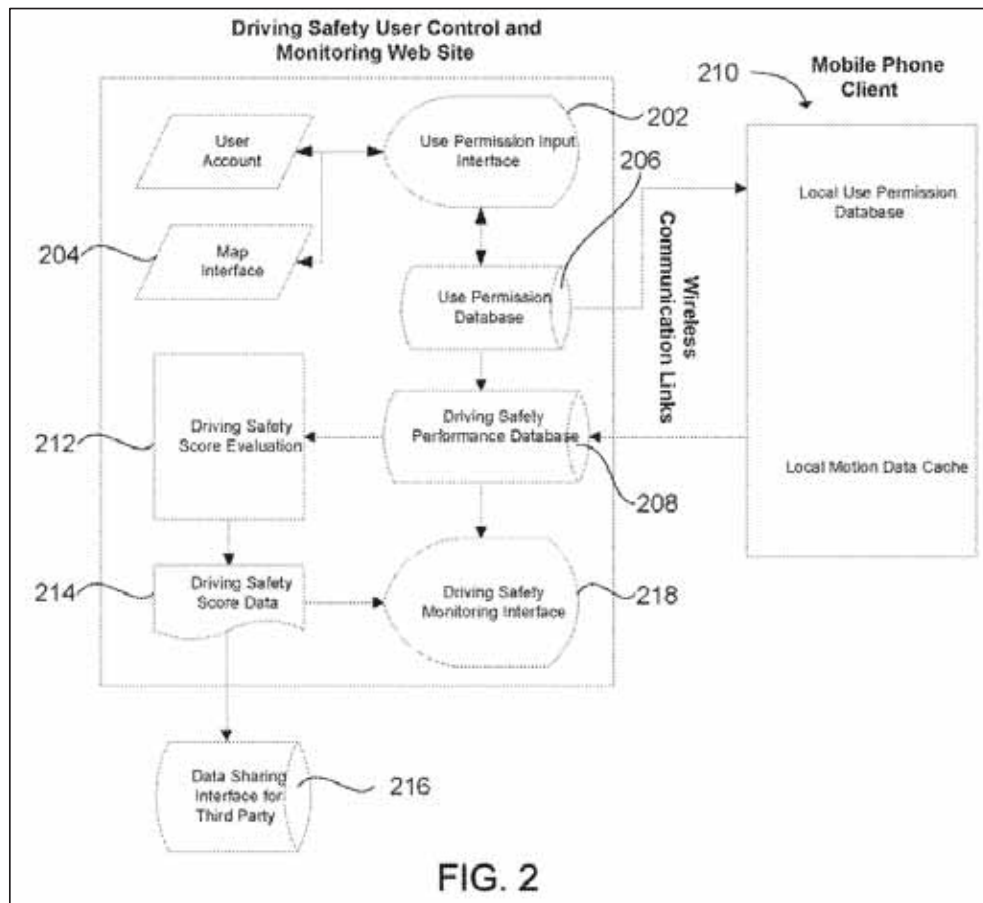
"Right after an incoming phone or text message is received or an outgoing phone call is made, the GPS sensor and accelerometer can start to record a motion time series. ..."

USAA-1005, 15:7-22; Pet., 27; USAA-1003, ¶140
see also USAA-1005, 3:24-4:6



USAA-1005, FIG. 4; Pet, 28

Curry's FIG. 2 Not Relied On In Petition for Local Processing



USAA-1005, FIG. 2; POR, 17, 18-19, 32; Sur-Reply, 16-17, 19, 22

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

Rabu's Embedded Accelerometer Determines Dock Status

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, ¶75; 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., 9; USAA-1003, ¶¶77-78

22

Rabu's Orientation Angle

Michalson Declaration

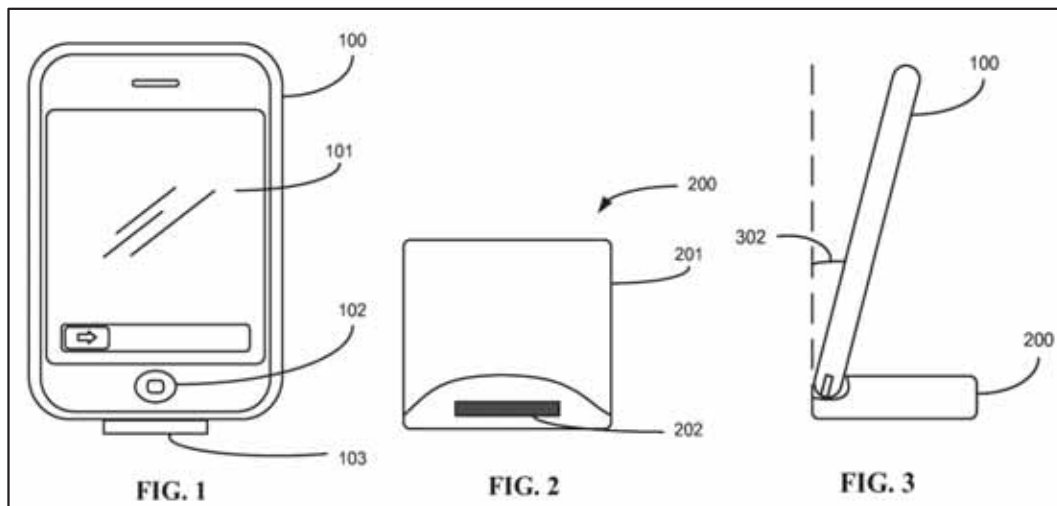
"[A]s shown in Rabu's Figs. 1-3 ... a PMD 100 can be 'coupled to dock 200' such that the PMD 'is at an angle 302 with respect to the dock.'"

USAA-1003, ¶76; Pet., 8; 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, ¶76; Pet., 8; USAA-1013, 3:29-45, 3:46-4:4, 8:13-24, Figs. 2, 7



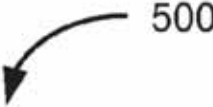
USAA-1013, Figs. 1-3; Pet. 9

Rabu's Mode-Shifting Capabilities

Petition

“For instance, as shown in Rabu’s FIG. 5 (below), Rabu describes switching operating modes based on determining that the phone is ‘docked in a moving vehicle’ ...”

Pet.,14; USAA-1003, ¶106; USAA-1013, 8:13-10:42, 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

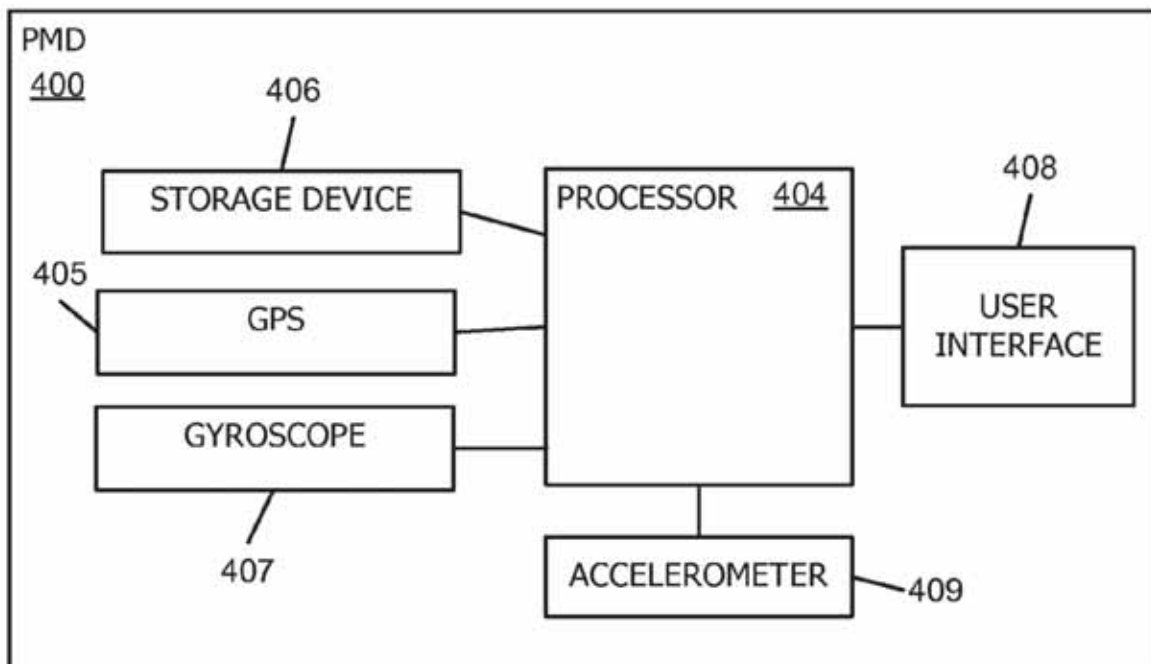
USAA-1013, FIG. 5; Pet. 15

Rabu's Accelerometer Can Determine Both Motion and Dock Status

Petition

"Processor 404 uses accelerometer 409 to determine the PMD's motion status and orientation angle."

Pet., 9; USAA-1013, 3:1-28, 4:21-40, Figs. 1, 4; USAA-1003, ¶¶77-78



USAA-1013, Fig. 4; Pet. 10

Rabu's Accelerometer Can Determine Both Motion and Dock Status

Petition

“Rabu uses an accelerometer within a ‘portable media device’ (‘PMD’) (e.g., ‘smart phone’) to determine whether the PMD ‘is in a dock, resting on a surface, or being handled by a person,’ and whether the PMD is located in a moving vehicle.... Rabu leverages those determinations to ‘choose a particular mode of operation’ for the PMD...”

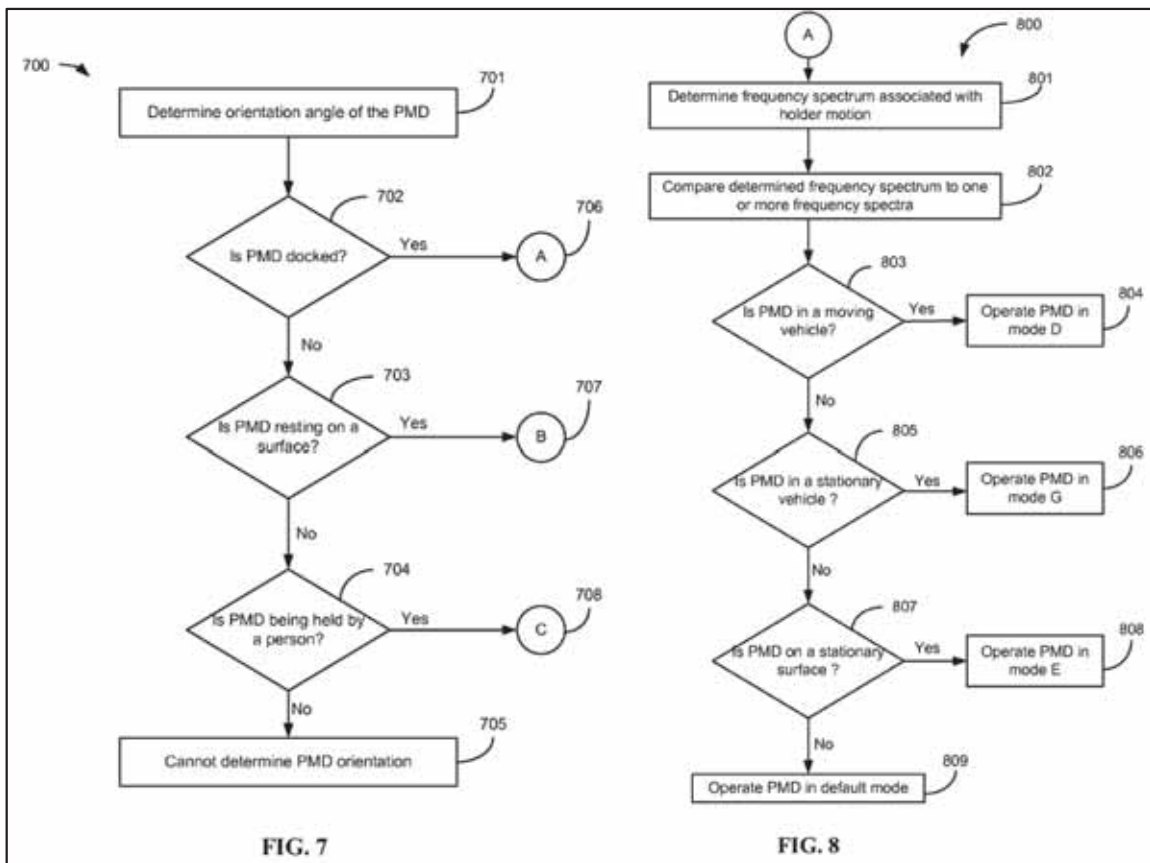
Pet., 8; USAA-1013, Abstract, 1:1-52, 1:53-59, 1:60-2:11, 3:11-28, 6:49-7:6, 8:13-10:42, Figs. 1-8; USAA-1003, ¶75

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, ¶75

Rabu's Mode-Shifting Capabilities



USAA-1013, Figs. 7, 8; see Pet., 11



Katayama

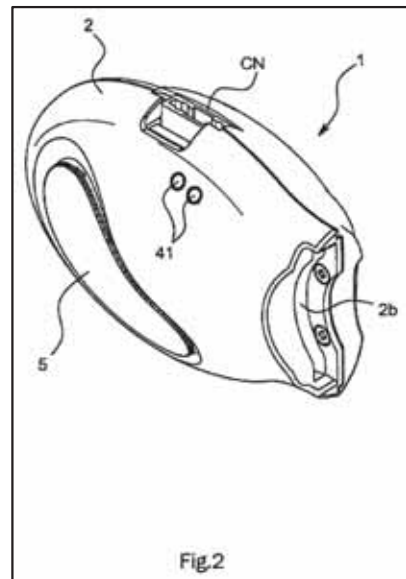
(EP Pat. App. Pub. No. 1,914,691)

Katayama's Driving Recorder

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., 42; USAA-1003, ¶83



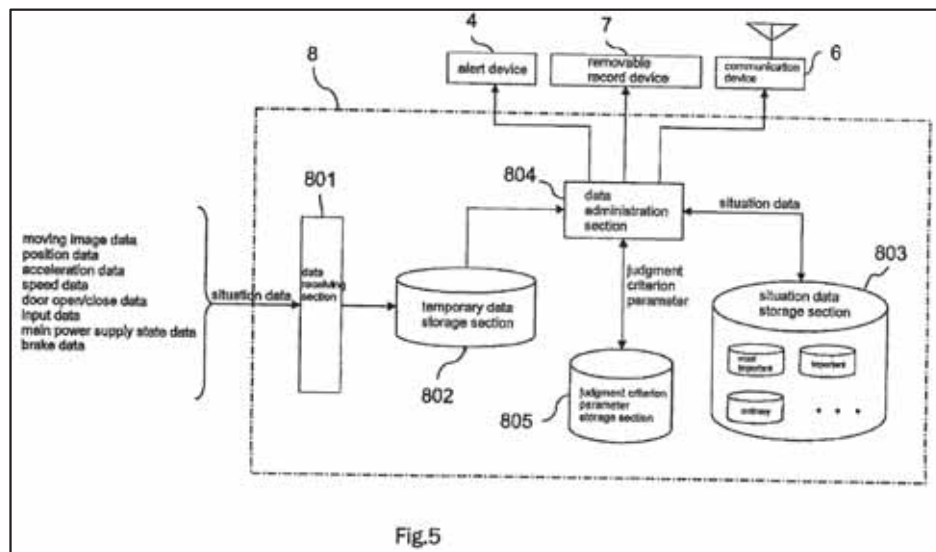
USAA-1024, FIG. 2; USAA-1003, ¶82

Katayama's Memory Structure

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., 42-43; USAA-1003, ¶185



USAA-1024, FIG. 5; Pet. 43

Katayama's Short Term Memory

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 memory 82's temporary data storage section 802. ... Due to that area's limited capacity, 'old data is sequentially erased' and replaced over time with 'new situation data.'"

USAA-1003, ¶86 (citing USAA-1024, [0045], [0016]; see Pet., 43

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., 38, 42-43, 46-47; USAA-1003, ¶¶86, 91, 165

Katayama Transfers Important Data To Long Term Memory

Michalson Declaration

“To avoid erasing situation data that might prove useful, data administration section 804 determines at the ‘time of recording’ whether 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 to long term ‘situation data recording section 803.’”

USAA-1003, ¶187; USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; see Pet., 44

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., 39, 41, 44; USAA-1003, ¶187



Callopy

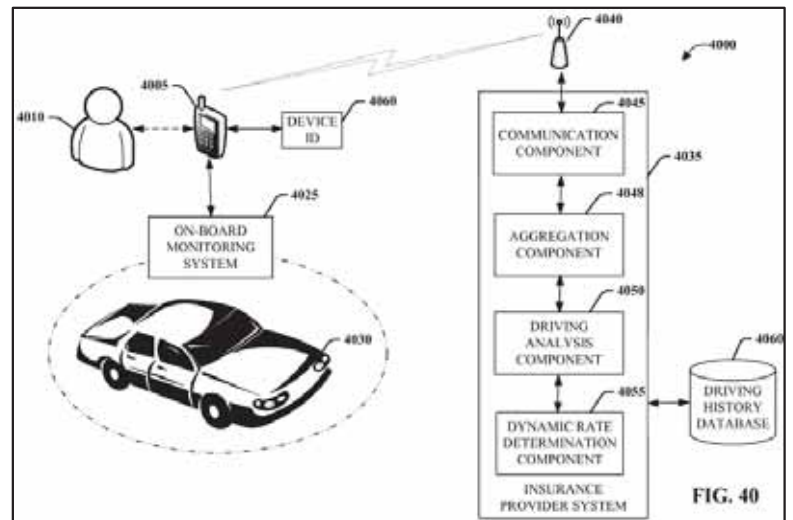
(Intl. Pub. No. WO 2010/062899)

Callopy's System For Dynamic Insurance Adjustment Using A Mobile Device In A Vehicle

Callopy

"Fig. 40 illustrates a system 4000 for real-time monitoring of a driver to facilitate determination of insurance rate(s) ... System 4000 includes an insurance policy holder, ... a mobile device 4005 ... an on-board monitoring system 4025 and a vehicle 4030. ... the mobile device 4005 is in communication with an insurance provider system 4035. ...

It is to be appreciated that the mobile device 4005 ... can comprise of any combination of components that allow gathering, processing, transmission, presentation, evaluation, determination of insurance rates and any pertinent information, and any components to assist and enable the identification of the driver to the insurance provider system 4035."



USAA-1045, FIG. 40; Pet., 59-60USAA-1003, ¶¶93-97

USAA-1045, [0307], [00321]; See Pet., 59-60; USAA-1003, ¶¶93-97

The Curry-Rabu Combination

Curry's Suggestion of Nuanced Approach

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

"... 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, ¶104 (citing USAA-1005, 3:3-4:28, 16:8-17:33); see Pet., 13-14

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, ¶103)

"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, 16:8-10 (cited in USAA-1003, ¶104)

"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."

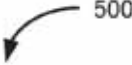
USAA-1005, 16:18-21 (cited in USAA-1003, ¶104)

Integration of Rabu's Dock Status Sensing and Mode-Shifting Capabilities into Curry's Phone

Michalson Declaration

"A POSITA would have found obvious integration of Rabu's dock status sensing and associated mode-shifting capabilities into Curry's phone, thereby enhancing the Curry phone's ability to promote safe driving. ... the result is a device with added functionality (enhanced phone provided by Curry-Rabu, or 'Curry-Rabu phone'), 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, ¶101, Pet., 11-12

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.,15

Motivation to Combine Curry and Rabu

Michalson Declaration

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

USAA-1003, ¶105 (citing USAA-1005, Abstract, 3:3-4:28, 15:8-16:33); see Pet., 14

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, ¶106 (citing USAA-1013, 3:1-10, 4:21-33, Figs. 1, 4); see Pet., 14

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., 15

Motivation to Combine Curry and Rabu

Michalson Declaration

“The POSITA would have 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.”

“...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, ¶¶110-114; see Pet., 16-17

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., 36 (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

Motivation to Combine Curry and Rabu

POR

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

POR, 48

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

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, 19

“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, 22 (citing USAA-1003, ¶106 (citing USAA-1013, 3:1-10, 4:21-33, Figs. 1, 4))

Curry-Rabu Does Not Need Frequency Spectrum

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, 50

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, 22; Pet., 11-17; USAA-1003, ¶¶101-117

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, ¶106; see Pet., 14; Reply, 22, 24

Motivation to Combine Curry and Rabu

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, ¶105 (citing USAA-1005, Abstract, 3:3-4:28, 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, ¶106 (citing USAA-1013, 3:1-10, 4:21-33, 8:13-10:42, Figs. 1, 4, 5, 7, 8)

Motivation to Combine Curry and Rabu

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, 26

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

Sur-Reply, 25

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-1089, 58:7-20 (cited in Reply, 19)

Reasonable Expectation of Success

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, ¶75; 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, ¶¶77-78; Pet., 9

45

FISH.

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Reasonable Expectation of Success

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 Critical 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, ¶116; see Pet., 18

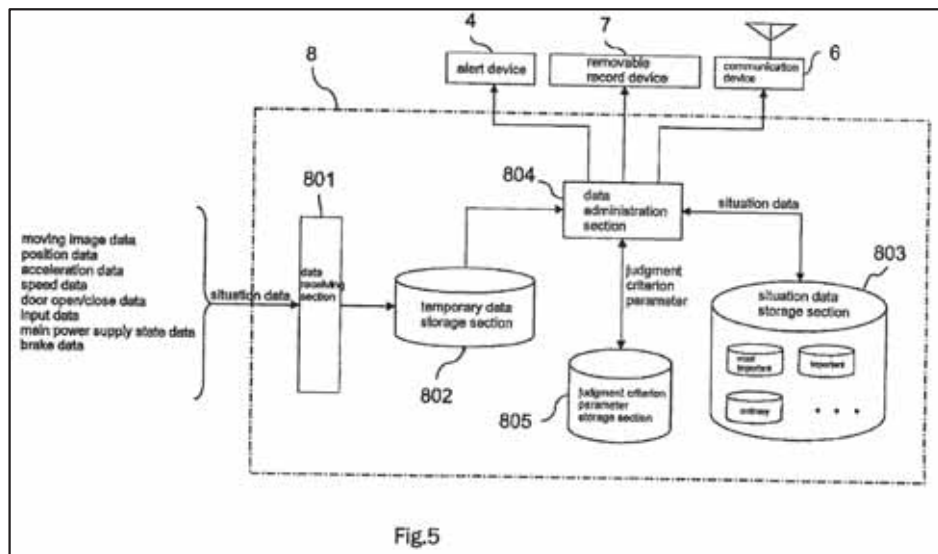
The Curry-Rabu-Katayama Combination

The Curry-Rabu-Katayama Combination

Michalson Declaration

“... a POSITA would have found obvious enhancement of the Curry-Rabu phone through implementation both of Katayama’s teachings on partitioning local memory into several sections (including sections for temporary and long term storage), and Katayama’s related teachings on data handling, ...”

USAA-1003, ¶170 (citing USAA-1024, [0012], [0015], [0048], [0049]); Pet., 44



USAA-1024, FIG. 5; Pet. 43

Motivation to Combine Curry, Rabu, and Katayama

Michalson Declaration

“... a POSITA would have recognized that important information stored in Curry’s local memory is subject to the risk of being inadvertently erased and overwritten with new data, and would have recognized in Katayama’s teachings a solution that could be readily 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, ¶173 (citing USAA-1024, [0001]-[0002], [0016], [0044]-[0051], [0057]); see Pet., 45

Katayama

“The difference between the temporary data storage section 802 and the situation data storage section 803 is; the temporary data storage section 802 temporarily stores the situation data irrespective of the contents of the situation data while the situation data storage section 803 stores the situation data for the record basically without updating the situation data and the situation data is updated after being transferred to other record device...”

USAA-1024, [0051] (cited in USAA-1003, ¶173; Pet., 37-38, 45)

Motivation to Combine Curry, Rabu, and Katayama

Michalson Declaration

“Further, a POSITA would have recognized that configuring the Curry-Rabu phone’s memory in this manner while generally applying Katayama’s related data storage techniques 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-1003, ¶174 (citing; 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]); Pet., 45

Katayama

“... in case that a capacity of a memory runs out, the situation data whose importance is lower is automatically updated in turn to the situation data whose importance is higher and the important data will not be erased, which enables **effective use of the memory** without erasing important situation data.”

USAA-1024, [0016] (cited in USAA-1003, ¶174; Pet., 24, 37-39,

Motivation to Combine Curry, Rabu, and Katayama

Michalson Declaration

“A POSITA would have found obvious that the Curry-Rabu-Katayama phone resulting from these collective enhancements would enjoy improved data management with reduced likelihood of erasure of important data. ... 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-1003, ¶177 (citing USAA-1005, 1-4:6, 2:3-2:28, 3:2-15, 3:24-4:6, 7:5- 22, 8:29-12:18, 13:27-14:26, 15:8-16:33, 17:1-18:4; USAA-1024, [0014]-[0016], [0044]-[0046], [0053]); Pet., 46

Motivation to Combine Curry, Rabu, and Katayama

POR

“Katayama is prohibitively different from the '271 patent: (1) Katayama does not disclose a mobile phone; (2) Katayama is akin to a black box data recorder that is required to be connected to the vehicle's sensors; and (3) Katayama requires data from the vehicle sensors.”

POR, 54-55

Reply

“... Katayama is at least in the same field of endeavor as the invention claimed in the '271 patent (e.g., ‘methods and systems for logging driving information associated with a vehicle when driven’ (POR, 1)) because Katayama describes a recorder that detects accidents and/or risk incidents based on ‘situation data’ including ‘acceleration data indicating acceleration applied to a vehicle, [and] position data indicating a position of the vehicle...’”

Reply, 27 (citing Pet., 41-42; USAA-1024, [0001], [0013], [0058]; USAA-1003, ¶83)

Reasonable Expectation of Success

Wilson Testimony

Q. And would you agree with me that that – that storing information into memory is a pretty routine function of a cell phone, such as an iPhone, at that time? – and by “that time,” I mean the 2009, 2010 time frame.

A. I would agree that storing information in a cell phone memory of an Apple phone memory would be routine at the time.

USAA-1088, 49:8-15

Reasonable Expectation of Success

Michalson Declaration

“Moreover, configuring the Curry-Rabu phone to leverage Katayama’s teachings would have required only routine knowledge of programming and common electronic components – well within the skill of a POSITA prior to the earliest effective filing date. Indeed, the changes would have amounted to nothing more than the use of known techniques to improve similar devices – in each instance a device for recording and analyzing driving information equipped with a sensor set and a form of electronic storage – in a similar way, and combining prior art elements according to known methods to yield the predictable results described above.”

USAA-1003, ¶179; Pet., 48

Michalson Declaration

“Furthermore, the elements of the resulting combination would each perform functions they had been known to perform prior to the combination. Accordingly, a POSITA would have naturally expected success when incorporating Katayama’s teachings into Curry-Rabu.”

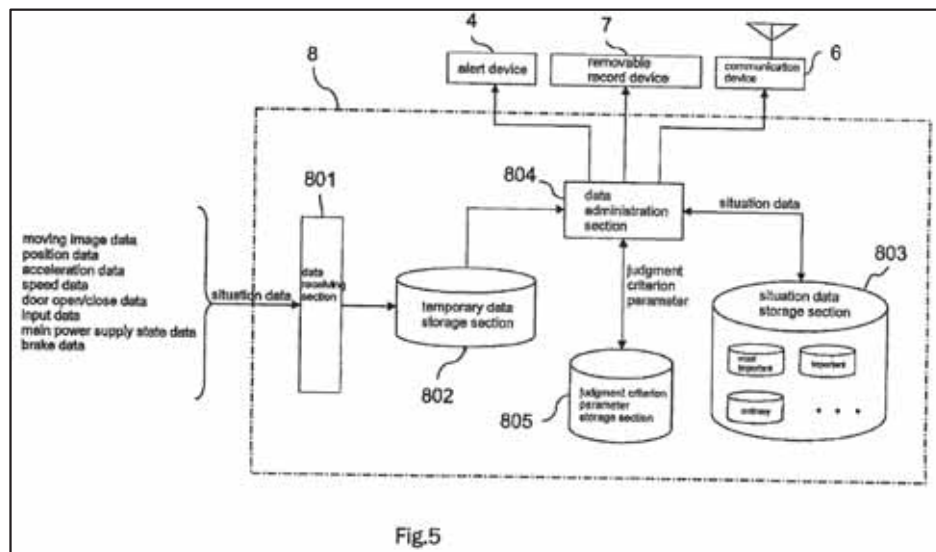
USAA-1003, ¶180; Pet., 48

Reasonable Expectation of Success

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., 42-43; USAA-1003, ¶84-85



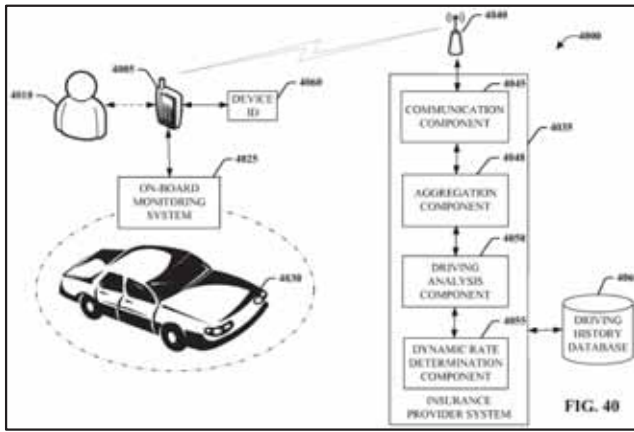
USAA-1024, FIG. 5; Pet. 43

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

55

The Callopy-Curry Combination

The Callopy-Curry Combination



USAA-1045, FIG. 40; Pet., 59-60USAA-1003, ¶93-97

Michalson Declaration

"The insurance provider system 4035 'gathers information from as many sources as required to facilitate generation and presentation of insurance rate(s)' and 'determine[s] an insurance rate(s) based upon the gathered data and data analysis.' ... To the extent that Callopy does not explicitly teach that its mobile device calculates scores for the insurance provider system 4035 to use for determining insurance premiums, doing so would have been obvious to a POSITA. Indeed, use of a score was well-known by the critical date, as evidenced by Curry, and a POSITA would have been motivated to look to Curry to improve Callopy's system."

USAA-1003, ¶211 (citing USAA-1045, [0308]-[0310]; Pet., 61

Curry

"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. The safety scores can be used by consumers and insurance agencies to determine insurance premiums for related drivers. ...

The actual location of the modules, caches, and databases can be decided based on engineering and business needs."

USAA-1005, 7:13-17, 12:3-18; Pet. 62-63; USAA-1003, ¶¶212-214

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 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 (cited in Reply, 8 incorporated to Callopy-Curry, Reply, 29)

The Callopy-Curry Combination

Michalson Declaration

“A POSITA would have been motivated to modify Callopy’s system to include the use of the safety score—either determined by the mobile device and provided to the insurance provider system, or determined by the insurance provider system—to determine insurance premiums.

USAA-1003, ¶215; Pet., 63-64

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., 62-66; USAA-1003, ¶¶213-216

Generating Driving Score on the Phone

Michalson Declaration

"First, a POSITA would have recognized the benefits of having Callopy's mobile device perform the analysis on the captured driving data (e.g., determine a driving score)—rather than performing all analyses at the insurance provider—and provide it to the insurance provider 4035. In particular, Curry teaches that, by performing analyses at the mobile device, 'the amount of communication needed to operate the system can be reduced.' ... A POSITA would have thus recognized that by determining a safety score at the mobile device and sharing that score with the insurance provider 4035, Callopy's mobile device would not be required to transmit as much data to the insurance provider 4035. Curry notes that performing the analysis at the mobile device would require "plac[ing] more modules, caches, and databases on the mobile device," thus 'requir[ing] a more complex device (having more memory),' but a POSITA would have recognized that Callopy's mobile device is capably equipped.... Specifically, although Callopy teaches that some data analysis is performed at the insurance provider system 4035 rather than the mobile device 4005, the mobile device 4005 includes 'components that allow gathering, **processing**, transmission, presentation, **evaluation**, [and] **determination of insurance rates**.'"

USAA-1003, ¶216 (citing USAA-1005, 12:10-13, USAA-1045, [0122], [0314], [0321]; Pet., 64-65

Generating Driving Score on the Insurance Provider System

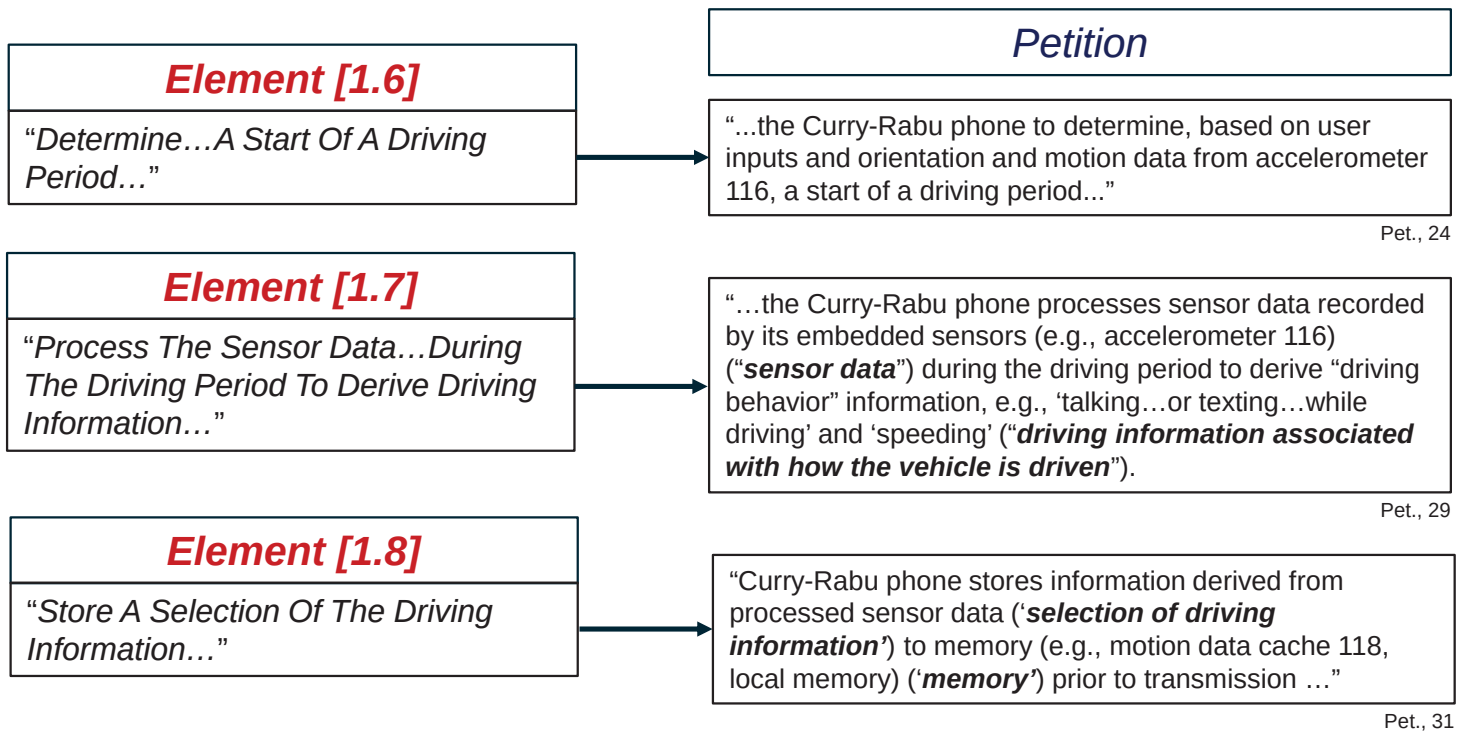
Michalson Declaration

“Second, it would have similarly been obvious to a POSITA for Callopy’s insurance provider system 4035 to determine a driver safety score as part of the ‘various analytical methods’ performed by the ‘driving analysis component 4050.’ ... Callopy’s insurance provider system 4035 already obtains various data from its system, including the mobile device 4005, ‘to assist in the determination of insurance rates.’ ... Callopy’s driving analysis component 4050 could easily be modified, as necessary, with Curry’s ‘software and firmware’ to provide for ‘data analysis’ that determines a driving score that assists the dynamic rate determination component 4055 in determining an appropriate insurance premium. ...”

USAA-1003, ¶217 (citing USAA-1005, 12:3-18, 13:3-19; USAA-1045, [0307]-[0308], [0310]; Pet., 65

Additional Topics for Discussion

Overview



Overview

Petition

Element [1.10]

"... Register ... In Response To An Initialization Input Generated Automatically..."

"... , a POSITA would have found obvious, ... the automatic generation by the Curry-Rabu phone's client application 110 of an initialization input for registering the start of the already-determined driving period in response to GPS sensor data having predetermined values reflecting a detected speed above a predetermined threshold."

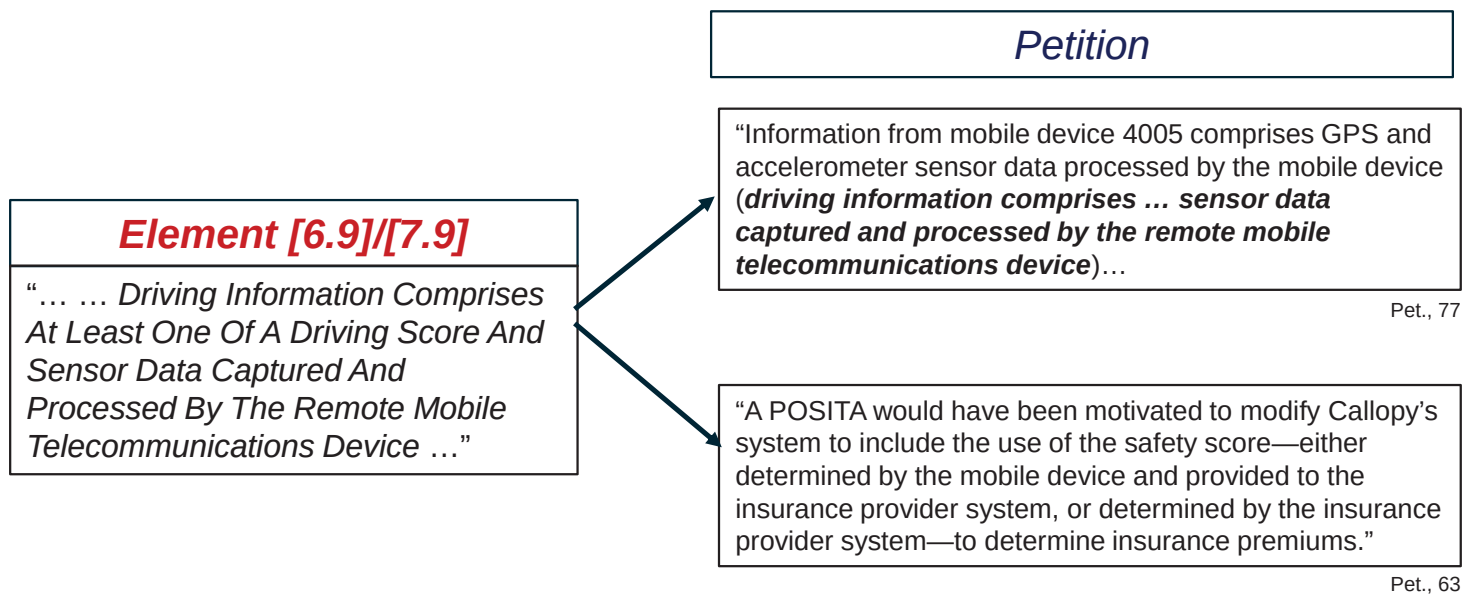
Pet., 40-41 (Curry-Rabu ground)

"...a POSITA would have found obvious the automatic generation of the initialization input for registration of the start of the driving period and transfer of related data in response to "the speed of the vehicle exceed[ing] the predetermined...speed" threshold."

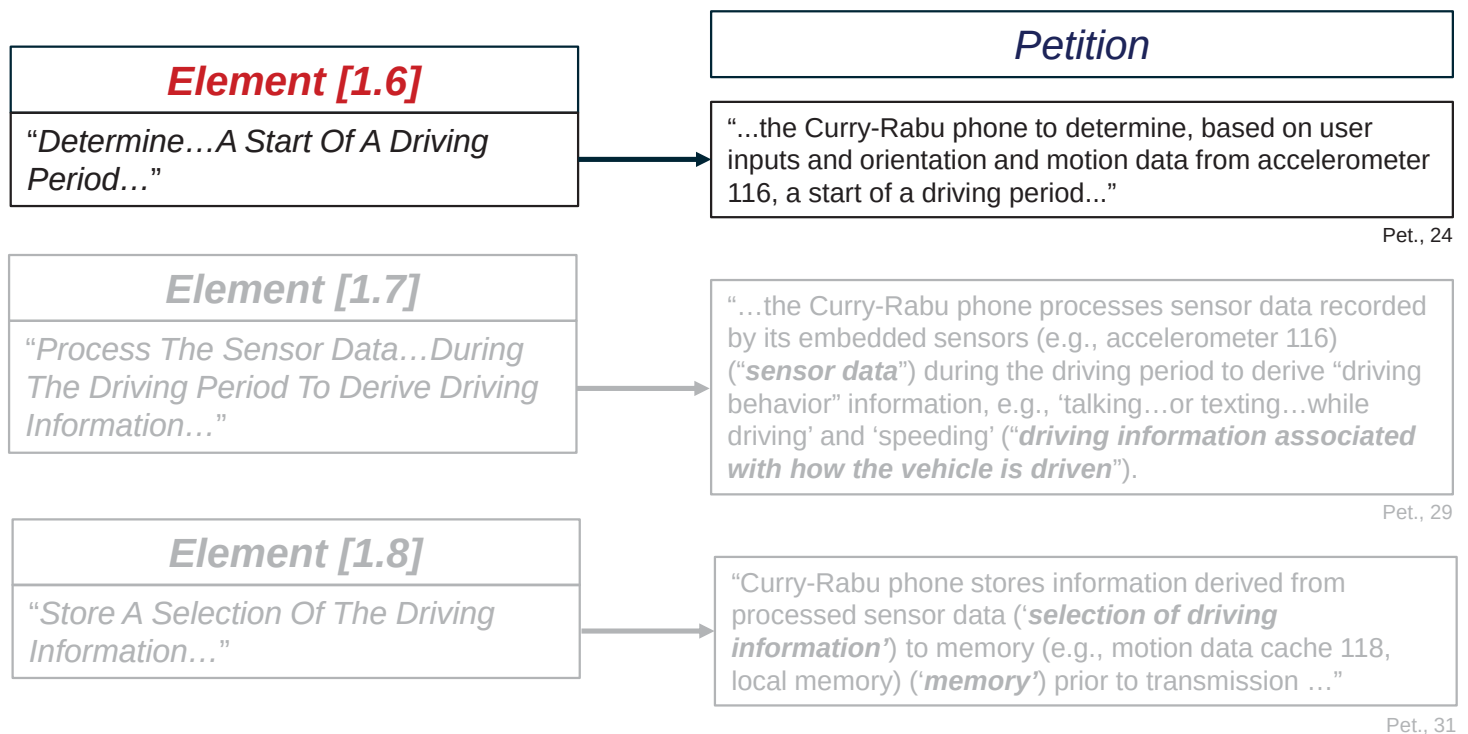
Pet., 50 (Curry-Rabu-Katayama ground)

Pet., 77

Overview



Overview



“Determine A Start Of A Driving Period”

Claim 1

“... the mobile device configured to: determine, based on inputs received by the user interface and sensor data from the 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, 31:29-56

Petition

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

Pet., 3

“Determine A Start Of A Driving Period”

Michalson Declaration

“Based on plain meaning, a POSITA would have understood phrase “driving period” refers to a time period “during which [a] mobile device is removably attached to the vehicle and the vehicle is in use.” Even though ‘driving period’ has a name that implies 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 any portion, e.g., the beginning, middle or end of, a vehicle’s operation.”

USAA-1003, ¶¶70, 133; Pet., 3

Michalson Declaration

“... this claim term establishes just two ‘driving period’ attributes: (1) ‘the mobile device is removably attached to the vehicle’ and (2) ‘the vehicle is in use.’ Furthermore, it would be possible to satisfy these attributes by starting a data collection period regardless of whether collection starts at the onset of vehicle driving, or before/after driving commences.”

USAA-1003, ¶¶71, 135; Pet., 4

“Determine A Start Of A Driving Period”

Institution Decision

“...Patent Owner quotes from a passage in the '271 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. 8-9 (quoting Ex. 1001, 3:34–38...). This passage supports Petitioner’s claim construction 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. 24

“Determine A Start Of A Driving Period”

'271 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, 3:34-38 (cited in Reply, 3, 8)

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.

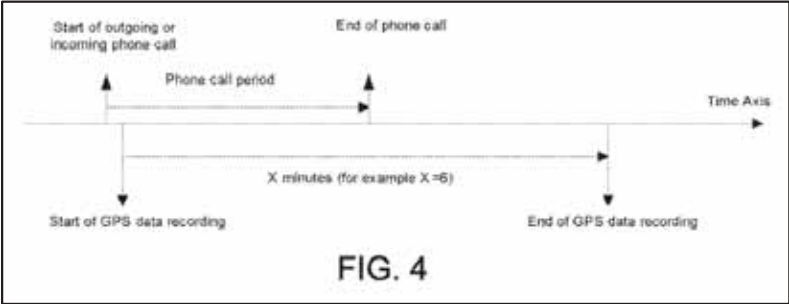
USAA-1088, 99:14-100:10 (cited in Reply, 4 as USAA-1088, 99:7-10)

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

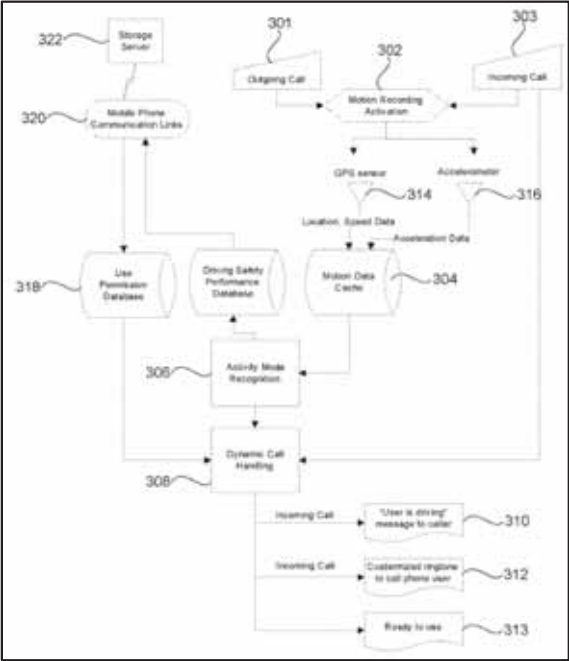
Michalson Declaration

“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, ...”

USAA-1003, ¶137; Pet., 25



USAA-1005, FIG. 4; see Pet., 28



USAA-1005, FIG. 3; see Pet., 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, 21

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

POR, 22

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, 12:20-26 (cited in Pet.,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”

POR

“Given the purpose of the invention (to determine insurance premiums, modify driving behavior, or determine a cause of an event) (USAA-1001, 1:22-25), the **driving period must be the whole period in which the vehicle is being driven** (absent short periods related to getting up to speed, backing out of driveway, leaving a particular geo-fence, etc.).

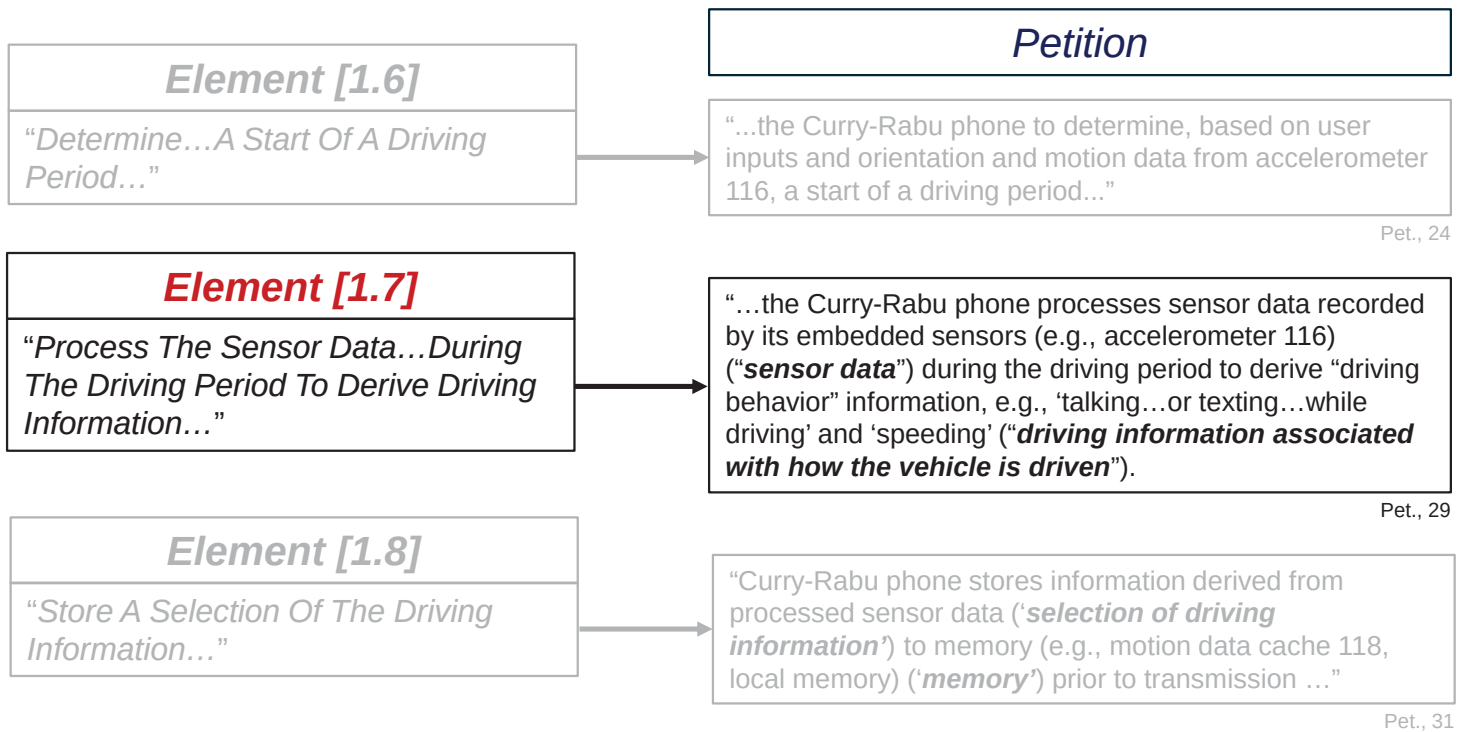
POR, 6

Claim 1

“ ...determine, based on inputs received by the user interface and sensor data from the 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., 18-41, 48-51

Overview



“Driving Information”

POR

“For example, location, speed, and acceleration sensor data of the vehicle associated with how the vehicle is driven can be captured from the mobile device’s sensors only. USAA-1001, 2:10-21. Driving information such as variation in velocity, speed of impact, pitch, yaw, roll, G-force, bearing/heading, and time elapsed can be derived from the sensor data. *Id.*, 10:28-35, 13:65—14:2, 15:40-45, 16:20-27, 19:9-13, 20:60—21:5, 25:31-35.

POR, 2

POR

“‘Driving information’ as required by the claims, and as discussed above, includes derived information ‘associated with how the vehicle is driven,’ including information derived from sensor data (e.g., location, speed, acceleration, variation in velocity, speed of impact, pitch, yaw, roll, G-force, bearing/heading, time elapsed). ... This driving information may include detected driving events and anomalies, and images and audio of the detected driving events.”

POR, 28-29

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

Petition

“... the Curry-Rabu phone processes sensor data recorded by its embedded sensors (e.g., accelerometer 116) (***‘sensor data’***) during the driving period to derive ‘driving behavior’ information, e.g., ‘talking...or texting...while driving’ and ‘speeding’ (***“driving information associated with how the vehicle is driven”***).”

Pet., 29 (citing USAA-1003, ¶¶143-145; 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., 12, 29, 32

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., 30 (citing USAA-1005, 12:20-13:26, Fig. 3; USAA-1003, ¶146)

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, 12:31-33, see Pet. 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, 13:5-6, see Pet. 30

“Driving Information Associated With How The Vehicle Is Driven”

Michalson Declaration

“... a POSITA would have found obvious that client application 110 causes Curry's 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, ¶147 (citing USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Figs. 1, 3; USAA-1015, 233-250);
Pet., 31

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, 36

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, 12, 32, 45-47, 50; Reply, 8, 11;
USAA-103, ¶¶72, 74, 102, 113, 174

“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., 16-17, 29, 31

“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, ...”

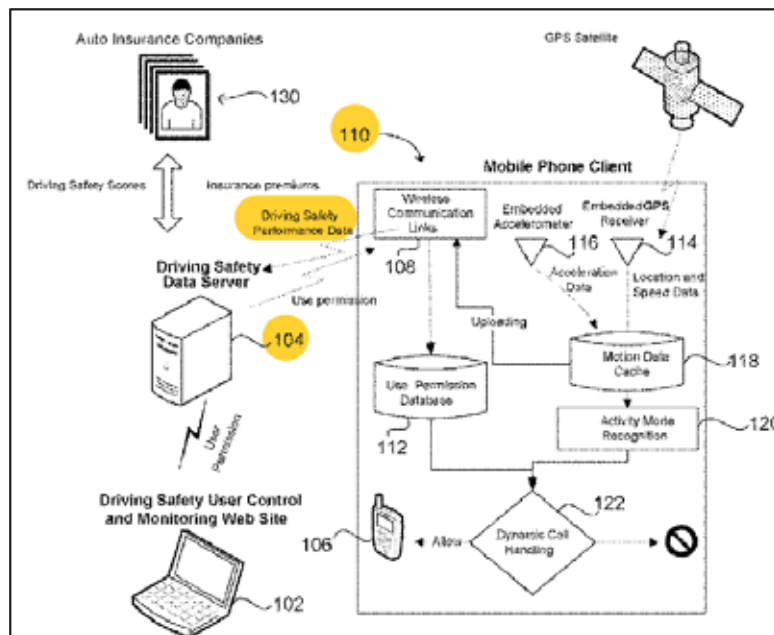
USAA-1005, 7:5-22; see Pet., 6, 12, 16-18, 31-34; Reply, 10, 12

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., 20, 34; Reply, 8-9



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

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., 22

“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., 23

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., 22 (citing USAA-1003, ¶¶127-128; USAA-1005, 2:22-27, 6:3-10, 8:20-27, FIG. 1; USAA-1015, 4, 237-250; 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, ¶127 (cited in Pet. 22)

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

USAA-1003, ¶¶126, 128 (citing USAA-1005, 2:22-27; 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) (cited in Pet. 22)

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-1088, 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.

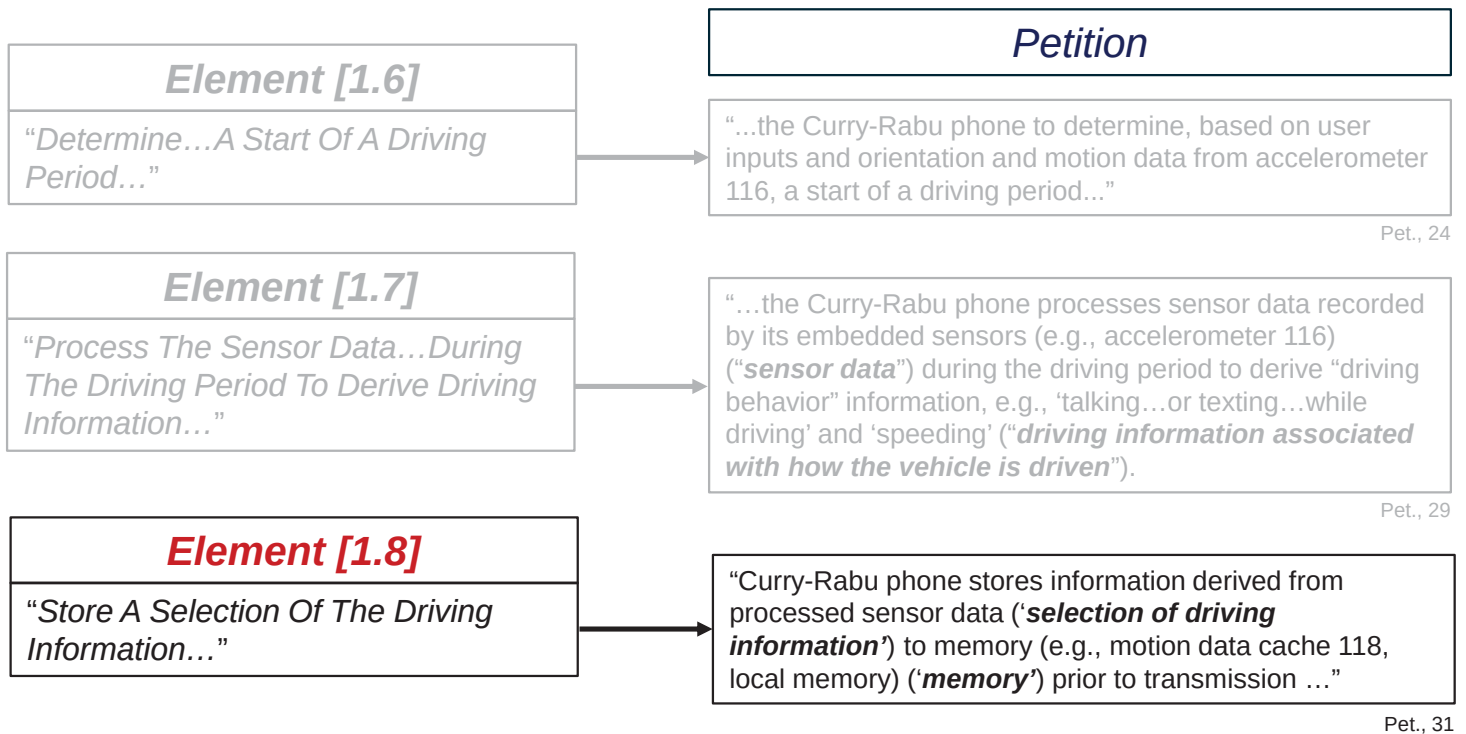
USAA-1088, 65:21-66:4 (cited in Reply, 11)

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-1088, 209:18-22 (cited in Reply, 11)

Overview



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, 38

Curry

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

USAA-1005, 6:8-10; see Pet., 36; USAA-103, ¶159

“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., 31-33; Reply, 11-12;
USAA-103, ¶149

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

Michalson Declaration

“The Curry-Rabu phone stores information derived from processed sensor data (“**selection of driving information**”) to memory (e.g., motion data cache 118, local memory) (“**memory**”) prior to transmission to the driving safety data server 104.

USAA-1003, ¶149 (citing USAA-1005, 7:5-22, 8:29-10:12, 13:20-16:6, Fig. 1; USAA-1015, 233-250)

“A POSITA would have found it obvious that the information stored by the Curry-Rabu phone is a **subset** (i.e., selection of) the recorded sensor data since Curry explains that “motion data cache can be compared with the user permission data to enable a driver safety statistic to be calculated.” ... This indicates that specific aspects of recorded sensor data are more useful for transmission to safety data server 104 (e.g., motion data indicating possible violations of use, unsafe driving behavior), and thus, selected for storage.”

USAA-1003, ¶150 (citing USAA-1005, 3:24-4:6); Pet., 32-33

Reply

“... Curry describes various types of **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, 14 (citing USAA-1005, 11:15-25, 8:29-9:11; Pet., 31-32; USAA-1003, ¶¶149-151)

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-1088, 223:8-10 (cited in Reply, 14)

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-1088, 223:23-224:5 (cited in Reply, 14)

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-1088, 225:3-17 (cited in Reply page 14 as 223:8-224:17)

87

Overview

Petition

Element [1.10]

"... Register ... In Response To An Initialization Input Generated Automatically..."

"... , a POSITA would have found obvious, ... the automatic generation by the Curry-Rabu phone's client application 110 of an initialization input for registering the start of the already-determined driving period in response to GPS sensor data having predetermined values reflecting a detected speed above a predetermined threshold."

Pet., 40-41 (Curry-Rabu ground)

"...a POSITA would have found obvious the automatic generation of the initialization input for registration of the start of the driving period and transfer of related data in response to "the speed of the vehicle exceed[ing] the predetermined...speed" threshold."

Pet., 50 (Curry-Rabu-Katayama ground)

Institution Decision Correctly Found Curry-Rabu Renders Obvious the Initialization Limitation

Institution Decision

“Based on our review of the preliminary record, we agree with Petitioner’s position that Curry’s mobile phone 106 performs the Initialization Limitation. Curry discloses that the phone is controlled by a downloaded application (i.e., client unit 110). See Ex. 1005, Fig. 1, 8:21–24. Further, client unit 110 registers the start of the driving period in response to an initialization input generated automatically in response to the sensor data reflecting a detected speed above a predetermined threshold. Curry correspondingly indicates that client unit 110 “record[s] the location, *speed*, and acceleration of” mobile phone 106 “each time a phone call is transmitted from or received by” the phone. *Id.* at 3:24–36 (emphasis added), 8:29–33, 13:20–14:4. Client unit 110 uses this recorded speed information to determine whether the user is driving a vehicle, and also to apply pre-set permission policies to phone operations. See *id.* at 9:5–20, 14:5–16, 14:23–26, 15:18–31, 16:27 (stating that “it is easy to identify driving mode when the speed is high (e.g. greater than 15 miles/hour”), 17:1–32. As discussed in Section III.D.3(iv) above, this speed data is part of what automatically determines and registers the start of a driving period. Based on the present record, this appears to be all that the Initialization Limitation requires the mobile device to perform.”

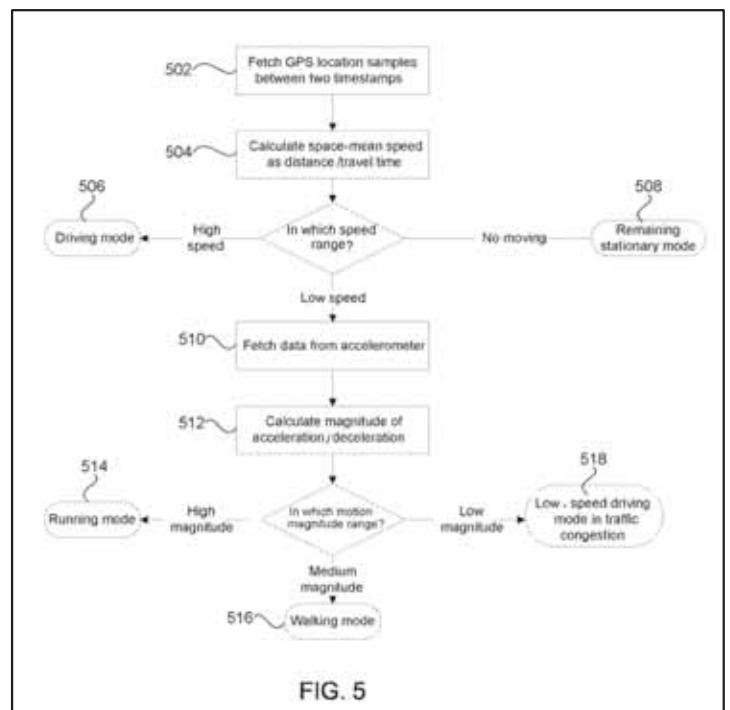
Dec., 51

Curry-Rabu Satisfies “...Register[ing] ... In Response To An Initialization Input Generated Automatically...”

Michalson Declaration

“... Curry describes in connection with FIG. 5 ... the use of timestamped ‘GPS location data’ produced by the GPS sensor included with Curry’s phone to determine a ‘space-mean speed measure’ that is calculated ‘as traveled distance divided by time interval,’ and that can be compared against one or more predetermined speed thresholds to determine whether a vehicle within which the phone is located is traveling within, for example, ‘a high-speed range.’ ... a POSITA would have found obvious, ... the automatic generation by the Curry-Rabu phone’s client application 110 of an initialization input for registering the start of the already-determined driving period in response to GPS sensor data having predetermined values reflecting a detected speed above a predetermined threshold.”

USAA-1003, ¶¶167, 168; Pet., 39-41; USAA-1005, 8:23-28, 16:1-22, FIG. 5



USAA-1005, FIG. 5; see Pet.. 40

Curry-Rabu Satisfies “...Register[ing] ... In Response To An Initialization Input Generated Automatically...”

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). ... FIG. 5 illustrates how to combine information from GPS and accelerometer sensors to precisely identify the type of activity. In FIG. 5, GPS location data are first fetched from different timestamps 502, and a space-mean speed measure is calculated 504 as traveled distance divided by time interval. If the space-mean speed is in a high-speed range, then the user is likely to be in driving mode 506. If the space-mean speed is substantially near zero or equal to zero, then the user is likely in "remaining stationary" mode 508.”

USAA-1005, 15:26-28, 16:1-22, FIG. 5; Pet., 34, 39; USAA-1003, ¶¶167-168; Reply,15

Curry-Rabu Satisfies “...Register[ing] ... In Response To An Initialization Input Generated Automatically...”

Michalson Declaration

“... to avoid erasing driving behavior information indicating unsafe behaviors such as speeding, a POSITA would have found obvious the configuration of client application 110 to, in response to an initialization input generated automatically in response to the Curry-Rabu phone’s sensor data having predetermined values indicating that such behaviors had occurred during a given driving period, register the already-determined start of that driving period for purposes of recording related driving information and sensor data within the Curry-Rabu phone’s long term memory module.

USAA-1003, ¶166 (citing USAA-1005, 6:5-22, 8:5-11, 7:30-8:33, 15:7-22, FIG. 1; USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; Pet., 38-39

Overview

Petition

Element [1.10]

"... Register ... In Response To An Initialization Input Generated Automatically..."

"... , a POSITA would have found obvious, ... the automatic generation by the Curry-Rabu phone's client application 110 of an initialization input for registering the start of the already-determined driving period in response to GPS sensor data having predetermined values reflecting a detected speed above a predetermined threshold."

Pet., 40-41 (Curry-Rabu ground)

"...a POSITA would have found obvious the automatic generation of the initialization input for registration of the start of the driving period and transfer of related data in response to "the speed of the vehicle exceed[ing] the predetermined...speed" threshold."

Pet., 50 (Curry-Rabu-Katayama ground)

Institution Decision Correctly Found Curry-Rabu-Katayama Renders Obvious the Initialization Limitation

Institution Decision

“We conclude Petitioner has explained with supporting evidence how the combination of Curry, Rabu, and Katayama teaches or suggests the Initialization Limitation of claim 1, sufficiently to justify institution of review. That is, Petitioner explains how a person of ordinary skill in the art would have been motivated to partition the Curry-Rabu phone’s existing memory into a temporary storage portion and a long term storage portion as disclosed by Katayama, in order to avoid inadvertent erasure of important information, with a detailed discussion of how the disclosures of Curry and Katayama support this contention without the taint of hindsight. See Pet. 44–51.

Dec., 56 (emphasis added)

Patent Owner's Arguments Concerning Differences between Katayama and the '271 Patent Are Irrelevant

POR

Katayama is prohibitively different from the '271 patent: (1) Katayama does not disclose a mobile phone; (2) Katayama is akin to a black box data recorder that is required to be connected to the vehicle's sensors; and (3) Katayama requires data from the vehicle sensors. Id., Abstract, [0038], [0039], [0042]-[0044], FIGs. 4-6.

POR, 54-55

Reply

AT first confuses inoperability and incompatibility in characterizing Katayama as "not disclos[ing] a mobile phone." POR, 54. This feature need not be taught in Katayama because Curry already teaches a mobile device for recording sensor data. AT then presupposes the integration of vehicle sensors into the combination by characterizing this aspect as a "require[ment]" for Katayama. POR, 54-55. This mischaracterizes the combination, which as explained in the Petition, instead enhances the Curry-Rabu phone by incorporating Katayama's teachings on "partitioning local memory into several sections (including sections for temporary and long term storage)" and "data handling."

Reply, 27-28

Patent Owner Misunderstands the Combination and Obviousness, Generally

POR

This is incorrect under § 103. In an obviousness analysis to combine tertiary reference C (in this case, Katayama) with primary and secondary references A and B (in this case, Curry and Rabu, respectively), one cannot look to reference C (the tertiary reference) for motivation to combine. That is simply contradictory to § 103 and the requirements of an obviousness analysis. When looking at Curry and Rabu, a Petitioner would not know the “beneficial results described in Katayama” unless it knew of Katayama in hindsight. Under § 103, the requirement of a reason to combine cited references is a safeguard against hindsight bias, characterized by the “temptation to read into the prior art the teachings of the invention in issue.” *KSR*, 550 U.S. at 421 (quoting *Graham*, 383 U.S. at 36).

Petitioner cannot get motivation from Katayama, and if Petitioner did not get the motivation for Katayama’s AI-based black-box storage configuration from smartphone-based Curry and Rabu, where else did Petitioner get the motivation besides the claims of the ’271 patent themselves? Petitioner provides no other reasonable motivation.

POR, 56-57

Reply

“This is incorrect, as Curry and Katayama each contemplate scenarios that benefit from persistent and temporary storage of recorded data. Pet., 44-51 (supporting analysis). The Panel agreed that ‘Petitioner explains ... with a detailed discussion of how the disclosures of Curry and Katayama support this contention without the taint of hindsight.’ Inst. Dec., 56.”

Reply, 26

Patent Owner's Arguments About "long-term memory" misunderstand the Petition

POR

A POSITA simply would not have been motivated to look to Katayama for additional data storage details for Curry and/or Rabu, whether from Curry or Rabu, which do not make mention of additional storage needs of the type disclosed in Katayama (and which Petitioner fails to particularly point out), or from a POSITA considering Claim 1 of the '271 patent, which the Board notes does not claim utilization of long-term memory. Institution Decision, 56.

POR, 55

Institution Decision

"We further note that claim 1 does not require separate memory structures. See Ex. 1001, 31:37 ("a memory"), 31:46 ("store a selection of the driving information to the memory"). Thus, Patent Owner's objection that Katayama works differently from the invention of claim 1 in the utilization of long term memory relies on unclaimed disclosures. We understand Petitioner's case for obviousness to posit that configuring Curry's mobile phone 106 to employ temporary and long term memories to achieve the beneficial results described in Katayama would lead to the phone satisfying the Initialization Limitation's requirement of registering the start of a driving period in response to an automatically-generated initialization input, by moving data from temporary to long term memory when a minimum vehicle speed has been exceeded. See Pet. 49–51."

Dec, 56

Patent Owner Mischaracterizes Petitioner’s Arguments

Sur-Reply

“To illustrate, claim element [1.10] refers to block 42 of FIG. 4a (“Register the start of a driving period”) (Ex-1001, 18:30-39), while Petitioner refers to block 50 (“Securely store sensor data and driving information in protected storage”) (*id.*, 18:55-60). Pet. Reply, 25.

Sur-Reply, 28

Reply

A. Curry-Rabu-Katayama Provides the Initialization Limitation

Curry-Rabu-Katayama provides the Initialization Limitation of [1.10], because “to avoid inadvertent erasure of important situation data, a POSITA would have configured client application 110 to, in response to an initialization input generated automatically in response to accelerometer and/or GPS sensor data values indicating unsafe speeding during a given driving period, register the already-determined start of that driving period for purposes of recording related situation data within long term memory.” Pet., 48-51 (citing USAA-1005, 6:5-22, 8:5-11, 7:30-8:33, 11:3-14; 13:3-19, 15:7-22, 16:1-22, FIGS. 1, 5; USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]); USAA-1003, ¶183.

AT insists that the Curry-Rabu-Katayama combination “has nothing to do with the ‘initialization limitation,’ particularly registering the start of a driving period, which none of Curry, Rabu, or Katayama disclose.” POR, 55. AT does not address the Panel’s observation of how a configuration of temporary and long term memories in the Curry-Rabu-Katayama phone provides the “register” requirement of the Initialization Limitation:

Construction on “Register” – Impermissible New Argument

Sur-Reply

“Petitioner’s interpretation is not what the claim is about.” According to [1.10], *register[ing] the start of a driving period in response to an initialization input* facilitates the start of processing and storing sensor data. Ex-1001, 18:30-32, 31:51-56. This storing is in *short-term*, not long-term memory.”

Sur-Reply, 28

Claim 1

“... wherein the mobile communications device is controlled by a downloaded application to control the mobile device to register the start of the driving period in response to an initialization input generated automatically in response to the sensor data having predetermined values, wherein the initialization input is generated in response to sensor data reflecting a detected speed above a predetermined threshold.”

USAA-1001, 31:29-56; Pet., 34-41, 48,-51

Curry-Rabu-Katayama Satisfies “...Register[ing] ... In Response To An Initialization Input Generated Automatically...”

Michalson Declaration

“As explained above, a POSITA would have configured the Curry-Rabu-Katayama phone to transfer situation data from a given driving period determined to be ‘important’ from the local memory’s temporary storage section to its long term section for potential post-processing and/or later transmission.”

USAA-1003, ¶182 (citing USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]; USAA-1005, Abstract, 2:3-3:28, 10:15-11:14, 13:20-16:33, 17:30-18:7, FIGS. 1, 3-4, 6); Pet., 48-49

Curry-Rabu-Katayama Satisfies “...Register[ing] ... In Response To An Initialization Input Generated Automatically...”

Michalson Declaration

“In one Katayama embodiment, satisfaction of a predetermined speed threshold results in Katayama’s system first reporting a ‘risk incident’ to the driver, and then transferring the related situation data in response to the driver pushing a button.... However, consistent with Curry’s goals of ‘detect[ing] and prevent[ing] unsafe driving behavior[s],’ a POSITA would have found obvious the automatic generation of the initialization input for registration of the start of the driving period and transfer of related data in response to ‘the speed of the vehicle exceed[ing] the predetermined ... speed’ threshold. ... advantageously enable the Curry-Rabu-Katayama phone to retain, for later transmission ... information pertaining to speeding, without reliance on the unsafe driver themselves acquiescing to that data and information being automatically reported to the server for purposes of, for example, determining insurance premiums.

USAA-1003, ¶¶185-186; Pet., 50-51

Katayama

“Then the value (the content) of each situation data is, for example, digitalized in accordance with the judgment criterion parameter. Concretely, all are digitalized; ... 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 ...

... in case that it is judged the predetermined conditioned is satisfied ... the data administration section 804 reports the driver about this event ... and verifies the judgment by means of, for example, input data ... from the driver with an operation of ON/OFF of the button switch 5. ...

USAA-1024, [0048]-[0050] (cited in USAA-1003, ¶¶185-187; Pet., 49-51)

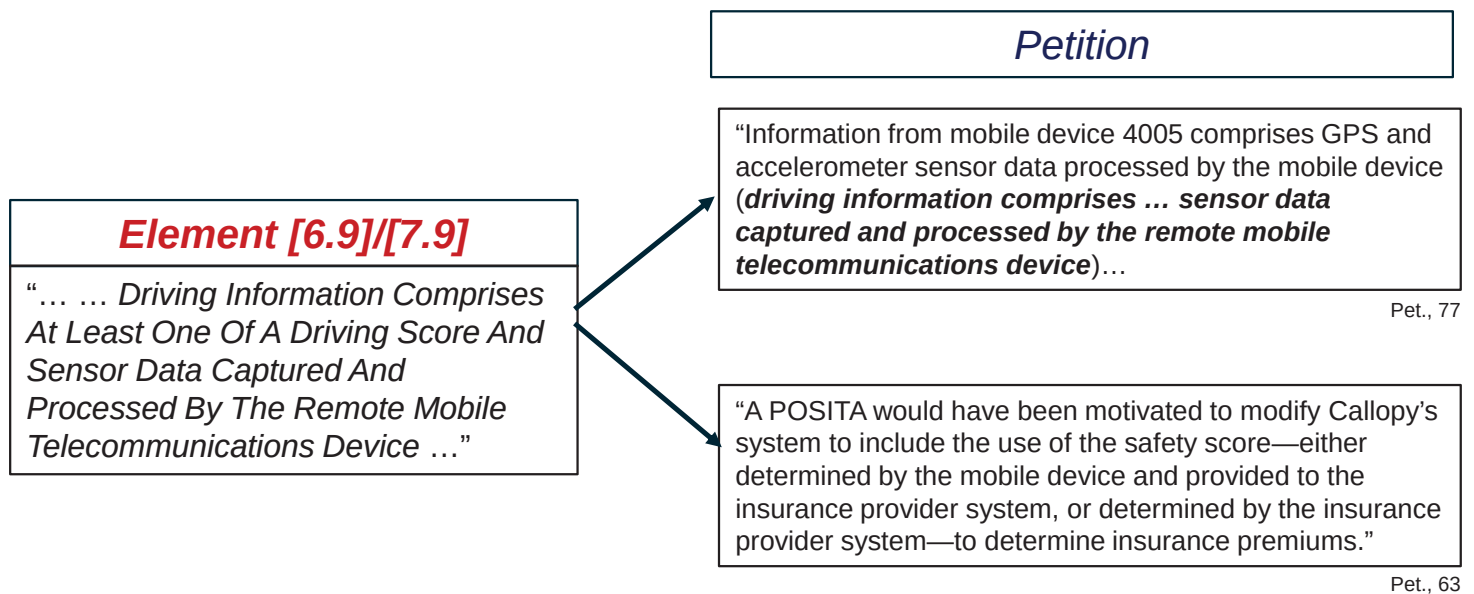
Curry-Rabu-Katayama Satisfies “...Register[ing] ... In Response To An Initialization Input Generated Automatically...”

Michalson Declaration

“... a POSITA would have found obvious the configuration of Curry-Rabu-Katayama’s client application 110 to, in response to an initialization input generated automatically in response to sensor data having predetermined values indicating that speeding had occurred during a given driving period, register the already-determined start of that driving period for purposes of recording related situation data within the Curry-Rabu-Katayama phone’s long term memory section.”

USAA-1003, ¶187 (citing USAA-1005, 6:5-22, 8:5-11, 7:30-8:33, 15:7-22, FIGS. 1, 5; USAA-1024, [0001]-[0002], [0011]-[0016], [0027], [0046]-[0050], [0054], [0083]); Pet., 51

Overview



“At Least One Of A Driving Score and Sensor Data ”

Claim 6

“... wherein the driving information comprises at least one of a driving score and sensor data captured and processed by the remote mobile telecommunications device during a driving period during which the remote mobile telecommunications device is removably attached to the vehicle being driven by the driver...”

USAA-1001, 32:40-33:4

Institution Decision

“We disagree. Claim 6 pertinently specifies only that the data-logging system receives ‘*at least one of a driving score and sensor data* captured and processed by the remote mobile telecommunications device.’ Ex. 1001, 32:48–50, 32:61–66 (emphasis added). That limitation is satisfied if the system received sensor data, but not a driving score, from the mobile device. Indeed, a later limitation in claim 6 expressly requires that the *data-logging system* is arranged to generate a driving score. See *id.* at 32:67–33:4.... ”

Dec., 58-59

Overview

Petition

Element [6.9]/[7.9]

"... .. Driving Information Comprises At Least One Of A Driving Score And Sensor Data Captured And Processed By The Remote Mobile Telecommunications Device ..."

"Information from mobile device 4005 comprises GPS and accelerometer sensor data processed by the mobile device (***driving information comprises ... sensor data captured and processed by the remote mobile telecommunications device***)..."

Pet., 77

"A POSITA would have been motivated to modify Callopy's system to include the use of the safety score—either determined by the mobile device and provided to the insurance provider system, or determined by the insurance provider system—to determine insurance premiums."

Pet., 63

Callopy-Curry Satisfies “... *Driving Information Comprises ...Sensor Data Captured And Processed By The Remote Mobile Telecommunications Device ...*”

Michalson Declaration

“... information from the mobile device 4005 comprises sensor data from the GPS and accelerometer that is processed by the mobile device (***driving information comprises ... sensor data captured and processed by the remote mobile telecommunications device***).”

USAA-1003, ¶¶239, 242; Pet., 76-77

Overview

Petition

Element [6.9]/[7.9]

"... .. Driving Information Comprises At Least One Of A Driving Score And Sensor Data Captured And Processed By The Remote Mobile Telecommunications Device ..."

"Information from mobile device 4005 comprises GPS and accelerometer sensor data processed by the mobile device (driving information comprises ... sensor data captured and processed by the remote mobile telecommunications device)..."

Pet., 77

"A POSITA would have been motivated to modify Callopy's system to include the use of the safety score—either determined by the mobile device and provided to the insurance provider system, or determined by the insurance provider system—to determine insurance premiums."

Pet., 63

Callopy-Curry Satisfies “... *Driving Information Comprises At Least One Of A Driving Score And Sensor Data Captured And Processed By The Remote Mobile Telecommunications Device ...*”

Michalson Declaration

“To the extent this element is interpreted as the driving information comprising ***both*** a driving score and sensor data, as discussed in §XV.A *supra*, the Callopy-Curry combination teaches or otherwise renders obvious that the driving information comprises a ***driving safety score***.”

USAA-1003, ¶¶241; Pet., 77-78

Callopy-Curry Satisfies “... Driving Information Comprises At Least One Of A Driving Score And Sensor Data Captured And Processed By The Remote Mobile Telecommunications Device ...”

Curry

“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. The safety scores can be used by consumers and insurance agencies to determine insurance premiums for related drivers. ...”

USAA-1005, 7:13-17, 12:3-18; Pet. 62-63; USAA-1003, ¶¶212-214

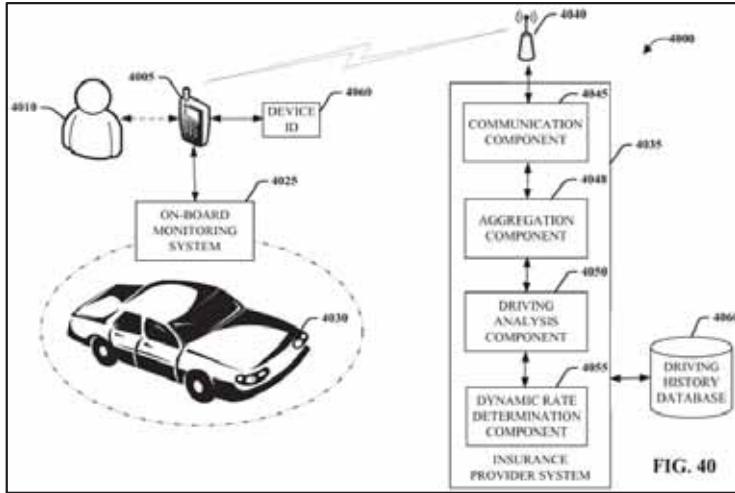
“The location of software and firmware used to create the functionality of the system for monitoring and controlling the use of a mobile computing device illustrated in FIG. 1 can be based on a tradeoff between the complexity of the mobile device and the amount of information communicated on the mobile 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., 7, 12, 19, 36, 46; USAA-1003, ¶¶102, 118, 120, 177

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 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 (cited in Reply, 8 incorporated to Callopy-Curry, Reply, 29)

Callopy-Curry Satisfies “... Driving Information Comprises At Least One Of A Driving Score And Sensor Data Captured And Processed By The Remote Mobile Telecommunications Device ...”



USAA-1045, FIG. 40; Pet., 59-60USAA-1003, ¶93-97

Michalson Declaration

“The insurance provider system 4035 ‘gathers information from as many sources as required to facilitate generation and presentation of insurance rate(s)’ and ‘determine[s] an insurance rate(s) based upon the gathered data and **data analysis.**’ ... To the extent that Callopy does not explicitly teach that its mobile device calculates scores for the insurance provider system 4035 to use for determining insurance premiums, doing so would have been obvious to a POSITA. Indeed, use of a score was well-known by the critical date, as evidenced by Curry, and a POSITA would have been motivated to look to Curry to improve Callopy’s system.”

“A POSITA would have found obvious implementing Callopy’s vehicle monitoring system for determining insurance premiums with Curry’s driving score based on its collected driving data for determining insurance premiums. Additionally, a POSITA would have found obvious either determining the driving score at the mobile device or at the insurance provider system, depending on “a tradeoff between the complexity of the mobile device and the amount of information communicated on the mobile device’s network.” USAA-1005, 12:3-18. Ultimately, as explained below, **the score could be determined at either location in Callopy, depending on the particular needs of the system.**

USAA-1003, ¶1211 (citing USAA-1045, [0308]-[0310], ¶1213; Pet., 61-63

Other Slides

“A Start Of A Driving Period”

Sur-Reply

“Claim 1 recites:

[A] ‘determine...start of a driving period during which the mobile device is removably attached to the vehicle and the vehicle is in use;

[B] ...”

Element [A] concerns the ‘*start of a driving period*,’ it does not define ‘driving period.’”

Sur-Reply, 1

Claims 6, 7

“... wherein the driving information comprises at least one of a driving score and sensor data captured and processed by the remote mobile telecommunications device during a driving period during which the remote mobile telecommunications device is removably attached to the vehicle being driven by the driver, ...”

USAA-1001, 32:40-34:21

“Determine A Start Of A Driving Period”

Sur-Reply

“Curry’s recording period does not start a ‘driving period’ as claimed.”

Sur-Reply, 10

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-1088, 211:3-5 (cited in Reply, 7)

Institution Decision

“Based on the preliminary record, we consider Patent Owner’s reading of Curry to be too narrow. As discussed, Curry teaches the use of GPS and accelerometer sensors embedded in mobile 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*.’ 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 a person of ordinary skill in the art would consider Curry to lack ‘a start of a driving period’ because a phone call may never be placed or received. See Prelim. Resp. 38. 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. 32-33 (cited in Reply, 2)

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

Sur-Reply

“Curry’s phone caches raw sensor data over a limited time period (e.g., 6 minutes) and *post-processes* the data merely to determine activity mode, similar to FIG. 3, for a call that was put through.”

Sur-Reply, 9

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. Rather, FIG. 3 discloses taking a snapshot of activity after a call triggers a recording period and handling the call based on the snapshot and predetermined user permissions.”

Sur-Reply, 9

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, 26, 30

“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., 26, 30, 32, 35-37

“Driving Information Associated With How The Vehicle Is Driven”

Sur-Reply

“The claimed ‘derived driving information’ includes more than raw sensor data, specifically, information regarding ‘how the vehicle is driven,’ including ‘occurrence of a predetermined event.’”

Sur-Reply, 5-6

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. 30; USAA-1003, ¶146

“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., 29, 31; USAA-1003, ¶¶143-145, 148; Reply, 29

“...Input Received By The User Interface”

Petition

“... client 110 enables phone 106 to determine, based on user inputs (e.g., accepting phone call, manually changing activity modes) and sensor data (e.g., ‘location, speed, and acceleration data’) whether an associated vehicle is being driven.”

Pet., 25

The Curry-Rabu Combination

Sur-Reply

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

Sur-Reply, 23

Petition

“A person of ordinary skill in the art at the time of the ’271 Patent (“POSITA”) would have found obvious integration of Rabu’s dock status sensing and associated mode-shifting capabilities into Curry’s phone, thereby enhancing the Curry phone’s ability to promote safe driving.”

Pet., 11 (citing USAA-1003, ¶¶14-15 (defining a POSITA); USAA-1003, ¶101

’879 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.”

’879 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., 9, 12, 14-15, Reply, 22

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

USAA-1013, 8:17-18; see Pet., 8, 10, 12, 25

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 [(PMD)] using motion sensor data.’ See *id.*, 12 (citing **Ex-1013, 8:13—10:42**, describing Rabu’s ‘methods for operating a [PMD]...includ[ing] determining...a **frequency spectrum** associated with a motion of the [PMD]’).”

Sur-Reply, 23

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