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- (54)
- Title:**
- METHOD AND SYSTEM FOR PROVIDING A COMMUNICATION PLATFORM FOR A DRIVER OF A VEHICLE

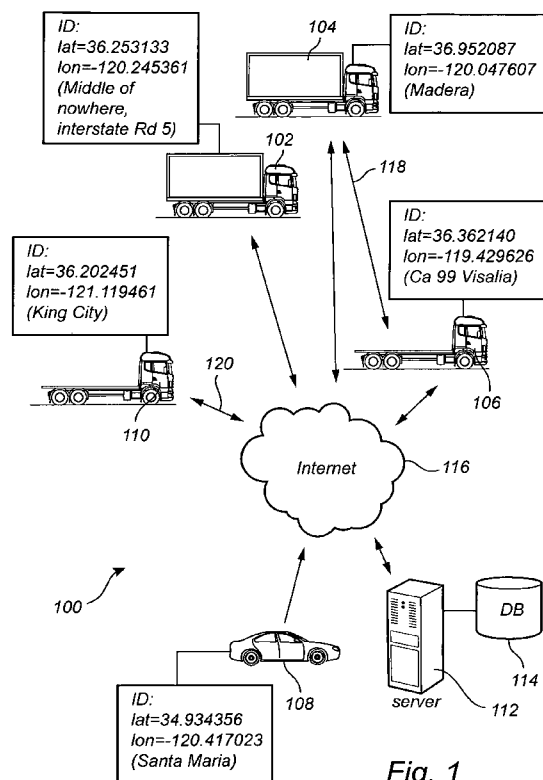


Fig. 1

(57) **Abstract:** The present invention relates to a method, and software for providing a communication platform for a driver of a vehicle. The method comprising the steps of; detecting a geographical location of the vehicle, detecting a geographical vector of the vehicle (102) comprising the transversal movement of the vehicle, calculating at least one potential route of the vehicle (102) based on the geographical location and the geographical vector, defining a geographical area elongated in the proximity of the at least one calculated potential route, detecting at least one other driver located within the geographical area, and providing a channel (10) on said communication platform for allowing communication between the first driver and the at least one other driver.



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METHOD AND SYSTEM FOR PROVIDING A COMMUNICATION
PLATFORM FOR A DRIVER OF A VEHICLE

TECHNICAL FIELD

The invention relates to communication means for commercial drivers such as truck drivers.

5

BACKGROUND OF THE INVENTION

Being a commercial driver, such as a truck driver, is traditionally a rather solitary profession, as most of the time spent at work is alone in the vehicle. However, in early 1960ies the Citizens' Band, more commonly known
10 as "CB radio" or as below just "CB", found its way into many trucks and provided the drivers with a communication means which partly alleviated the solitariness of the profession. CB allows a driver to communicate with another driver within the range of about 10 km if the terrain is decent.

Although the technology within social communications has developed
15 substantially over the last 20 years, many truck drivers still use CB as their primary social communication means. However, the digital development of social communication presents many advantages over the CB technology. Thus, there is a need for a social communication means adapted for commercial drivers such as truck drivers that is based on digital social
20 communication.

SUMMARY OF THE INVENTION

The object of the invention is to achieve a social communication means adapted for commercial drivers which is based on digital social
25 communication.

The invention is based on the inventors' realization that for a communication means to be relevant for the driver of a vehicle, it is not optimal to have a communication platform based on a circular geographical area, as in CB. Instead, the inventors have realized that by calculating a
30 potential route for a vehicle and providing a channel on a communication platform associated to a geographical area corresponding to the potential

route of the vehicle, a communication platform with great advantages may be achieved.

According to a first aspect of the inventive concept, the above and other objects are achieved through a method for providing a communication platform for a driver of a vehicle, comprising the steps of; detecting a
5 geographical location of the vehicle, detecting a geographical vector of the vehicle comprising the transversal movement of the vehicle, calculating at least one potential route of the vehicle based on the geographical location and the geographical vector, defining a geographical area elongated in the
10 proximity of the at least one calculated potential route, detecting at least one other driver located within the geographical area, and providing a channel on the communication platform for allowing communication between the first driver and at least one other driver.

In the context of the application a "communication platform" should be
15 understood as any digital communication platform providing a person the opportunity to communicate with another person. For example, this platform may allow for voice communication, be a web-based forum for discussion, a virtual room for digital chatting or any other type of communication platform. Further, in the context above, "in the proximity of the calculated potential
20 route" should be understood as a distance from the potential route which defines a relevant area. E.g. the proximity may be 1 km from the potential route in one context, and 100 meters from the potential route in another context. In extreme cases, such as when travelling in undeveloped areas, the distance can be even further, such as 10 km or 100 km from the potential
25 route.

There are great advantages with providing an elongated geographical area for a common channel, instead of a circular area which is used in e.g. CB or other equivalent communication means. By forming the area elongated in the proximity of the calculated potential route, noise, i.e. non-relevant
30 communication, can be reduced for a driver. The noise is reduced due to that the drivers using the same channel are all associated with the geographical area. By assuring that the at least two drivers have (at least) the geographical

area in common, the probability that the two drivers have an interest of communicating may be increased.

According to another embodiment, the method further comprises an intermediate step of creating the channel based on the geographical area
5 before providing the channel to the driver. Thereby, a channel may be provided to the drivers in the defined geographical area, although there was no preexisting channel for drivers located within the geographical area.

According to yet another embodiment, the channel is a preexisting channel and wherein the method further comprises an intermediate step of
10 selecting the channel based on the geographical area before providing the channel for the driver. Thereby, there is no need for establishing a new channel for the drivers within the defined geographical area. Moreover, in one embodiment, it would be possible for the driver of the vehicle to catch up on old conversations within the channel.

15 According to another embodiment, the channel enables infrastructure to driver communication. Thereby, it would be possible for infrastructural actors within the defined geographical area to communicate with drivers of vehicles within the relevant geographical area. E.g. a restaurant could communicate today's specials, or a road working unit could warn about an
20 upcoming road repair.

Moreover, it would be possible for a driver to communicate with infrastructural actors in the defined geographical area. That could be desired when e.g. if a driver is wondering if an actor has an article in stock or not.

According to yet another embodiment, the channel enables driver to
25 driver communication. Thereby, two drivers of two vehicles located in the defined geographical area are able to communicate directly with each other. As drivers within the same geographical region are likely to face the same, or similar, problems the opportunity to be able to communicate with another driver being in the same geographical area is desirable.

30 According to another embodiment, the step of providing the channel for the driver comprises the partial steps; presenting the channel to the driver, and providing the driver the opportunity to join the channel or to discard the channel. Thereby, the driver may choose whether or not he wants to join the

channel in question. Thereby, the channels will only comprise drivers with an interest of being a part of the channels, and thereby increasing the relevance of the drivers comprised in the channel.

According to yet another embodiment, the channel is a first channel
5 and the method comprises providing the driver with a second channel, wherein the second channel corresponds to a geographical area elongated in the proximity of a second calculated potential route. Thereby, the driver may choose a channel corresponding to the actual route he is intended to drive the vehicle, and thereby, avoiding entering an incorrect channel.

10 Moreover, in some embodiments, the method provides the opportunity for the driver to choose channel from a plurality of channels corresponds to geographical areas elongated in the proximity of a plurality of calculated potential routes.

According to another embodiment, the step of providing the driver with
15 a second channel comprises the partial steps; presenting the second channel to the driver, and providing the driver the opportunity to join the second channel or to discard the second channel. Thereby, the driver may choose whether or not he wants to join the second channel. Thereby, contribute to that the channels only comprises drivers with an interest of being a part of the
20 channels, and thus increasing the relevance of the drivers comprised in the channel.

According to yet another embodiment, the driver has the opportunity to simultaneously be communicatively connected to a plurality of channels. Thereby, a driver may join several channels corresponding to e.g. several
25 partial routes that the driver is intending to take. This could be beneficial for e.g. delivery vehicles that often change their route.

According to another embodiment, the second channel corresponds to a geographical area comprising a geographical position further distanced from the vehicle than the most distal position in the geographical area
30 corresponding to the first channel. Thereby, if a driver of a vehicle is not satisfied with a channel related to a geographical area close to the potential route, the driver is able to expand the channel so that it corresponds to a larger area, and thereby includes drivers from a larger geographical area.

This can be desirable when driving in non-developed areas, or when the driver has the intention to make a very long drive. In one embodiment the second channel corresponds to a geographical area for a longer potential route than the potential route in the first communication area. In another
5 embodiment, the second channel corresponds to a geographical area further distanced from the potential route than the geographical area in the first channel.

According to yet another embodiment, the first channel corresponds to a geographical area comprising a main road which crosses through the
10 geographical position of the vehicle, and wherein the second channel corresponds to a geographical area comprising a secondary road connected to the main road. Thereby, the first channel corresponds to a route where the driver would keep driving the vehicle on the present road, and in the present direction. Moreover, the second channel corresponds to a potential route
15 where the driver would make a turn from the present road, and instead choose another main road, connected to the present road. Thereby, channels corresponding to probable routes can be suggested to the driver.

According to another embodiment, the channel allows communication with voice message, text message, image message and/or video message.
20 Thereby, the communication may comprise a voice message from the driver of, allowing drivers to communicate while looking at the road. Moreover, in the embodiment where the communication is a text message, the driver can read the message without disturbing anyone in the proximity. Moreover, communication with image/video, may allow drivers to provide an image/video
25 to other vehicle drivers. Moreover, the communication may be combinations of the above, for example a photograph of a gas station and a text like "the gas station on approaching on your left has the best chicken wraps and great gas price".

Furthermore, there is according to the invention provided a computer
30 program product comprising a computer readable medium having stored thereon computer program means for providing a virtual communication platform for a driver of a vehicle, wherein the computer program product comprises; code for detecting a geographical location of the vehicle, code for

detecting an orientation and/or a movement of the vehicle, code for calculating at least one potential route of the vehicle based, and code for providing a channel on the communication platform for the driver, wherein the channel corresponds to a geographical area elongated in the proximity of the
5 at least one calculated potential route.

According to another embodiment, the computer program product comprises code for performing the method according to any of the embodiments as described above.

The computer readable medium may be one of a removable
10 nonvolatile random access memory, a hard disk drive, a floppy disk, a CD-ROM, a DVD-ROM, a USB memory, an SD memory card, or a similar computer readable medium known in the art. The present invention may be implemented using a combination of software and hardware elements.

Further features of, and advantages with, the present invention will
15 become apparent when studying the appended claims and the following description. The skilled addressee realize that different features of the present invention may be combined to create embodiments other than those described in the following, without departing from the scope of the present invention.

20

BRIEF DESCRIPTION OF THE DRAWINGS

The various aspects of the invention, including its particular features and advantages, will be readily understood from the following detailed description and the accompanying drawings, in which:

25 Fig. 1 schematically illustrates a communication system between a plurality of vehicles;

Fig. 2 schematically illustrates a flow chart of a method according to one embodiment;

Fig. 3 illustrates schematically illustrates a map with three alternative
30 channels corresponding to three alternative routes according to one embodiment; and

Fig. 4 schematically illustrates a handheld device with a map comprising a number of alternative channels according to one embodiment.

DETAILED DESCRIPTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which currently preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided for thoroughness and completeness, and fully convey the scope of the invention to the skilled addressee. Like reference characters refer to like elements throughout.

Fig. 1 shows how communication between five vehicles may be arranged within a communication system 100 for using in relation to the invention. Fig. 1 illustrates two trucks 102, 104, two tractor units 106, 110 and a car 108. Each vehicle is associated with a name and a geographical location as indicated on the corresponding labels. Further, the figure illustrates the Internet 116, a communication platform server 112 and a database 114. The data communication between the vehicles may be conducted by means of a peer-to-peer connection 118 as illustrated between the second truck 104 and the first trailer 106. Alternatively, the communication may be centralized communication 120 achieved via e.g. Internet 116, as indicated by the communication lines 120 going from the different vehicles to the internet 116 and back to the vehicles. Further, the vehicles may also communicate with the communication platform server 112 and may utilize the database 114.

Moreover, the communication transmitted between the vehicles 102, 104, 106, 108, 110 may be transmitted by transmitting means using GSM, 3G, 4G, Bluetooth, local area networks such as WLAN, WI-FI, Ethernet, etc or any type of communication that allows voice, image and/or text to be transmitted.

In the example the five vehicles are all located in California along CA99, CA101 and Interstate 5. The geographical location of the first truck 102, illustrated in the center of Fig. 1, is on the highway Interstate 5 with coordinates latitude 36.253133 and longitude -120.245361. The second truck 104 is located on CA 99 outside Madera with coordinates latitude 36.952087

and longitude -120.047607. The first tractor unit 106 is located on Ca 99 outside Visalia with coordinates latitude 36.362140 and longitude -119.429626. The car 108 is located one CA101 outside Santa Maria with coordinates latitude 34.934356 and longitude -120.417023. Finally the second
5 trailed is located on CA101 outside King City with the coordinates latitude 36.202451 and longitude -121.119461. If the first truck 102 is chosen as a reference point, the second truck 104 is located to the north, the first tractor unit 106 located to the east, the car 108 located to the south and the second tractor unit 110 located to the west. The geographical location of the server
10 112 and database 114 is not relevant for the inventive concept. For convenience, below, the first truck 102 will be written as the "vehicle 102" or "first vehicle 102".

Obviously, the selected types of vehicles are merely examples, and each vehicle may be any type of vehicle without departing from the inventive
15 concept.

In Fig. 2 a method of for providing a communication platform for a driver of a vehicle 102 is illustrated in a number of steps. Each step is associated with a reference number. However, the steps do not necessarily need to be performed in the order of the reference signs, e.g. step S2 may be performed
20 before S1 etc.

The first step S1 is determining a geographical location. This step may be achieved by a number of different positioning systems such as global positioning system (GPS), GLONASS, Galileo, Compass navigation system, or any other positioning system. Moreover, triangulation techniques for use in
25 e.g. mobile phone tracking may be used or any other technology for establishing a geographical location.

Moreover, Fig. 2 illustrates the step S2 of determining a geographical vector of the vehicle 102 comprising the transversal movement of the vehicle. This may also be achieved by means of integrated or external equipment.
30 The purpose of determining the geographical vector is mainly to complement the geographical position with a direction. Thereby, it may be determined not only where a vehicle 102 is located, but also in what direction the vehicle 102

is traveling. The direction of the vehicle is very relevant for calculating potential routes for the vehicle which will be done in the subsequent step S3.

As already stated above, the next step S3 is calculating at least one potential route for the vehicle 102 based on the detected geographical location and geographical vector. There are several ways of detecting a potential route, one of the simplest being assuming that the vehicle 102 will continue on the present road in the present direction. Another way would be to compare the most common route, based on statistical data, when traveling in the detected direction from the detected position. The latter alternative would enable a potential route including making deviations from the present road. Moreover, a weight factor for the potential routes may be introduced where major roads, e.g. Interstates in the US, may be preferred roads. For example, a vehicle approaching a major Interstate could thereby be assumed heading for said major Interstate even if there are many other smaller roads going in roughly the same direction.

Another way of calculating the potential route may be by means of interfacing with a navigation system, and detecting a predetermined route from said navigation system.

Subsequently, the step S4 is defining a geographical area elongated in the proximity of the at least one potential route is illustrated in Fig. 2. The distance meant by "the proximity of the potential route" may be set as any relevant distance for the route. The proximity may be 1 km from the potential route in one context, and 100 meters from the potential route in another context. The distance for the proximity is set to create a relevant geographical area. A relevant geographical area may be interpreted as an area which contains drivers and/or objects of interest for the driver within the detected geographical location and travelling in the detected direction. In extreme cases, such as when travelling in undeveloped areas, the distance may be long, such as 10 km or 100 km from the potential route.

As illustrated further in Fig. 2, step S5 is detecting at least one other driver located within the geographical area. This means that the communication platform provides a search function for identifying another

driver, potentially many other drivers, whom is located in the defined elongated geographical area.

Further, the method comprises two optional and alternative steps S6a and S6b, wherein the first of them S6a is creating the channel 10 based on
5 the geographical area before providing the channel 10 to the driver. That is, if there is no preexisting channel 10 corresponding to the geographical area elongated in proximity to the potential route, such a channel 10 will be created. Thereby, as long as there are at least two drivers within the geographical area there will always be channel 10 to provide for them to
10 communicate within.

Moreover, the alternative optional step S6b is relevant if there already is a preexisting channel. In that case the method comprises the step S6b of selecting the preexisting channel 10 based on said geographical area before providing said channel to said driver. Thus, a driver looking for a channel to
15 communicate with other drivers within the geographical region will join the existing channel 10 instead of creating a new, allowing the user to speak with other drivers already communicatively connected to the preexisting channel.

As further illustrated in Fig. 2, the next step S7 is providing the channel for allowing communication between said first driver and said at least one
20 other driver. The channel 10 may allow oral communication. However, the channel may also provide a combination of oral communication, text messages, image messages and/or video messages. Moreover, it could be possible to communicate with other types of messages such as geomessages comprising information associated with a geographical location.

25 The last step S8 illustrated in Fig. 2 is to provide at least a second channel 11 to the driver. Further, an example of a map with different channels 10, 11, 12 is shown in fig 3 as further discussed below. The second channel 11 may correspond to a geographical area elongated in the proximity of a second calculated potential route. By providing (at least) two different
30 channels 11, 12, 13 the driver is may be provided with (at least) two alternative channels, which increase the probability that at least one of the alternatives is a relevant channel. As mentioned earlier, the driver may be given the alternative to join the channels or to discard the channels. Further, it

could be possible for the driver to be communicatively connected to a several channels.

Moreover, when calculating the potential routes, one optional methodology is to associate the first suggested channel 10 with the most
5 probable route, and the second suggested channel 11 with the second most probable route and so on. Thereby, the probability that the drivers preferred choice is one of the first channels increases.

Fig. 3 shows a map with the vehicles 102, 104, 106, 108, 110 distributed as described earlier. In this embodiment, the driver of the vehicle
10 102 is traveling in a southeast direction on IS5 towards Los Angeles. A first potential route for the vehicle 102 is therefore along IS 5 to Los Angeles. This route may be chosen based on assuming that the vehicle 102 will continue on the present road in the present direction, assume the vehicle 102 will take the most common route, or any other method. Thus, a first channel 10 may be
15 either created, in no channel exists for that route already, or selected from a preexisting channel, which might be most probable on this specific route. Moreover, a second potential route towards Fresno may be calculated and therefore a second channel 11 associated with the second route may be provided to the driver. Further a third potential route through Bakersfield and
20 towards California City may be calculated, and therefore a third channel 12 associated with the third route may be provided to a driver.

In the embodiment as shown in fig. 3, the driver of the vehicle 102 has three alternative channels to choose from. The driver of the vehicle 102 may choose to communicatively connect to none, one, two or all three channels.

25 In one embodiment, as shown in fig 4, the driver of the vehicle 102 may access the channels of the communication platform on a hand held device 150. In this specific embodiment, the hand held device comprises a touch screen 151 allowing a driver to control the device with the hand 152. In other embodiments the touch screen may be implemented in the dashboard.
30 Moreover, the desired channels may be selected by e.g. voice commands or a digital/physical button.

Even though the invention has been described with reference to specific exemplifying embodiments thereof, many different alterations,

modifications and the like will become apparent for those skilled in the art. Variations to the disclosed embodiments can be understood and effected by the skilled addressee in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims. For example, the

5 invention has mainly been described above with reference to a few embodiments. However, as is readily appreciated by the skilled addressee, other embodiments than the ones disclosed above are equally possible within the scope of the invention, as defined by the appended patent claims. For example, the invention is also applicable for cars, buses, dumpers, wheel
10 loaders and other type of vehicles than the above described truck.

In the claims, the word "comprises" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. A single computer or other unit may fulfill the functions of several items recited in the claims. The mere fact that certain measures are recited in mutually
15 different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

CLAIMS

1. A method for providing a communication platform for a driver of a vehicle (102), comprising the steps of:

- 5 - detecting a geographical location of said vehicle (102);
- detecting a geographical vector of the vehicle (102) comprising the transversal movement of the vehicle;
- calculating at least one potential route of said vehicle (102) based on said geographical location and said geographical vector;
- 10 - defining a geographical area elongated in the proximity of said at least one calculated potential route (10);
- detecting at least one other driver located within said geographical area; and
- providing a channel (10) for allowing communication between said
- 15 first driver and said at least one other driver.

2. Method according to claim 1, further comprising an intermediate step of creating said channel (10) based on said geographical area before providing said channel (10) to said driver.

20

3. Method according to claim 1, wherein said channel (10) is a preexisting channel and wherein the method further comprises an intermediate step of selecting said channel based on said geographical area before providing said channel (10) to said driver.

25

4. Method according to claim 2-3, wherein said channel (10) enables infrastructure to driver communication.

5. Method according to any of the preceding claims, wherein said

30 channel (10) enables driver to driver communication.

6. Method according to any of the preceding claims, wherein said step of providing said channel (10) for said driver comprises the partial steps:

- presenting said channel (10) to said driver; and
- providing said driver the opportunity to join said channel (10) or to discard said channel.

5 7. Method according to any of the preceding claims, wherein said channel (10) is a first channel and said method comprises providing said driver with a second channel, wherein said second channel (11) corresponds to a geographical area elongated in the proximity of a second calculated potential route.

10

8. Method according to claim 7, wherein the step of providing said driver with a second channel (11) comprises the partial steps:

- presenting said second channel to said driver; and
 - providing said driver the opportunity to join said second channel (11)
- 15 or to discard said second channel.

9. Method according to claims 7 or 8, wherein said driver has the opportunity to simultaneously be communicatively connected to a plurality of channels.

20

10. Method according to any of claims 7-9 wherein said second channel (11) corresponds to a geographical area comprising a geographical position further distanced from the vehicle (102) than the most distal position in said geographical area corresponding to said first channel.

25

11. Method according to any of claims 8-10, wherein said first channel (10) corresponds to a geographical area comprising a main road which crosses through said geographical position of the vehicle, and wherein said second channel (11) corresponds to a geographical area comprising a road

30 driveably connected to said main road.

12. Method according to any of the preceding claims, wherein said channel (10) allows communication with voice message, text message, image message and/or video message.

- 5 13. Computer program product comprising a computer readable medium having stored thereon computer program means for providing a virtual communication platform for a driver of a vehicle, wherein the computer program product comprises:
- code for detecting a geographical location of said vehicle;
 - 10 - code for detecting an orientation and/or a movement of said vehicle;
 - code for calculating at least one potential route of said vehicle (102) based; and
 - code for providing a channel (10) on said communication platform for said driver, wherein said channel (10) corresponds to a geographical area
 - 15 elongated in the proximity of said at least one calculated potential route.

14. Computer program product comprising a computer readable medium having stored thereon computer program means for providing a virtual communication platform for a driver of a vehicle, wherein the computer
- 20 program product comprises code for performing the method according to any of the preceding claims.

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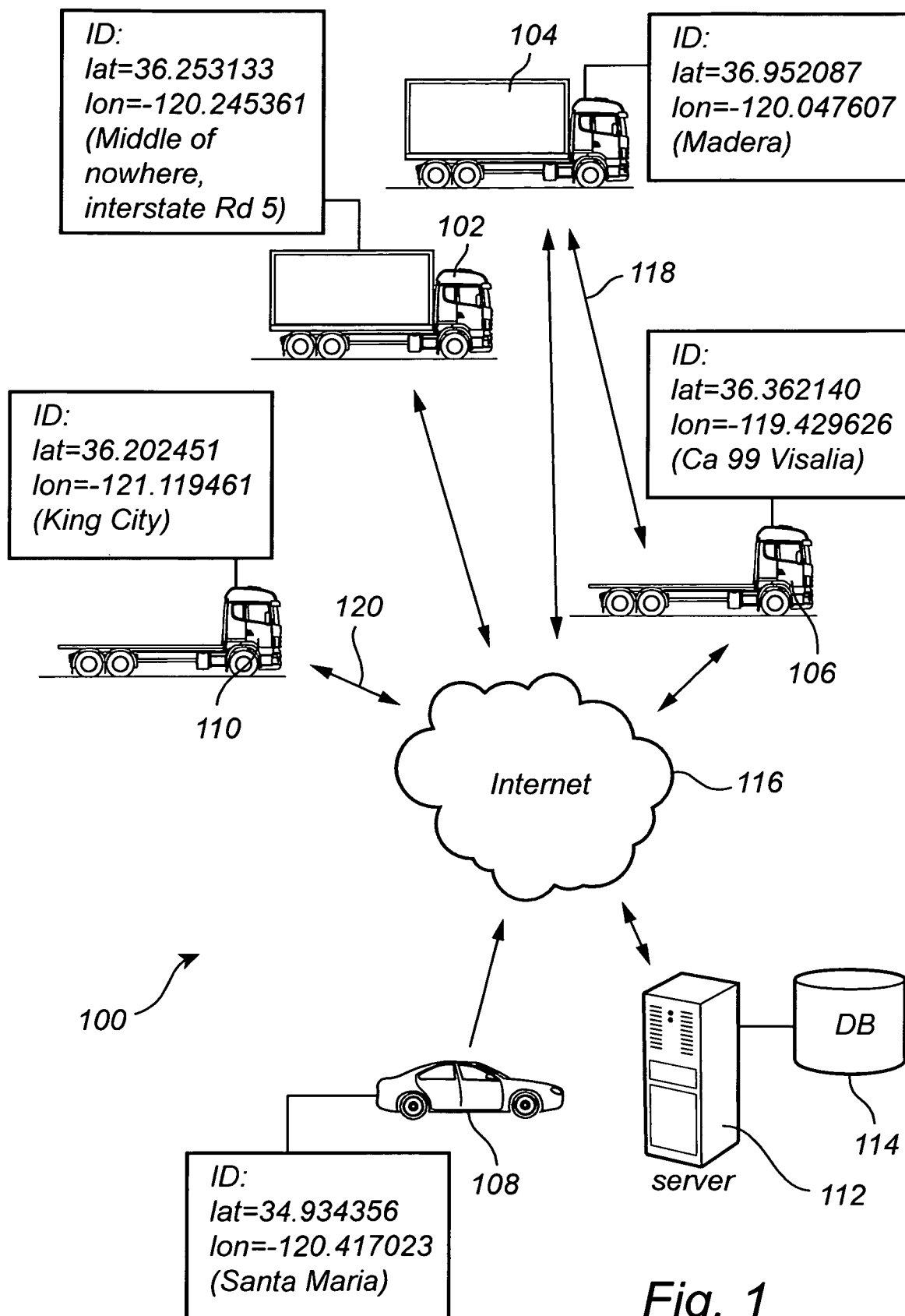


Fig. 1

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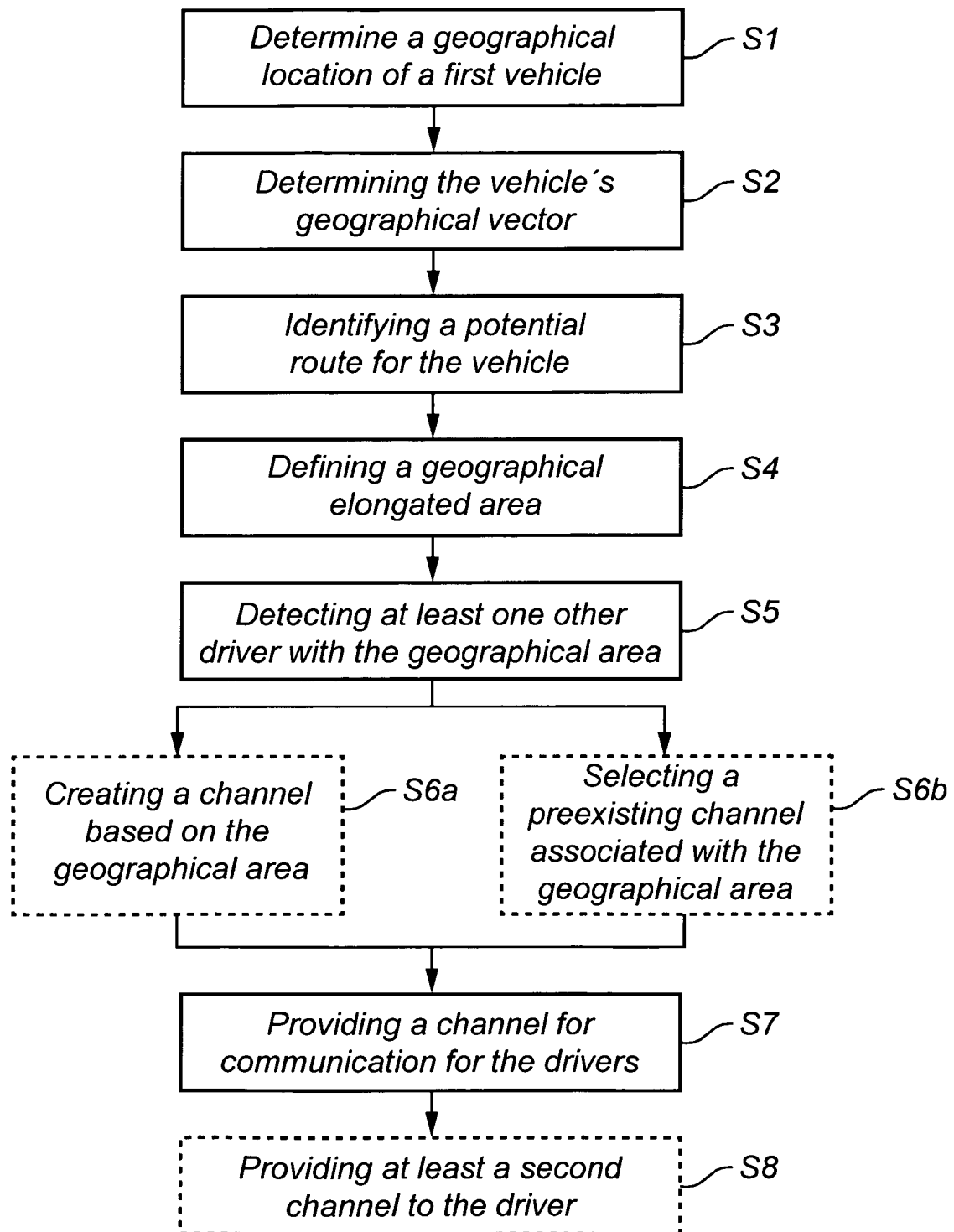
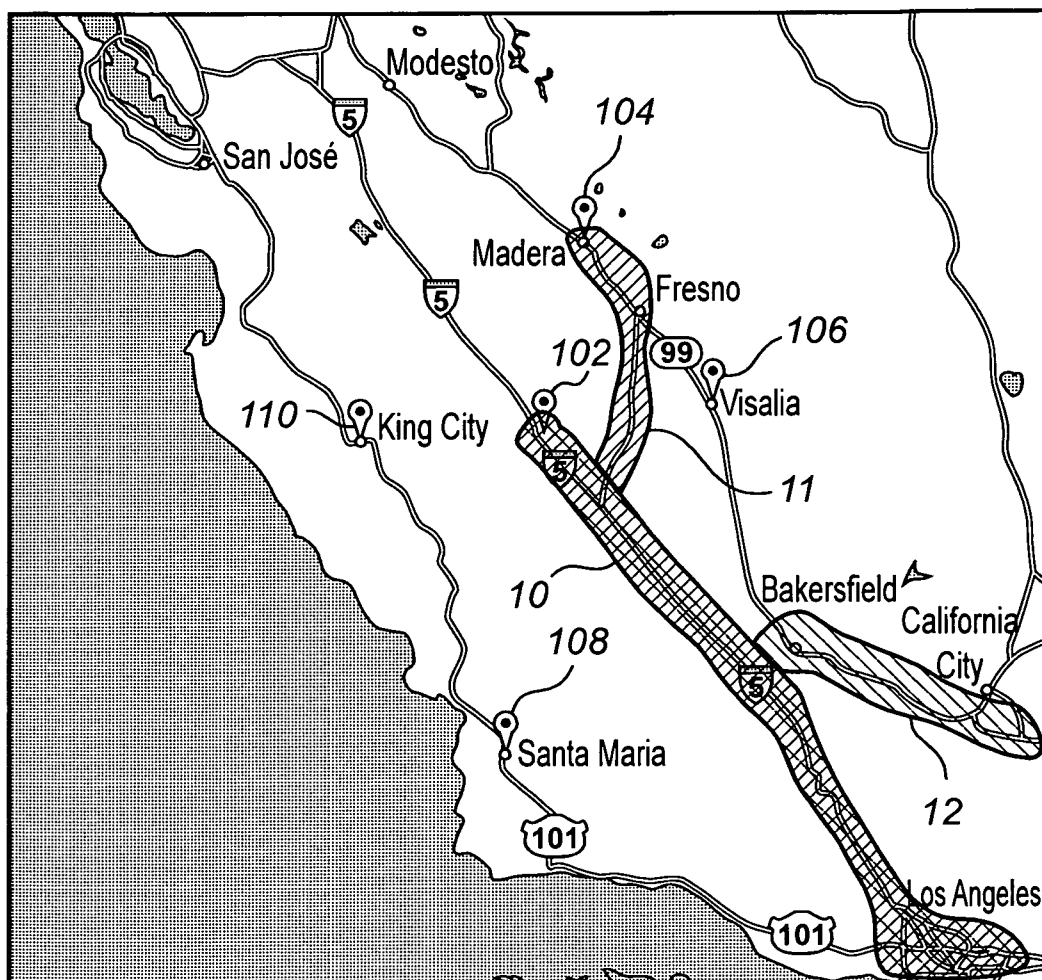
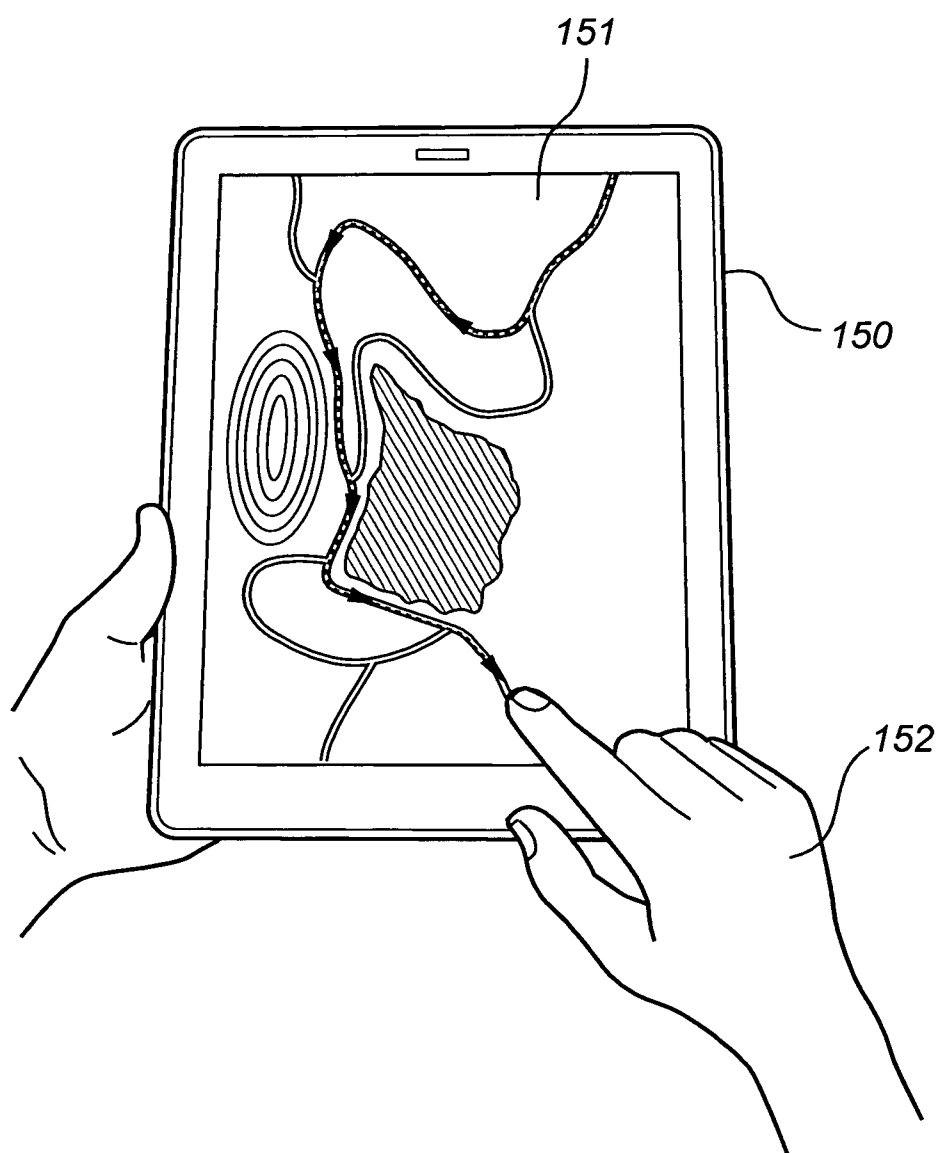


Fig. 2

3/4

*Fig. 3*

4/4

*Fig. 4*

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/003641

A. CLASSIFICATION OF SUBJECT MATTER
INV. G08G1/0967 G08G1/16
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G08G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010/245123 A1 (PRASAD KRISHNASWAMY VENKATESH [US] ET AL) 30 September 2010 (2010-09-30) abstract; figure 1 paragraph [0003] paragraph [0018] paragraph [0057]	1-13
A	----- EP 1 191 798 A1 (LITE VISION CORP [TW]) 27 March 2002 (2002-03-27) abstract paragraph [0006] - paragraph [0007] -----	1,13,14
A	US 6 696 976 B1 (HANSEN JAY A [US]) 24 February 2004 (2004-02-24) abstract; figure 1 column 4, line 42 - line 64 ----- -/-	1,13,14



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

16 May 2013

Date of mailing of the international search report

28/05/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
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Fax: (+31-70) 340-3016

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Wagner, Ulrich

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2012/003641

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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