



- (51) **International Patent Classification:**
G08G 1/0967 (2006.01)
- (21) **International Application Number:**
PCT/EP2012/003640
- (22) **International Filing Date:**
30 August 2012 (30.08.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
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(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) **Title:** METHOD FOR AUTOMATIC GEOMESSAGE HANDLING IN A VEHICLE

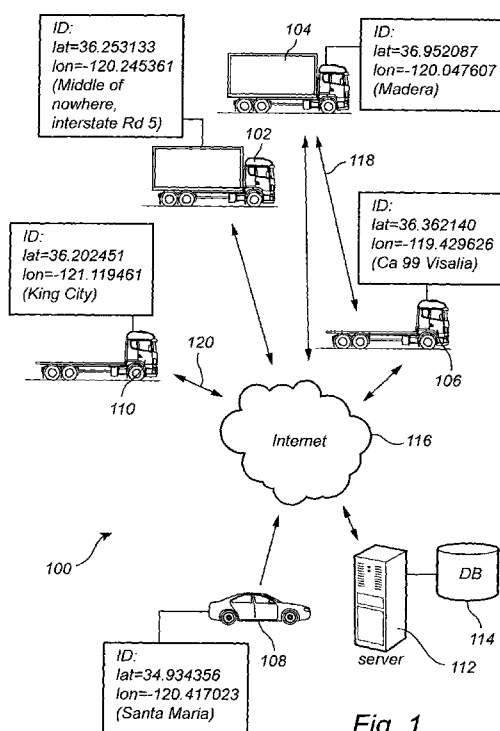


Fig. 1

(57) **Abstract:** The present invention relates to a method, system and software for automatic geomessage (301) handling in a first vehicle. The method comprises the steps; detecting an event in the first vehicle (102), the vehicle event satisfying a predetermined criterion in regards to type and time line of the detected vehicle event. Further, the method comprises determining a geographical location of the first vehicle (102), creating a geomessage (301) comprising information of the detected vehicle event and the determined geographical information. And finally, providing said geomessage (301) to at least one of a second vehicle (104) or a geomessage handling system.

METHOD FOR AUTOMATIC GEOMESSAGE HANDLING IN A VEHICLE

TECHNICAL FIELD

The present invention relates to improvements in relation to communication means for a driver of a commercial vehicle such as a truck.

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. Moreover, 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 inventor has realized that by providing a method, system and computer program for automatic geomessages handling in a first vehicle, which generates a geomessage from an event in the first vehicle, and whereby the geomessage is provided to a second vehicle, digital social
30 communication can be achieved with several advantages over the manual CB-radio and equivalent technologies.

According to a first aspect of the inventive concept, the above and other objects are achieved through a method for automatic geomessage handling in a first vehicle. The method comprises the steps; detecting an event in the first vehicle, the vehicle event satisfying a predetermined criterion
5 in regards to type and timeline of the detected vehicle event. Further, the method comprises determining a geographical location of the first vehicle, creating a geomessage comprising information of the detected vehicle event and the determined geographical information, and thereafter providing the geomessage to at least one of a second vehicle or a geomessage handling
10 system.

In the context of the application a "geomessage" should be understood as any type of data comprising information and being associated with a geographical location and which information may be accessed.

By providing a method for geomessage handling according to the
15 embodiment above, information which is valuable for others can be automatically generated and provided to them. Moreover, the target group can be selected based on a geographical location, and thereby increase the probability that the information in the Geomessage is relevant for the target group. In one example, the windshield wipers may be activated and detected
20 as an event in the vehicle, thereby, another driver which is interested in the conditions in the geographical location may be warned that it is raining in the area. Moreover, the target groups may be determined by identifying similarities in context, situation and behavior between the first vehicle and another vehicle. Thereby, dynamic clusters of drivers may be created for
25 selecting a vehicle for receiving the geomessage.

By being able to provide the message to a selected second vehicle, the receiver of the message can be hand-picked and thereby increase the probability of that the geomessage is relevant for that specific second vehicle. E.g. by choosing a second vehicle of the same model as the first vehicle, or
30 choosing a second vehicle with approximately the same position as the first vehicle.

By being able to provide the message to a geomessage handling system, the geomessage may be accessed by several vehicles at the same

time. For example, if a hard brake is applied to the first vehicle, a warning signal about traffic jams may be included in the geomessage and provided to the geomessage handling system so that it can further make the message accessible for any vehicle to which the warning is relevant.

5 In one embodiment, the event is selected from the group of technical functions in the vehicle; a driver's handling of the vehicle, movements of the vehicle, and/or any other events in the vehicle relating to the weather, traffic and/or road conditions. Thereby, a large variety of events in the first vehicle that might be valuable information for other vehicles may be included in the
10 geomessage. In one embodiment the events may be contextual, situational and/or behavioural information. Moreover, the events detected may be based merely on a change of a parameter, e.g. that the speed of the vehicle reduces, or that the wipers are oscillating faster etc.

 In yet one embodiment, the method further comprises the step of;
15 detecting a geographical vector of the first vehicle comprising the transversal movement of the first vehicle and associating the geographical vector to the geomessage. Thereby, a directional movement can be associated with the geomessage, which may be desirable in some events. E.g. if the detected event in the first vehicle is associated with traffic jam or an accident, the
20 method allows a vehicle traveling in a relevant direction on a highway to receive the geomessage and a vehicle traveling in the non-relevant direction to ignore the geomessage.

 In one embodiment, the method further comprises the step of;
 determining a rating level of said geomessage, and wherein said rating level
25 is dependent on type of event detected in said first vehicle, the vehicle type and/or said vehicle's driver.

 Thereby, different detected events may generate geomessages with different ratings. E.g. a geomessage with information about a detected accident (hard brakes, and stop in movement, or air bag activation etc) may
30 be associated with a higher rating than a geomessage comprising information about detection of a vehicle which has stopped at a bar along the road.

Moreover, an event detected in an emergency vehicle may have higher rating than an event detected in another vehicle. In another embodiment a driver of a vehicle may have a higher rating than another driver.

In another embodiment, the rating level is decided by means of the first
5 driver, the second driver and/or other drivers.

Thereby, the sender may indicate if the geomessage is of importance by giving it a high or low rating. Further, the target group of drivers may rate the geomessage for letting others now what might be relevant and non-relevant. Thus, different geomessages may have different ratings, which will
10 facilitate filtering of non-relevant/relevant geomessages for handling them separately.

A receiver of a geomessage may rate the driver that generated the geomessage and thereby enabling other drivers to filter out bad sources of information, i.e. filter out non-reliable drivers. For example, a non-reliable
15 source may be filtered as non-reliable since the driver has a low rating.

In all embodiments as described above on how to decide the rating level, associating the geomessage with a rating level may function to increase the probability that the information in a Geomessage is relevant for a target group.

20 In yet one embodiment, the method further comprises; presenting the geomessage to a driver of the first vehicle, and providing the driver the opportunity to confirm the geomessage or to discard the geomessage.

In one embodiment, when providing the driver the opportunity to confirm the geomessage leads to that the geomessage is provided to the
25 geomessage handling system or the second vehicle. And further, when providing the driver the opportunity to discard the geomessage leads to that the geomessage is deleted and consequently not provided to the geomessage handling system or the second vehicle. Thereby, the driver of the first vehicle can control if the geomessage is sent or not. Moreover, this
30 may provide the first driver with an increased integrity control. Further, the driver may choose what type of geomessages he would like to provide to other drivers.

In yet one embodiment, the geomessage is a voice, text or control message for a vehicle, image message and/or a video message. Thereby, the geomessage may comprise a voice message from the driver of the first vehicle, allowing a driver to keep looking at the road while listening to the message. Moreover, in the embodiment where the message is a text message, the driver can read the message without disturbing anyone in the proximity. Further, if the geomessage is a control message for a vehicle, a function may be altered in the second vehicle without the drivers having to activate the function manually. E.g. the control message for a vehicle may force-active an ESC/DSC or similar system, or set a maximum speed limit etc.

Further, the geomessage may be an image/video, allowing a driver to provide an image/video to other vehicle drivers. Moreover, the geomessage 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".

The geomessage may be of security character or other important information. However, the geomessage may in another embodiment comprise non-crucial information, but still providing value for the driver of a second vehicle. For example, such information could be "check out the view on your right hand side" or "when approaching the corner, watch out for Willie and the Poorboys as they are playing out in the street".

In yet one embodiment, the method further comprises the step; collecting a plurality of geomessages based on events detected in a plurality of vehicles and corresponding locations of the plurality of vehicles, evaluating the events and corresponding locations comprised in the plurality of geomessages, and creating a compiled geomessage based on the evaluation, and associate the compiled geomessage with a geographical region based on the locations of the plurality of vehicles. Thereby, events detected in several vehicles that are related may be compiled into a single message provided for other drivers. This gives several benefits, such as that the reliability of the event increases and that there is only one message provided to other vehicles.

Moreover, this embodiment provides the functionality to stretch a geomessage over an area. E.g. if it is raining, it is seldom raining exclusively in a specific location, but rather in a geographical region. Thereby, if rain is detected in several vehicles in different locations, the geomessage containing
5 rain information may be associated with a relevant geographical area, thus providing increased value for other vehicles and their drivers. Similarly, a geomessage with information about a traffic jam may be associated with the relevant geographical area.

In one embodiment where a plurality of geomessages is collected from
10 a plurality of vehicles, the collection is conducted by implicit data collection. Thereby, the information may be utilized without bothering the driver of approval. In another embodiment where a plurality of geomessages is collected from a plurality of vehicles, the collection is conducted by explicit data collection. Thereby, the driver of the vehicle may control if information
15 about his vehicle shall be provided to the geomessage handling system.

In yet one embodiment, the rating level is dependent on the number of vehicles in which the event is detected, the rating being increased with the number of vehicles in which the event is detected.

Thereby, by confirming an event, or a type of event, detected in several
20 different vehicles, the risk of the event being a random event may be decreased. Thus, a rating level may be calculated in an accurate way, providing relevant information for other vehicles and/or their driver. E.g. if several drivers are turning the steering wheel heavily at a certain location on a straight road, it indicates that an obstacle or accident has happen at the
25 location, and other drivers may be warned by a collaborative data generated geomessage.

In another embodiment, the rating of the geomessage is conducted by gathering implicit and/or explicit confirmations and disconfirmations of the geomessages. Thus, by gathering information regarding if other drivers utilize
30 the information in the geomessage the rating may be set.

Thereby, Bayesian probabilistic assumptions may be achieved which are statistically reliable and probable.

In one embodiment, the method further comprises the handling of receiving the geomessage in the second vehicle, and presenting the geomessage to a driver of the second vehicle. Thereby, a driver of a second vehicle may take notice of the information and use it in a desired way. E.g. if
5 the information is about an upcoming road work, the driver may choose a different route or slow down his vehicle. And if the information comprised in the geomessage is about a gas station, he may or may not decide to eat and fill up the tank there dependent on the content of the information.

In yet one embodiment, the method further comprises the handling of
10 receiving the geomessage in the second vehicle, and automatically adjusting a vehicle function based on the geomessage. Thereby, a function in the second vehicle may be adjusted automatically, without having to bother the driver. For example, if the geomessage comprise information about upcoming rain, the second vehicles ESD/DSC or similar system may be activated and/or
15 a speed limit may be activated.

In yet one embodiment, the method further comprises the step of assigning the geomessage with a validity term. Thereby, a geomessage can be assured to be deleted or marked outdated if the validity term is passed, allowing vehicles and/or drivers to sort geomessages so that non-relevant
20 geomessages are not confused with relevant geomessages. Moreover, in another embodiment, it would be possible for vehicles and/or drivers to filter the directions so that only relevant directions are displayed.

Furthermore, there is according to the invention provided an automatic geomessage handling system for vehicles, wherein the system is associated
25 with a first vehicle and which system comprises; at least one detecting means for detecting an event in the first vehicle, the vehicle event satisfying a predetermined criterion in regards to type and time line of the detected vehicle event, a geographical detection means for detecting a geographical location of the first vehicle, a geomessage generating unit for creating a
30 geomessage comprising information of the detected vehicle event and the determined geographical information, and a data communication means for providing the geomessage to at least one of a second vehicle or a geomessage handling system. The advantages of the inventive concept

according to the embodiment as described above, is largely analogous to the benefits as described above.

Furthermore, there is according to the invention provided a computer program product comprising a computer readable medium having stored
5 thereon computer program means for or automatic geomessage handling in a first vehicle, wherein the computer program product comprises; code for detecting an event in the first vehicle, the vehicle event satisfying a predetermined criterion in regards to type and time line of the detected vehicle event, code for determining a geographical location of the first vehicle,
10 code for creating a geomessage comprising information of the detected vehicle event and the determined geographical information; and code for providing the geomessage to at least one of a second vehicle or a geo message handling system.

The computer readable medium may be one of a removable
15 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.

According to one embodiment, when providing the geomessage to a
20 second vehicle or a geomessage handling system the geomessage 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.

Further features of, and advantages with, the present invention will
25 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.

30

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:

5 Fig. 1 schematically illustrates a communication system between five vehicles;

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

 Fig. 3 illustrates schematically illustrates a map with geomessages
10 according to one embodiment; and

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

DETAILED DESCRIPTION

15 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
20 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
25 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, an automatic geomessage handling server 112 and a database 114. The data communication between the vehicles may be
30 conducted by means of a peer-to-peer connection 118 as illustrated between the second truck 104 and the first tractor unit 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 automatic geomessage handling 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 VoIP, GSM, 3G, 4G or any type of communication over the internet 106 that allows voice, image and/or text to be transmitted. Further the communication may for example be transferred over internet or local area networks such as WLAN, WI-FI, Ethernet, Bluetooth,

10 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 coordinate's latitude 34.934356 and longitude -120.417023. Finally the second 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 112 and database 114 is not relevant for the inventive concept. For convenience, below, the first truck 102 will be written as the "first vehicle 102" and when referring to a second vehicle below, the reference number 104 will be used, although it could be any other vehicle.

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

In Fig. 2 a method of for automatic geomessage handling 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 S4 may be performed before S3 etc.

The first step S1 is detecting an event in the first vehicle. The event shall be a contextual, situational or behavioral event. It may for instance be selected from a group of technical functions in the first vehicle 102, a driver's handling of the first vehicle, movements of the first vehicle, and/or any other events in the vehicle relating to the weather, traffic and/or road conditions. Thereby, an activation of the windshield wipers, a hard brake-in, a quick turning of the steering wheel, an increase/decrease of speed, a deviation from the main road, a stop, an increase in applied torque in an engine, a flat tire, a uneven roadway, or any other event being contextual, situational or behavioral may be detected as an event in the vehicle. Moreover, it may be so that even though the event is "activation of the windshield wipers", the event may be referred to as "raining". Thus, although it is not raining in the vehicle, it may be detected in the vehicle.

The event may be detected by means of vehicle integrated sensors, for measuring e.g. a brake in, a flat tire or an overheated engine. However, the event may also be detected by means of an external sensor, such as a GPS or other electronic sensors in a mobile device, computer, GPS-unit or similar, for detecting events related to e.g. changes in speed, deviation of planned routes, stops, inclination of the road etc.

Further, the Fig. 2 illustrates the step S2 of determining a geographical location. This step may 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 e.g. mobile phone tracking may be used or any other technology for establishing a geographical location.

Moreover, Fig. 2 illustrates the optional step S3 of determining a geographical vector of the vehicle. This may also be achieved by means of integrated or external equipment. 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 on a road a vehicle is located, but also in what direction the vehicle is traveling. Direction is often

very relevant in e.g. accidents, traffic queues etc., and will therefore make the geomessage 101 increase the relevance of the geomessage. For example, if an accident has happen in the lane going north on a freeway, and a geomessage 101 is generated based on that event, the geomessage 101 has a higher relevance for vehicles traveling to the north on the same freeway than for vehicles traveling in the south direction.

Further, the flow chart in Fig. 2 shows the optional step S4 of providing the driver of the first vehicle with the opportunity to confirm or discard the geomessage. By presenting the geomessage 101 to the driver of the first vehicle before the geomessage 101 is sent, and by allowing the driver to decide if the message should be sent (confirming) or not be sent (discarding), the driver may obtain control over what geomessages are dropped by the first vehicle. This step may be provided for all type of geomessages. As an alternative, the step S4 may only be provided for some geomessages depending on the content of the geomessage. E.g. a geomessage 101 about rainy weather may be sent automatically, while if a message about a stop for filling gas shall be sent or not may be controlled by the driver. Further, in one alternative embodiment, the driver may adjust the settings deciding in what type of geomessages the driver want to control if the message should be sent or not.

The next optional step S5 is to determine a validity level for the geomessage. The validity level may be determined automatically, semi-automatically or manually. The validity may further comprise a distance range and/or a time span. Thereby, the geomessage 101 will only appear for vehicles within the relevant geographical region, and/or if the geomessage 101 is new enough. If the validity level is determined automatically it may be dependent on the type of event, the circumstances around the event and other factors. E.g. if the event is a detected pothole in the roadway, the validity term 304 may be set to a circular diameter of 35 meters from the pothole, or 5 meter after the pothole and 100 meter before the pothole if a geographical vector was also detected. Moreover, if the event is a bad storm, the validity may be set to e.g. 10 km and 20 minutes.

Moreover, when using a validity term 304 for the geomessage, it could also be possible to include an autoplay function. The autoplay function could be activated from the receiving driver, i.e. setting up his receiving unit to auto play all geomessages, or geomessages based on selected types of events, when the validity term 304 correspond to the vehicle's geographical location and timing. Moreover, it could also be possible to set the auto play function automatically or manually when the geomessage 101 is created.

Fig. 2 further shows that the step S6 of creating a geomessage 101 comprising the information of the detected vehicle event and the determined geographical information. Further, if the geographical vector and validity is determined they may also be comprised in the geomessage information.

When the message is created, and comprises the information according to above, the fig. illustrates the two alternative steps S7a, S7b to provide the geomessage 101 to a geomessage handling system or to provide it to a second vehicle 104. If the message is directly provided to a second vehicle 104, the second vehicle may be selected based on the relevance of the geomessage's information for the second vehicle. If the geomessage 101 is provided to a geomessage handling system, further data operations may be performed as described further below.

Fig. 3 shows a map of comprising roads 306a, 306b, 306c, a lake 307, a mountain 308 and a building 309, and the map has several geomessages 301a, 301b, 301c placed on the roads 306a, 306b, 306c, respectively. Obviously this map is a mock-up and in other embodiments there are also other objects on the map, such as other buildings, rivers, airports etc. Each geomessage 301a, 301b, 301c has a geographical location 302a, 302b, 303. In two of the cases the geographical location 302a, 302c are specific points, meanwhile the third geographical location 302b is a geographical region. Further, each geomessage 301a, 301b, 301c is associated with an event 303a, 303b, 303c. In the map as shown in fig. 2 the events 303a, 303b, 303c are illustrated with small icons indicating an accident, a storm and a gas station, respectively. Further, each geomessage has a validity term 304a, 304b, 304c indicated by a time indicator, which indicates 20 min, 1 hour and 7

days respectively. As described before, the validity term may also be indicated by a geographical region in another embodiment.

Finally, each geomessage 301a, 301b, 301c is associated with a rating 305a, indicated by a number of stars. The rating will be explained more in
5 detail below, with reference to Fig. 2.

As shown in Fig. 2, the method further has an optional step S8 of determining a rating level 305 for the geomessage. This step may be performed at any time after the detection of the event, even before the actual geomessage 301 is created. Moreover, the rating level 305 may be
10 continuously determined and thereby altered over time. The overall purpose of having a rating of the geomessage 301 is to increase the probability of relevance of a geomessage 301 for a receiver.

The rating level 305 may depend on the type of event in the first vehicle, the vehicle type and/or the vehicle's driver. For example, an event
15 related to a traffic accident may generate a higher rating than an event related to a gas stop.

Moreover, the rating level 305 may be entirely dependent on the ratings from drivers. The ratings may be decided on how the first driver, the second driver and/or other drivers rate the geomessage. Thereby, a statistic
20 method may be used for rating the geomessages.

The geomessage 301 may be conducted by gathering implicit and/or explicit confirmations and disconfirmations of the geomessages. Thus, by gathering information regarding how other drivers utilize the information in the geomessage 301 the rating may be set.

25 This may be illustrated by the example where a geomessage 301 comprises a vehicle control message for activating the windshield wipers if the driver confirms a question to active the windshield wipers. If a driver actively chooses to discard the control message in the geomessage, e.g. by answering "no" to the question "Do you want to turn on your wipers?", an
30 explicit disconfirmation may be recorded, and if another driver does not respond to the question, but the driver's does not turn on the wipers an implicit disconfirmation may be recorded. Further, if the driver answers "yes" to the question "Do you want to turn on your wipers?" an explicit confirmation

may be recorded, and if the driver turns on the wipers without answering the question, an implicit confirmation may be achieved.

If the message is provided to a geomessage handling system according to step S7a, the opportunity to further process the information comprised in the geomessage 301 is expanded. In the optional step S9, as illustrated in Fig. 2, information in the geomessages may be collected, evaluated, compiled and distributed. By collecting a plurality of geomessages to the handling system the information may be processed in a number of ways. E.g. the information in different geomessages may be compared in an evaluation process, and subsequently the geomessages comprising related information may be compiled in a single geomessage.

Thereby, the validity and/or the rating of the geomessage 301 may be adjusted. E.g. if the geomessage 301 handling system receives 30 geomessages from ten different vehicles, all which indicates that it is raining. The geographical location of the ten geomessages may be evaluated and compared, resulting in e.g. eight of the messages being in the same geographical region. Thereby, the eight geomessages associated with the same geographical region may be compiled into a single geomessage, but with a validity term 304 elongated over the geographical region. Moreover, the rating level 305 may be higher in the compiled geomessage 301 than in any one of originating messages. Thereby, the probability of that the geomessage 301 is relevant for a group of other vehicles is increase. The system could work mutatis mutandis for other events, such as a traffic jam, an accident, an inclination, slippery roads or any other event related to contextual, situational, or behavioral events.

Moreover, as illustrated in Fig 2 the method may comprise the optional step S10a of receiving the geomessage 301 in a second vehicle 104 and presenting it to a the driver of the second vehicle 104. The information presented to may be done in several different ways, e.g. by presenting a voice message, text message, image message and/or video message or a combination of the above. The information may be basis for a decision, e.g. you might want to take another way because you are approaching an

accident. The information may also be in merely informatory such as, "the reason why the traffic is so slow is an upcoming road work".

Further, as also illustrated in Fig. 2 the method may comprise the optional step S10b of receiving the geomessage 301 in a second vehicle 104 and adjusting a vehicle function. The functions may be to plan another route, active the wipers, or any other function in the vehicle.

It is also possible that the information in the geomessage 301 is first presented to the drivers as a question, e.g. "Do you wish to increase the engine torque capacity due to the upcoming inclination" and if the answer is answered with "yes" the vehicle function is adjusted with a higher torque capacity during the validity term 304.

In one embodiment, as shown in fig 4, the geomessage 301 is received and display 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. Moreover, any questions as described above may be answered by e.g. voice commands or a digital/physical button. Although fig 4 shows a touch screen in a hand held device, other embodiments may comprise a touch screen embedded in the e.g. the dashboard.

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 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 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 different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

CLAIMS

1. A method for automatic geomessage handling in a first vehicle (102), the method comprising the steps of:

- 5 - detecting an event in said first vehicle (102), the vehicle event satisfying a predetermined criterion in regards to type and time line of the detected vehicle event;
- determining a geographical location of said first vehicle;
- creating a geomessage (301) comprising information of the detected
- 10 vehicle event and the determined geographical information; and
- providing said geomessage (301) to at least one of a second vehicle (104) or a geomessage handling system.

2. Method according to a claim 1, wherein said event is selected from

15 the group of technical functions in the first vehicle (102), a driver's handling of the first vehicle (102), movements of the first vehicle (102), and/or any other events in the vehicle relating to the weather, traffic and/or road conditions.

3. Method according to any of the preceding claims, wherein the

20 method further comprises the step of:

 - detecting a geographical vector of the first vehicle comprising the transversal movement of the first vehicle; and

 - associating said geographical vector to said geomessage.

25 4. Method according to any of the preceding claims, wherein said method further comprises the step of

 - determining a rating level (305) of said geomessage.

 and wherein said rating level (305) is dependent on type of event detected in said first vehicle (102), the vehicle type and/or said vehicle's

30 driver.

5. Method according to claim 4, wherein the rating level (305) is decided by means of the first driver, the second driver and/or other drivers.

6. Method according to any of the preceding claims, wherein the method further comprises:

- presenting said geomessage (301) to a driver of said first vehicle; and
 - providing said driver the opportunity to confirm said geomessage
- 5 (301) or to discard said geomessage.

7. Method according to any of the preceding claims, wherein said geomessage (301) is a voice message, text message, control message for a vehicle, image message and/or a video message.

10

8. Method according to any of the preceding claims, wherein said method further comprises the step:

- collecting a plurality of geomessages based on events detected in a plurality of vehicles and corresponding locations of said plurality of vehicles;
- 15 - evaluating said events and corresponding locations comprised in said plurality of geomessages; and
- creating a compiled geomessage based on said evaluation, and associate said compiled geomessage with a geographical region based on said locations of said plurality of vehicles.

20

9. Method according to claim 8 and claim 4 or 5, wherein said rating level (305) is dependent on the number of vehicles in which said event is detected, said rating being increased with the number of vehicles in which said event is detected.

25

10. Method according to any of the preceding claims, wherein the geomessage (301) is provided to a geomessage handling system and distributed to a group of selected vehicles, wherein said group of selected vehicles are determined by evaluating vehicles' geographical locations, situation and/or behavior.

30

11. Method according to any of the preceding claims, further comprising the handling of receiving said geomessage (301) in said second

vehicle (104), and presenting said geomessage (301) to a driver of said second vehicle (104).

12. Method according to any of claims 1-10, wherein the method
5 further comprises the handling of receiving said geomessage (301) in said second vehicle (104), and automatically adjusting a vehicle function based on said geomessage.

13. Method according to any of the preceding claims, wherein said
10 method further comprises the step:

- assigning said geomessage (301) with a validity term (304).

14. An automatic geomessage handling system for vehicles, wherein the system is associated with a first vehicle and comprises:

- 15 - at least one detecting means for detecting an event in said first vehicle (102), the vehicle event satisfying a predetermined criterion in regards to type and time line of the detected vehicle event;
- a geographical detection means for detecting a geographical location of said first vehicle;
- 20 - a geomessage generating unit for creating a geomessage (301) comprising information of the detected vehicle event and the determined geographical information; and
- a data communication means for providing said geomessage (301) to at least one of a second vehicle (104) or a geomessage handling system.

25

15. Computer program product comprising a computer readable medium having stored thereon computer program means for or automatic geomessage handling in a first vehicle (102), wherein the computer program product comprises:

- 30 - code for detecting an event in said vehicle, the vehicle event satisfying a predetermined criterion in regards to type and time line of the detected vehicle event,
- code for determining a geographical location of said first vehicle;

- code for creating a geomessage (301) comprising information of the detected vehicle event and the determined geographical information; and
- code for providing said geomessage (301) to at least one of a second vehicle (104) or a geo message handling system..

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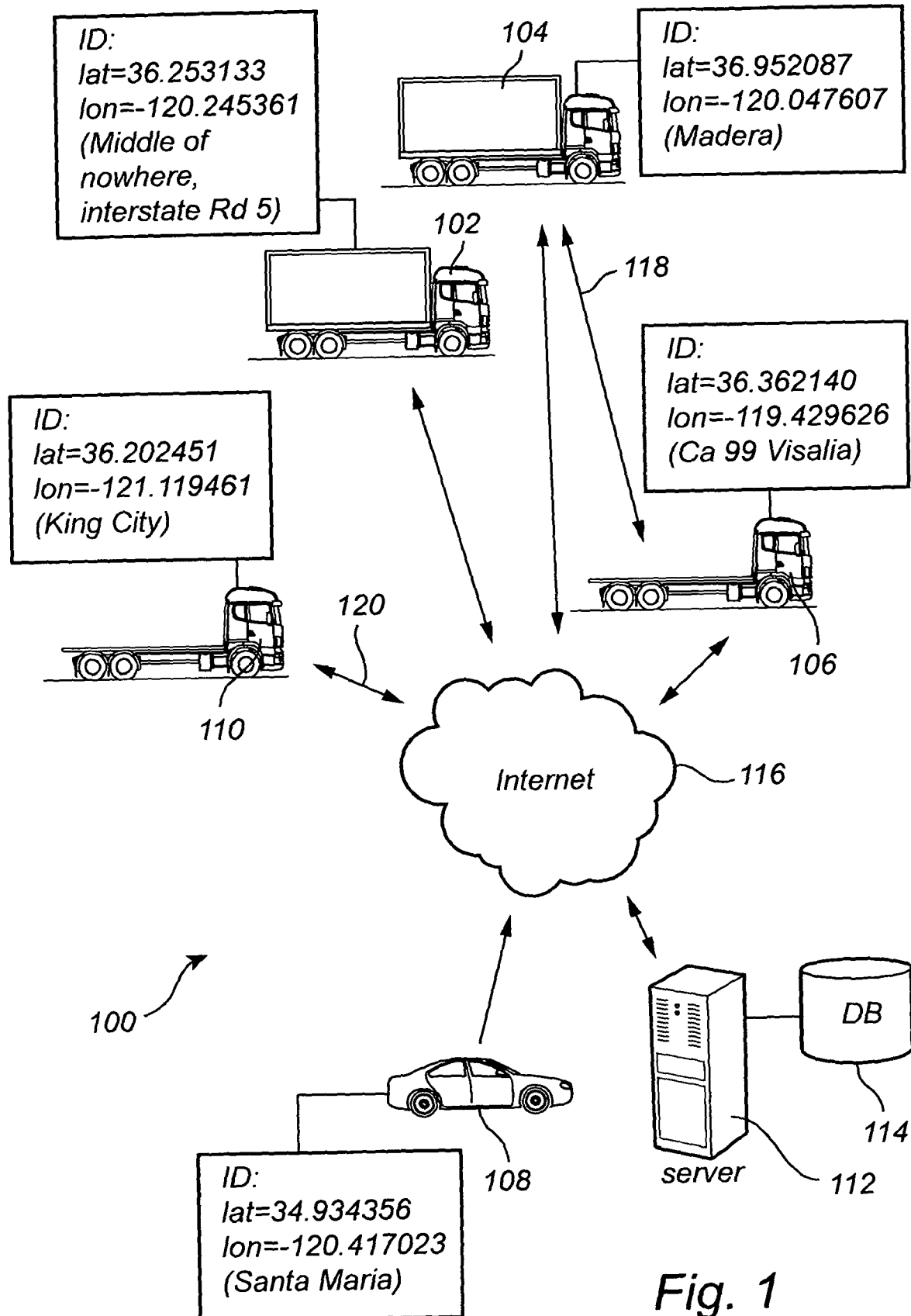


Fig. 1

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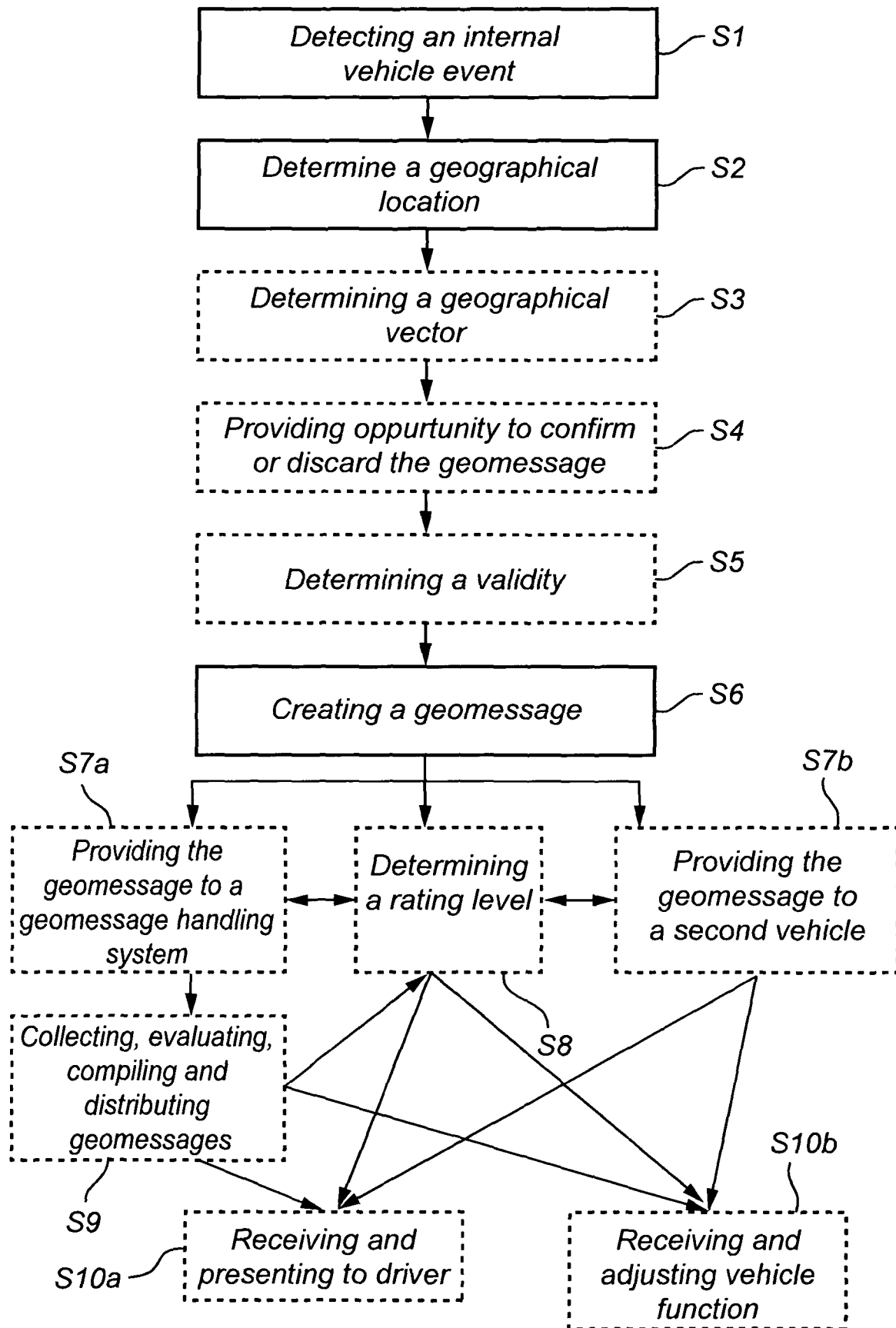
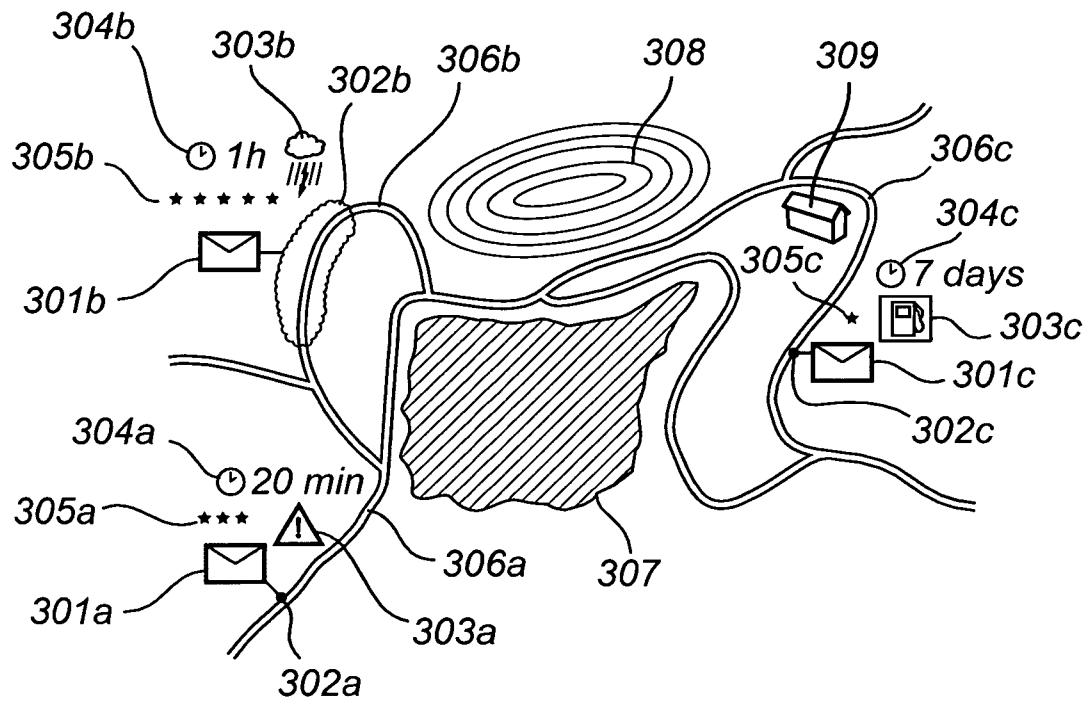
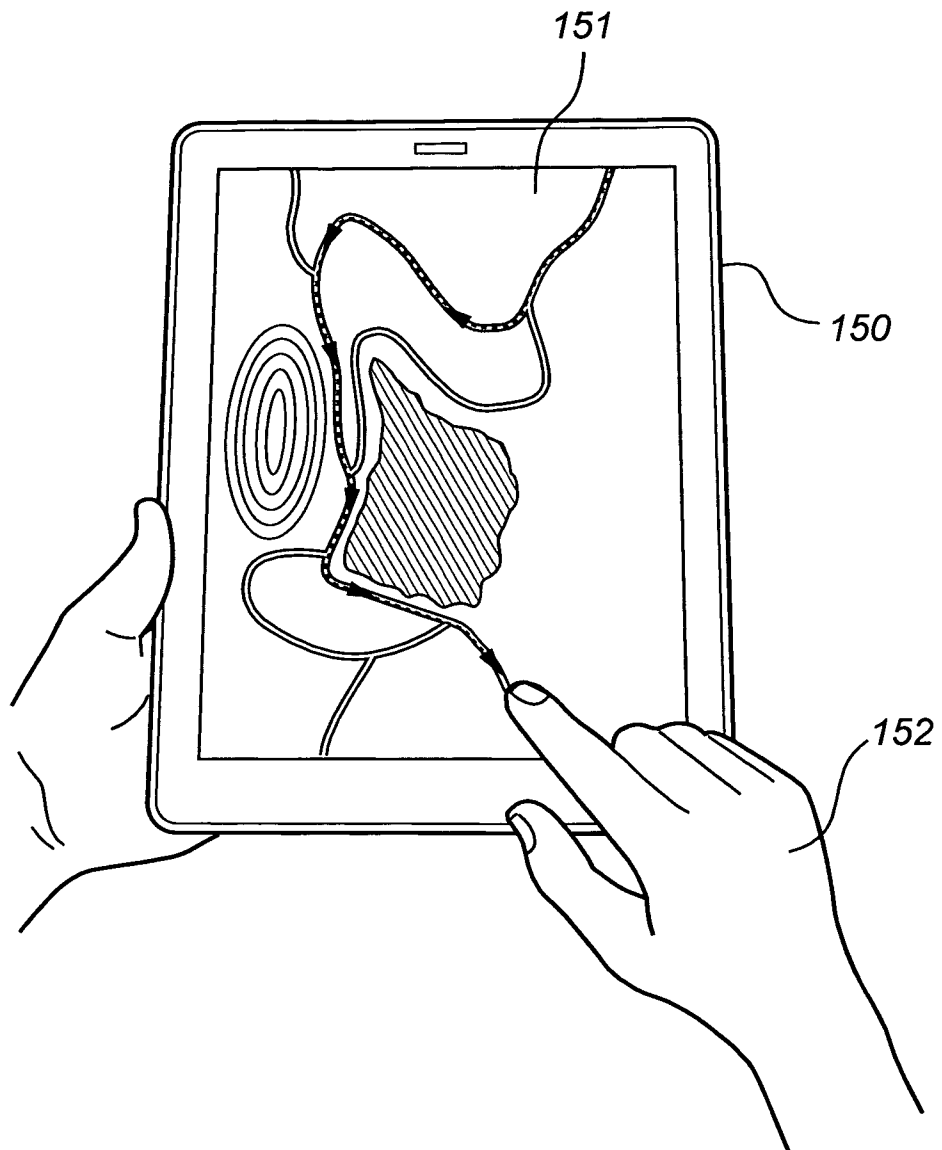


Fig. 2

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*Fig. 3*

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*Fig. 4*

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2012/003640

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G08G1/0967
 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

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X	US 7 277 028 B1 (JANKE GARTH [US]) 2 October 2007 (2007-10-02)	1,2,4,5, 7-15
Y	abstract; figures 1,3 column 1, line 46 - line 49 column 2, line 36 - column 5, line 52 column 7, line 19 - column 7, line 35 -----	6
X	US 2010/245123 A1 (PRASAD KRISHNASWAMY VENKATESH [US] ET AL) 30 September 2010 (2010-09-30) abstract; figures 1,4 paragraph [0003] paragraph [0011] paragraph [0015] paragraph [0018] paragraph [0057] - paragraph [0059] ----- -/-	1-3,10, 14,15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"P" document published prior to the international filing date but later than the priority date claimed

"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

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

8 May 2013

Date of mailing of the international search report

24/05/2013

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2012/003640

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2011/122240 A1 (HONDA MOTOR CO LTD [JP]; KATAYAMA MUTSUMI [JP]; NOGAWA TADAFUMI [JP];) 6 October 2011 (2011-10-06) abstract; figure 1	1,2
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International application No

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