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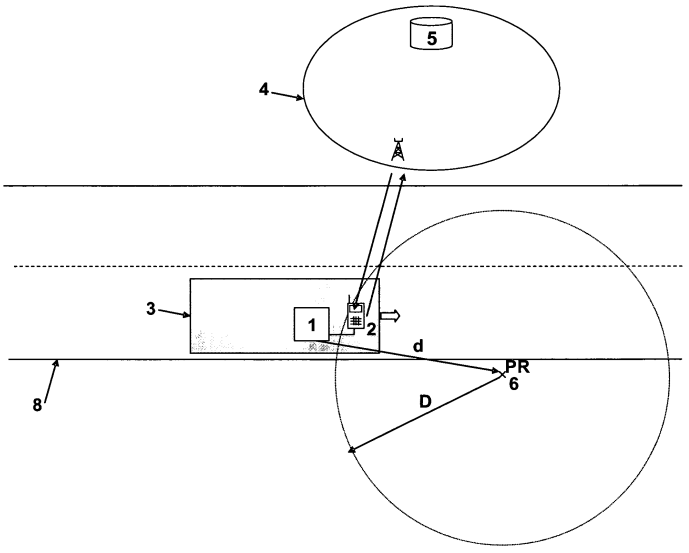
(54) **Method for preventing traffic accidents**

(57) The invention relates to a method for preventing traffic accidents using for each vehicle (3) participating in the accident prevention TAP service a Global Navigation Satellite System GNSS receiver (1) and a terminal TE (2) connected to said GNSS receiver (1) and with access to the mobile telephony network (4). By knowing the position of the vehicle (3) at every moment, the network (4) warns terminal TE (2) of the safety parameters (maximum velocity allowed, safety distance to the vehicle in front of it) at the point of the road network (8) in which the vehicle (3) is circulating. The terminal (2) warns the driver of said safety parameters so that he or she can take the appropriate actions.



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Description

Field of the Invention

[0001] The present invention relates to a method for preventing traffic accidents using a Global Navigation Satellite System (GNSS) receiver, such as GPS or Galileo, and a terminal with access to the mobile telephony network that is connected to said GNSS receiver. By knowing the position of the vehicle at every moment, the network warns the terminal of the safety parameters (maximum velocity allowed, safety distance to the vehicle in front of it) at the point of the road network in which the vehicle is circulating. The terminal warns the driver of said safety parameters so that he or she can take the appropriate actions.

Background of the Invention

[0002] Today the safety of vehicles circulating on the road is based on the drivers observing road signs as well as the recommendations provided by the competent organization through lighted panels situated on the road. In recent studies, it has been determined that speeding is one of the most common causes of traffic accidents and that an average speed reduction of 1 Km/h could reduce the total number of accidents by 3%. With this purpose, initiatives such as that of the driver's license point system are being carried out in different countries.

[0003] The present invention consists of a method for preventing traffic accidents by means of informing drivers of dynamic up-to-date information regarding safety on the road (speed limit, safety distance) according to climate considerations, congestion level of the road or blind spots where it is necessary to take maximum precautions. The solution can be integrated as an added value to commercial GPS navigation systems

[0004] Patent documents on similar methods for improving road traffic safety are unknown.

Description of the Invention

[0005] The present invention relates to a method for preventing traffic accidents according to claim 1 and claim 15, in their two alternative solutions. Preferred embodiments of said methods are defined in the dependent claims.

[0006] In both methods each vehicle circulating on the road network and participating in the Traffic Accident Prevention TAP service that said method provides has means of determining the position of the vehicle, normally a Global Navigation Satellite System GNSS receiver that provides georeferenced measurements of the position and/or speed of the vehicle in which it is installed; and a terminal TE (for example, a mobile telephone with an installed application) that can access a wireless access network (for example, a mobile telephony network), said terminal being connected to the means of determining the position of the vehicle and with access to the information that said means provide.

[0007] The method described in claim 1 comprises the following steps for each vehicle participating in the TAP service:

First of all, it is necessary to subscribe to the TAP service. For that purpose the terminal TE of the vehicle sends a request to the wireless access network to subscribe to said TAP service, sending the following data with said request: the position of the vehicle, the TAP service identifier being requested, and optionally the circulating direction and the number of points that the driver of the vehicle has in the event that the country in which the vehicle is located uses a driver's license point system. The wireless access network checks the subscription validation of the terminal TE, storing data received in the previous request and optionally confirming to the terminal TE its subscription to the TAP service.

Subsequently, the wireless access network sends terminal TE a temporary identifier ID_{TE} of the terminal TE; the coordinates of reference points RP in which terminal TE must contact the wireless access network when approaching a certain distance to obtain safety information for circulating; identifiers ID_{RP} of the different RPs; the distance D to the RPs that terminal TE must observe in order to contact the wireless access network, which can be different for each RP; safety parameters SP_{RN} that the vehicle must observe at the point of the road network in which the vehicle is currently located; and optionally safety parameters associated with every RP and an update of the number of points the driver of the vehicle has.

Once this data is received, terminal TE communicates the current SP_{RNs} to at least one of the occupants of the vehicle, to an external system (such as for example a vehicle's automatic intelligent navigation system) or to both.

[0008] Terminal TE periodically calculates the distance d of the vehicle to the RPs. In the event that d<=D for at least one of the RPs:

- terminal TE sends the wireless access network the position of the vehicle, the ID_{RP} identifier of at least one RP for which d<=D is met, and optionally the circulating direction of the vehicle and current safety parameters SP_{MEA} of the vehicle (3). The safety parameters can be for example, among others, the current speed of the vehicle measured therein by means of a tachometer. The safety parameters obtained by means of different sensors are communicated to terminal TE periodically. In the event that the vehicle participating in the TAP service has means of determining the speed of the vehicle (for example, a GNSS receiver) and SP_{MEA} is only the current speed of the vehicle obtained by said means, the SP_{RN}

would be the maximum allowed speed for said vehicle at the point of the road network in which the vehicle is located. The vehicle participating in the TAP service can likewise have means of detecting the distance D_S to the vehicle in front of it, in which case the SP_{MEAs} would be the current speed of the vehicle and the distance D_S, whereas SP_{RN} would be the maximum speed allowed for said vehicle at the point of the road network in which the vehicle is located and the safety distance that must be maintained with the vehicle in front of it at said point of the road.

- The wireless access network stores the received data and sends the necessary data to terminal TE so that said terminal obtains the SP_{RNs} that the vehicle must comply with for the point of the road network in which the vehicle is located. Here there are several cases and options to consider:

  - If d<=D is met for a single RP, the data sent by the wireless access network to terminal TE can be the SP_{RNs} themselves of said RP.
  - If d<=D is met for more than one RP, the data sent by the wireless access network to terminal TE can the SP_{RNs} of each RP in which d<=D is met, terminal TE determining that the SP_{RNs} that the driver of the vehicle must consider for the point of the road network in which the vehicle is located are the SP_{RNs} of the RP closest to the vehicle in its circulating direction.
  - In the event that d<=D is met for more than one RP the data sent by the wireless access network to terminal TE can also be the SP_{RNs} of the RP closest to the vehicle in its circulating direction.
  - In the event that d<=D for at least one of the RPs, the data sent by the wireless access network to terminal TE can also be the SP_{RNs} of the RPs that are located at a preestablished distance, with the purpose that terminal TE itself that obtains the SP_{RNs} for the point of the road network in which the vehicle is located.

[0009] In the event that $SP_{MEA}>SP_{RN}$ for any of the safety parameters that are considered (for example the maximum speed and safety distance), terminal TE warns of said situation with the aim that the vehicle observes the SP_{RNs}. Said check ($SP_{MEA}>SP_{RN}$) can be carried out by the terminal TE itself or the wireless access network which, in the event that $SP_{MEA}>SP_{RN}$ is met, would communicate it to terminal TE so that the terminal could warn the driver or an external system.

[0010] If $SP_{MEA}<=SP_{RN}$ for all safety parameters considered, terminal TE can send the wireless access network the position of the vehicle and optionally the last measurement of its safety parameters SP_{MEA}.

Brief description of the Drawings

[0011] To better understand the invention, an embodiment of the invention will be briefly described below as a non-limiting and illustrative example thereof. For that purpose reference is made to the attached drawings, in which:

Figure 1 shows the interaction of terminal TE, connected to means of determining the position of the vehicle, with the wireless access network.

Detailed description of the Invention

[0012] As shown in Figure 1, the method object of the invention is based on the availability of a Global Navigation Satellite System GNSS receiver 1 (GPS, Galileo, etc.) to which a terminal TE 2 of the driver of the vehicle 3 can be connected, which terminal 2 has a client application installed and has access to the information provided by said GNSS receiver 1 so that the location the vehicle 3 is determined locally (in the vehicle 3 of the user). The manner of implementing it is the following:

[0013] Terminal TE 2 subscribes to the service. For that purpose, it sends a request to a wireless access network 4 responsible for managing the TAP service, as is done for example in the Presence service defined by 3GPP for UMTS networks, although the solution would not be restricted to this type of networks. The parameters that are included in the request are:

- the service identifier, which will be called TAP (Traffic Accident Prevention);
- the current position of terminal TE 2

and optionally:

- the circulating direction (a simple solution is to send two points or two position measurements); and
- the number of points that the driver of the vehicle has (if the country in which the vehicle is located has a driver's license point system).

[0014] In response to this request, the wireless access network 4 will store the previous data in a database 5, will confirm its subscription to the TAP service and will send:

- associated with the subscription, an identifier ID_{TE} thereof to TE 2;
- the coordinates of reference points RP 6 in which the network 4 must be contacted to obtain an update of the safety information for circulating (speed and safety distance), the identifier ID_{RP} of the RPs 6 and the distance D to these RPs 6 which TE 2 must observe in order to contact the wireless access network. This distance D can be the only one for all the RPs 6 (for example according to the type of service

to be offered to clients such as gold, silver service, etc.) or individual for each RP 6;

- the current safety parameters SP_{RN} that the vehicle 3 must observe at the point in which the vehicle is now located. Typically these SP_{RNs} will be the maximum speed and the safety distance, and will be individual for this user according to the number of points that he or she currently has and those that he or she reported in his or her service request or which were already verified by the network 4. If the current point in which the vehicle is located is a distance greater than D from RP 6, SP_{RNs} will be provided by default for that road 8 in which the vehicle is located (it requires a preliminary map at the beginning or can also distinguish between city or highway in order to give some initial limits) or even not providing at this moment SP_{RN} (to not initially require this street guide or map when the service begins to run);
- optionally, an update in the number of points if that number sent by TE 2 is greater than the number registered in the network or if the user has been able to recover points.

[0015] Terminal TE 2 then shows the current SP_{RNs} to the user. The proposed interface is a voice interface, which will require a Text-Voice converter in the TE or adding in the previous network response an audio file such as *"We inform you that at the* RP (or the road on which they are circulating) *for your safety the maximum speed of 50 Km/h must be observed and a safety distance of 40 meters with the vehicle in front of you maintained".* The ID_{RP} can have the information about the name of the road so that it can be communicated to the user. It can also send data to an intelligent navigation system so that the vehicle's speed can be controlled and kept under the speed established by the SP_{RNs}.

[0016] Terminal TE 2 periodically, according to a previously established period of time, and autonomously:

1- Calculates the distance that separates it from its current point to RPs 6. When d>D, terminal TE 2 can remind the driver of the previously obtained SP_{RNs}, as is established in the local configuration of the TE 2 application by the user. In the event that d <= D:

- Terminal TE 2 sends to the network the SP_{MEAs} of the vehicle measured at that moment, its position and circulating direction (e.g. the last two different points measured) and the identifier ID_{RP} of the RP to which it has arrived. If there was more than one RP 6 for which d<=D was met, a list of said RP 6 would be sent, although this should not occur if the location according to D is conveniently chosen. In the case of the vehicle's speed, the GNSS receiver 1 itself can provide it. The safety distance would require another sensor that processed images from the front vehicle.
- The network 4 stores the received values in a DB 5 of the service and will inform the TE 2 of the safety parameters that the driver must consider in that RP 6. If there was more than one, it would receive a list with the SP_{RNs} of each RP 6 and terminal TE 2 would determine which one would be reported to the user according to its distance, i.e. it only reports the RP 6 data which is located closest in the road (in the event that the TE 2 has a navigation application with GPS). Another option would be that the network 4 itself sends only the appropriate RP 6 data, taking into account the position of the vehicle 3 and the circulating direction, i.e. the road 8 in which the vehicle is located, for which a street guide or map will be used. The wireless access network 4 will obtain the circulating direction directly, if TE 2 has communicated it, or through two consecutive deliveries from terminal TE 2 of the vehicle's position. It is also true that this situation will not frequently be encountered because the RPs 6 will be available every certain distance and at strategic points. Depending on the storage capacity of the TE 2, the network can also send the SP_{RNs} of the RPs 6 that are located in a nearby environment (distance also defined in the user application or by the network 4 and which can coincide with D) with the purpose of reducing the consultations to the network 4.

2- Measures its current safety parameters SP_{MEA} (speed and safety distance. Another option is that this measurement is continuously taken. The maximum value in a period of time to configure and the last value measured will be stored. Furthermore, in order to provide greater value to the data, the position of the TE 2 in each measurement will be annexed as a table. In the event that $SP_{MEA}>SP_{RN}$ fixed by the network 4, for any of the safety parameters that are considered (for example, the maximum speed is exceeded for the points on the license that the driver has), the TE 2 will warn the driver. If after a predetermined number of times, consecutive or not, the fixed safety parameters are exceeded, the terminal TE 2 can send a message to the network for example, for a subsequent fine to the driver and at the same time send a warning that he or she has been fined. In the event that $SP_{MEA}<SP_{RN}$:

- the terminal TE can send the position of the vehicle 3 and the last measurement of its SP_{MEAs} (speed of the vehicle 3 and safety distance) to the network so that it stores them (maximum value in a period of time as well as the last value measured). The network can thus configure a map of points that can be defined from the physical position of the roads as well as the degree of saturation thereof by only interpreting the

speed and position data sent. Another alternative is sending an update of the previous table created by terminal TE 2;

- the network 4 will send an update of the list of the RPs 6 which the new RPs have with the purpose of having all those that could be relevant. One strategy that can be adopted by the network 4 for its selection is to send all the RPs 6 that are within a certain radius from TE 2 at that moment. TE 2 will thus always be updated as regards the list of the RPs 6.

[0017] If TE 2 is inactive for an amount of time to be defined (i.e. if it does not communicate with the wireless access network for a certain amount of time), TE 2 must subscribe again (thus, the number of points on the drivers license is always up-to-date).

[0018] The network 4 could also periodically send terminal TE 2 an update of the RPs 6. Each time the network 4 sends terminal TE 2 information on the RPs 6, it can for example send the coordinates of those RPs that are located within a preestablished radius of distance from terminal TE 2 or the coordinates of all the RPs 6 of a certain area (province, country, etc.)

[0019] There is another alternative method for traffic accident prevention as claimed in claim 15. As in the method described until now, a GNSS receiver 1 and a terminal TE 2, with access to network 4, connected to GNSS receiver 1, are needed. This method comprises the following steps for each vehicle 3 participating in the TAP service:

- Terminal TE 2 of the vehicle 3 sends a request to the wireless access network 4 to subscribe to the TAP service, sending with said request the following data: the current position of the vehicle 3, the TAP service identifier being requested and optionally the circulating direction and the number of points that the driver of the vehicle has in the event that the country in which the vehicle is located uses a driver's license point system.
- The network 4 stores the received data in the previous request, optionally confirming with terminal TE 2 its subscription to the TAP service.
- The network 4 sends terminal TE 2 a temporary identifier ID_{TE} of terminal TE 2, safety parameters SP_{RN} that the vehicle 3 must observe at the point of the road network 8 in which the vehicle is currently located and optionally an update of the number of points the driver of the vehicle 3 has.
- Terminal TE 2 communicates the current SP_{RNs} to the driver of the vehicle 3. It can also communicate it to one of the occupants of the vehicle or to an external system as well, for example a vehicle's intelligent navigation system.
- Terminal TE 2 periodically sends the network 4 the position of the vehicle 3, a request to obtain the SP_{RNs} for the point of the road network 8 in which the vehicle 3 is located at that moment, and optionally also sends the circulating direction of the vehicle 3 and current safety parameters SP_{MEA} of the vehicle 3 measured therein, which are obtained periodically by terminal TE 2;
- The wireless access network 4 stores data sent periodically by terminal TE 2 and sends to said terminal TE 2 the SP_{RNs} that the vehicle 3 must comply with for the point of the road network 8 u which the vehicle is located.
- Terminal TE 2 communicates (to the driver, to any of the occupants or to an external system) the SP_{RNs} each time it receives said SP_{RNs} from the network 4.
- In the event that $SP_{MEA} > SP_{RN}$ for any of the safety parameters that are considered, terminal TE 2 warns of said situation with the aim that the vehicle observes the SP_{RNs}. Said check ($SP_{MEA} > SP_{RN}$) can be carried out by the terminal TE 2 itself or the wireless access network 4 which, in the event that $SP_{MEA} > SP_{RN}$ is met, would communicate it to terminal TE 2 so that the terminal could warn the driver or an external system. In the event that $SP_{MEA} > SP_{RN}$ in a predetermined number of times, terminal TE 2 can send a message to the network 4 for a subsequent fine to the driver.

[0020] Just as in the first method claimed, the safety parameters can be the maximum speed and/or the safety distance. In the event that TE 2 is inactive for an amount of time to be defined, TE 2 must subscribe again.

Claims

1. A method for preventing traffic accidents, wherein each vehicle (3) circulating on the road network (8) and participating in a traffic accident prevention service, TAP service, that said method provides has:

- means (1) of determining the position of the vehicle, and
- a terminal TE (2), which can access a wireless access network (4), connected to the means (1) of determining the position of the vehicle and with access to the information that said means (1) provide;

characterized in that said method comprises the following steps for each vehicle (3) participating in the TAP service:

a- terminal TE (2) of the vehicle (3) sends a request to the wireless access network (4) in order to subscribe to the TAP service, sending with said request the following data:

- the position of the vehicle;
- the TAP service identifier being requested;

and optionally:
- the circulating direction; and
- the number of points that the driver of the vehicle (3) has in the event that the country in which the vehicle (3) is located uses a driver's license point system;

b- the wireless access network (4) checks the subscription validation of terminal TE (2);
c- the wireless access network (4) sends terminal TE (2):

- a temporary identifier ID_{TE} of terminal TE (2);
- the coordinates of reference points RP (6) in which terminal TE (2) must contact the wireless access network (4) when approaching a certain distance;
- identifiers ID_{RP} of the RPs (6);
- distance D to the RPs (6) that terminal TE (2) must observe in order to contact the wireless access network (4);
- safety parameters SP_{RN} that the vehicle (3) must observe at the point of the road network (8) in which the vehicle is currently located; and optionally
- safety parameters associated with every RP (6);
- an update of the number of points the driver of the vehicle (3) has;

d- terminal TE (2) communicates the current SP_{RNs} to at least one of the following:

- to at least one of the occupants of the vehicle (3),
- to an external system;

e- terminal TE (2) periodically calculates the distance d of the vehicle (3) to the RPs (6), and in the event that d<=D for at least one of the RPs (6):

- terminal TE (2) sends the wireless access network (4) the position of the vehicle (3), the ID_{RP} identifier of at least one RP (6) for which d<=D is met, and optionally the circulating direction of the vehicle (3) and safety parameters SP_{MEA} of the vehicle (3) measured therein;
- the wireless access network (4) sends terminal TE (2) the necessary data so that said terminal (2) obtains the SP_{RNs} that the vehicle (3) must comply with for the point of the road network (8) in which the vehicle is located;

f- in the event that $SP_{MEA} > SP_{RN}$ for any of the safety parameters that are considered, terminal TE (2) warns of said situation with the aim that the vehicle observes the SP_{RNs}.

2. A method according to claim 1, wherein d<=D is met for a single RP (6) in step e), **characterized in that** in said step e) the data sent by the wireless access network (4) to terminal TE (2) are the SP_{RNs} themselves of said RP (6) for which d<=D is met.

3. A method according to claim 1, wherein d<=D is met for more than one RP (6) in step e), **characterized in that** in said step e) the data sent by the wireless access network (4) to terminal TE (2) are the SP_{RNs} of each RP (6) in which d<=D is met, terminal TE (2) determining that the SP_{RNs} that the driver of the vehicle (3) must consider for the point of the road network (8) in which the vehicle is located are the SP_{RNs} of the RP (6) closest to the vehicle in its circulating direction.

4. A method according to claim 1, wherein d<=D is met for more than one RP (6) in step e), **characterized in that** in said step e) the data sent by the wireless access network (4) to terminal TE (2) are the SP_{RNs} themselves of the RP (6) closest to the vehicle (3) in its circulating direction.

5. A method according to claim 1, **characterized in that** in step e) and in the event that d<=D for at least one of the RPs (6), the data sent by the wireless access network (4) to terminal TE (2) are the SP_{RNs} of the RPs (6) that are located at a preestablished distance, with the purpose that terminal TE (2) itself obtains the SP_{RNs} for the point of the road network (8) in which the vehicle (3) is located.

6. A method according to any of the claims, wherein the vehicle (3) participating in the TAP service has means of determining the speed of the vehicle, **characterized in that** SP_{MEA} is the speed of the vehicle (3) obtained by said means, whereas SP_{RN} is the maximum speed allowed for said vehicle (3) at the point of the road network (8) in which the vehicle (3) is located.

7. A method according to any of claims 1 to 5, wherein the vehicle (3) participating in the TAP service has means of detecting the distance D_S to the vehicle in front of it, **characterized in that** SP_{MEA} are the speed of vehicle (3) and the distance D_S, whereas SP_{RN} is the maximum speed allowed for said vehicle (3) at the point of the road network (8) in which the vehicle is located and the safety distance that must be maintained with the vehicle in front of it at said point of the road (8).

8. A method according to any of the previous claims,

characterized in that in step e), and when d>D, terminal TE (2) reminds at least one of the occupants of the vehicle of the previously obtained SP_{RNs}.

9. A method according to any of the previous claims, **characterized in that** in step f), and when $SP_{MEA}<=SP_{RN}$ for all safety parameters considered, terminal TE (2) periodically sends the wireless access network (4) the position of the vehicle (3) and optionally the last measurement of its safety parameters SP_{MEA}.

10. A method according to any of the previous claims, **characterized in that** the wireless access network (4) periodically sends terminal TE (2) an update of the RP (6) information.

11. A method according to any of the previous claims, **characterized in that** every time the wireless access network (4) sends terminal TE (2) the coordinates of the RPs (6), it only sends the coordinates of those RPs (6) that are located within a preestablished radius of distance from terminal TE (2).

12. A method according to any of the previous claims, **characterized in that** in step f) and in the event that $SP_{MEA}>SP_{RN}$ is met in a predetermined number of times, terminal TE (2) sends a message to the wireless access network (4) to communicate the violation of the established safety parameters.

13. A method according to any of the previous claims, **characterized in that** the wireless access network (4) broadcasts messages, at any moment it considers necessary, to TEs (2) with information about the RPs (6), indicating the ID_{RP} to which said information refers.

14. A method according to any of the previous claims, **characterized in that** the means (1) of determining the position of the vehicle consist of a Global Navigation Satellite System GNSS receiver, which is in turn capable of determining the speed of the vehicle (3).

15. A method for preventing traffic accidents, wherein each vehicle (3) circulating on the road network (8) and participating in a traffic accident prevention service, TAP service, that said method provides has:

- means (1) of determining the position of the vehicle, and
- a terminal TE (2), which can access a wireless access network (4), connected to the means (1) of determining the position of the vehicle and with access to the information that said means (1) provide;

characterized in that said method comprises the following steps for each vehicle (3) participating in the TAP service:

a- terminal TE (2) of the vehicle (3) sends a request to the wireless access network (4) in order to subscribe to the TAP service, sending with said request the following data:

- the position of the vehicle (3);
- the TAP service identifier being requested;

and optionally:

- the circulating direction; and
- the number of points that the driver of vehicle has in the event that the country in which the vehicle (3) is located uses a driver's license point system;

b- the wireless access network (4) checks the subscription validation of terminal TE (2);
c- the wireless access network (4) sends terminal TE (2):

- a temporary identifier ID_{TE} of terminal TE (2);
- safety parameters SP_{RN} that the vehicle (3) must observe at the point of the road network (8) in which the vehicle is currently located; and optionally
- an update of the number of points the driver of the vehicle (3) has;

d- terminal TE (2) communicates the current SP_{RNs} to at least one of the following:

- to at least one of the occupants of the vehicle (3),
- to an external system;

e- terminal TE (2) periodically sends the wireless access network (4):

- the position of the vehicle (3);
- a request for obtaining the SP_{RNs} for the point of the road network (8) in which the vehicle (3) is located at that moment;

and optionally:

- safety parameters SP_{RN} of the vehicle (3) measured therein;
- the circulating direction of the vehicle (3);

f- the wireless access network (4) sends terminal TE (2) the SP_{RNs} that the vehicle (3) must comply with for the point of the road network (8) in which the vehicle is located;
g- terminal TE (2) communicates the SP_{RNs}

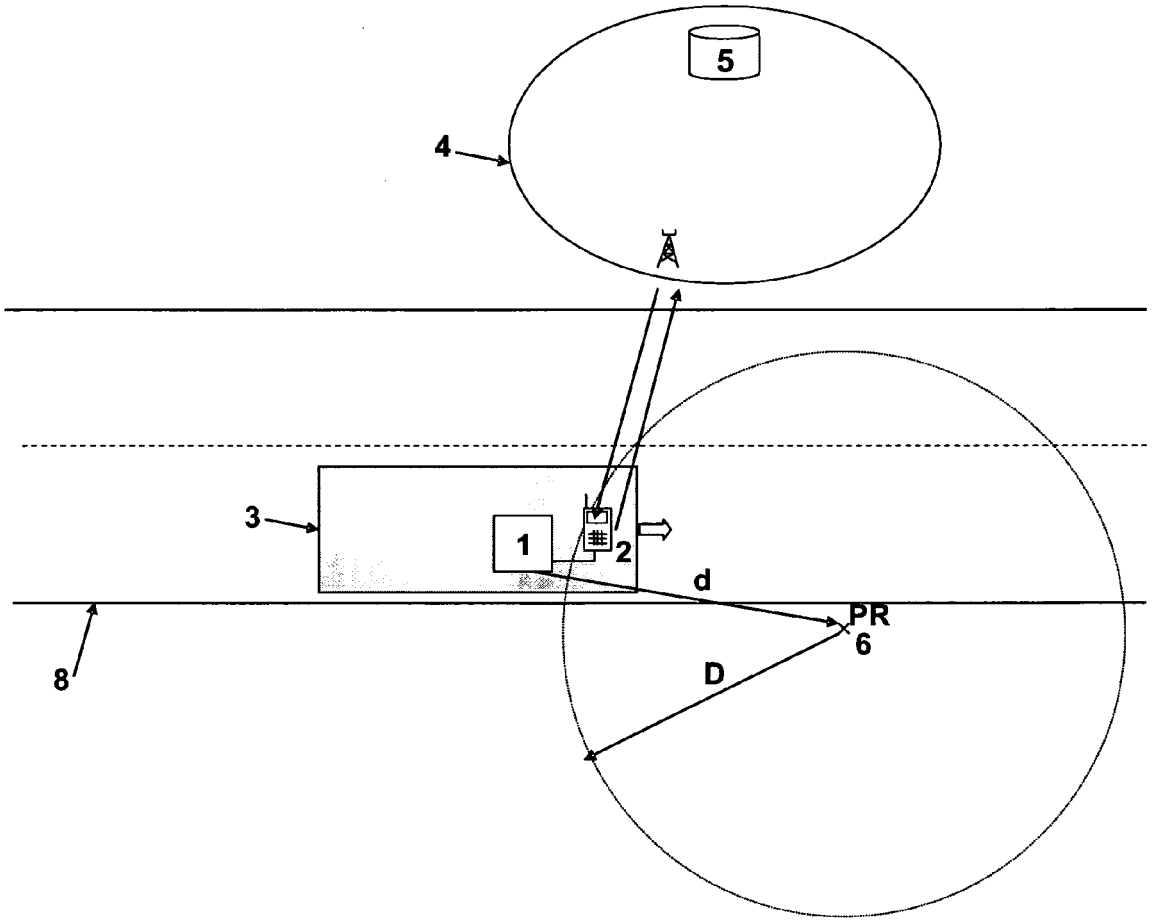
each time it receives said SP_{RNs} from the wireless access network (4);
h- in the event that $SP_{MEA} > SP_{RN}$ for any of the safety parameters that are considered, terminal TE (2) warns of said situation with the aim that the vehicle observes the SP_{RNs}.

16. A method according to the previous claim, wherein the vehicle (3) participating in the TAP service has means of determining the speed of the vehicle, **characterized in that** SP_{MEA} is the speed of the vehicle (3) obtained by said means, where as SP_{RN} is the maximum speed allowed for said vehicle at the point of the road network (8) in which the vehicle (3) is located.

17. A method according to any of claims 15, wherein the vehicle (3) participating in the TAP service has means of detecting the distance D_S to the vehicle in front of it, **characterized in that** SP_{MEA} are the speed of vehicle (3) and the distance D_S, whereas SP_{RN} is the maximum speed allowed for said vehicle (3) at the point of the road network (8) in which the vehicle (3) is located and the safety distance that must be maintained with the vehicle in front of it at said point of the road (8).

18. A method according to any of claims 15 to 17, **characterized in that** in step (h) and in the event that $SP_{MEA} > SP_{RN}$ is met in a predetermined number of times, terminal TE (2) sends a message to the wireless access network (4) to communicate the violation of the established safety parameters.

19. A method according to any of the previous claims, **characterized in that** the means (1) of determining the position of the vehicle consist of a Global Navigation Satellite System GNSS receiver, which is in turn capable of determining the speed of the vehicle (3).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