



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
10.09.2008 Bulletin 2008/37

(51) Int Cl.:
G08G 1/017 (2006.01) G07C 5/00 (2006.01)

(21) Application number: **08003918.3**

(22) Date of filing: **03.03.2008**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(30) Priority: **06.03.2007 IT MO20070075**

(71) Applicant: **Meta System S.p.A.**
42100 Reggio Emilia (IT)

(72) Inventor: **Simonazzi, Giuseppe**
42100 Reggio Emilia (IT)

(74) Representative: **Feltrinelli, Secondo Andrea**
APTA S.R.L.
Via Giardini, 625
41100 Modena (IT)

(54) **System and method for detecting ways of using a vehicle, particularly for applications in the insurance field**

(57) The system for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, comprising at least one electronic appliance installable on a vehicle and suitable for collecting data relating to the use of the vehicle and at least one remote recording and processing unit for recording and processing the collected data, wherein the appliance comprises at least one locator unit for locating the position of the vehicle having a satellite signal receiver, at least one measurement device for measuring the instantaneous acceleration of the vehicle along at least three distinct directions and at least one communication unit associat-

ed with the locator unit and with the measurement device and suitable for sending the collected position and instantaneous acceleration data of the vehicle to the remote unit.

The method for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, comprising the location of the position of a vehicle by means of a satellite signal receiver, the measuring of the instantaneous acceleration of the vehicle along at least three distinct directions and the sending of the collected position and instantaneous acceleration data of the vehicle to at least one remote recording and processing unit.

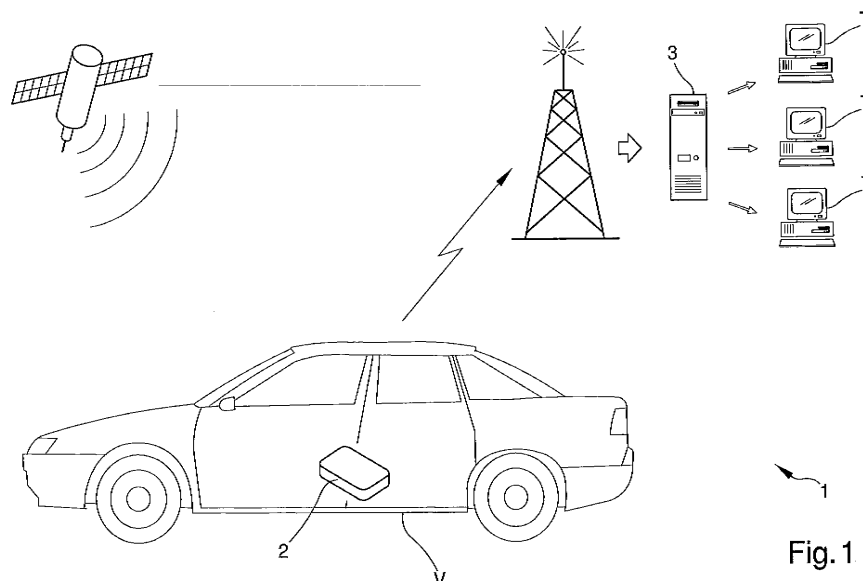


Fig. 1

Description

[0001] This invention relates to a system and a relative method for detecting ways of using a vehicle, particularly for applications in the insurance field or the like.

[0002] In the sector of insurance services for car insurance policies, the use is known of particular electronic appliances which, once installed on a vehicle, allow the determination of an insurance rate on the basis of how long and the place where the vehicle is used.

[0003] Such appliances therefore make it possible to stipulate personalised insurance policies with a rate that varies and is based, besides on traditional parameters such as, e.g., the age of the user, the class of merit, the place the contract is entered into, but also on how much the vehicle is actually used.

[0004] The appliances of known type comprise, in general, a satellite receiver, of the type of a GPS receiver or the like, which permits locating the vehicle by means of the reading of the latitude, longitude and, if necessary, altitude coordinates.

[0005] These appliances further comprise a radio wave communication device, of the type commonly used within the field of mobile telephony, e.g., a GSM/GPRS two-way radio/transmitter.

[0006] The GSM/GPRS two-way radio/transmitter supports the sending of data collected by the appliance towards a remote storage and data processing unit.

[0007] If necessary, the GSM/GPRS two-way radio/transmitter is used to receive, from the remote unit control, software updates relating to the appliances on board the vehicle.

[0008] In point of fact, the operation of the appliance contemplates the collection at regular intervals of data relating to the position of the vehicle by means of the GPS receiver and the subsequent transmission of such data towards the remote unit by means of the GSM/GPRS two-way radio/transmitter.

[0009] The data thus collected from the remote unit are then processed to determine data useful for calculating the insurance rate, e.g., the actual time of use of the vehicle, the hours of the day in which it is used and the areas within which the vehicle is used.

[0010] Further data can be collected by the appliance by using an accelerometer fitted on the vehicle and suitable for detecting changes in acceleration in a direction parallel to the longitudinal axis of the vehicle and in a direction at right angles to the longitudinal axis of the vehicle.

[0011] In particular, the presence of the accelerometer permits monitoring the driving "style" of the user and, if necessary, permits detecting sudden accelerations and decelerations of the vehicle due to the occurrence of an accident and this way allows determining the way the accident happened.

[0012] For insurance purposes, the analysis by the remote unit of the data collected by the accelerometer can be advantageously used to significantly reduce the per-

centage of accident frauds.

[0013] These appliances of known type are however susceptible to upgrading, in particular in order to upgrade the quality and quantity of the data collected and then processed by the remote unit.

[0014] The main aim of this invention is to provide a system and a method for detecting ways of using a vehicle, that permit collecting and processing data more precise and useful for subsequent applications in the insurance field or the like.

[0015] Another object of this invention is to provide an appliance for detecting ways of using a vehicle that is easy to install.

[0016] Another object of this invention is to provide an appliance for detecting ways of using a vehicle that rules out the possibility of a false reading due to incorrect installation.

[0017] Another object of this invention is to provide a system and a method for detecting ways of using a vehicle that permit reaching the mentioned upgrades of the state of the art by means of a simple and rational solution that is easy and effective to use and inexpensive.

[0018] The above objects are all achieved by this system for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, comprising at least one electronic appliance installable on a vehicle and suitable for collecting data relating to the use of the vehicle and at least one remote recording and processing unit for recording and processing said collected data, characterized by the fact that said appliance comprises at least one locator unit for locating the position of said vehicle having a satellite signal receiver, at least one measurement device for measuring the instantaneous acceleration of said vehicle along at least three distinct directions and at least one communication unit associated with said locator unit and with said measurement device and suitable for sending the collected position and instantaneous acceleration data of said vehicle to said remote unit.

[0019] The above objects are also achieved by this method for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, characterized by the fact that it comprises the location of the position of a vehicle by means of a satellite signal receiver, the measuring of the instantaneous acceleration of said vehicle along at least three distinct directions and the sending of the collected position and instantaneous acceleration data of said vehicle to at least one remote recording and processing unit.

[0020] Further characteristics and advantages of this invention will appear more evident from the description of a preferred but not only embodiment of a system for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, illustrated indicatively by way of non limiting example in the accompanying drawings, wherein:

figure 1. is a general diagram showing the system

according to the invention;

figure 2 is a general diagram of the appliance of the system according to the invention;

figure 3 schematically shows the application to the vehicle of a measurement device measuring the instantaneous acceleration of the appliance, according to the invention;

figure 4 schematically shows some of the possible data processed by the remote unit of the system, according to the invention, usable for the statistical analysis of the ways of using a vehicle;

figures 5 and 6 schematically show some of the possible data processed by the remote unit of the system, according to the invention, usable for determining the way an accident happened.

[0021] With particular reference to such figures, a system for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, has been globally indicated by 1.

[0022] With specific reference to the application of the invention in the insurance field, by the phrase "detecting ways of using" is meant the detection of those data potentially useful for the determination of the risks or of the events, meaning accidents or thefts, which the vehicle might undergo.

[0023] Different processing of the collected data cannot however be ruled out and, therefore, the use of system 1 for different applications.

[0024] The system 1 comprises an electronic appliance 2 installable on a vehicle V and suitable for collecting data relating to the use of the vehicle itself.

[0025] The system 1 also comprises a remote unit, shown in figure 1 with the reference 3, suitable for recording the data collected by the appliance 2 and processing these so as to make them easily usable, e.g., for applications in the insurance field.

[0026] As shown in figure 1, the data thus processed can be made available for the access from one or more remote terminals T.

[0027] The appliance 2 comprises a locator unit 4 of the vehicle V that has a satellite signal receiver 5, of the type used in Global Positioning System (CrPS), Galileo Positioning System satellite navigation systems or the like.

[0028] In particular, the position measurements made by the locator unit 4 comprise the longitude and latitude, and if necessary, the altitude coordinates of the vehicle V.

[0029] Advantageously, the appliance 2 comprises a measurement device 6 for measuring the instantaneous acceleration of the vehicle V along at least three distinct directions X, Y and Z not coplanar the one with the other.

[0030] In particular, the measurement device 6 is composed of an accelerometer with three axes in which the three directions X, Y and Z for measuring the instantaneous acceleration are substantially at right angles to one another.

[0031] When the appliance 2 is installed on the vehicle

V, the accelerometer 6 can be positioned with the three directions X, Y and Z arranged as schematically shown in the figure 3, meaning with a first direction X substantially parallel to the longitudinal axis of the vehicle V, a second direction Y substantially horizontal and at right angles to the longitudinal axis of the vehicle V, and a third substantially vertical direction Z.

[0032] It should be pointed out that by "horizontal" and "vertical" reference is made to the normal setup of the vehicle V.

[0033] Usefully, the arrangement of the first, of the second and of the third direction X, Y and Z with respect to the vehicle V is not important for the purpose of the correct operation of the accelerometer 6.

[0034] The appliance 2 is in fact equipped with determination means for determining the acceleration of the vehicle V whatever the arrangement of the directions X, Y and Z, of the type of a dedicated and integrated software.

[0035] The presence of such determination means for determining the acceleration allows great freedom as regards the positioning of the accelerometer 6 during the installation on the vehicle V, at the same time ensuring the reading of variations in acceleration along any direction in a reliable and precise way.

[0036] This therefore frees the positioning of the accelerometer 6 from any mechanical restrictions as regards the housing on the vehicle V intended to accommodate this, making installation easier with respect to the installation of the two-axis accelerometers commonly used.

[0037] Furthermore, the presence of a third direction Z for instantaneous acceleration detection allows more precise determination of how an accident occurred, e.g. in case of the overturning of the vehicle V.

[0038] Usefully, the accelerometer 6 must not necessarily be made integrated with the locator unit 4 and with the communication unit 7, but can be made of an outside device interfaceable with the other devices of the appliance 2 by means of suitable communication protocols.

[0039] Advantageously, the appliance 2 can be associated with an anti-theft system installed on the vehicle V, and the measurement of variations in acceleration along the direction Z can be used to detect any thefts perpetrated by lifting and towing the vehicle itself.

[0040] The appliance 2 also comprises a communication unit 7 associated with the locator unit 4 and with the accelerometer 6 and suitable for sending the collected position and instantaneous acceleration data of the vehicle V towards the above remote unit 3.

[0041] In particular, the communication unit 7 comprises a transmitter 8 and a receiver 9 operating within the frequency range with mobile telephony protocols of the GSM, GPRS, UMTS type or the like.

[0042] Usefully, the appliance 2 comprises operating means 10 for operating the communication unit 7 at pre-defined intervals of distance covered by the vehicle V. The sending of the collected data can be made, e.g. every

100 km of distance covered by the vehicle V.

[0043] Usefully, the appliance 2 comprises temporary storage means 11 of the data collected.

[0044] Sampling means 12 are placed operatively in between the locator unit 4 and the temporary storage means 11 and are suitable for sampling the position measurement of the vehicle V at regular intervals of distance covered. The sampling can be done, e.g., every 2 km of distance covered by the vehicle V.

[0045] In point of fact, the data collected and recorded by means of the temporary storage means 11 comprise a series of consecutive position measurements of the vehicle V, sampled at regular intervals of distance covered and associated univocally with the measurement of the respective sampling time instants.

[0046] Usefully, the appliance 2 comprises comparison means 13 associated with the measurement device 6 for measuring the instantaneous acceleration suitable for comparing the acceleration measurements detected along the directions X, Y and Z with a predefined threshold value.

[0047] In point of fact, the data collected and recorded by means of the temporary storage means 11 comprise at least one reference measurement of a detected instantaneous acceleration and which is higher than the above threshold value, corresponding to a sudden acceleration or deceleration of the vehicle V along at least one of the three directions X, Y and Z. To this reference measurement are added a series of instantaneous acceleration measurements detected during the time intervals immediately before and after.

[0048] Advantageously, the temporary storage means 11 comprise short-term supplementary memories, of the type of a circular buffer or the like, suitable for storing all the position or instantaneous acceleration measurements for short time intervals.

[0049] These supplementary memories are usable, e.g. to retrieve and subsequently send all the acceleration measurements immediately preceding an acceleration measurement above the aforementioned threshold value.

[0050] Usefully, the data collected by the storage means 11 can comprise an identification reference of the vehicle V and, if necessary, an identification reference of one or more users of the vehicle itself.

[0051] In this respect, the appliance 2 can comprise identification means of one or more users, of the type of a keyboard for entering an identification code, an electronic key, etc.

[0052] With special reference to the use of the system 1, in the insurance field to manage and rate theft policies, the appliance 2 can be equipped with a vehicle identification device and, if necessary, with a vehicle user identification device which is separate or in any case removable from the rest of the appliance 2.

[0053] This identification device, which can be of the type of an electronic key or the like, is usable to start/stop an anti-theft system installed on the vehicle and, at

the same time, the theft policy. In case of theft, the showing by the user of such identification device permits "testifying to" the correct operation of the anti-theft system.

[0054] Advantageously, the start and, if necessary, the stop of the anti-theft system and of the theft policy can be piloted by the appliance 2 depending on just how dangerous the area is where the vehicle V is located as revealed by the locator unit 4.

[0055] Usefully, the appliance 2 can comprise an interface apparatus 14 associable with at least one external electronic device suitable for recording and/or displaying in local the collected position and instantaneous acceleration data.

[0056] In particular, the interface apparatus 14 can comprise, e.g., a two-way radio transmitter of the Bluetooth, WiFi type or the like, a two-way infra-red transmitter of the IrDA (Infrared Device Application) type or a USB port.

[0057] Such interfacing with an external electronic device can be used, e.g., in case of an accident, to determine how the accident happened on site or, in general, in case of its being impossible to communicate with the remote unit 3 because of damage to the communication unit 7 or due to lack of signal.

[0058] The appliance 2 is associable from the battery of the vehicle V. Furthermore, usefully, the appliance 2 has an independent power supply unit that starts in case of flat battery or accidental or voluntary interruption of the battery connection.

[0059] Advantageously, the remote unit 3 is suitable for recording and processing the data collected by the appliance 2 to make these potentially useful to the insurance companies to determine risks, meaning accidents or thefts, run by the vehicle V and, consequently, to determine personalised rating plans.

[0060] In particular, the data processed by the remote unit 3 can comprise: statistical data relating to vehicle use such as actual period of use, during which time of day or night, area of use and relative hazard rating as regards accidents or theft or the like (Figure 4); statistical data and one or more graphic representations of the changes in instantaneous acceleration of the vehicle suitable for determining the way an accident happened (Figures 5 and 6).

[0061] Advantageously, the data collected by a plurality of appliances 2 fitted on separate vehicles V can be processed by the remote unit 3 to obtain an indication of the intensity of the traffic along one or more sections of road.

[0062] Usefully, the appliance 2 can be operatively associated with indicator means inside the vehicle, of the sound or visual type, suitable for assisting driving.

[0063] The method according to the invention comprises the locating of the position of the vehicle V by means of the receiver 5 of the locator unit 4 and the measurement, by means of the accelerometer 6, of the instantaneous acceleration of the vehicle V along three distinct directions X, Y and Z which are substantially at right an-

gles the one to the other.

[0064] Advantageously, the acceleration of the vehicle is determined whatever the arrangement of the three directions X, Y, Z by means of a dedicated software integrated inside the appliance 2.

[0065] The method also contemplates the temporary storage of the collected position and instantaneous acceleration data inside the temporary storage means 11.

[0066] In particular, the measurement of the position detected by the locator unit 4 is sampled by the sampling means 12 at predefined intervals of distance covered by the vehicle V (e.g., every 2 km).

[0067] Each of the position measurements thus sampled is then associated univocally with an indication of the respective sampling time instant and subsequently recorded on the temporary storage means 11.

[0068] The position measurements thus collected are subsequently sent to the remote unit 3 by means of the communication unit 7.

[0069] In particular, the sending of the position measurements can be started by the operating means 10 at predefined intervals of distance covered by the vehicle V (e.g., every 100 km).

[0070] With reference to the instantaneous acceleration measurements, the method contemplates a phase of comparison between the instantaneous acceleration measurements detected by the accelerometer 6 with a predefined threshold value, carried out by means of the comparison means 13.

[0071] In the event of an acceleration measurement being detected above such threshold value, this reference measurement is recorded on the storage means 11 together with a series of immediately preceding and subsequent instantaneous acceleration measurements.

[0072] The instantaneous acceleration measurements thus collected are afterwards sent to the remote unit 3 by means of the communication unit 7.

[0073] Usefully, the method contemplates identifying a user of the vehicle V and associating the collected data with an identification reference of such user and/or an identification reference of the vehicle itself.

[0074] Finally, the remote unit 3 records the data collected and received and processes such data for the determination of the useful data for the insurance companies to determine the risks, meaning accidents or thefts, run by the vehicle V and, consequently, to determine personalised rating plans.

[0075] Advantageously the method can comprise the processing of a plurality of data collected on separate vehicles V and received by the remote unit 3 to determine the intensity of the traffic along one or more road sections.

[0076] Usefully, the method can comprise the identification and the indication of potentially hazardous situations during the transit of the vehicle V, due e.g. to high speed or degraded driving.

[0077] It has in point of fact been found how the described invention achieves the proposed objects, and in particular the fact is underlined that the system and the

method described above allow the collection and the processing of more precise and more useful data for applications in the insurance field and not only.

[0078] Furthermore, the presence of the three-axis accelerometer permits not only the more precise obtaining of data useful for determining how an accident happened but also more simple and quicker installation on the vehicle.

[0079] The invention thus conceived is susceptible to numerous modifications and variations, all of which falling within the scope of the inventive concept.

[0080] Furthermore all the details can be replaced with others that are technically equivalent.

[0081] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements without because of this moving outside the protection scope of the following claims.

Claims

1. System for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, comprising at least one electronic appliance installable on a vehicle and suitable for collecting data relating to the use of the vehicle and at least one remote recording and processing unit for recording and processing said collected data, **characterized by** the fact that said appliance comprises at least one locator unit for locating the position of said vehicle having a satellite signal receiver, at least one measurement device for measuring the instantaneous acceleration of said vehicle along at least three distinct directions and at least one communication unit associated with said locator unit and with said measurement device and suitable for sending the collected position and instantaneous acceleration data of said vehicle to said remote unit.
2. System according to claim 1, **characterized by** the fact that said measurement device comprises at least one accelerometer with three axes.
3. System according to one or more of the preceding claims, **characterized by** the fact that said three directions for measuring the instantaneous acceleration are substantially at right angles to one another.
4. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises determination means for determining the instantaneous acceleration whatever the arrangement of said three directions with respect to said vehicle.
5. System according to one or more of the preceding claims, **characterized by** the fact that said determination means are of the type of a software pro-

gramme.

6. System according to one or more of the preceding claims, **characterized by** the fact that said satellite signal receiver is of the type used in Global Positioning System (GPS), Galileo Positioning System satellite navigation systems or the like. 5
7. System according to one or more of the preceding claims, **characterized by** the fact that said communication unit comprises at least a transmitter and/or a receiver operating within the frequency range with mobile telephony protocols. 10
8. System according to one or more of the preceding claims, **characterized by** the fact that said frequency ranges and said mobile telephony protocols are selected from the group comprising GSM, GPRS and UMTS or the like. 15
9. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises temporary storage means of said data collected. 20
10. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises sampling means associated with said locator unit and suitable for sampling the position measurement of said vehicle at predefined intervals of distance covered. 25
11. System according to one or more of the preceding claims, **characterized by** the fact that said data collected comprise a series of said sampled position measurements, associated univocally with the measurement of the respective sampling time instants. 30
12. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises comparison means associated with said measurement device and suitable for comparing the instantaneous acceleration measurements detected with at least one predefined threshold value. 35
13. System according to one or more of the preceding claims, **characterized by** the fact that said data collected comprise at least one reference measurement of a detected instantaneous acceleration substantially higher than said threshold value and a series of instantaneous acceleration measurements before and/or after said reference measurement. 40
14. System according to one or more of the preceding claims, **characterized by** the fact that said collected data comprise an identification reference of at least 45

one between said vehicle and a user of said vehicle.

15. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises identification means of at least a user of said vehicle. 5
16. System according to one or more of the preceding claims, **characterized by** the fact that it comprises operating means of said communication unit at predefined intervals of distance covered by said vehicle. 10
17. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises at least one interface apparatus associable with at least one external device suitable for recording and/or displaying in local said collected data. 15
18. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises at least one independent power supply unit. 20
19. System according to one or more of the preceding claims, **characterized by** the fact that said appliance can be associated with an anti-theft system on said vehicle. 25
20. System according to one or more of the preceding claims, **characterized by** the fact that said appliance comprises an identification device suitable for starting and stopping an anti-theft system installed on said vehicle. 30
21. System according to one or more of the preceding claims, **characterized by** the fact that said appliance is operatively associated with indicator means, of the sound or visual type, for assisting driving of said vehicle. 35
22. System according to one or more of the preceding claims, **characterized by** the fact that the data processed by said remote unit starting from said collected data comprise statistical data relating to vehicle use such as actual period of use, during which time of day or night, area of use and relative hazard rating as regards accidents or theft or the like. 40
23. System according to one or more of the preceding claims, **characterized by** the fact that the data processed by said remote unit starting from said collected data comprise a graphic representation of the changes in instantaneous acceleration of said vehicle. 45
24. System according to one or more of the preceding claims, **characterized by** the fact that the data processed by said remote unit starting from the data col- 55

lected by a plurality of appliances fitted on separate vehicles comprise an indication of the intensity of the traffic along at least one section of road.

25. Method for detecting the ways of using a vehicle, particularly for applications in the insurance field or the like, **characterized by** the fact that it comprises the location of the position of a vehicle by means of a satellite signal receiver, the measuring of the instantaneous acceleration of said vehicle along at least three distinct directions and the sending of the collected position and instantaneous acceleration data of said vehicle to at least one remote recording and processing unit.

26. Method according to claim 25, **characterized by** the fact that said satellite signal receiver is of the type used in Global Positioning System (GPS), Galileo Positioning System satellite navigation systems or the like.

27. Method according to one or more of the claims 25 and 26, **characterized by** the fact that it comprises storing temporarily said collected data, before said sending.

28. Method according to one or more of the claims from 25 to 27, **characterized by** the fact that it comprises sampling the position measurement of said vehicle at predefined intervals of distance covered.

29. Method according to one or more of the claims from 25 to 28, **characterized by** the fact that it comprises associating univocally at least one of said sampled position data with an indication of the respective sampling time instant.

30. Method according to one or more of the claims from 25 to 29, **characterized by** the fact that said storing temporarily comprises recording a plurality of said sampled position measurements associated univocally with the measurement of the respective sampling time instants.

31. Method according to one or more of the claims from 25 to 30, **characterized by** the fact that it comprises comparing the instantaneous acceleration measurements detected with at least one predefined threshold value.

32. Method according to one or more of the claims from 25 to 31, **characterized by** the fact that said storing temporarily comprises recording at least one reference measurement of an instantaneous acceleration substantially higher than said threshold value and a series of instantaneous acceleration measurements before and/or after said reference measurement.

33. Method according to one or more of the claims from 25 to 32, **characterized by** the fact that said three directions for measuring the instantaneous acceleration are substantially at right angles to one another.

34. Method according to one or more of the claims from 25 to 33, **characterized by** the fact that it comprises determining the instantaneous acceleration of said vehicle whatever the arrangement of said three directions of measurement.

35. Method according to one or more of the claims from 25 to 34, **characterized by** the fact that it comprises associating said collected data with an identification reference of at least one between said vehicle and a user of said vehicle.

36. Method according to one or more of the claims from 25 to 35, **characterized by** the fact that it comprises identifying at least a user of said vehicle.

37. Method according to one or more of the claims from 25 to 36, **characterized by** the fact that it comprises starting sending said collected data at predefined intervals of distance covered by said vehicle.

38. Method according to one or more of the claims from 25 to 37, **characterized by** the fact that it comprises recording said data collected and received by said remote unit.

39. Method according to one or more of the claims from 25 to 38, **characterized by** the fact that it comprises processing said data collected and received by said remote unit for the determination of statistical data relating to vehicle use such as actual period of use, during which time of day or night, area of use and relative hazard rating as regards accidents or theft or the like.

40. Method according to one or more of the claims from 25 to 39, **characterized by** the fact that it comprises processing said data collected and received by said remote unit for the determination of a graphic representation of the changes in instantaneous acceleration of said vehicle.

41. Method according to one or more of the claims from 25 to 40, **characterized by** the fact that it comprises processing a plurality of said data collected on separate vehicles and received by said remote unit for the determination of the intensity of the traffic along at least one section of road.

42. Method according to one or more of the claims from 25 to 41, **characterized by** the fact that it comprises the identification of potentially hazardous situations during the transit of the vehicle and the indication of

such hazardous situations to the user of said vehicle.

5

10

15

20

25

30

35

40

45

50

55

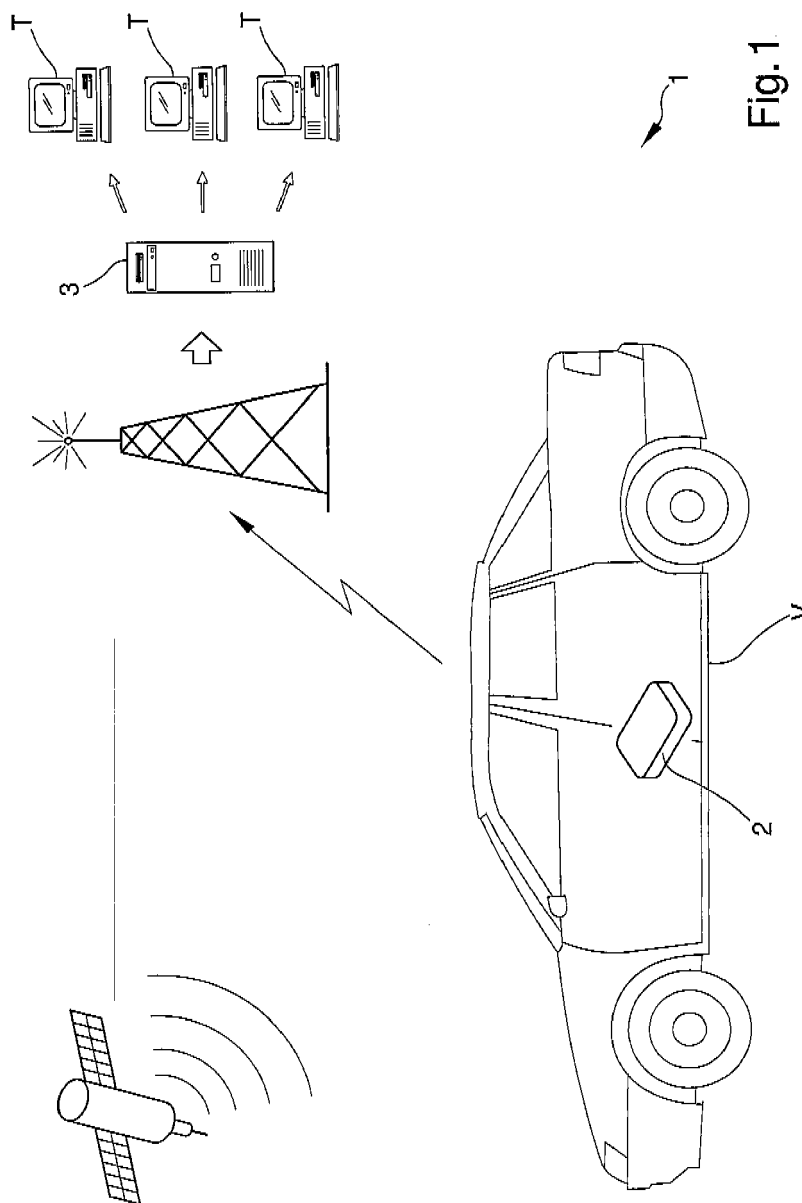


Fig. 5

CLIENT: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
LICENCE PLATE: XX000YY
MAKE AND MODEL: yyyyyyyyyyy yyyyyy
DATE: dd/mm/yy hh:mm:ss
LOCALITY: Street xxxxxx, nnnn
POSTAL CODE: nnnnn TOWN/CITY: cccccc COUNTRY: nnnnnnn
IMPACT SPEED: nnnnn Km/h
ENTITY OF IMPACT: nnnn GR

Fig. 6

