(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 467 321 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
13.10.2004 Bulletin 2004/42

(51) Int Cl.[7]: **G07C 5/08**, G08G 1/16

(21) Application number: **04425255.9**

(22) Date of filing: **06.04.2004**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL HR LT LV MK

(30) Priority: **08.04.2003 IT RM20030160**

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(54) Vehicle information registrator

(57) The present invention belongs to the class of electronic devices for registration of vehicle information, by closed circuit, in a memory unit protected from destructive factors such as mechanical and thermo impacts, in the case of accident or catastrophe of the vehicle. The device is aimed to be a technical mean of reconstruction of the crash dynamics, in the case of accidents or catastrophes, similar to the "black box" used in aviation, and provides the following functions:

- capturing, processing and registration, in internal memory, of the information coming from sensors and from equipment of the vehicle;
- registration, in internal memory, of information coming from incorporated accelerometer (overcharges and impacts on three spatial axes);
- protection of the internal memory from mechanical and thermo impacts and conservation of the deposited information, in the case of accident or catastrophe of the vehicle;
- reading of the information using a notebook and unequivocal reconstruction with graphic representation by mean of a PC simulator which permits the visualization of all the movements of the vehicle before and during the accident;
- technical state diagnostics of the vehicle at the moment of the accident or catastrophe;
- registration of geographic position of the vehicle and of astronomic time of the accident.

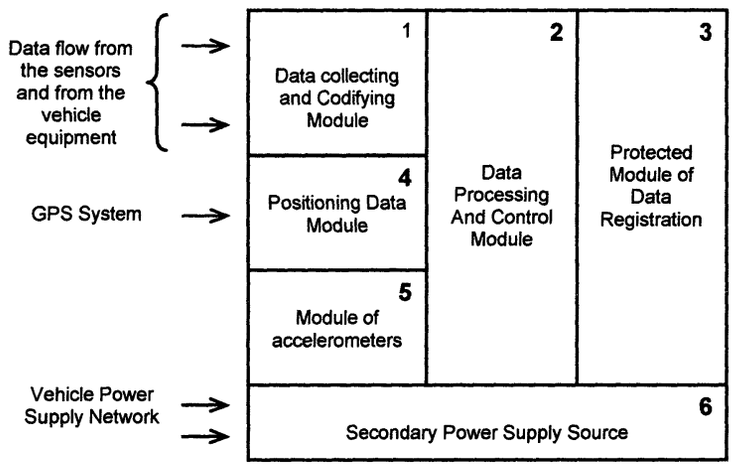

Fig. 1 Principal Structure of the Device in subject

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Description

[0001] The present invention regards a device of registration, by closed circuit, of vehicle information on a memory device protected of various destructive factors, using as a technical mean of reconstruction of the dynamics of heavy incidents or catastrophes, similar as the functions of "black box" in aeronautics.

[0002] The aim of the present invention is to realize a device, new and original, aimed to execute the following functions:

- capturing, processing and registration, in internal memory, of the information coming from sensors and from equipment of the vehicle;
- registration, in internal memory, of information coming from incorporated accelerometer (overcharges and impacts on three spatial axes);
- protection from mechanical and thermo impacts and conservation of the deposited information, in the case of incident or catastrophe of the vehicle;
- reading of the information using a notebook and unequivocal reconstruction with graphic representation by mean of a PC simulator which permits the visualization of all the movements of the vehicle before and during the accident;
- technical state diagnostics of the vehide at the moment of the accident or catastrophe;
- registration of geographic position of the vehicle and of astronomic time of the accident.

[0003] The above listed innovations are obtained from the invention in subject as described in the claims.

[0004] The invention is exposed, in sequel, in detail with aid of the annexed Fig. 1 which illustrates a possible structure of realization, among the numerous other realizations based on the same principle.

[0005] The device presents a box with relative connectors which contains the following elements:

- data processing module for the data come from sensors and from the equipment of the vehicle ***1***,
- data control and codification module ***2***,
- protected module of the data registration ***3***,
- positioning data processing module ***4***,
- module of accelerometers ***5***,
- the second power supply source ***6***.

[0006] Evidently the invention can be developed by mean of numerous modifications of the practical-applicative nature anyway, without exit from the environment of the invention claimed here below.

Claims

1. Device of registration, by closed circuit, of vehicle information, aimed to execute the following functions:
   - capturing, processing and registration, in internal memory, of the information coming from sensors and from equipment of the vehicle;
   - registration, in internal memory, of information coming from incorporated accelerometer (overcharges and impacts on three spatial axes);
   - protection from mechanical and thermo impacts and conservation of the deposited information, in the case of accident or catastrophe of the vehicle;
   - reading of the information using a notebook and unequivocal reconstruction with graphic representation by mean of a PC simulator which permits the visualization of all the movements of the vehicle before and during the accident;
   - technical state diagnostics of the vehicle at the moment of the accident or catastrophe;
   - registration of geographic position of the vehicle and of astronomic time of the accident.

2. The device as described in Claim 1, using a memory cell protected from the following destructive factors: vibration, single and multiple strokes, linear and non-linear accelerations, high temperatures, acoustic noises, deep immersion, aggressive liquid action.

3. The device as described in Claim 1, **characterized by** the multiplicity of the data reading ports, for redundancy of access to registered data in the case of destructive detriment due to mechanical impacts or high temperature factors.

4. The device as described in Claim 1, **characterized by** the presence of a proper mechanism for the survey of mechanical impact on three spatial axes X, Y, Z for registration of dynamics of the impacts undergone by the vehicle before and during the accident of the catastrophe.

5. The device as described in Claim 1, **characterized by** the data registration from system GPS for documentation of the astronomic time and geographic position, before and during the accident of the catastrophe aimed to the next mapping between the dynamic data of positioning, the dynamic data of mechanical impact on three spatial axes and the information captured from the vehicle's equipment.

6. A System of reading of the vehicle information based on a computer simulator of the vehicle which permits the visualization of all the movements of the vehide before and during the accident of the catastrophe.

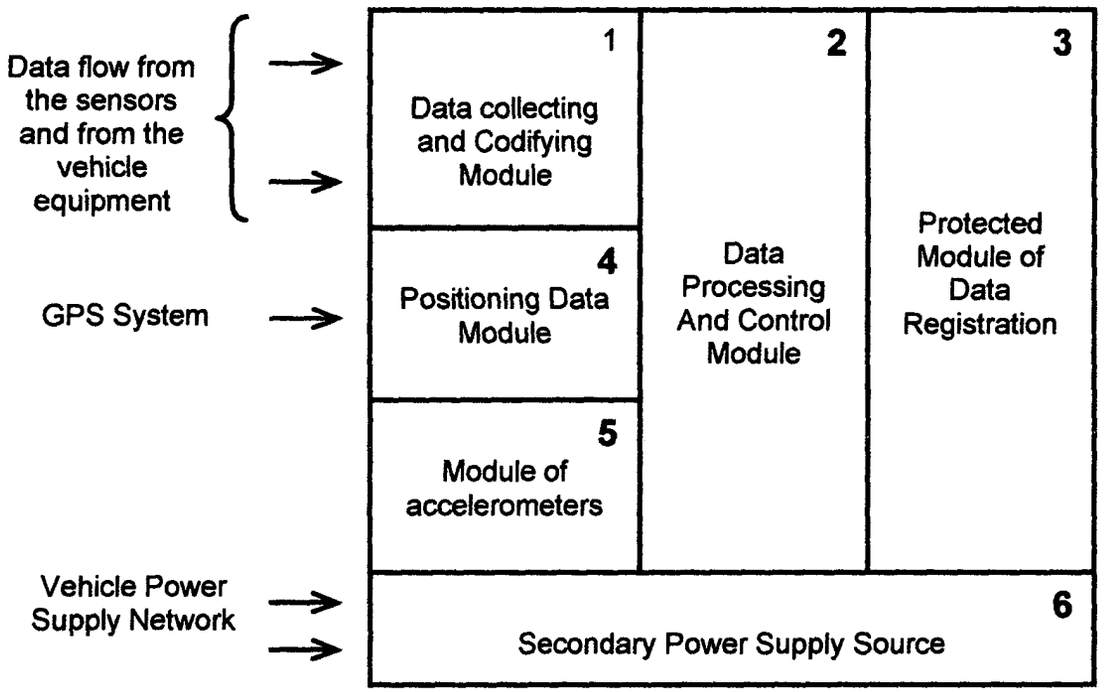

Fig. 1 Principal Structure of the Device in subject