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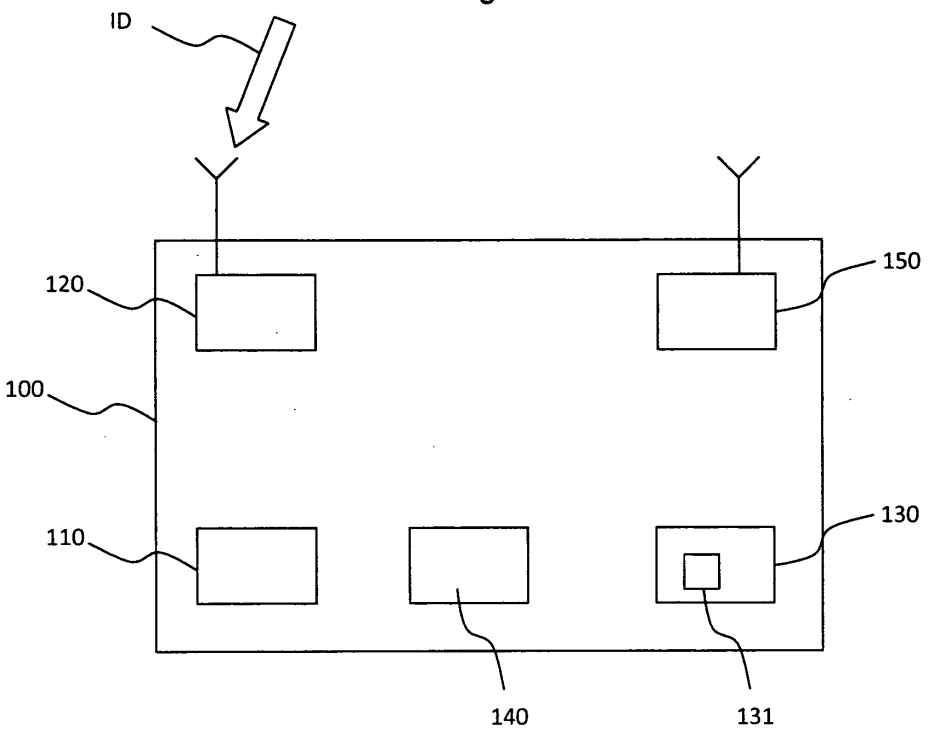
(54) Recording device and method of operating a recording device

(57) The invention relates to a recording device (100) for recording data, particularly accident-related data of a person and/or a vehicle involved in an accident, said recording device (100) comprising storage means (110) for storing said data.

The inventive recording device (100) is characterized by comprising receiving means (120) for receiving data, preferably identification data (ID), from at least one further device (100', 200) external to said recording device (100), and by being configured to at least temporarily store received data (ID) to said storage means (110).

Fig. 1



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Description

[0001] The present invention relates to a recording device for recording data, particularly accident-related data of a person and/or a vehicle involved in an accident, said recording device comprising storage means for storing said data.

[0002] The present invention further relates to a method of operating such recording device.

[0003] Data recording devices of the aforementioned type are widely used. For example, airplanes are equipped with flight data recorders which record important parameters characterizing an operating condition of the airplane.

[0004] It is also already known to provide motor vehicles with data recorders, especially for logging vehicle speed, acceleration and operating parameters of the vehicle's engine. The data collected by these prior art systems can be used to for accident analysis.

[0005] However, the known systems only enable a reconstruction of the course of an accident as far as a specific vehicle equipped with the data recorder is concerned. Disadvantageously, contemporary data recording systems do not enable to gather information related to further parties or vehicles, respectively, which are involved in an accident. Such data, however, would be very useful for e.g. identifying a person that has caused an accident.

[0006] Thus, it is an object of the present invention to provide an improved recording device and operating method of the above mentioned type that enables to, preferably automatically, i.e. without human intervention, gather information related to further parties or vehicles involved in an accident.

[0007] According to the present invention, regarding the above mentioned recording device, this object is achieved by receiving means for receiving data, preferably identification data, from at least one further device external to said recording device, and by said recording device being configured to at least temporarily store received data to said storage means.

[0008] The inventive receiving means advantageously enable the recording device to gather data related to further devices, wherein said data preferably comprises identification data that allows to identify the further device or a person using said device. By evaluating the identification data stored in said storage means, a user of the inventive recording device may precisely determine the devices and users of said devices that were involved in a particular accident.

[0009] In addition to said data related to further devices, the inventive recording device may also record local parameters such as physical variables locally determined by said recording device or provided by a target system comprising the recording device, e.g. a car. This configuration of the inventive recording device allows for precise reconstruction of accidents or other incidents.

[0010] According to an advantageous embodiment of the present invention, a selective recording of relevant data can be achieved by providing said recording device with accident detection means configured to detect an accident condition in which the recording device and/or the further device or a respective user thereof is involved.

[0011] An output signal of said accident detection means may advantageously be used to trigger a process of storing data received from said further device. In this case, received data is preferably stored to a non-volatile memory.

[0012] By defining an appropriate activation threshold for the inventive accident detection means, a user of the inventive recording device can control the amount of data stored by the storage means.

[0013] According to a further advantageous embodiment of the present invention, a high degree of flexibility regarding the gathering of data related to said further device is attained by said receiving means being configured to receive said identification data from said further device by means of at least one

- radio frequency, RF, transmission channel and/or an
- optical transmission channel and/or an
- acoustic transmission channel.

[0014] The appropriate configuration for the inventive receiving means is to be chosen depending on the desired range for data transmissions between the inventive recording device and the at least one further device. A further criterion is the preferred implementation of data transmission mechanisms in said further devices.

[0015] For instance, if it is preferred to configure common mobile phones or personal digital assistants (PDAs) to transmit a radio frequency identification signal suitable for being recorded by the inventive recording device, the receiving means should be equipped with a corresponding RF receiver.

[0016] Alternatively or in addition to said RF receiver, optical and/or acoustic receiver means may also be provided in the inventive recording device to increase its capabilities of gathering identification data.

[0017] A particularly preferred embodiment of the present invention is **characterized in that** said recording device is configured to communicate with said at least one further device, particularly to exchange identification data, by means of a wireless network, preferably an ad-hoc network according to at least one of the IEEE 802.11 (x) and/or IEEE 802.15.y standards.

[0018] As soon as two devices are sufficiently close together to form an ad-hoc network, e.g. according to IEEE 802.11g standard, the devices may inter alia exchange identification data that identifies the respective devices.

[0019] Such identification data may e.g. be formed by a media access control, MAC, address of the involved devices.

[0020] The inventive data gathering by means of standardized ad-hoc network techniques is very advantageous because the only requirement for the further device to be compatible with the inventive data recording device is that it conforms to the respective IEEE standard supported by the inventive recording device.

[0021] The inventive recording device may for instance be configured to conform to one or more of the following standards:

IEEE 802.11, IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, IEEE 802.11p, IEEE 802.15.1, IEEE 802.15.2, IEEE 802.15.3, IEEE 802.15.4.

[0022] Generally, any RF based communications technique, which enables to form ad-hoc networks or any other type of ad-hoc data exchange, may be employed by the inventive recording device.

[0023] As already mentioned above, optical and/or acoustic transmission channels may also be employed to exchange data with the inventive recording device. It is also possible to enable a data exchange between the recording device and the at least one further device by establishing an electrically conductive contact between said devices and by using high frequency signals transmitted via said conductive contact, in contrast to free space RF transmission, so as to exchange information.

[0024] According to a further advantageous embodiment of the inventive recording device, said accident detection means are configured to determine said accident condition depending on

- a signal propagation delay of signals exchanged between said recording device and said at least one further device, and/or
- a signal strength of a signal associated with received data, and/or
- a Doppler shift of a received signal, and/or
- a velocity and/or acceleration of said recording device.

[0025] For instance, if the inventive recording device communicates with said further device in the context of an IEEE 802.11g ad-hoc network, signal propagation delays of the respective underlying RF transmissions can be analyzed by the inventive recording device or its accident detection means, respectively. From these delays, e.g. a distance between the two devices may be derived, and if said distance falls below a predetermined threshold, it can be concluded that a collision of said devices will occur. Thus, an impending accident may be detected based on an evaluation of RF signals of the ad-hoc network communication.

[0026] By additionally considering the Doppler shift of received RF signals, a relative speed of the possibly colliding devices may be determined which also contributes to a precise assessment of an impending accident.

[0027] The velocity and/or acceleration of the inventive recording device may be determined by using a respective sensor, which is preferably integrated into the recording device or its accident detection means. According to a further preferred embodiment of the present invention, the acceleration of the inventive recording device is evaluated to determine an accident condition.

[0028] It is also possible to add further sensors to the inventive accident detection means, for example a pressure sensor and/or a capacitive or inductive proximity sensor and/or an orientation sensor.

[0029] According to a further advantageous embodiment of the present invention, said recording device further comprises transmission means configured to transmit data, preferably identification data, from said recording device to said further device. This way, two inventive recording devices can operate together for data gathering in the sense of the present invention.

[0030] While a data transmission implementation according to the above mentioned IEEE standards guarantees that devices conforming to said standards can communicate with each other for exchanging identification data and further data, the inventive transmission means advantageously enable to transmit identification data to a recording device even without using ad-hoc networks.

[0031] A further embodiment of the present invention is characterized by position determining means, particularly a global positioning system, GPS, receiver so that the inventive recording device can determine its position. The determined position may also be stored in the recording device, preferably together with associated identification data of further devices that have been received at respective positions.

[0032] Another very advantageous embodiment of the inventive recording device is characterized by signalling means configured to signal a detected accident condition to an external device, e.g. an emergency station.

[0033] In contrast to the inventive receiving and transmitting means for exchanging identification data, which primarily rely on e.g. short-range RF communication such as according to IEEE 802.11g, the inventive signalling means preferably employ data transmission mechanisms based on cellular radio networks such as the GSM (Global System for Mobile communications) or UMTS (Universal Mobile Telecommunications System) systems and/or any other third generation mobile telephony standard.

[0034] This configuration enables the inventive recording device to signal any accident or impending accident to a remote device by means of an emergency call. Of course, apart from signalling accident conditions, the data transmission capabilities of the signalling means may also be employed to exchange data with further remote devices such as personal computers connected to a public Internet or the like. The data transmission capabilities

of the signalling means may also be used for backup purposes to copy any data stored locally within said recording device to further systems.

[0035] Yet a further embodiment of the present invention proposes that the signalling means be configured to emit a beacon signal, for example an RF beacon signal or an optical beacon signal. This advantageously simplifies to locate the inventive recording device.

[0036] The inventive recording device may advantageously be integrated in a conventional mobile phone or a personal digital assistant or a netbook computer or the like, which enables a user of the mobile phone / further device to take advantage of the above explained data recording functionality.

[0037] The inventive mobile phone may e.g. be used to record and store identification data of several persons involved in a traffic accident, wherein the recording advantageously operates without manual intervention, i.e. automatically. An integrated WLAN- or Bluetooth- interface of the mobile phone may be used for the inventive receiving of identification data from other mobile phones around the accident scene. The identification data may e.g. comprise information stored on a subscriber identification module, SIM, card of the mobile phones.

[0038] The inventive recording device may also be used for gathering identification data of persons involved in skiing accidents or other incidents where it is generally difficult to determine the identity of involved persons afterwards. Thus, by using the inventive recording device, it is possible to identify individuals involved in accidents that have left the scene without identifying themselves actively.

[0039] Moreover, by means of the inventive signalling functionality, it is possible to notify an emergency station of a detected accident. Such notification may also comprise position information or further information measured and/or determined by the inventive recording device. For instance, when signalling an accident, information on determined accelerations and velocities, particularly a relative velocity of colliding devices or persons, respectively, may also be transmitted to the emergency station which enables to refine any measures taken in response to the emergency signalling.

[0040] As a further solution to the object of the present invention, a method according to claim 13 is provided. Advantageous embodiments of the inventive method are given by the dependent claims.

[0041] Further features, aspects and advantages of the present invention are presented in the following detailed description with reference to the drawings in which:

Fig. 1 depicts a schematic block diagram of a recording device according to the present invention,

Fig. 2 depicts a mobile phone with an integrated recording device,

Fig. 3 depicts a typical accident scenario in which the inventive recording device can be used, and

Fig. 4 depicts a flow chart of an embodiment of the inventive method.

[0042] Fig. 1 depicts a schematic block diagram of a first embodiment of the inventive recording device 100. The recording device 100 is configured to record identification data ID of at least one further device (not shown), and may e.g. be used to gather information indicative of an identity of a user of the further device.

[0043] The functionality of the inventive recording device 100 is particularly advantageous for documenting identification data of one or more persons who are involved in an accident or some other incident which requires the identity of persons involved to be recorded. Identification data so documented may later on be evaluated by a user of the inventive recording device 100.

[0044] Typical applications of the inventive recording device 100 comprise documentation of persons involved in traffic accidents. Another important field of application is the recording of identification data of persons involved in skiing accidents since the number of skiing accidents per year is considerable (e.g. about 70,000 cases in the United States and about 70,000 cases in Switzerland).

[0045] Once an accident has happened, in most cases it is of utmost importance to promptly supply medical first aid. For this purpose, especially in the context of skiing accidents, it is a prerequisite to be able to precisely locate the injured person, even without support and/or initiative of the injured person. In contrast to traffic accidents, which usually involve several persons, at least some of which are willing and able to notify an emergency doctor and give details regarding the location of the accident scene, the location of skiing accidents and other sports accidents often is difficult to describe. If there are only two persons involved in such a skiing accident and the person that has caused the accident flees from the accident scene, there is a certain risk that an injured person who cannot call help on own initiative cannot be located in time.

[0046] Apart from gathering identification data, the aforementioned problems of locating an accident scene, and notifying an emergency service may also be solved by the inventive recording device 100 the functionality of which is disclosed in detail below.

[0047] The inventive recording device 100 comprises storage means 110 for storing data, which can generally be used to store any data that is handled by the recording device 100. Primarily, said storing means 110 are used to store collected identification data ID of further devices and respective users. However, sensor data obtained by sensors integrated in the recording device 100 and the like may also be stored therein.

[0048] The storage means 110 may comprise one or more sections of non-volatile memory such as EEPROM memory. The storage means 110 may also comprise one or more sections of volatile memory such as random ac-

cess memory, RAM. The storage means 110 may e.g. be implemented in a processing unit such as a microprocessor and/or a microcontroller and/or a digital signal processor, DSP, and/or a programmable logic circuit such as an FPGA (field programmable gate array) which can control the operation of the inventive recording device 100 in a per se known manner.

[0049] According to an advantageous embodiment of the present invention, the inventive recording device 100 is implemented in a conventional mobile phone 300, cf. Figure 2, which is suitable for communications within GSM and/or UMTS or other cellular networks. In this case, the functionality of the inventive recording device 100 may at least partly be realised by modifications to the firmware of the conventional mobile phone 300.

[0050] This embodiment is particularly advantageous for use in relation to sports accidents, because in most cases persons that may get involved in sports accidents such as skiing accidents at least carry their mobile phone 300 with them so that the inventive functionality is available when it is needed.

[0051] The inventive recording device 100 may also be integrated into other electronic devices such as PDAs, notebook/netbook computers, electronic devices of motor vehicles, but also stationary devices which may e.g. be provided at public places with high traffic volume to record the identity of persons passing said places.

[0052] Depending on the target system for implementation of the inventive recording device 100, a major part of the device's functionality may be implemented by software programs or firmware, respectively, instead of dedicated hardware.

[0053] The inventive recording device 100 also comprises receiving means 120, cf. Figure 1, for receiving data, preferably identification data ID, from at least one further device external to said recording device 100.

[0054] For this purpose, the receiving means 120 may be configured to receive said identification data ID from said further device by means of at least one radio frequency, RF, transmission channel and/or an optical transmission channel and/or an acoustic transmission channel.

[0055] In the present case, the inventive recording device 100 comprises receiving means 120 configured to receive data ID via an RF transmission channel which is indicated by the antenna symbol connected to the receiving device 120.

[0056] Optical and acoustic data transmission channels may also be used. For instance, the receiving means 120 may be configured to implement the functionality of an optical IrDA (Infrared Data Association) transceiver for data exchange and collection.

[0057] Acoustic data transmission channels may e.g. comprise using ultrasonic signals or structure-borne sound signals, which is possible if the inventive recording device 100 is in direct contact with the further device from which data is to be collected. Acoustic data transmission may also advantageously be used for underwater systems so that the inventive principle can also be used for boating and diving sports and the like.

[0058] The inventive receiving means 120 may be configured to support more than one of the aforedescribed types of data transmission channels.

[0059] According to one embodiment of the present invention, the inventive recording device 100 comprises accident detection means 130 configured to detect an accident condition in which the recording device 100 and/or the further device or a respective user thereof is involved. This advantageously enables to control an operation of the recording device 100 depending on whether an accident has happened or not.

[0060] For instance, the accident detection means 130 may comprise an acceleration sensor 131 to measure an acceleration of the recording device 100. If the signal obtained from the acceleration sensor 131 corresponds to high acceleration values, it can be concluded that an accident has happened. Insofar, the functionality of the accident detection means 130 e.g. corresponds with conventional systems known from electronic control units for airbags or other vehicle safety systems.

[0061] Generally, said accident detection means 130 can also be configured to determine said accident condition depending on

- a signal propagation delay of signals ID (Figure 1) exchanged between said recording device 100 and said at least one further device, and/or
- a signal strength of a signal ID associated with received data, and/or
- a Doppler shift of a received signal, and/or
- a velocity and/or acceleration of said recording device 100.

[0062] A particularly preferred embodiment of the present invention is **characterized in that** said recording device 100 is configured to communicate with said at least one further device, particularly to exchange identification data, by means of a wireless network, preferably an ad-hoc network according to at least one of the IEEE 802.11(x) and/or IEEE 802.15.y standards.

[0063] For this purpose, the inventive receiving means 120 are equipped with respective transceivers. In the case of integration of said recording device 100 into conventional mobile phones 300, respective transceivers already installed in the mobile phone 300 may be used, preferably WLAN and/or Bluetooth capable transceivers.

[0064] A typical accident scenario for application of the present invention is depicted by Figure 3.

[0065] Figure 3 shows three devices 100, 100', 200, each of which is associated to a respective person involved in a skiing accident in which the persons collided with each other. For the sake of clarity, the persons carrying the devices 100, 100', 200 are not depicted by Fig-

ure 3.

[0066] Due to the accident condition, all three devices 100, 100', 200 are comparatively close together with a respective distance of e.g. some meters so that an ad-hoc network can be established between said devices 100, 100', 200.

[0067] The first device 100 and the second device 100' are configured in accordance with the present invention, cf. Figure 1, and are preferably integrated into a conventional mobile phone 300 (Figure 2) of the respective user. The third device 200 is not configured according to the present invention in that it does not implement the functionality of the inventive recording device 100, Figure 1. Nevertheless, the third device 200 also supports ad-hoc networking in a fashion compatible to the devices 100, 100'. The third device may e.g. be a conventional PDA or a netbook computer carried by its user in a rucksack or the like.

[0068] Thus, since the three devices 100, 100', 200 are sufficiently close together, they form an ad-hoc network, e.g. according to IEEE 802.11g standard. The respective RF communication is symbolized by the arrows 10 in Figure 3.

[0069] The inventive recording device 100, 100' may alternatively or additionally be configured to conform to one or more of the following standards:

> IEEE 802.11, IEEE 802.11a, IEEE 802.11b, IEEE 802.11n, IEEE 802.11p, IEEE 802.15.1, IEEE 802.15.2, IEEE 802.15.3, IEEE 802.15.4.

[0070] Generally, any RF based communications technique, which enables to form ad-hoc networks 10, may be employed by the inventive recording device 100, 100'.

[0071] The ad-hoc network 10 enables said devices 100, 100', 200 to exchange data with each other. Particularly, the inventive recording devices 100, 100' receive identification data from each other and from said netbook 200.

[0072] Identification data may e.g. be represented by MAC addresses involved in the IEEE 802.11g ad-hoc networking. Identification data may further be represented by International Mobile Subscriber Identity (IMSI) data comprised within a Subscriber Identity Module (SIM) card of the mobile phones 300 in which the inventive recording devices 100, 100' are integrated. Any other data suitable to identify the devices 100, 100', 200, 300 or their users involved in the accident may also be exchanged via the ad-hoc network 10.

[0073] The inventive recording devices 100, 100' at least temporarily store said received identification information for later use, which is useful for identifying e.g. the user of the netbook 200 if he flees from the accident scene without explicitly leaving his identity information to the other persons involved in the accident.

[0074] The inventive recording device 100, 100' is preferably configured to store or make a backup copy of temporarily stored received identification data upon detection of an accident condition so that said data is available for later evaluation even if the contents of the volatile memory used for temporary storage are lost in the meantime. The data backup can make use of a non-volatile memory of the recording device 100.

[0075] A further very important aspect of the inventive recording device 100, 100' is concerned with emergency signalling as already alluded to above. According to a further embodiment of the present invention, the recording device 100 is equipped with signalling means 150, cf. Figure 1, wherein said signalling means 150 are configured to signal a detected accident condition and/or an impending accident condition or other e.g. user-defined events to an external device, particularly to an emergency station 350 (Figure 3).

[0076] When integrating the inventive recording device 100 into a conventional GSM / UMTS capable mobile phone 300 (Figure 2), the inventive signalling means 150 can advantageously be realised by the GSM / UMTS communication means of the mobile phone 300. In this case, the inventive signalling means 150 may signal an accident condition by means of a short message service (SMS) or a GSM / UMTS phone call or a respective data connection.

[0077] This configuration enables the inventive recording device 100 to signal any accident or impending accident to a remote device 350 by means of an emergency call. Of course, apart from signalling accident conditions, the data transmission capabilities of the signalling means 150 may also be employed to exchange data with further remote devices 350 such as personal computers connected to a public Internet or the like. The data transmission capabilities of the signalling means 150 may also be used for backup purposes to copy any data stored locally within said recording device 100 to further systems.

[0078] The inventive signalling means 150 advantageously enable a prompt notification of emergency medical services which may e.g. be coordinated by the emergency station 350. The signalling data transmission, which may e.g. be a conventional UMTS phone call, is depicted by arrow 15 of Figure 3.

[0079] A further embodiment of the present invention is characterized by position determining means 140, cf. Figure 1, particularly a global positioning system, GPS, receiver 140 so that the inventive recording device 100 can determine its position. The determined position may also be stored in the recording device 100, preferably together with associated identification data of further devices 100', 200 that have been received at respective positions.

[0080] Alternatively or additionally, the position determining means 140 may evaluate GSM / UMTS radio communication of said signalling means 150 to at least roughly determine the position, for instance a specific radio cell or cell sector the recording device 100 is currently located at.

[0081] Yet a further embodiment of the present inven-

tion proposes that the signalling means 150 be configured to emit a beacon signal 20 (Figure 3), for example an RF beacon signal or an optical beacon signal. This advantageously enables an emergency service team to more easily locate the inventive recording device 100 and its user.

[0082] Fig. 4 depicts a flow chart of an embodiment of the inventive method.

[0083] In a first step 400, the inventive recording device 100 joins an ad-hoc network 10 with one or more other devices 100', 200 (Figure 3) by means of its receiving means 120 which are for example configured to conform to the IEEE 802.15.1 standard, a widely used implementation of which is the Bluetooth system. This ad-hoc networking is possible since the persons carrying the devices 100, 100', 200 are in direct proximity to each other, because they have collided with each other in a skiing accident. This accident condition is detected by accident detection means 130.

[0084] In a second step 410, the recording device 100 receives identification data from at least one further device 100', 200 via the ad-hoc network 10.

[0085] In the third step 420, the inventive recording device 100 stores said received identification data to a non-volatile memory.

[0086] In the following step 430, at least one recording device 100 involved in the skiing accident evaluates measured velocities and accelerations of said recording device 100 that have been sampled or determined during the skiing accident. If, for example, the evaluated velocities and/or accelerations exceed predetermined threshold values, it is concluded that a severe accident, which is e.g. characterized by high impact energies of the involved persons, has happened.

[0087] After that, in step 440, the recording device 100 determines its location, preferably by using an integrated GPS receiver 140.

[0088] Still in step 440, the inventive recording device 100 uses a GSM interface 150 (Figure 1) of the mobile phone 300 (Figure 2) into which it is integrated in order to make an emergency call to the emergency service centre 350. In addition to a mere emergency notification, the emergency call, which may also be performed via an SMS, comprises information on the location of the accident scene and/or the identification data of the involved devices 100, 100', 200 or their users, respectively, and/or accident detail data such as involved impact velocities and/or accelerations which enables an emergency team to offer an improved emergency response.

[0089] Finally, in step 450 of the inventive method, while the persons involved in the accident are waiting for the emergency team to arrive, the signalling means 150 emit a beacon signal 20 (Figure 3), for example an RF beacon signal and/or an optical beacon signal. This advantageously enables the emergency team to more easily locate the inventive recording device 100 and its user.

[0090] The RF beacon signal 20 may comprise conventional GSM /UMTS communication steps such as simply maintaining an RF link to a base station or periodically sending short messages and the like. Alternatively, the RF beacon signal can have a special modulation pattern and/or frequency range which enables to easily locate its source 100.

[0091] Although the inventive recording device 100 is preferably portable or even integrated into conventional portable devices such as mobile phones 300, PDAs, netbook computers to ensure that persons can easily carry it while e.g. skiing, it is also possible to integrate the recording device 100 into motor vehicles such as cars, boats and the like.

[0092] It is also possible to provide the inventive recording device 100 in form of a stationary configuration, for instance at a street crossing, integrated into a speed trap for monitoring vehicle speeds. These stationary applications primarily employ the possibility to easily gather identification data by means of the inventive ad-hoc network communication.

[0093] For mobile applications 300 of the inventive system, the further inventive aspect of emergency signalling with or without providing position information is equally important, because it enables to automatically get aware of and locate persons involved in an accident even outside of densely populated urban areas.

[0094] The inventive recording device 100 and its communications capabilities may also be employed to actively provide identification data to other systems such as billing systems and access control systems of ski lifts.

Claims

1. Recording device (100) for recording data, particularly accident-related data of a person and/or a vehicle involved in an accident, said recording device (100) comprising storage means (110) for storing said data, **characterized in that** said recording device (100) comprises receiving means (120) for receiving data, preferably identification data (ID), from at least one further device (100', 200) external to said recording device (100), and **in that** said recording device (100) is configured to at least temporarily store received data (ID) to said storage means (110).

2. Recording device (100) according to claim 1, **characterized by** accident detection means (130) configured to detect an accident condition in which the recording device (100) and/or the further device (100') or a respective user thereof is involved.

3. Recording device (100) according to claim 2, **characterized in that** said recording device (100) is configured to store data (ID) received from said further device (100') to a non-volatile memory upon detection of an accident condition.

4. Recording device (100) according to one of the pre-

ceding claims, wherein said receiving means (120) are configured to receive said identification data (ID) from said further device (100') by means of at least one

- radio frequency, RF, transmission channel and/or an
- optical transmission channel and/or an
- acoustic transmission channel.

5. Recording device (100) according to one of the preceding claims, wherein said recording device (100) is configured to communicate with said at least one further device (100'), particularly to exchange identification data (ID), by means of a wireless network, preferably an ad-hoc network according to at least one of the IEEE 802.11x and/or IEEE 802.15.y standards.

6. Recording device (100) according to one of the claims 2 to 5, wherein said accident detection means (130) are configured to determine said accident condition depending on

- a signal propagation delay of signals exchanged between said recording device (100) and said at least one further device (100'), and/or
- a signal strength of a signal associated with received data (ID), and/or
- a Doppler shift of a received signal, and/or
- a velocity and/or acceleration of said recording device (100).

7. Recording device (100) according to one of the claims 2 to 6, wherein said accident detection means (130) comprise an acceleration sensor (131) and/or a velocity sensor and/or a pressure sensor and/or a capacitive or inductive proximity sensor and/or an orientation sensor.

8. Recording device (100) according to one of the preceding claims, wherein said recording device (100) further comprises transmission means (125) configured to transmit data, preferably identification data (ID), from said recording device (100) to said further device (100').

9. Recording device (100) according to one of the preceding claims, **characterized by** position determining means (140), particularly a global positioning system, GPS, receiver, to determine its position, wherein said recording device (100) is preferably configured to also store determined position information.

10. Recording device (100) according to one of the preceding claims, **characterized by** signalling means (150) configured to signal a detected accident condition and/or an impending accident condition to an external device, particularly to an emergency station (350).

11. Recording device (100) according to claim 10, **characterized in that** said signalling means (150) are configured to emit a beacon signal (20).

12. Mobile phone (300) comprising a recording device (100) according to one of the preceding claims.

13. Method of operating a recording device (100) for recording data, particularly accident-related data of a person and/or a vehicle involved in an accident, wherein said data is stored to storage means (110), **characterized by** receiving (410) data, preferably identification data (ID), from at least one further device (100', 200) external to said recording device (100) via receiving means (120), and by at least temporarily storing (420) received data (ID) to said storage means (110).

14. Method according to claim 13, **characterized by** receiving said identification data (ID) from said further device (100') via at least one

- radio frequency, RF, transmission channel (300) and/or an
- optical transmission channel and/or an
- acoustic transmission channel.

15. Method according to one of the claims 13 to 14, **characterized in that** said recording device (100) communicates with said at least one further device (100'), particularly to exchange identification data (ID), by means of a wireless network, preferably an ad-hoc network according to at least one of the IEEE 802.11x and/or IEEE 802.15.y standards.

16. Method according to one of the claims 13 to 15, **characterized by** detecting an accident condition in which the recording device (100) and/or the further device (100') or a respective user thereof is involved, wherein said accident condition is preferably determined depending on

- a signal propagation delay of signals exchanged between said recording device (100) and said at least one further device (100'), and/or
- a signal strength of a signal associated with received data (ID), and/or
- a Doppler shift of a received signal, and/or
- a velocity and/or acceleration of said recording device (100).

17. Method according to one of the claims 13 to 16, **char-**

acterized by signalling (440) a detected accident condition and/or an impending accident condition to an external device, particularly to an emergency station (350).

18. Method according to one of the claims 13 to 17, **characterized by** emitting (450) a beacon signal (20) enabling a third party to locate said recording device (100).

Fig. 1

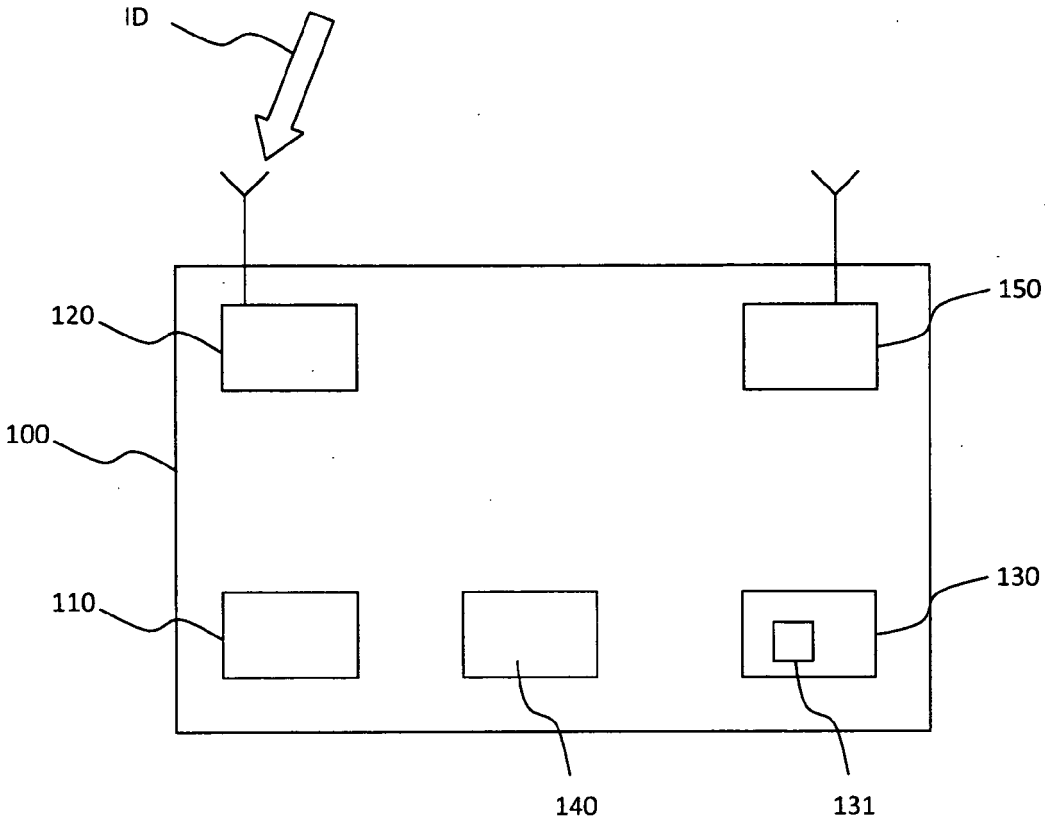


Fig. 2

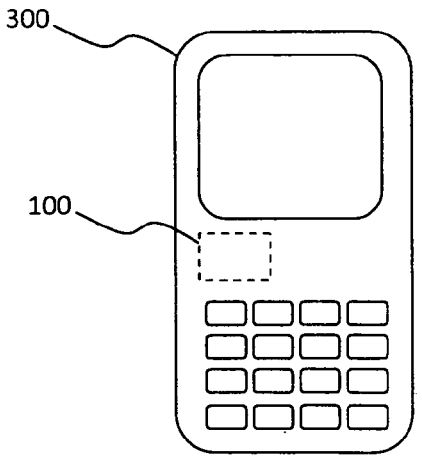


Fig. 3

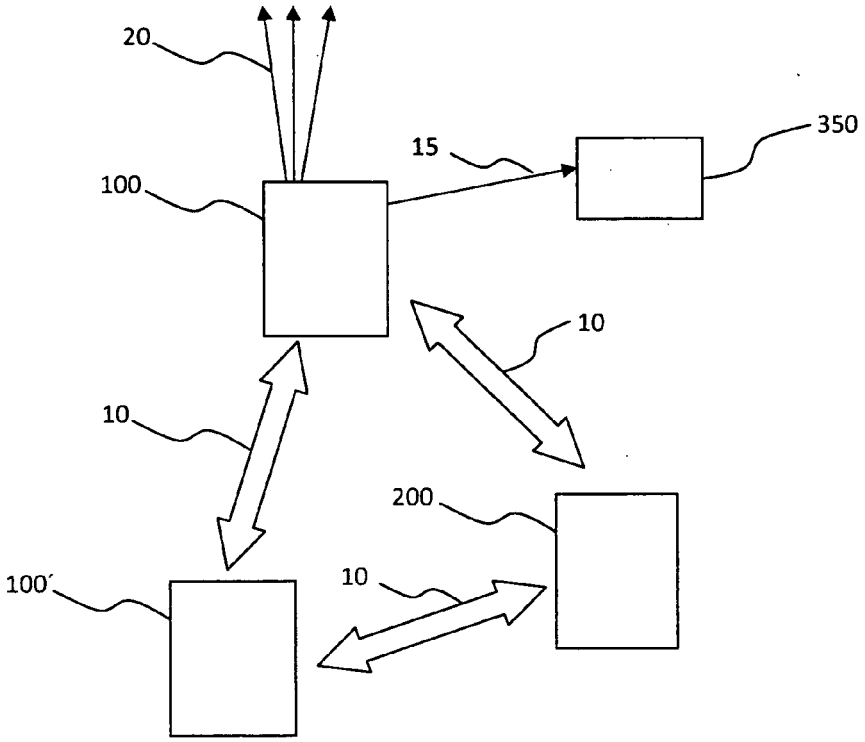
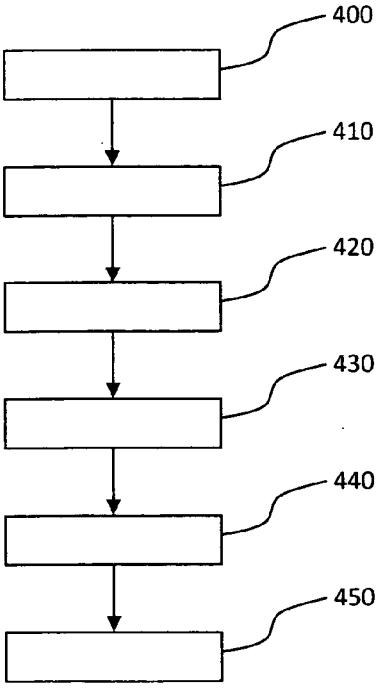


Fig. 4



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Application Number
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	2 December 2009	Paraf, Edouard

CATEGORY OF CITED DOCUMENTS

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