The present invention relates to a medical-incident response-vehicle system. The system includes a handheld communications device for generating a medical incident alarm to be sent over a data communications network. The alarm includes a location of the device. The system also includes a monitoring station for receiving the medical incident alarm. An incident response vehicle is deployed on instructions from the monitoring station to the location of the device. Optionally, novel mapping features are provided which greatly assist in the response.
A COMMUNICATIONS SYSTEM

TECHNICAL FIELD

[0001] The present invention generally relates to a communications system. In particular, the present invention generally relates to a medical-incident response-vehicle system. The present invention has particular, although not exclusive application to deploying response-vehicles to Australian travelers in foreign countries that are encountering medical-incidents.

BACKGROUND

[0002] The reference to any prior art in this specification is not, and should not be taken as an acknowledgement or any form of suggestion that the prior art forms part of the common general knowledge.

[0003] Australians are widely travelled owing in part to our multicultural society and isolated geographic location. Perhaps owing to our isolation, many Australians do not speak a foreign language and are at a distinct disadvantage during misfortune incidents in countries where English is not the native language. In the event of medical incidents in such countries, the consequences of miscommunication can be dire.

[0004] During a medical emergency, a travelling Australian must firstly summon an emergency services vehicle (e.g. ambulance), which can prove difficult not only owing to the language barrier, but owing to the scarcity of such government vehicles in developing countries and especially in remote locations.

[0005] It is uncommon for foreign paramedics to speak English, and therefore vital information from a patient is often miscommunicated, or not communicated at all, to the paramedic. Furthermore, a similar situation later awaits the Australian patient as foreign hospital staff, including doctors, often have difficulty communicating with the patient. Furthermore, the patient may no longer be conscious by the time the hospital is reached even if someone on staff speaks English.
The preferred embodiment provides improvements in deploying response-vehicles to Australian travelers in foreign countries that are encountering medical-incidents. The preferred embodiment is also useful for domestic applications.

SUMMARY OF THE INVENTION

According to one aspect of the present invention, there is provided a medical-incident response-vehicle system including:

- a hand-held communications device for generating a medical incident alarm to be sent over a data communications network, the alarm including a location of the device;
- a monitoring station for receiving the medical incident alarm; and
- an incident response vehicle for being deployed on instructions from the monitoring station to the location of the device.

Preferably, the monitoring station and incident response vehicle are commercial entities, and not government entities. Advantageously, staff of the monitoring station and incident response vehicle may be bilingual, speaking English to communicate with a subscriber undergoing a medical incident as well as the foreign language of the country in which the subscriber is located to facilitate communication with hospital staff.

The device may include an actuator for a subscriber to actuate to generate the alarm. The actuator may be a pressing actuator. The actuator may include a safety mechanism to impede accidental actuation. The safety mechanism may include a receiver for receiving two or more inputs from a patient prior to actuation.

The system may include a medical facility for alerting of: the impending arrival of the response vehicle; or medical information of a subscriber associated with the device prior to arrival of the response vehicle. The medical information may include historical information or current condition information. Advantageously, the medical facility may be given advance warning of the medical incident to reduce critical time otherwise incurred in ascertaining such information at admission.

The monitoring station may include a subscriber database including subscriber records relating to subscribers of the system that may be potentially involved in the medical incident. Each subscriber record may include an identifier sent with the
alarm to identify a subscriber associated with the device, and any medical information of the subscriber. The system may include a secure server for storing the subscriber database.

[00012] The alarm may include an identifier of a subscriber associated with the device. The location may be determined using a GPS of the device. The vehicle may include an aircraft. The monitoring station may be able to voice communicate with the device (e.g. volP).

[00013] The device may include a display configured to display a map showing one or more points of interest to a subscriber undergoing a medical incident. The points of interest may include medical facilities (e.g. hospital) or emergency services facilities (e.g. police station).

[00014] The monitoring station may include two adjacent displays, namely a subscriber display for displaying subscriber information and a response display for concurrently displaying response information. The monitoring station may include at least one display configured to display a map. The map may show logged-in subscribers. The map may show each medical incident. The medical incidents may be distinguished based upon incident status. The display may show response vehicles. The response vehicles may be displayed on a map.

[00015] The system may include a WI-FI hotspot, cellular phone network or satellite communications network between the device and the monitoring station. Preferably, the data communications network includes the Internet,

[00016] The system may further include a response vehicle station for receiving deployment instructions from the monitoring station. The system may further include another response vehicle for coordinating with the response vehicle. The system may further include an employer for receiving updates of a subscriber from the monitoring station. The system may further include an insurer for approving deployment of the incident response vehicle.

[00017] According to another aspect of the present invention, there is provided a medical-incident response method including:
generating a medical incident alarm to be sent over a data communications network with a hand-held communications device, the alarm including a location of the device;

receiving the medical incident alarm at a monitoring station; and

the monitoring station instructing deployment of an incident response vehicle to the location of the device.

[00018] The method may involve a subscriber pressing an actuator to generate the alarm. The alarm may only be generated upon detection of two or more presses of the actuator (i.e. and not a single press).

[00019] The method may involve the device displaying a map showing one or more points of interest to a subscriber undergoing a medical incident.

[00020] The method may further involve alerting a medical facility of: the impending arrival of the response vehicle, or medical information of a subscriber associated with the device prior to arrival of the response vehicle.

[00021] The method may involve the device displaying a map showing one or more points of interest to a subscriber undergoing a medical incident. The method may involve the monitoring station displaying a map showing logged-in subscribers, each medical incident or response vehicles.

[00022] The method may involve a response vehicle station deploying the vehicle upon receipt of deployment instructions from the monitoring station. The method may involve coordinating another response vehicle with the response vehicle. The method may involve sending updates of a subscriber undergoing a medical incident. The method may involve an insurer approving deployment of the incident response vehicle.

[00023] The method may further involve the device placing a phone call to the monitoring station upon generation of the alarm. The method may further involve the step of the monitoring station generating a notification if the call is not received within a predetermined time of receiving the alarm.

[00024] According to another aspect of the present invention, there is provided a medical-incident response hand-held communications device, the device configured to:
generate a medical incident alarm, including a location of the device, to be sent over a data communications network to a monitoring station that deploys assistance to the location of the device.

[00025] According to another aspect of the present invention, there is provided a medical-incident response monitoring station, the monitoring station configured to:

- receive a medical incident alarm, including a location of a hand-held communications device, over a data communications network and from the device that generated the alarm; and
- deploy assistance to the location of the device.

[00026] According to another aspect of the present invention, there is provided a medical-incident response vehicle for deployment on instructions from the monitoring station to a location of a hand-held communications device that generated a medical incident alarm sent over a data communications network to the monitoring station, the alarm including the location of the device.

[00027] According to another aspect of the present invention, there is provided a medical-incident assistance method involving:

- a user undergoing a medical-incident generating a medical incident alarm to be sent over a data communications network with a hand-held communications device, the alarm including a location of the device; and
- receiving the medical incident alarm at a monitoring station.

[00028] Preferably, the method further involves the monitoring station providing assistance to a user of the hand-held communications device responsive to receipt of the alarm. The assistance may include deployment of a vehicle to the location. The assistance may include a map showing one or more points of interest (e.g. hospital) to the user.

[00029] The method may further involve the device placing a phone call to the monitoring station upon generation of the alarm. The method may further involve the step of the monitoring station generating a notification if the call is not received within a predetermined time of receiving the alarm. The method may further involve sending medical information of a subscriber associated with the device and to a medical facility.
The medical information may include historical information or current condition information.

[00030] According to another aspect of the present invention, there is provided a misfortune alarm system including a monitoring station, the monitoring station configured to:

- allocate a misfortune location based on a misfortune;
- monitor a hand-held communications device; and

generate an alarm when the monitored device is located proximal to the misfortune location.

[00031] The monitoring station may receive an indication of device battery life from the device. The monitoring station may display the indication. The monitoring station may put the device to sleep to save on battery life. The monitoring station may periodically wake-up the device to obtain the geographic location of the device.

[00032] The misfortune may include a natural disaster, regional disease outbreak or medical incident.

[00033] According to another aspect of the present invention, there is provided a misfortune alarm method including:

- allocating an misfortune location based on a misfortune;
- monitoring a hand-held communications device; and
- generating an alarm when the monitored device is located proximal to the misfortune location.

[00034] The method may involve deploying assistance to the misfortune location responsive to generating the alarm. The alarm may be sent to the hand-held communications device.

[00035] The method may involve receiving an indication of device battery life from the device. The indication may be displayed. The method may involve putting the device to sleep to save on battery life. The method may involve periodically waking-up the device to obtain the geographic location of the device.
The misfortune location may be a geographic area. The alarm may be generated when the device enters the area. The location of the device may be monitored using triangulation, WI-FI or GPS.

Any of the features described herein can be combined in any combination with any one or more of the other features described herein within the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred features, embodiments and variations of the invention may be discerned from the following Detailed Description which provides sufficient information for those skilled in the art to perform the invention. The Detailed Description is not to be regarded as limiting the scope of the preceding Summary of the Invention in any way. The Detailed Description will make reference to a number of drawings as follows:

Figure 1 is a schematic diagram of a medical-incident response-vehicle system according to an embodiment of the present invention;

Figure 2 is a flowchart showing a medical-incident response method using the system of Figure 2;

Figure 3 shows a home screen displayed by a hand-held device of the system of Figure 1;

Figure 4 shows an alarm generation screen displayed by a hand-held device of the system of Figure 1;

Figure 5 shows an emergency information screen displayed by a hand-held device of the system of Figure 1;

Figure 6 shows a subscriber display displayed at a monitoring station of the system of Figure 1;

Figure 7 shows a response display displayed at a monitoring station of the system of Figure 1; and
Figure 8 is a flowchart showing a misfortune alarm method using the system of Figure 2.

**DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS**

According to an embodiment of the present invention, there is provided a medical-incident response-vehicle system 100 for deploying a response vehicle 102 (e.g. land based vehicle or aircraft) to an Australian traveler 104 in a foreign country (e.g. India) that has encountered a medical-incident (e.g. broken ankle).

The system 100 includes a smartphone device 106 (i.e. hand-held communications device) for generating a medical incident alarm to be sent over a data communications network 108 including the Internet. The alarm includes a location of the device 106 determined using a GPS of the device 106, as well as a unique identifier associated with the traveler 104 and device 106.

The system 100 further includes a monitoring station 112 for receiving the medical incident alarm. The incident response vehicle 102, manned by a medical practitioner (e.g. doctor, paramedic, nurse, etc.) is deployed on instructions from the monitoring station 112 and to the location (e.g. Taj Mahal 110 in Agra, Uttar Pradesh, India) of the device 106 to immediately assist the traveler 104.

The traveler 104 is a subscriber to the privately operated system 100. The monitoring station 112 and incident response vehicle 102 may be private commercial entities, although in other embodiments may be government entities (e.g. such as the ambulance service). Advantageously, staff from both the monitoring station 112 and incident response vehicle 102 are bilingual, speaking English to communicate with the subscriber 104 undergoing a medical incident as well as the foreign language of the country (e.g. India) in which the subscriber 104 is located to facilitate communication with hospital staff.

The system 100 includes a medical facility (e.g. hospital) 114 for alerting of: the impending arrival of the response vehicle 102; and pertinent medical information of the subscriber 104 prior to arrival of the response vehicle 102. The medical information includes historical information (e.g. allergies, etc.) and current condition information (e.g. whether or not the subscriber 104 is conscious). Advantageously, the medical
facility 114 is given advance warning of the medical incident to reduce critical time otherwise incurred in ascertaining such information at admission to the facility 114.

[00052] The monitoring station 112 includes a subscriber database 116 including subscriber records relating to subscribers 104 of the system 100 that may be potentially involved in a medical incident. Each subscriber record includes a matching identifier (sent with the alarm as previously described) to identify the subscriber 104 associated with the device 106, and any medical information of the subscriber (e.g. allergies, current medication, etc.). The subscriber database 116 is stored on a secure server available to only authorized staff of the monitoring station 112.

[00053] The system 100 includes a WI-FI hotspot 118 and cellular phone network 120 between the device 106 and the monitoring station 112. A nurse at the monitoring station 112 is able to voice communicate with subscriber 104 using the device 106 (e.g. using VoIP) after receipt of the generated incident alarm. The system 100 may also include a satellite communication network (not shown) between the device 106 and the monitoring station 112.

[00054] The system 100 further includes a response vehicle station 122 for receiving deployment instructions from the monitoring station 112 upon receipt of the alarm. The subscriber 104 may be an employee of an employer 124 that has sent the subscriber overseas for work purposes. Accordingly, the employer 124 has a duty of care to the subscriber 104. The employer 124 can be reassured that immediate medical attention can be provided to its overseas staff, 24 hours a day and 7 days a week, by subscribing the staff to the system 100. The employer 124 receives electronic medical updates about the subscriber 104 from the monitoring station 112. The system 100 further includes an insurer 126 for approving deployment of the incident response vehicle 102 at the request of the monitoring station 112.

[00055] In the present embodiment, the smartphone device 106 includes a software application (i.e. App) to generate the alarm. The App is downloaded from a webserver hosted by the monitoring station 112. The App enables data and voice communications over the network 108, as detailed below.

[00056] A medical-incident response method 200 using the system 100 is now described with reference to the flowchart in Figure 2.
Initial at step 202, the device 106 displays a home screen 300 shown in Figure 3. The traveler 104 can login using the login prompts 302 if they are already a subscriber of the system 100.

Alternatively, the traveler 104 can create a new account using the new account prompts 304 and subscribe to the system 100. In particular, the device 106 prompts the subscriber to enter subscriber record information including name, password, address, phone number, employer information, travel insurance, health insurance, medical history, medications, allergies, and any other relevant personal information. The completed subscriber record is saved in the subscriber database 116. Further, a unique identifier is allocated to the subscriber 104 and device 106, and stored for matching with the stored record.

Once logged in at step 204, the device 106 displays an alarm generation screen 400 shown in Figure 4. The device 106 includes a displayed press-button actuator 402 for enabling the subscriber 104 to generate the alarm upon actuation. The actuator includes a safety mechanism to impede accidental actuation by the subscriber 104. In particular, the safety mechanism includes a receiver for receiving two or more button press inputs of the actuator 402, from the subscriber 104, prior to actuation. The alarm generation screen 400 is typically minimized in the background of the device 106.

At step 206, the subscriber 104 undergoes a medical incident (e.g. broken ankle). Accordingly, the subscriber 104 presses the actuator 402 and the device 106 generates the alarm. The alarm is electronically sent over the network 108. A confirmation receipt indicator 404, in the form of a progress bar, is displayed which confirms when the alarm is received by the monitoring station 112 (via an automated return receipt message sent by the monitoring station 112). The device 106 also places a phone call to the monitoring station 112 upon generation of the alarm.

At step 208, the monitoring station 112 electronically receives the generated alarm, and electronically sends the automated receipt. The device 106 then displays the emergency information screen 500 shown in Figure 5. The receipt indicator 404 is once again displayed showing a completed progress bar. A selectable first aid link 502 is displayed and can be actuated to download a viewable first aid booklet to the device 106. If the call from the device 106 is not received at the monitoring station 112 within a
predetermined time from receiving the alarm, the monitoring station automatically generates a notification alerting monitoring station staff to attempt to call the device 106.

[00062] The monitoring station 112 also automatically sends a selectable map link (not shown) to the device 106 based upon the known location of the device 106. Upon selection of the map link, the device 106 displays a map showing points of interest to the subscriber 104. The points of interest include nearby medical facilities (e.g. hospital) and emergency services facilities (e.g. police station).

[00063] At step 210, a nurse at the monitoring station 112 calls the device 106 and speaks with the subscriber 104 to ascertain the nature of the medical incident and medical condition of the subscriber 104.

[00064] The monitoring station 112 includes two adjacent displays, namely a subscriber display (Figure 6) for displaying subscriber information and a response display (Figure 7) for concurrently displaying response information. The adjacent positioning of these displays enables monitoring station staff to effectively co-ordinate the medical-incident response.

[00065] Turning to Figure 6, the subscriber map 600 shows subscriber icons 602 representing the location of logged-in subscriber devices 106, including the device 106 of the subscriber 104 undergoing the present medical incident. The map 600 can also show each medical incident by changing the color of the subscriber icon 602 on the map 600. Further, the icons 602 can be distinguished based upon incident status by color (e.g. RED for incident unattended, ORANGE for incident attended, GREEN for no incident etc.).

[00066] Turning to Figure 7, the response screen 700 shows response vehicle icons 702 representing respective logged response vehicles 102 with medical personnel. The vehicle icons 702 can be distinguished based upon vehicle status by color (e.g. RED for responding or attending, GREEN for available, etc.) The response screen 700 includes a history actuator 704 for viewing the response history; an assignment actuator 706 for assigning an available vehicle to a medical incident; a map actuator 708 for displaying a map (similar to map 600) showing the location of the response vehicles 102 (obtained from GPS messages sent to the monitoring station 112 from the vehicles), and which can also be displayed on map 600.
The staff at the monitoring station 112 can readily use the adjacent displays to select a suitable available response vehicle 102 to attend the injured subscriber 104 based upon criteria including proximity and vehicle attendant skills.

At step 212, the monitoring station 112 electronically sends a request for approving deployment of the suitable response vehicle to the insurer 126 based upon the insurance information stored in the database 116.

At step 214, upon electronic receipt of insurance approval, the monitoring station 112 electronically sends instructions for the response vehicle station 122 to deploy the vehicle 102 to attend the subscriber 104, and does so immediately.

At step 216, the monitoring station 112 electronically sends the medical facility 114 details of the impending arrival of the deployed response vehicle 102, and pertinent information (e.g. current medical condition, allergies, medications, etc.) of the subscriber 104 including information from the subscriber record in the database 116. Advantageously, hospital staff is in possession of the subscriber's pertinent medical record or file. The monitoring station nurse can talk with hospital staff in their native language to ensure that the best possible care is given to the arriving subscriber 104.

The monitoring station 112 can communicate with the patient 104 and staff of the vehicle 102 during transportation to receive updates on the status of the patient 104, which is of great advantage should the patient 104 later fall unconscious. In turn, these updates can be communicated to the hospital 114 in the native language.

At step 218, monitoring station 112 electronically sends medical updates of the subscriber 104 to the employer 124 based upon the employer information stored in the database 116.

Advantageously, the foregoing medical-incident response method 200 is greatly improved when compared with existing prior art response methods. The method 200 reduces delay for any medical incident by at least 10 man hours.

In the event of a misfortune, such as a natural disaster or regional disease outbreak, the monitoring station 112 can be configured to allocate a related geographic misfortune location based on the misfortune, and monitor the moving location of the
recreational traveler’s smartphone device 106 relative to the misfortune location. The monitoring station 112 generates an alarm when the monitored device 106 is located proximal to the misfortune location.

[00075] The monitoring station 112 also receives an indication of device battery life from the device 106 and displays the indication. If power is low, the monitoring station 112 can put the device 106 to sleep to save on battery life. Over time, the monitoring station 112 periodically wakes-up the device to obtain the geographic location of the moving device 112.

[00076] A misfortune alarm method 800 is now described with reference to Figure 8.

[00077] Initially at step 802, the monitoring station 112 is made aware of a regional disease outbreak and allocates an associated misfortune location based on the misfortune. The misfortune location is a geographic area, defined by geographic coordinates, such as a region of a city or state affected by the misfortune.

[00078] At step 804, the monitoring station 112 monitors the traveler’s device 106 relative to the misfortune location. The location of the device 106 can be monitored using triangulation, WI-FI or GPS.

[00079] At step 806, the monitoring station 112 generates an alarm when the monitored device 106 is located proximal to the misfortune location. In particular, the alarm is generated when the device 106 enters the geographic area.

[00080] At step 808, the monitoring station 112 can deploy vehicular assistance, as before, to the location of the device 106 or misfortune location responsive to generating the alarm. Assistance may not need to be deployed, depending upon the severity of the misfortune.

[00081] At step 810, the monitoring station 112 sends the alarm to the device 106 to warn the traveler of the misfortune. Details of the misfortune are also sent. In this manner, the traveler can leave the misfortune location.
At step 812, the monitoring station 112 receives an indication of device battery life from the device 106. The indication is displayed for assessment by an operator.

At step 814, the monitoring station 112, either automatically or manually, puts the device 106 to sleep to save on battery life, particularly if the device battery is low.

At step 816, the monitoring station 112, either automatically or manually, periodically wakes-up the device 106 to obtain the geographic location of the device 106 until help arrives or the traveler is clear of the misfortune location and safe once more.

A person skilled in the art will appreciate that many embodiments and variations can be made without departing from the ambit of the present invention.

For example, network 108 can include a cellular phone network and public switch telephone network (PSTN). The electronic communications between the entities in the network 108 can be made via any of voice, facsimile, e-mail, SMS or other like messaging and the skilled person will appreciate that appropriate hardware is required to this end. In one embodiment, various communications may not be electronic.

The system 100 can further include another response vehicle (e.g. automobile in the form of an ambulance) for coordinating with the aircraft response vehicle 102. The skilled person will understand that the location of the patient 104 need not be a pinpoint location, but rather a general geographic area or region (e.g. city) and that staff in the vehicle 102 can stretcher the patient 104 to the vehicle 104 as required.

In compliance with the statute, the invention has been described in language more or less specific to structural or methodical features. It is to be understood that the invention is not limited to specific features shown or described since the means herein described comprises preferred forms of putting the invention into effect.

Reference throughout this specification to ‘one embodiment’ or ‘an embodiment’ means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearance of the phrases 'in one embodiment' or 'in an embodiment' in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or
characteristics may be combined in any suitable manner in one or more combinations.
The claims defining the invention are as follows:

1. A medical-incident response-vehicle system including:
   a hand-held communications device for generating a medical incident alarm to be
   sent over a data communications network, the alarm including a location of the device;
   a monitoring station for receiving the medical incident alarm; and
   an incident response vehicle for being deployed on instructions from the
   monitoring station to the location of the device.

2. A medical-incident response-vehicle system as claimed in claim 1, wherein the
   monitoring station and incident response vehicle are commercial entities, and not
   government entities.

3. A medical-incident response-vehicle system as claimed in claim 1, wherein the
   device includes an actuator for a subscriber to actuate to generate the alarm.

4. A medical-incident response-vehicle system as claimed in claim 3, wherein the
   actuator includes a pressing actuator.

5. A medical-incident response-vehicle system as claimed in claim 3, wherein the
   actuator includes a safety mechanism to impede accidental actuation.

6. A medical-incident response-vehicle system as claimed in claim 5, wherein the
   safety mechanism includes a receiver for receiving two or more inputs from a patient
   prior to actuation.

7. A medical-incident response-vehicle system as claimed in claim 1, wherein the
   system includes a medical facility for alerting of: the impending arrival of the response
   vehicle; or medical information of a subscriber associated with the device prior to arrival
   of the response vehicle.

8. A medical-incident response-vehicle system as claimed in claim 7, wherein the
   medical information includes historical information or current condition information.
9. A medical-incident response-vehicle system as claimed in claim 7, wherein the medical facility is given advance warning of the medical incident to reduce critical time otherwise incurred in ascertaining such information at admission.

10. A medical-incident response-vehicle system as claimed in claim 1, wherein the monitoring station includes a subscriber database including subscriber records relating to subscribers of the system that can be potentially involved in the medical incident.

11. A medical-incident response-vehicle system as claimed in claim 10, wherein each subscriber record includes an identifier sent with the alarm to identify a subscriber associated with the device, and any medical information of the subscriber.

12. A medical-incident response-vehicle system as claimed in claim 1, wherein the alarm includes an identifier of a subscriber associated with the device.

13. A medical-incident response-vehicle system as claimed in claim 1, wherein the location is be determined using a GPS of the device.

14. A medical-incident response-vehicle system as claimed in claim 1, wherein the vehicle includes an aircraft.

15. A medical-incident response-vehicle system as claimed in claim 1, wherein the monitoring station is able to voice communicate with the device using voice over IP (volP).

16. A medical-incident response-vehicle system as claimed in claim 1, wherein the device includes a display configured to display a map showing one or more points of interest to a subscriber undergoing a medical incident.

17. A medical-incident response-vehicle system as claimed in claim 16, wherein the points of interest include medical facilities or emergency services facilities.

18. A medical-incident response-vehicle system as claimed in claim 1, wherein the monitoring station includes two adjacent displays, namely a subscriber display for displaying subscriber information and a response display for concurrently displaying response information.
19. A medical-incident response-vehicle system as claimed in claim 1, wherein the monitoring station includes at least one display configured to display a map.

20. A medical-incident response-vehicle system as claimed in claim 19, wherein the map shows logged-in subscribers.

21. A medical-incident response-vehicle system as claimed in claim 19, wherein the map shows each medical incident.

22. A medical-incident response-vehicle system as claimed in claim 21, wherein the medical incidents are distinguished based upon incident status.

23. A medical-incident response-vehicle system as claimed in claim 19, wherein the map shows response vehicles.

24. A medical-incident response-vehicle system as claimed in claim 1, wherein the system includes a WI-FI hotspot, cellular phone network or satellite communications network between the device and the monitoring station, or the data communications network includes the Internet.

25. A medical-incident response-vehicle system as claimed in claim 1, further including a response vehicle station for receiving deployment instructions from the monitoring station.

26. A medical-incident response-vehicle system as claimed in claim 1, further including another response vehicle for coordinating with the response vehicle.

27. A medical-incident response-vehicle system as claimed in claim 1, further including an employer for receiving updates of a subscriber from the monitoring station.

28. A medical-incident response-vehicle system as claimed in claim 1, further including an insurer for approving deployment of the incident response vehicle.

29. A medical-incident response-vehicle system as claimed in claim 1, wherein the monitoring station receives an indication of device battery life from the device.
30. A medical-incident response-vehicle system as claimed in claim 29, wherein the monitoring station puts the device to sleep to save on battery life.

31. A medical-incident response-vehicle system as claimed in claim 30, wherein the monitoring station periodically wakes-up the device to obtain the geographic location of the device.

32. A medical-incident response method including:
   generating a medical incident alarm to be sent over a data communications network with a hand-held communications device, the alarm including a location of the device;
   receiving the medical incident alarm at a monitoring station; and
   the monitoring station instructing deployment of an incident response vehicle to the location of the device.

33. A medical-incident response hand-held communications device, the device configured to:
   generate a medical incident alarm, including a location of the device, to be sent over a data communications network to a monitoring station that deploys assistance to the location of the device.

34. A medical-incident response monitoring station, the monitoring station configured to:
   receive a medical incident alarm, including a location of a hand-held communications device, over a data communications network and from the device that generated the alarm; and
   deploy assistance to the location of the device.

35. A medical-incident response vehicle for deployment on instructions from the monitoring station to a location of a hand-held communications device that generated a medical incident alarm sent over a data communications network to the monitoring station, the alarm including the location of the device.

36. A medical-incident assistance method involving:
a user undergoing a medical-incident generating a medical incident alarm to be sent over a data communications network with a hand-held communications device, the alarm including a location of the device; and receiving the medical incident alarm at a monitoring station.

37. A misfortune alarm system including a monitoring station, the monitoring station configured to:
   allocate a misfortune location based on a misfortune;
   monitor a hand-held communications device; and
   generate an alarm when the monitored device is located proximal to the misfortune location.

38. A misfortune alarm system as claimed in claim 37, wherein the monitoring station receives an indication of device battery life from the device.

39. A misfortune alarm system as claimed in claim 37, wherein the monitoring station puts the device to sleep to save on battery life.

40. A misfortune alarm system as claimed in claim 37, wherein the monitoring station periodically wakes-up the device to obtain the geographic location of the device.

41. A misfortune alarm system as claimed in claim 37, wherein the misfortune includes a natural disaster, regional disease outbreak or medical incident.

42. A misfortune alarm system as claimed in claim 37, further including the device and wherein the monitoring station sends the alarm to the device.

43. A misfortune alarm system as claimed in claim 37, further including a vehicle and wherein the monitoring station deploys the vehicle to the location of the device or misfortune location.

44. A misfortune alarm method including:
   allocating an misfortune location based on a misfortune;
   monitoring a hand-held communications device; and
   generating an alarm when the monitored device is located proximal to the misfortune location.
45. A misfortune alarm method as claimed in claim 44, involving deploying assistance to the device location or misfortune location responsive to generating the alarm.

46. A misfortune alarm method as claimed in claim 44, involving sending the alarm to the hand-held communications device.

47. A misfortune alarm method as claimed in claim 44, involving receiving an indication of device battery life from the device.

48. A misfortune alarm method as claimed in claim 47, involving putting the device to sleep to save on battery life.

49. A misfortune alarm method as claimed in claim 48, involving periodically waking-up the device to obtain the geographic location of the device.

50. A misfortune alarm method as claimed in claim 44, wherein the misfortune location is a geographic area.

51. A misfortune alarm method as claimed in claim 50, wherein the alarm is generated when the device enters the area.

52. A misfortune alarm method as claimed in claim 44, wherein the location of the device is monitored using triangulation, WI-FI or GPS.
START

1. Subscriber login

2. Display alarm generation screen

3. Generate medical alarm

4. Display emergency information to patient

5. Nurse speaks with patient

6. Obtain insurer approval

7. Deploy response vehicle

8. Send patient information to hospital

9. Send updates to employer

END

Figure 2
MEDICAL RESCUE GPS ASSIST

PLEASE LOG IN

USERNAME:

PASSWORD:

■ REMEMBER MY LOGIN DETAILS  LOGIN

FORGOT YOUR PASSWORD?

NEW USERS

CREATE A NEW ACCOUNT

INTERNATIONAL ROAMING MUST BE TURNED ON

Figure 3
MEDICAL RESCUE GPS ASSIST

DISTRESS ALERT SIGNAL

PLEASE PRESS THE BUTTON BELOW TO NOTIFY US OF A MEDICAL EMERGENCY, YOU WILL NEED TO CONFIRM YOUR REQUEST TWICE BEFORE THE REQUEST IS SENT

MEDICAL DISTRESS ALERT

SENDING NOTIFICATION

ONCE YOUR ALERT HAS BEEN SENT ONE OF OUR EMERGENCY NURSES WILL CALL YOU KEEP YOUR PHONE ON

Figure 4
MEDICAL RESCUE GPS ASSIST

TRANSMISSION SUCCESSFUL

DISTRESS ALERT SIGNAL SENT

YOU WILL BE CONTACTED SHORTLY. YOU WILL ALSO BE SENT A MAP OF HOW TO FIND THE NEAREST HOSPITAL. WE WILL CONTACT THAT HOSPITAL BEFORE YOUR ARRIVAL

THE CLOSEST HOSPITAL TO YOUR CURRENT LOCATION IS ([LINK TO GPS LOCATION ON MAP WITH DIRECTIONS])

BASIC FIRST AID INSTRUCTIONS

PLEASE LEAVE DATA ROAMING ON SO WE CAN CONTACT AND TRACK YOU TO THE HOSPITAL

Figure 5
800 START

802 Allocate misfortune location

804 Monitor remote device relative to misfortune location

806 Generate alarm when remote device proximal to misfortune location

808 Deploy assistance to remote device location

810 Send alarm to traveler's remote device

812 Receive indication of remote device battery life

814 Put remote device to sleep to save power

816 Wake-up remote device periodically to monitor location

END

Figure 8
**INTERNATIONAL SEARCH REPORT**

**International application No.**

PCT/AU2016/050041

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**A. CLASSIFICATION OF SUBJECT MATTER**


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According to International Patent Classification (IPC) or to both national classification and IPC.

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

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Documentary searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ESPACENET - ALERT AND EMERGENCY

WPAT - MEDICAL, EMERGENCY, RESQN+, ALARM+, ALERT+, HOSPITAL, FACILIT+, RESCU+, DEVICE, MOBILE+, SYSTEM, STATION, VEHICLE, AIRCRAFT, PLANE, COMMUNICAT+, INCIDENT+, AMBULANCE+, SUBSCRIBT+, PATENT, CLTENT+, CUSTOMER+, TENT+, INFORM+, DATA+, RECOR+, HISTOR+, CONDITION+, LOCAT+, PORTABLE, HAND HELD, CELLULAR, PHONE+, DEVICE+, DEPLOY+, DISPATCH+, DEPALTH+, ALERT+, SEND+, REQUEST+, POSITION+, ACTUATOR+, DISPLAY+, MAP+, MONITOR+, INCIDENTS+, ACCIDENT+, RESPONSE+, AND OTHER SIMILAR TERMS.

GOOGLE PATENTS: ALERT, MEDICAL, EMERGENCY, RESCUE

ESPACENET: AUSPAT AND INTERNAL DATABASES FOR APPLICANT AND INVENTOR NAME SEARCH:

24-7 ASSISTANCE PTY LTD or McKAY, G; SMITH, M; or MACDONALD, B

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
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</table>

Documents are listed in the continuation of Box C

[X] Further documents are listed in the continuation of Box C  [X] See patent family annex

* Special categories of cited documents:
  "A" document defining the general state of the art which is not considered to be of particular relevance
  "E" earlier application or patent but published on or after the international filing date
  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  "O" document referring to an oral disclosure, use, exhibition or other means
  "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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

"&" document member of the same patent family

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Date of the actual completion of the international search: 6 May 2016

Date of mailing of the international search report: 06 May 2016

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**Name and mailing address of the ISA/AU**

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
Email address: pct@ipaustralia.gov.au

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**Authorised officer**

Dr Nirmal Farrington
AUSTRALIAN PATENT OFFICE
(ISO 9001 Quality Certified Service)
Telephone No. 02 62832825

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Form PCT/ISA/210 (fifth sheet) (July 2009)
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<td>US 2014/0155018 A1 (AT&amp;T INTELLECTUAL PROPERTY I, LP, (US)) 05 June 2014 Please refer to whole document and in particular the abstract; figs. 1-8; pg. 1 paras. 0002-0003, 0014; pgs. 1-2 para. 0015; pg.2 paras. 0021-0022; pg. 3 paras. 0024 and 0026; pg. 4 paras. 0033-0036; pg. 5 paras. 0042-0044; pg. 6 para. 0045; pg. 8 para. 64; pg. 9 para. 0078; pg. 10 paras. 0079-88.</td>
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<td>US 2013/0065628 A1 (ANSHEL PFEFFER (IL)) 14 March 2013 Please see whole document and in particular the abstract; figs. 1-10; pg. 2 para. 0029-0030; pg. 3 para. 0033; pg. 3 para. 0035; pgs. 2-3 para. 0036; pg. 4 para 0042; pg. 5 para. 0047; pg. 8 paras. 0066-0067; pg. 9 para. 0072.</td>
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<td>US 2013/03 15383 A1 (LIEU) 28 November 2013 Please see whole document and in particular the abstract; figs. 1-13; pg. 2 paras. 0028, 0035-0036, 0038 pg. 3 paras. 0043, 0052; pg. 4 paras. 0059, 0061; pg. 5 para. 0068, 0074-0075; pg. 5-6 paras. 0076-0081.</td>
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<td>This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:</td>
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<td>1.</td>
<td>[ ] Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely: the subject matter listed in Rule 39 on which, under Article 17(2)(a)(i), an international search is not required to be carried out, including</td>
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<td>2.</td>
<td>[ ] Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:</td>
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<td>3.</td>
<td>[ ] Claims Nos: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)</td>
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<th>Box No. III</th>
<th>Observations where unity of invention is lacking (Continuation of item 3 of first sheet)</th>
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<tr>
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<td>This International Searching Authority found multiple inventions in this international application, as follows:</td>
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See Supplemental Box for Details

1. [ ] As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. [ ] As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-36

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<td>[ ] The additional search fees were accompanied by the applicant’s protest and, where applicable, the payment of a protest fee.</td>
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<td>[ ] The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation.</td>
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<td>[ ] No protest accompanied the payment of additional search fees.</td>
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Continuation of: Box III
This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

- **Claims 1-31, 32 and 35** relate to a medical-incident response vehicle-system and method comprising ‘a hand-held communications device for generating a medical incident alarm to be sent over a data communications network, the alarm including a location of the device; a monitoring station for receiving the medical incident alarm; and an incident response vehicle for being deployed on instructions from the monitoring station to the location of the device.’ The feature of ‘medical-incident response vehicle-system and method’ comprising above elements is specific to this group of claims.

- **Claim 33** relates to a ‘medical-incident response hand-held communications device which generates a medical incident alarm, including a location of the device, to be sent over a data communications network to a monitoring station that deploys assistance to the location of the device.’ The feature of ‘medical-incident response hand-held communications device’ including ‘assistance’ is specific to this group of claims.

- **Claim 34** relates a ‘medical-incident response monitoring station, the monitoring station configured to receive a medical incident alarm, including a location of a hand-held communications device, over a data communications network and from the device that generated the alarm; and deploy assistance to the location of the device.’ The feature of ‘medical-incident response hand-held monitoring station’ including ‘assistance’ is specific to this group of claims.

- **Claim 36** relates a ‘medical-incident assistance method involving a user undergoing a medical-incident generating a medical incident alarm to be sent over a data communications network with a hand-held communications device, the alarm including a location of the device; and receiving the medical incident alarm at a monitoring station.’ The feature of ‘medical-incident assistance method’ is specific to this group of claims.

- **Claims 37-43 and 44-52** relates a ‘misfortune alarm system and method including a monitoring station, the monitoring station configured to allocate a misfortune location based on a misfortune; monitor a hand-held communications device; and generate an alarm when the monitored device is located proximal to the misfortune location.’ The feature of ‘misfortune alarm system and method including a monitoring station’ including ‘misfortune’ is specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. The only feature common to all of the claimed inventions and which provides a technical relationship among them is ‘medical-incident and/or alarm.’ However this feature does not make a contribution over the prior art because it is disclosed in:

**US 2013/0065628 A1 (ANSHEL PFEFFER) 14 March 2013**

Therefore, in the light of this document, this common feature cannot be a special technical feature. Therefore there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied *a posteriori*.

It is considered that search and examination for the fifth invention will require more than negligible additional search and examination effort over that for the first, second, third and fourth inventions, and therefore an additional search fee is warranted.
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.