

CLAIMS

1. An emergency detection and alert system for a user, the system comprising:
5 an accelerometer worn by the user for detecting when the user is falling;
at least one external sensor capable of sensing a condition of the user;
a receiving unit in communication with the accelerometer and the at least one
external sensor for receiving data from the accelerometer and the at least one
external sensor;
10 a processing unit for processing the received data to determine if an alert
condition exists; and
a communication unit for communicating the alert condition to a
predetermined third party.
- 15 2. The system as claimed in claim 1, wherein said at least one external sensor
includes at least one thermal sensor and at least one motion sensor.
3. The system as claimed in any one of the previous claims, wherein said
accelerometer further comprises at least one of a body temperature sensor and a
20 heart rate monitor.
4. The system as claimed in claim 2, wherein said processing unit processes
said data to filter out false positives and false negatives before communicating the
alert condition.
- 25 5. The system as claimed in claim 4, wherein said filtering step includes:
determining if said accelerometer has been continuously stationary for a first
determined period of time and, if so, generating said alert condition.
- 30 6. The system as claimed in claim 5, wherein said determining step further
includes:
determining if said accelerometer detects a fall and, if so, said accelerometer
wirelessly activates an alarm at the receiving module;
once said alarm has been activated, further monitoring said accelerometer to
35 determine if said user has been stationary for a second predetermined time, and,
if said user has been stationary for the second predetermined time,
generating said alert condition; and

if said user has not been stationary for the second predetermined time, deactivating said alarm.

7. The system as claimed in claim 6, wherein said first period of time is between 15 minutes to 120 minutes, and said second period of time is between one minute to thirty minutes.

8. The system as claimed in claim 4, wherein said filtering step further includes:
determining if said accelerometer detects a fall and, if so,
determining if said motion sensor shows inactivity for a predetermined period of time and, if so
determining if said thermal sensor senses a continuous drop in temperature over said predetermined period of time and, if so,
determining if said accelerometer senses zero activity over said predetermined period of time and, if so
generating said alert condition.

9. The system as claimed in claim 8, wherein said predetermined period of time is between 15 minutes to 120 minutes.

10. The system as claimed in claim 4, wherein said filtering step further includes:
determining if said accelerometer detects a fall and, if not,
determining if said motion sensor shows inactivity for a predetermined period of time and, if so
determining if said thermal sensor senses a continuous drop in temperature over said predetermined period of time and, if so,
determining if said accelerometer senses zero activity over said predetermined period of time and, if so
generating said alert condition.

11. The system as claimed in claim 10, wherein said predetermined period of time is between 15 minutes to 120 minutes.

12. The system as claimed in claim 4, wherein said false positives and false negatives are determined based on a comparison of historical data collected and stored by the processing unit and current data from the accelerometer and the at least one sensor.

13. The system as claimed in any one of the previous claims, wherein the processing unit is integrated with the receiving unit.
5. 14. The system as claimed in any one of claims 1 - 12, wherein the receiving unit, the processing unit and the communication unit are integrated into one of a mobile phone case, a mobile phone, a pendant, or a watch.
15. The system as claimed in any one of the previous claims, further comprising
10. an extra battery connected to the system to provide power to the system if any battery that forms part of the original system fails.

CLAIMS

1. An emergency detection and alert system for a user, the system comprising:

5 an accelerometer worn by the user for detecting when the user is falling;

 at least one external sensor capable of sensing a condition of the user;

 a receiving unit in communication with the accelerometer and the at least one external sensor for receiving data from the accelerometer and the at least one external sensor;

10 a processing unit for processing the received data to determine if an alert condition exists; and

 a communication unit for communicating the alert condition to a predetermined third party,

wherein said processing unit is configured to:

15 determine if said accelerometer has been continuously stationary for a first predetermined period of time and, if so, determining said alert condition exists;

 determine if said accelerometer detects a fall by the processing unit determining if said accelerometer has wirelessly activated an alarm at the receiving module;

20 further monitoring said accelerometer once said alarm has been wirelessly activated to determine if said user has been stationary for a second predetermined time after detecting the fall and if said user has been stationary for the second predetermined time after detecting the fall, determining said alert condition exists for the communication unit to communicate the alert condition to the predetermined third party, and if said user has not been stationary for the second predetermined time

25 after detecting the fall, said processing unit wirelessly deactivating the alarm at the receiving module.
2. The system as claimed in claim 1, wherein said at least one external sensor

30 includes at least one thermal sensor and at least one motion sensor.
3. The system as claimed in any one of the previous claims, wherein said accelerometer further comprises at least one of a body temperature sensor and a heart rate monitor.

4. The system as claimed in claim 2, wherein said processing unit processes said data to filter out false positives and false negatives before communicating the alert condition.

5 5. The system as claimed in any one of the previous claims, wherein said first period of time is between 15 minutes to 120 minutes, and said second period of time is between one minute to thirty minutes.

6. The system as claimed in claim 4, wherein, when the accelerometer detects a fall, the processing unit is further configured to:

determining if said accelerometer detects a fall and, if so,

determine if said motion sensor shows inactivity for a predetermined period of time and, if so

15 determine if said thermal sensor senses a continuous drop in temperature over said predetermined period of time and, if so,

determine if said accelerometer senses zero activity over said predetermined period of time and, if so,

generate said alert condition.

20 7. The system as claimed in claim 6, wherein said predetermined period of time is between 15 minutes to 120 minutes.

8. The system as claimed in claim 4, wherein said, when the accelerometer does not detect a fall, the processing unit is further configured to:

25 determine if said motion sensor shows inactivity for a predetermined period of time and, if so

determine if said thermal sensor senses a continuous drop in temperature over said predetermined period of time and, if so,

30 determine if said accelerometer senses zero activity over said predetermined period of time and, if so

generate said alert condition.

9. The system as claimed in claim 4, wherein said predetermined period of time is between 15 minutes to 120 minutes.

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10. The system as claimed in claim 4, wherein said false positives and false negatives are determined based on a comparison of historical data collected and

stored by the processing unit and current data from the accelerometer and the at least one sensor.

11. The system as claimed in any one of the previous claims, wherein the
5 processing unit is integrated with the receiving unit.

12. The system as claimed in any one of claims 1 - 10, wherein the receiving unit,
the processing unit and the communication unit are integrated into one of a mobile
phone case, a mobile phone, a pendant, or a watch.

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13. The system as claimed in any one of the previous claims, further comprising
an extra battery connected to the system to provide power to the system if any
battery that forms part of the original system fails.

CLAIMS

1. An emergency detection and alert system for a user, the system comprising:
 5 an accelerometer worn by the user for detecting when the user is falling;
 at least one external sensor capable of sensing a condition of the user;
 a receiving unit in communication with the accelerometer and the at least one
 external sensor for receiving data from the accelerometer and the at least one
 external sensor;
 10 a processing unit for processing the received data to determine if an alert
 condition exists; and
 a communication unit for communicating the alert condition to a
 predetermined third party,

wherein said processing unit is configured to:

15 determine if said accelerometer has been continuously stationary for a first
 predetermined period of time and, if so, determining said alert condition exists;

determine if said accelerometer detects a fall by the processing unit
 determining if said accelerometer has wirelessly activated an alarm at the receiving
 module;

20 further monitoring said accelerometer once said alarm has been wirelessly
 activated to determine if said user has been stationary for a second predetermined
 time after detecting the fall and if said user has been stationary for the second
 predetermined time after detecting the fall, determining said alert condition exists for
 the communication unit to communicate the alert condition to the predetermined third
 25 party, and if said user has not been stationary for the second predetermined time
 after detecting the fall, said processing unit wirelessly deactivating the alarm at the
 receiving module.

2. The system as claimed in claim 1, wherein said at least one external sensor
 30 includes at least one thermal sensor and at least one motion sensor.

3. The system as claimed in any one of the previous claims, wherein said
 accelerometer further comprises at least one of a body temperature sensor and a
 heart rate monitor.

4. The system as claimed in claim 2, wherein said processing unit processes said data to filter out false positives and false negatives before communicating the alert condition.

5 ~~5. The system as claimed in claim 4, wherein said filtering step includes:~~
~~—determining if said accelerometer has been continuously stationary for a first determined period of time and, if so, generating said alert condition.~~

~~6. The system as claimed in claim 5, wherein said determining step further~~
 10 ~~includes:~~

~~—determining if said accelerometer detects a fall and, if so, said accelerometer wirelessly activates an alarm at the receiving module;~~

~~—once said alarm has been activated, further monitoring said accelerometer to determine if said user has been stationary for a second predetermined time, and,~~

15 ~~if said user has been stationary for the second predetermined time, generating said alert condition; and~~

~~if said user has not been stationary for the second predetermined time, deactivating said alarm.~~

20 ~~75. The system as claimed in claim 6 any one of the previous claims, wherein said first period of time is between 15 minutes to 120 minutes, and said second period of time is between one minute to thirty minutes.~~

~~86. The system as claimed in claim 4, wherein said filtering step further includes:~~
 25 ~~when the accelerometer detects a fall, the processing unit is further configured to:~~

~~determining if said accelerometer detects a fall and, if so,~~

~~determining determine if said motion sensor shows inactivity for a predetermined period of time and, if so~~

~~determining determine if said thermal sensor senses a continuous drop in temperature over said predetermined period of time and, if so,~~

~~determining determine if said accelerometer senses zero activity over said predetermined period of time and, if so,~~

~~generating generate said alert condition.~~

35 ~~97. The system as claimed in claim 86, wherein said predetermined period of time is between 15 minutes to 120 minutes.~~

408. The system as claimed in claim 4, wherein said ~~filtering step further includes~~;
when the accelerometer does not detect a fall, the processing unit is further
configured to:

~~determining if said accelerometer detects a fall and, if not,~~

5 ~~determining~~ determine if said motion sensor shows inactivity for a
predetermined period of time and, if so

~~determining~~ determine if said thermal sensor senses a continuous
drop in temperature over said predetermined period of time and, if so,

10 ~~determining~~ determine ~~is if~~ said accelerometer senses zero activity
over said predetermined period of time and, if so

~~generating~~ generate said alert condition.

149. The system as claimed in claim 408, wherein said predetermined period of
time is between 15 minutes to 120 minutes.

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4210. The system as claimed in claim 4, wherein said false positives and false
negatives are determined based on a comparison of historical data collected and
stored by the processing unit and current data from the accelerometer and the at
least one sensor.

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4311. The system as claimed in any one of the previous claims, wherein the
processing unit is integrated with the receiving unit.

25 4412. The system as claimed in any one of claims 1 - 4210, wherein the receiving
unit, the processing unit and the communication unit are integrated into one of a
mobile phone case, a mobile phone, a pendant, or a watch.

30 4513. The system as claimed in any one of the previous claims, further comprising
an extra battery connected to the system to provide power to the system if any
battery that forms part of the original system fails.