

Claims

We Claim:

1. A system (100) to detect fatigue condition, the system (100) comprising:
 - a wearable unit (110), when in operation, is configured to generate a first data, wherein the first data comprises a plurality of parameters associated with a user;
 - an electronic device (120) communicatively coupled to the wearable unit (110), characterised in that, wherein the electronic device (120) is configured to:
 - analyse each parameter of the plurality of parameters in the first data, wherein the plurality of parameters of the first data includes at least one of: a heart rate exertion of the user, a pace and steps of the user;
 - determine the pace of the user by calculation of an average length of stride of the user and a number of steps covered by the user in a specific time period, wherein the electronic device (120) configured to monitor movement of the user and count the steps of a first course from first location to second location or current activity through the wearable unit (110), wherein the electronic device (120) configured to record starting step count and continuously monitor the activity of the user and which ends when user stops the recording or pauses the recordation of step count over a period of time and distance, wherein the wearable unit (110) transmits the step data to the electronic device (120), wherein the electronic device (120) simultaneously identifies the stride length of the user, based on average step count and total distance travelled from first location to second location or from the current step values of subject activity and detect a deviation in a value of at least one of the parameters of the plurality of parameters; and
 - alert the user of detected abrupt deviation in the value of at least one of the parameters, indicative of a level of fatigue;
 - a first communication network (130) communicatively coupled to the electronic device (120), wherein the first communication network (130) is configured to receive a second data from the electronic device (120), and wherein the second data comprises a partially processed first data and a Global Positioning System (GPS) value associated with the GPS location of the user;
 - a server (140) communicatively coupled to the first communication network (130), wherein the server (140) is configured to:
 - analyse the second data received from the first communication network (130);
 - invoke a critical status associated with the user, if the level of fatigue exceeds a threshold limit; and

generate an alert notification for at least one care personnel based on the critical status of the user; and

a database (150) communicatively coupled to the server, wherein the database (150) is configured to store at least one of: the first data, the second data, contact information of the at least one care personnel.

2. The system (100) as claimed in claim 1 wherein the electronic device (120) analyses each parameter of the plurality of parameters in the first data and detect the deviation by identifying an increase or a decrease in the value of at least one of the parameters.
3. The system (100) as claimed in claim 1, wherein the database (150) is further configured to store a profile of the user, and wherein the profile of the user comprises at least one of: a wearable unit identifier (ID), a name of the user, an age of the user, a location of the user, a height of the user, a weight of the user a mobile number of the user, an emergency contact number and a blood group of user.
4. The system (100) as claimed in claim 3, wherein the electronic device (120) is configured to determine the heart rate exertion of the user by using an average heart rate of the user and the age of the user.
5. The system (100) as claimed in claim 1, wherein the server (140) compares the second data with the threshold limit for determination of the critical status of the user and provide the GPS value associated with the user to the at least one care personnel based on the determined critical status of the user.
6. The system (100) as claimed in claim 1, wherein the server (140) is further configured to monitor a plurality of users, and wherein the monitoring of each user of the plurality of users is based on at least one of: an age, a health history, a type of activity performed by a user at a moment of monitoring, a level of fatigue, a heart rate, a location of each user.
7. A method for detecting fatigue condition of a user, comprising:

generating, by a wearable unit (110), a first data comprising a plurality of parameters associated with the user, wherein the plurality of parameters includes at least one of: a heart rate exertion of the user, a pace of the user, and steps of the user;

analysing, by an electronic device (120) communicatively coupled to the wearable unit (110), each parameter of the plurality of parameters in the first data;

determining, by the electronic device (120), a pace of the user by calculating an average length of stride of the user and a number of steps covered by the user in a specific time period, wherein determining the pace comprises:

monitoring movement of the user and counting steps of a first course from a first location to a second location or a current activity through the wearable unit (110);

recording a starting step count and continuously monitoring the activity until the user pauses or stops recording;

receiving step data transmitted from the wearable unit (110); and

identifying a stride length based on average step count and total distance travelled from the first location to the second location or based on current step values of the activity;

detecting a deviation, by the electronic device (120), in a value of at least one of the parameters of the plurality of parameters from a predefined range, wherein detecting the deviation comprises identifying an increase or a decrease in said value;

alerting the user upon detecting an abrupt deviation in at least one of the parameters, indicative of a level of fatigue;

receiving, via a first communication network (130), a second data from the electronic device (120), wherein the second data comprises the partially processed first data and a Global Positioning System (GPS) value associated with the GPS location of the user;

analysing, by a server (140), the second data received from the first communication network (130);

invoking a critical status, by the server (140), associated with the user when the level of fatigue exceeds a threshold limit;

generating, by the server (140), an alert notification for at least one care personnel based on the critical status of the user and providing the GPS value associated with the user to the at least one care personnel; and

storing, in a database (150) communicatively coupled to the server (140), at least one of: the first data, the second data, and contact information of the at least one care personnel, wherein the database (150) further stores a profile of the user comprising at least one of: a wearable unit identifier (ID), a name, an age, a location, a height, a weight, a mobile number, an emergency contact number, and a blood group of the user.

8. The method as claimed in claim 7, further comprising monitoring, by the server (140), each user of a plurality of users based on at least one of: an age of the user, a health history of the user, a type of activity performed by the user at a moment of monitoring, a level of fatigue of the user, a heart rate of the user, and a location of each user.