Claims

We Claim,

1. A wearable device for measuring heart rate, said device comprising:

a t-shirt (110);

a fabric inner shirt, wherein, top side edges of the fabric inner shirt are sewed to the inner wall of the t-shirt (110), a belt strap (120), wherein top side edges of the belt strap (120) are sewed to the bottom side edges of the fabric inner shirt; and

an ECG module (210)capable of measuring a heart rate of the user, wherein, the belt strap (120) accommodates the ECG module (210), wherein the ECG module (210) includes:

an ECG base (305) having a first slot, to accommodate an electronic module (310) and attached to the front side of the belt strap (120);

wherein the electronic module (310) inserted into the slot provided in the ECG base (305), through a sliding mechanism;

a pair of nickel-plated rivets (340 and 345), arranged inside the ECG base (305) and is capable of transmitting an electrical signal to the electronic module (310);

a pair of nickel-plated washers (325 and 330), arranged on a rear side of the belt strap (120) and capable of transmitting the electrical signal to the pair of nickel-plated rivets (340 and 345);

a pair of electrodes (315 and 320), arranged as a conductive layer on the rear side of the belt strap (120), around the pair of nickel-plated washers (325 and 330), wherein, the pair of electrodes (315 and 320) are capable of detecting an electrical activity at the heart and transmits the electrical signal to the pair of nickel-plated washers (325 and 330);

a pair of pogo pins (350 and 355) capable of receiving the electrical signal transmitted by the pair of nickel-plated washers (325 and 330), wherein the ECG module (210) records the heart rate of the user, during any activity, characterized in that, wherein the top side edges of the inner shirt is sewed to the inner wall of the t-shirt (110) at upper abdomen level, wherein the bottom side edges of the fabric inner shirt sewed to top side edges of a belt strap (120), wherein the fabric inner shirt is vertically adjustable irrespective of the t-shirt (110), to position the belt strap (120) near a heart in a chest and abdomen for accurate heart rate measurement and allow the belt strap (120) to freely move upwards and downwards in the chest and abdomen area, with a bottom edge of the belt strap (120) free, providing a snug fit to the user;

wherein the ECG module (210) processes the electrical signal and generate a first data comprising the heart rate with a blood pressure data, a pace of the user, and a breathing pattern and transmits the first data of the user to an electronic device (620) and an application server (640) through a communication module, wherein the electronic device (620) analyzes the first data to detect a deviation in a value of the first data and add a GPS location value to form a second data, and transmit the second data to the application server (640);

wherein the application server (640) determine a critical status of the user, if the heart rate exceeds a threshold limit, generates an alert notification to the user and at least one care personnel in reference to detected abrupt deviation in value of the heart rate, indicative of a level of fatigue, and provide the GPS location to the care personnel based on critical status associated with the user, wherein the application server (640) stores the first and second data in a database (650) along with the user profile including at least a wearable t-shirt unit identifier, name, age, location, medical history, and emergency contact details.

2. The wearable device of claim 1, wherein, the pair of nickel-plated rivets (340 and 345) and the pair of nickel-plated washers (325 and 330) are part of ECG base (305).
3. The wearable device of claim 1, wherein, the pair of electrodes (315 and 320) and the pair of pogo pins (350 and 355) are part of belt strap (120) and electronic module (310) respectively.
4. The wearable device of claim 1, wherein, the size of fabric inner shirt is proportional to the size of the t-shirt (110);
5. The wearable device of claim 1, wherein, the fabric inner shirt is adjusted and kept at three different positions to keep the belt strap (120) and ECG base (305) nearer to the heart.
6. The wearable device of claim 1, wherein, the nickel-plated washers (325 and 330) and nickel-plated rivets (340 and 345) are made up of stainless steel and copper respectively.
7. The wearable device of claim 1, wherein, the pair of electrodes (315 and 320) and pair of nickel-plated washers (325 and 330) are in direct contact with the skin of the user.
8. The wearable device of claim 1, wherein, the edges of the electronic module (310) are tapered to accommodate and fit to the tapered edges of the slot in the ECG base (305).
9. The wearable device of claim 1, further comprises, a first sensor layer (335), wherein, the first sensor layer (335) is placed between the pair of electrodes (315 and 320) and

the belt strap (120) to improve the quality of electrical signal passed to the electronic module (310).

10. The wearable device of claim 1, wherein, the fabric inner shirt is sewed only to the front-inner side of the t-shirt (110), and maximum size of fabric inner shirt is 6 inches.