

Smart Band for Women Security Based on Internet of Things (IOT)

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ABSTRACT

In the current situation, the important goal is to provide security to women from issues of women harassment. With the App revolution of smart phones, many security apps are developed every day but even the other side that is fraudulent or adversary knows that such apps do exist, and they are equally smart to confiscate the victims phone. In this project System we include wearable devices that will transmit data for comparing with the training dataset and if irregular values in temperature, pulse rate are identified then message will be sent to her family member, nearby police station and one friend.

Technical Keyword: Smart Band, GPS, GSM, Sensor, and Bluetooth

I INTRODUCTION

Day by day the women safety is becoming the common issue, such apps do exist, and they are equally smart to confiscate the victim's phone. Hence the strategy to switch to an independent hardware is focused in our project. Here we introduce a device which ensures the Protection of women. This helps to identify protect and call on resources to help the one out of dangerous situations. The system consists of pulse and temperature sensor, which when activated, sends values to the training dataset to be compared with per 10sec. If the comparison result is abnormal then a popup message is send to women.

Main purpose of the system is to provide security and safety. As being an independent nation women's are not safe even today. There should be some effective measures for the security of the women's. Nowadays there are many applications developed for the women security but main drawback of these application is it required initial interaction of women and that situation it is not possible.

Here we build a one smart band and android application. This project work automatically based on pulse sensor and temperature sensor. This application uses pulse readings of that women and protect her. If she is in danger then emergency message is send to the family member and nearby police station with the GPS location of victim. Also this emergency message is send on application so it is provide social platform.

II LITERATURE SURVEY

“Smart Security Solution for Women Based on Internet of Things (IOT)” [1].This paper focus on the security of women. They are build one smart band which is contains three type sensors i.e. Pulse Rate Sensor, Temperature Sensor and Motion Sensor. This band is continuously communicate with the smart phone.

“An Autonomous Wireless Body area Network Implementation towards IOT connected Healthcare Application” [2].This paper describes about wearable sensor nodes with the solar energy harvesting. This paper contain information about various sensor which are used for the monitoring of health condition of person. Also they are developed one web based smartphone application to display the sensor's node data

“A Survey on Wearable sensor based system for health monitoring and prognosis”[3].In this paper they are build one wearable health monitoring system which is useful to checking the health condition of patient. In this paper they gives information about sensors and working range of sensors and bluetooth.

“Smart girls security system”[4].In this paper they gives information about various modules like GSM shield(A900),Arduino Board,GPS tracking, Screaming alarm and pressure Sensor.

“Android Application for women security system” [6].In this paper they are developed one android application which is useful as women security purpose. Generally this service can be start by clicking the ACTIVATION SERVICE BUTTON. By pressing VOLUME KEY emergency message will be send to the registered contacts.

“Design And Development of Women Self Defence Smart Watch Prototype” [9].This paper proposes idea of interaction between user and technology. They are developed one Smart Watch which communicate with GPS system. Also they are develop one system which contain electric shock generator module, screaming alarm module, voice recognition module which is useful for women security.

III PROPOSED SYSTEM

Now-a-days women security is the main concern in the society. So there is need to build a system that can respond faster and provide security to the women in problem. In this paper we will include comparing of data from the sensors with the training dataset, if variation occurs then message will be send to nearby police, family, friend along with the GPS location to provide the security to the women in danger.

The women will be held with wearable pulse rate sensor and temperature sensor. The values from the sensor per 10sec will be sent to the server. The server will consist of training data set with normal values of pulse rate and

temperature according to the age group. If any abnormal value is encountered then an alert message will be sent to the women holding the wearable device, considering few situations like she might be in stress or jogging.

If she doesn't respond in given time then 3 alert messages will be send to her family member, her friend, nearby police station along with her GPS location. But if she replied that she is Ok then the flow of system will stop in normal working way.



Fig 1 Proposed System

As seen in Fig.1 consist of following units that monitor the situation and takes action accordingly.

- A) Pulse Rate Sensor.
- B) Temperature Sensor.
- C) BLE Module.
- D) Smart Band.
- E) Women Security Application.
- F) GSM Module.
- G) GPS Module.

A) Pulse Rate Sensor.

It is a heartbeat sensor which gives the digital output of heart beat accordingly current health condition of person. Pulse rate sensor calculate value per 10 second and send to the microcontroller for comparing with the training dataset. Heart rate is different in every feeling like fear, angry etc. It works in four frequencies range from 1.2GHz to 1.6GHz.

B) Temperature Sensor.

To maintain the health condition, body temperature is an important factor. Here we use LM35 series body temperature sensor. It is operates in +10.0mV/°C scale factor with 0.5°C accuracy.

C) BLE Module.

Here we use BLE 4.0 Module which is HC-05v. This is used to connect smart band with the smartphone because which is required less power consumption. Data transmission rate is 2 or 3 mb/s, which operates in frequency range 2.4GHz (ISM band) and transfer data in the 10m range.

D) Smart Band.

Smart band consists of temperature sensor, pulse rate sensor, microcontroller. Smart band is connected with the smartphone by BLE 4.0.

E) Women Security Application.

This application is preprogrammed with the standard health values of pulse rate and body temperature according to age group. Values obtained from sensors are compared in this application.

F) GSM and GPS Module.

GSM is used to transfer the signal from smart band to smartphone and also used to send emergency message to the family member, friend and nearby police station.

GPS module is used to track the current location of victim with the help of latitude and longitude of receiver.

IV SYSTEM ARCHITECTURE

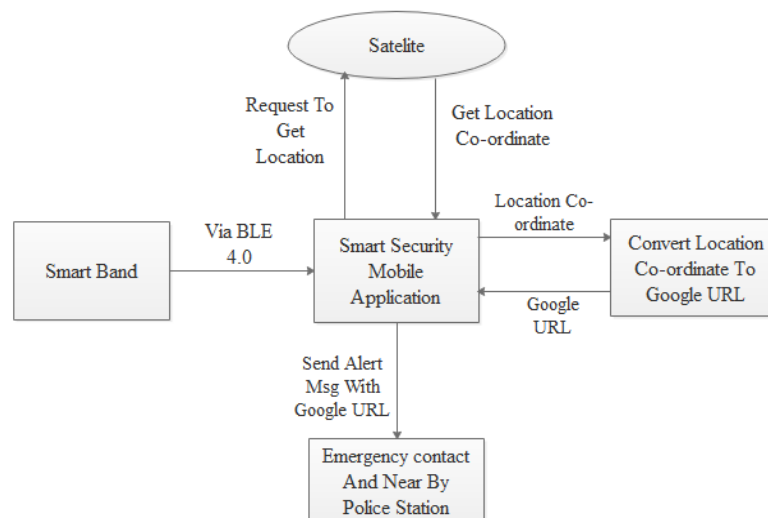


Fig. 2 System Architecture

4.1 System Algorithm:

- Step 1: Women register in the system.
- Step 2: Women login in the System.
- Step 3: Women wear the smart band.
- Step 4: Wearable device contain pulse rate Sensor and temperature sensor.
- Step 5: Every 10sec. value will be compared With the training dataset.
- Step 6: If any abnormal values is encountered then system send alert message on device.
- Step 7: If she doesn't reply in given time about awareness.
- Step 8: System track the current location of women.
- Step 9: Emergency message send to family member, friend and nearby police station with her GPS location.
- Step 10: Also send message any user whose location is near by the victim.

4.2 System Feature

4.2.1 Functional Requirement.

- System should support android handset.
- System should monitor the user location periodically.
- System should properly interact with the smart band.

4.2.2 User Interface.

- User Login Form.
- Police Station Login Form.

4.2.3 Hardware Interface.

- Mobile application will get installed on android smart phone.
- These devices should have BLE 4.0 connectivity.

4.2.4 Software Interface.

- Operating System: Windows
- Database: MySQL
- Android 4.1 and above Supported mobile handset
- JAVA, JDK 7.
- Android studio.
- Eclipse.

V CONCLUSIONS

In our system we developed one smart band which contains pulse and temperature sensor and which is continuously communicate with the smartphone. This system does not required any user interaction at a time of critical situation. It send emergency message automatically to the relatives and near by police station. Our system is more efficient than all existing systems.

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