WEARABLE SAFETY DEVICE AND HEALTH MONITORING SYSTEM

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Abstract - India is a most famous country all over the world known for its great culture and tradition where women are respected the most. However, we also find that there are crimes that takes place against them. Their safety in India has been in doubt. Women safety and concern is very important. It is required to have a cost effective and simple safety gadget that can help them during dangers. In this paper the descriptive details about the electronic gadget which can serve the purpose of safety in the upcoming years is explained. This device consists of an ARDUINO, switch, GSM module, GPS module, pulse sensor and a buzzer. Once when women sense any danger, the safety device is pressed either manually or is done automatically in the case of abnormal pulse rate. On identification of abnormal pulse rate or when the button is pressed, GPS (Global Positioning System) tracks the location and sends the location to the registered mobile numbers and the control room via GSM (Global System for Mobile Communication) and also the buzzer starts alarming. It also sends the current GPS location to the ambulance at regular time intervals through a message. The major advantage of this device is that it is highly reliable, small and easy to carry. It highly ensures accuracy.

Keywords - Button, BUZZER, GPS and GSM Module, Security, Sensor

I. INTRODUCTION

India is a peace loving country however, there are incidents that have been reported in which women are assaulted. Many ideas were made keeping in mind about their safety. This paper describes about the electronic system for women. The level of security can be increased more by electronic devices which can ensure that there can be no problems and make them feel safe.

PURPOSE:

• To design and develop a safety gadget. To utilize Arduino Uno for the gadget.

• To integrate Arduino circuit board with a GSM Modem to send SMS and calls.

• To provide a low cost device enhancing the social welfare in the present technology for timely and reliable communication.

II. DESIGN OVERVIEW

Battery:

9v to 12v battery is used to power the circuit.

Button or Switch:

Once the button is pressed, it will send signal to Arduino, the Arduino will then send the GPS co-ordinates via GSM to the police station, family members and the ambulance.

It stands for Global Positioning System, it is used to give the current longitude and latitude of the device. It consists of 4 Pins - 5V, Transmitter, Receiver, and Ground. This GPS Module does not require any external components. It consists of internal RTC Back up battery.

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GSM Module:

GSM stands for Global System for Mobile Communication, it is a digital mobile telephony system. This GSM is a compatible multi-band cell phone, which works on a wide range of frequencies and can be used not only to access the Internet, but also for oral communication (provided when it is connected to a microphone and a small loud speaker) and for messages and calls. The processor is also in charge of a SIM card which needs to be attached to the module. The module works on voltages between 3.4 and 4.5 V.

Pulse Sensor:

The Pulse Sensor is a heart-rate sensor for Arduino. It essentially combines a simple heart rate sensor with amplification and noise cancellation circuit making it fast and easy to get reliable pulse readings. It consumes power of 4mA current and draws at 5V which is great for mobile applications.
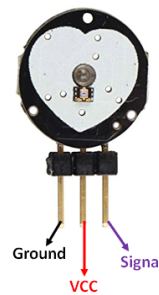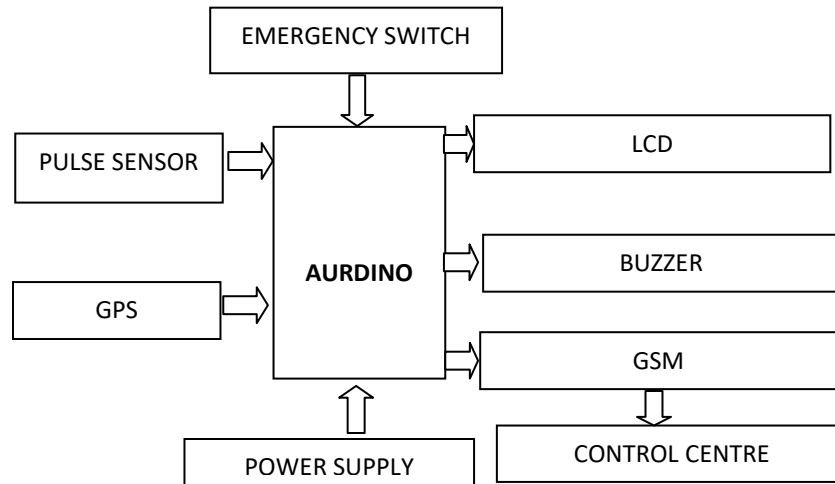

Buzzer:

It is used as an alarm to the nearby people so that they may understand that someone is in need.

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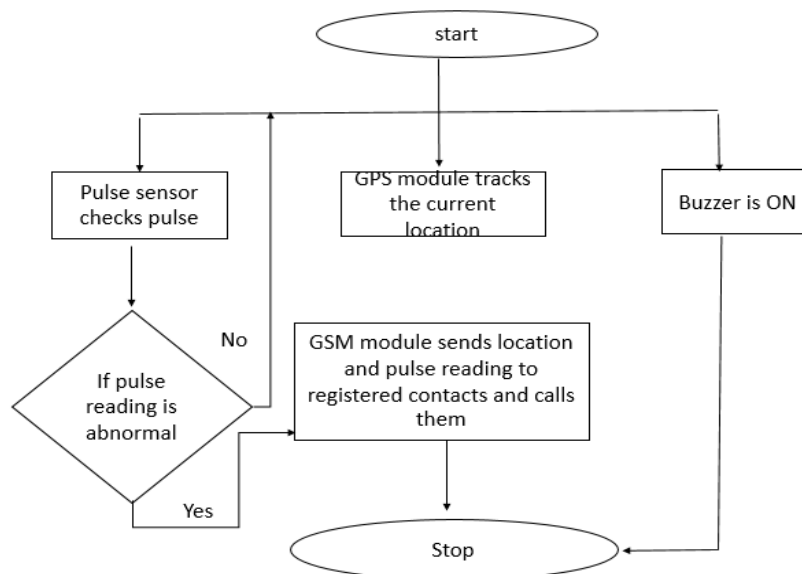*Volume- 5, Special Issue- March, 2019*

III. BLOCK DIAGRAM

IV. WORKING

• The main purpose of our project is to provide security to women during dangerous situations. This device consists of a switch or button which can be pressed by the women when she is in need. Once the switch is pressed by the women the Arduino gets the command and it takes the current latitude and longitude value of the victim with the help of GPS module. The pulse sensor becomes active and starts sensing the pulse value of the victim and sends this value to the ambulance.

• Apparently the buzzer present in the device gets activated so that the nearby people may notice the situation and may come to rescue. The device sends the SMS of current location and pulse reading to the registered mobile number of the family member and police with the help of GSM module. The GSM sends the current location at regular time intervals so that if the victim is changing its current location continuously then that can be easily traced.

• If the pulse reading goes abnormal then the Arduino commands the GSM module to send the pulse reading via SMS and call to the ambulance so that the immediate medical help can be provided.

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APPLICATIONS

- It can be applied for security of women.

- It can be applicable for child tracking

- It is applied for vehicle tracking.

- It is compatible with mobile phones.

- Voice messages can be sent at the time of need.

- In addition, voice recorder and camera can also be fixed.

V.CONCLUSION

The proposed design will deal with the critical issues faced by women. It provides security with advanced technology. While the society may or may not change its mind set but this device will help women to feel secured and stay independent.

VI. FUTURE SCOPE

This device can be made small so that it can be used as a hand band

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