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WOMEN SAFETY DEVICE WITH GPS, GSM AND HEALTH MONITORING SYSTEM

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ABSTRACT: Now *a day's women's safety is a very important issue. In light of the present situation of the cities and other big cities, women security has emerged as one of the most important requirement in our country. In 21st century where the technology is rapidly growing and smart electronics gadgets are being developed but still women and girls are facing problem. To help resolve this issue we propose a GPS based women's safety system. This paper cover descriptive details about the design and implementation of prototype for an electronic gadget which has the potential to serve as a safety wear in the coming years. The device consists of a switch, Arduino (Node MCU), GPS module(Neo6M), buzzer, temperature sensor and pulse sensor. The main working of this project is that anytime a women sense danger, all she has to do, it to hold on the button of the device. Once the device is activated, it tracks the place of the women using GPS (Global positioning system) and send emergency messages using GSM (Global system for mobile communication), to already registered mobile number and the police control room. The pulse sensor checks the pulse of victim and in abnormal health situation the device also sends current GPS location to ambulance at every 5 minutes for three times in from of SMSs. The main advantage of this system is that this device small and easy to carry.*

KEYWORDS: Emergency button, BUZZER, GPS Tracker, NODEMCU ESP8266, Temperature Sensor, and Heart Rate Sensor, Etc.

INTRODUCTION:

We all are known that, Day by day the women safety is becoming a common issue such app does exist and they equally smart to confiscate the victim phone. In the 21st century where the technology is rapidly growing and new gadgets are being developed but still women and girls are facing problems. In our country women can't step out of their house at anytime, especially during night. Main purpose of the system is to provide security and safety. Even though this is Independent Nation women are not safe. There should be some effective measures for the security of the women, now a days there are many applications developed for the women security but main drawback of these application it is required initial interaction of women and that it is not possible. Here we build a women smart band and android applications. This project work automatically based on pulse sensor and temperature sensor. The proposed system's is wearable and typically consist of sensors, signal conditioning electronics and wireless transmission technology. System is low weight and compact energy storage devices and energy harvesting from the human body are crucial technologies for extended and reliable operation. The idea of our project is based on the news related to Women Safety which we often read in the newspapers as shown below. These types of incidents are generally carried out by first time offenders who generally look like students and hence it's difficult to track them. Security measures taken by the police department includes only monitoring cameras in and around the city which includes some tips to alert the public.

The aim of this project is to develop a low power smart electronic gadget that is capable of tracking women while in danger and alert the police through the Real time transmission of location signals of the scene of crime which helps in solving the complicated cases. It also reduces many kinds of crimes taking place in and around the city and hence provides security for the public. The project design has two parts; a public end device (Smart electronic gadget/Transmitter) and the Police end device (receiver) located at the police control room.

The purpose of this project is to design an easy and portable device for women safety. Here we are mainly focusing on designing a prototype in which the device can be easily carried around.

PURPOSE:

- The main purpose of this device is to intimate the parents and police about the current location of the women. A GPS system is used to trace the current position of the victim and a GSM modem is used to send the message to the pre- defined numbers.
- The main purpose of this device is to act as an emergency device for women. the concept of a women's safety device for application in India of GSM and GPS Tracking.

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- The main goal of this project is to they refined wireless portable women safety device and system Using GPS/GSM Technology and Smartphone.

SOLUTION:

We have propose a device that will be a combination of multiple devices, hardware components of a wearable "Smart band". That communicates continuously by accessing to the internet through a Smart phone. This system is already pre-programmed and it includes essential of human behavior such as behavior and reactions to different situations like anger, fear and anxiety.

This system generates a signal which is transmitted to the smart phone. This software or application has access to GPS which is pre-programmed in such a way that whenever it receives emergency signal, it can send help request along with the location co-ordinates to the nearest Police station, relatives and the people in the near radius who have application. This system enables help instantaneously from the Police as well as Public in the near radius. In this system, we have mentioned many Android applications having similar feature to our application. In all those applications, victim location sent only once to the registered contacts in different forms like SMS, EMAIL etc. But in practical situations, the victim may not be kept at one place standing, she may be moving around.

The unique feature of our application is location is sent to all the contacts for every five minutes for three times. Also, all the contacts will be receiving a call, sometimes there may be chance for people don't see SMS, but after receiving the call they get alert and can look at the SMS and can identity that their near once is in danger quickly. If she is in danger then emergency message is send to the family member and nearby police station with the GPS location of victim. The device not only provides family and police support but also helps in getting as fast as possible.

DESCRIPTION:

1. DESIGN OVERVIEW:

Battery: 5v battery is used to power the circuit. Voltage Regulator (7805): The microcontroller and associated circuitry works at 3.3V-5V supply. The voltage regulator 7805 is used to obtain a 5 V DC output. Also LED indicators are used for indicating these voltages.

Push Switch: When push button is pressed then it will send signal to microcontroller, then microcontroller will send the GPS co-ordinates via GSM to the police station or to the family members. In case medical requirement this GSM also calls ambulance.

GPS Module (Neo-6M): It stands for Global Positioning System. Which is used to track and monitor a person's geographical location. GPS is a real time location tracking system. Our project uses GPS to track victims real time location, so they can quickly locate victims and get immediate help. It consists of 4 Pins are 5V, TX, RX, and GND. This standalone 5V GPS Module does not require external components. It consists of internal RTC Back up battery and can be directly connected to USART of the microcontroller.

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

MICROCONTROLLER Node MCU: The microcontroller is used to manipulate the serial operation based the program present in the output is taken from one of the four ports. Most people call ESP8266 as a WIFI module, but it is actually a microcontroller. ESP8266 is the name of the microcontroller developed by E press if Systems which is a company based out of shanghai. This microcontroller has the ability to perform WIFI related activities hence it is widely used as a WIFI module**.**

PULSE RATE SENSOR: Heart beat sensor gives digital output of heart beat. When heart beat detector is working the led flashes for every heartbeat. This digital output will be connected to microcontroller directly to calculate the beats per minute (BPM) rate. Pulse Sensor is a well-designed plug-and-play heart-rate sensor for Arduino. The sensor clips onto a fingertip or earlobe and plugs right into Arduino.

TEMPRATURE SENSOR: Human body temperature is of vital importance to maintain the health and therefore it is necessary to monitor it regularly. We can measure the body temperature using various temperature sensors. For instance,LM35 series are precision integrated circuit sensors whose output voltage is linearly proportional to the Celsius temperature. It operates linearly +10.0mV/°C scale factor with 0.5°C accuracy.

ADMIN: Admin of a system can add women details such as relative information & health details to system. Admin can add Hospital and police station records to the system along with latitude and longitude (i.e location details). Admin have rights to add and delete record. Added data will be stored in MySQL server.

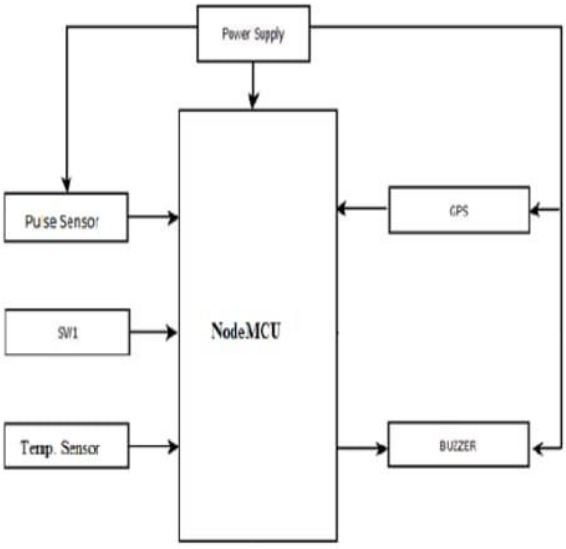
2. WORKING:

The main purpose of our project is to provide security to the women in dangerous situation. This device consists of the panic button which can be presses by the women when she is in need. If women in trouble she can press the panic button system is activated and tracking real time location of victim and send that location to her relative and near by police station so that she can get the immediate help. This system work in two conditions :

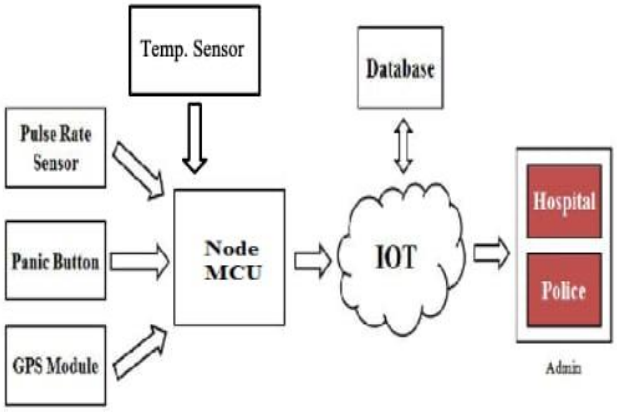
1. Women press the panic button two times then system will get activated and track the real time location and sends it to the nearest police station and family. This system also Monitor heart rate and temperature send a message to the hospital if the pulse and temperature are abnormal then SMS is only sent to the family and police station when the pulse and temperature are normal.

2. Once the panic button is accidently pressed the system turn on and checks the pulse and temperature. If it is abnormal the SMS send to the family, police station and hospital but if the pulse and temperature are normal the system does not pass SMS to anyone.

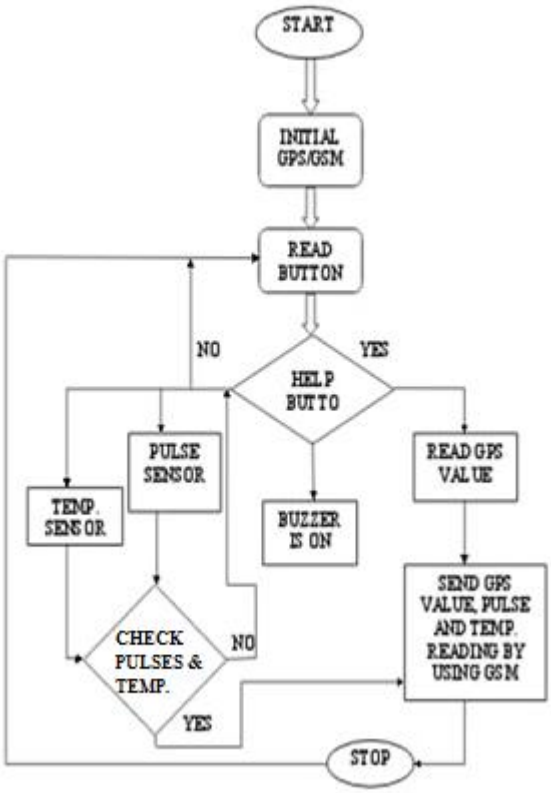
BLOCK DIAGRAM:



PROJECT FLOW:



FLOW CHART:



ADVANTAGES:

- Real Time Location of the women having emergency
- The system alerts can be set to predefined Mobile numbers or predefined E-mail Id's of the victim.

- To provide faster help for women
- Can be used for the safety of children.
- Can be used for the safety of elderly aged people.

APPLICATIONS:

- Apart from solving the problem of women safety, the model could be utilized as, as a safeguard measure in the public places.
- As a security system for homes, offices and banks.
- As a tracking system for those who violates the traffic rules.
- As a life saver during accidents in remote areas
- In the current covid -19 situation detection of characteristic changes in body temperature and other vital data enable early detection of covid-19 symptoms.

FUTURE SCOPE:

- System can be embedding smaller size system which can be placed on body with comfort which will enhance woman safety. Sensor for sound and image can be activated when panic button is pressed.
- This device is can be made so small that it can be used as a hand band.
- This device can be compatible with mobile phones.
- This device will be used for detecting covid-19 symptoms.

CONCLUSION:

Our effort behind this project is to design and fabricate a gadget which is so compact in it self that provide advantage of personal security system the emergency response system which his helpful for women in the incidents of crime. This is cheap system which can store the data of the members in the particular locality and provide immediate alert in case of crime against women. This provides women security. Being safe and secure is the demand of the day.

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