Design and Development of Advanced Device for Women Safety

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Abstract - *Due to increase in crime rate, women feel unsafe to leave their homes. With the help of technology devices can be built to enhance the safety of the women. This device will generate an emergency alarm and will also send the message to concerned person. Women carrying this device can send the information to the police by pressing SOS button. In this project NodeMCU is interfaced with GPS module and IFTTT (If This Than That) for getting location co-ordinates and sending alert SMS. When the SOS button is pressed whole system gets active and send the message which is attached with latitude and longitude co-ordinates of the place which is calculated by the GPS, controller reads the value and sends the data to the predefined number via SMS using IFTTT applets like android SMS.GPS will get data from the satellites and obtains the geographical position of the device. NodeMCU decodes the NMEA format data to GPS coordinates using libraries, Operating voltage of the project is 5v, This project can be powered using power bank or batteries.*

*Key Words***:** Women, Location, GPS, NodeMCU, Safety.

1. INTRODUCTION

Though we are living in 21st century, people are facing lots of problems such as poverty, pollution, corruption, illiteracy and women safety. Due to increase in crime rate, women feel unsafe to leave their homes. to step out of the house. In many sectors working hours are till the late evening and there are night shifts too. Women working at this hour have to travel at late night, which bring an insecure feeling. With the help of technology devices can be built to enhance the safety of the women. This device will generate an emergency alarm and will also send the message to concerned person. Women carrying this device can send the information to the police by pressing SOS button which will send SMS with current location, using this information police will save the victim. In this project NodeMCU is interfaced with GPS module and IFTTT for getting location co-ordinates and sending alert SMS. When the SOS button is pressed whole system gets active and send the message which is attached with latitude and longitude co-ordinates of the place which is calculated by the GPS, NodeMCU reads the value and sends the data to the predefined number.
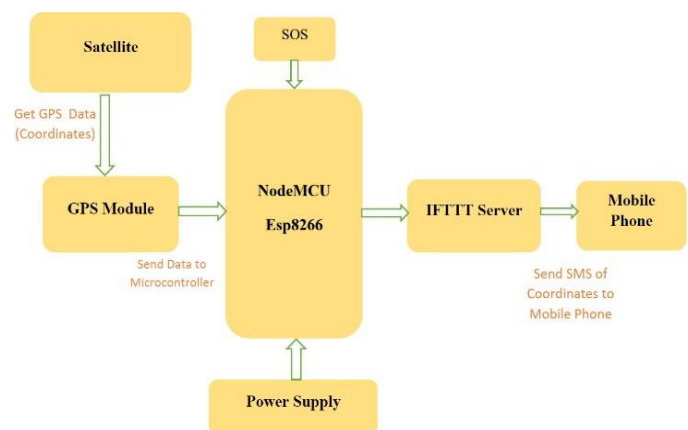
1.1 METHODOLOGY

Fig-1: Block Diagram

The main purpose of this project is to provide security when women feel insured. The main two components are GPS module, and NodeMCU esp8266.

- GPS module is a device that receives data from the satellites and obtains the geographical position of the device.

- NodeMCU is a WIFI module that connects to the internet using the provided WIFI Network .

- Here the live coordinates received by the GPS receiver module is send to a mobile phone via SMS using the IFTTT applets like Webhook and Android SMS.

- The GPS Coordinates received from the GPS module is sent to the IFTTT server Webhook using NodeMCU and the IFTTT server will send the Alert message and GPS coordinates to the Mobile Number provided.

- By Press and holding the SOS button, the whole system works and instantly sends an SMS is sent to the concerned person via GPS Coordinates.
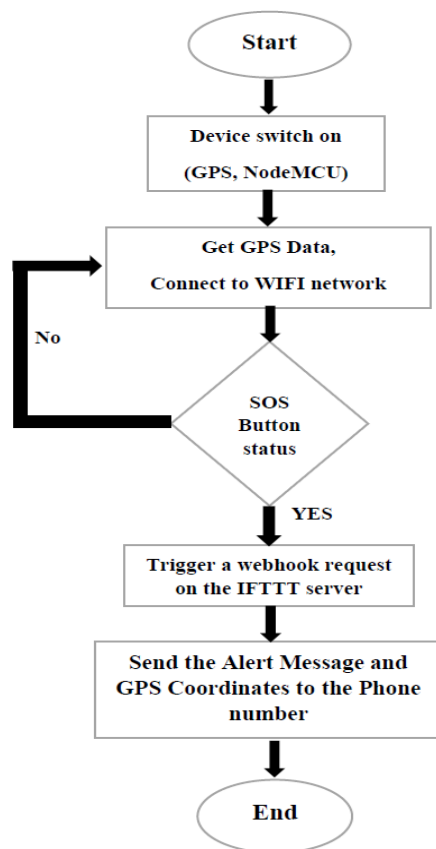
1.2 FLOWCHART

Fig-2: Flowchart

1.3 WORKING

- When the device is turned on using power source, NodeMCU will be connected to the WIFI Network provided and GPS module starts receiving data in NMEA format.

- NodeMCU will decode the NMEA data to GPS Coordinates using certain libraries and display it on serial monitor.

- As soon as SOS button is pressed and Hold , Led is turned on to indicate system got activated, NodeMCU will start connecting to IFTTT server and make a Webhook request, along with the GPS Coordinates.

- As soon as the Webhook application is activated in NodeMCU, Android message applet is launched and the message is sent to the mobile number configured in the Android message applet.

- It will also trigger an Emergency Notification alert on the Phone and message sent consists of the GPS Coordinates that was received from the GPS module.

2. ADVANTAGES

- It can be used as a official evidence of crime and accurate information of the place of persecution.

- It is affordable not so expensive

- Comfortable and it is easy to use with just one press on sos button.

- The family member can find women/anyone in danger and take appropriate steps to rescue the women from danger.

- It is portable and Wifi- Enabled.

3. APPLICATIONS

- Can be used in vehicle tracking & safety system.

- Can be used for the safety of women to easily track a woman's location with the help of coordinates sent.

- Can be used for child safety.

- Can be used for the safety of the elderly.

- Can be used for the safety of people with physical disabilities.

- Can be used in Security applications.

4. CONCLUSIONS

The whole idea of the project is to help a needy woman by using her location with the help of a device made up of NodeMCU interfaced with GPS. The proposed system will help women to deal with the critical issues faced by them in their day- to- day life and therefore it will also help to reduce the crime rates against women. By sending location it is easier to help a needy woman. All the applications and devices built using new technologies make it helpful for women to work in rural areas. This system is easy to use and also affordable.

So this system can overcome the fears that frighten every woman in the world about her safety and security. The Internet of things has changed the whole security system by simplifying things. It is helpful in providing secure environment for the females. The total power consumption of the project is around 5V. We are very much satisfied with our results, but there is always room for improvement.

5. FUTURE SCOPE

For the better product performance new device versions can be introduced by updating new technologies.

The current system is works fine, but we can still extend the functionality of the device by using various other modules

without affecting the current system. Functionalities like voice detection, camera, screaming alarm can be added and some kind of tools for defense like Stun gun (shock generator) can be implemented. Voice detector can be added to give the voice command which can be priorly feed in NodeMCU to indicate emergency /danger. Sending a warning message to the persons near the emergency area. The device can be improved in the future by using more integrated modules.

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