

IoT Based Child and Women GPS Location Monitoring System

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Abstract— Child and woman safety and tracking is a major concern as more number of crimes on children and woman are reported nowadays. With this motivation, a smart IoT device for child and woman safety and tracking is developed to help the parents to locate and monitor their children. The system is developed using ONE board programmed in embedded, and also GPS, GSM modules. The novelty of the work is that the system automatically alerts the parent/caretaker by sending SMS, when immediate attention is required for the child and woman during emergency. The parameters such as buttons to send location through SMS and also call from device results are plotted for the same. The above system ensures the safety and tracking of children and woman.

Indexed Terms-- Node MCU, GSM module, GPS

I. INTRODUCTION

Around the globe the crimes against women are increasing every day. As per the gender survey worldwide, the female is about 50 percentage, which is at par with the country's sex ratio. These women's role is vital in developing any nation. Nevertheless, the rising harassments against women is a major problem that preventing any nation from developments. At present a woman is reportedly getting kidnapped at every 44 minutes and raped at every 47 minutes. Therefore, the women safety has become the major task in present scenario. At school, work places, and everywhere the safety of women is in danger. The sexual harassment is increasing day by day against women. Majority of these incidents are happening due to their superiors in the organisation or sometime by a close associate. In 2016, the number of rape crimes

reported was around 39000 in India. According to reports of national crime bureau total cases report around the globe in 2015 was 327394; which is decreased by 3.1 percentage compared to 2014. By nature, the women are not so physically strong as compared to their men counterpart. Needless to mention that enormous innovations are being incorporated in many sectors. Hence, there is also a need to development of technology driven devices and systems for the use of women safety, which is a need of the hour. So, in case of such emergency, the proposed device guardian for women is an ultimate security device especially designed for women security purposes. The device should be designed in such a way to make it portable for use. The basic approach is to intimidate the exact location, messaging to registered mobile number and making calls police station and ambulance services, neuro stimulator gives shock of the attacker, pulse sensor measures the pulse rate, buzzer gives alarm sound and button camera captures the image of the attacker. With you is an emergency app used to send help emergency message with a frequency of 2 seconds continuously which can be activated by pressing power button 2 times successively.

II. PURPOSE OF STUDY

The main 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.

III. HARDWARE PLATFORM

The hardware part mainly consists of Node MCU, GSM module, and GPS

A. Node MCU:

The Node MCU (Node Micro Controller Unit) is an open-source software and hardware development environment built around an inexpensive System on-a-Chip (SoC) called the ESP8266. The ESP8266, designed and manufactured by Express if Systems, contains the crucial elements of a computer: CPU, RAM, networking (Wi Fi), and even a modern operating system and SDK. That makes it an excellent choice for Internet of Things (IoT) projects of all kinds.

B. GPS:

Here we are using the NEO6M GPS module. The NEO-6M GPS module is a popular GPS receiver with a built-in ceramic antenna, which provides a strong satellite search capability. This receiver has the ability to sense locations and track up to 22 satellites and identifies locations anywhere in the world. With the on-board signal indicator, we can monitor the network status of the module. It has a data backup battery so that the module can save the data when the main power is shut down accidentally.

C. GSM module:

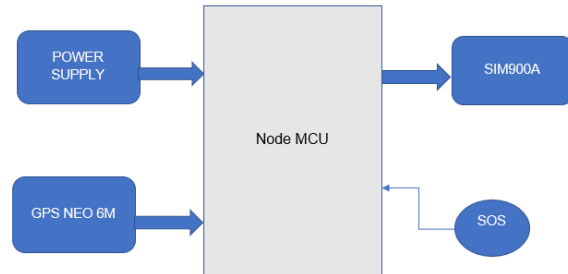
This is a GSM/GPRS-compatible Quad-band cell phone, which works on a frequency of 850/900/1800/1900MHz and which can be used for various applications such as access the Internet, make a voice call, send and receive SMS, etc. The frequency bands of the GSM modem can be set by AT Commands. The baud rate is configurable from 1200-115200 through AT command. The GSM/GPRS Modem is having an internal TCP/IP stack which enables us to connect with the internet via GPRS. This is an SMT type module and designed with a very powerful single-chip processor integrating AMR926EJ-S core, which is very popular in various industrial products.

IV. RESEARCH METHODOLOGY

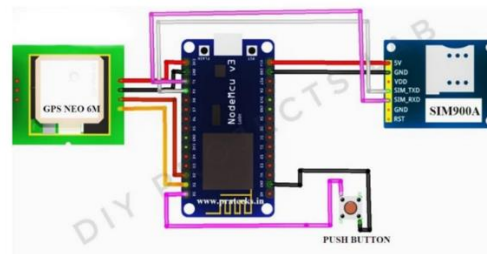
The operation of experimental kit is latitude and longitude” location will be sent with an alert message

to the pre-set contacts for every 2 two minutes in single click. Double click, audio will be recorded and alert message will be sent to the pre-set contacts. Long press will send emergency call with alert message to the pre-set contacts.

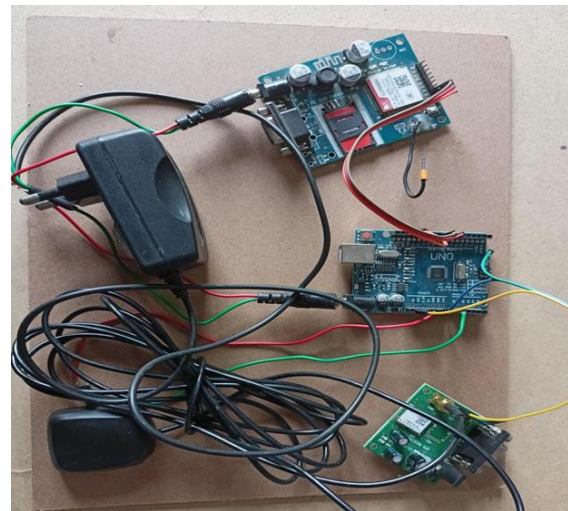
V. BLOCK DIAGRAM



VI. CIRCUIT DIAGRAM



VII. MODELING KIT



VIII. SIMULATION TOOLS

This project is implemented using following software's:

- Express PCB – for designing circuit
- Arduino IDE compiler - for compilation part

IX. ADVANTAGES AND DISADVANTAGES

Advantages:

- Best for women security.
- Helps to keep safe from robbers.
- Can be used get rid of robbers.
- Keeps others alert.

Disadvantages:

- Here is no hidden camera detector which is portable to ensure our privacy.
- Monitoring was tedious.
- Mischance in arriving rate

X. CONCLUSION

Our primary goal of this project is to ensure every Woman in our society to feel safe and secured. According to the survey in India 53% of working women are not feeling safe - Women is working in night. (Bangalore-56%, Chennai-28%, Hyderabad-35%, Mumbai-26%). In Overall 86% of working women in India, women facing hurdles are high in Delhi, Mumbai, Hyderabad, Kolkata and Pune comparatively to other places. FEMME can play a major role by providing women a safe environment in all situations for example (detecting hidden camera, physical threatened, harassed, robbery, stalked). Implementing real time application and a device, we can solve the problems to an extent. With further research and innovation, this project is used as a small wearable device like watch, pendent etc.

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