



## WOMEN SAFETY DEVICE WITH GPS TRACKING & ALERTS

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### ABSTRACT

Women safety is a very important issue due to rising crimes against women these days. To help resolve this issue we propose a GPS based women safety system that has dual security feature. This device consists of a system that ensures dual alerts in case a woman is harassed or she thinks she is in trouble. This system can be turned on by a woman in case she even thinks she would be in trouble. Our system solves this problem. This device is to be turned on in advance by a woman in case she is walking on a lonely road or some dark alley or any remote area. Only the woman authenticated to the devices can start the system by fingerprint scan. Once started the devices requires the woman to constantly scan her finger on the system every 1 minute, else the system now sends her location to the authorized personal number through SMS message as a security measure and also sounds a buzzer continuously so that nearby people may realize the situation. In this case even if someone hits the woman or the woman falls down and get unconscious, she does not need to do anything, the system does not get her finger scan in 1 minute and it automatically starts the dual security feature. This device will prove to be very useful in saving lives as well as preventing atrocities against women jacket (similar to a blazer for women). It is an easy to carry device with more features and functions. The main purpose of this device is to intimate the parents 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.

### 1. INTRODUCTION

#### 1.1. INTRODUCTION:

Even in this modern era women are feeling insecure step out of their house because of increasing crimes in our country like harassment, abuse, violence etc., The corporate and IT sector are currently in boom. Many women are working in corporate even in night shifts. There is a feeling of insecurity among the working women. The proposed device is more like a safety system in case of emergency. This device can be fitted in a will be provided with equipment which is not visible to others the equipment consists of GPS module by which we can get the geographical location and these location values are displayed on the Buzzer. In the case of any emergency conditions she can press a button once then the location information will be tracked and sent to police so that she will be protected in proper time.

#### 1.2. APPLICATIONS

- 1.Can be used for the safety of women.
- 2.Can be used for the safety of children.
- 3.Can be used for the safety of elderly aged people.
- 4.Can be used as legal evidence of crime with exact location information for prosecution.

### 2. LITERATURE REVIEW

#### 2.1SMART GIRLS SECURITY SYSTEM

By Basavaraj Chougula, ArchanaNaik in the year 2014 that the system consists of various modules such as GSM shield (SIM 900A), Arduino ATmega328 board, GPS, screaming alarm, a set of pressure sensors for activation and power supply unit. It was high time we women needed a change. Women Employee Security System using GPS Based Vehicle Tracking - By Poonam Bhilare, Akshay Mohite in the year 2015, It describes a GPS

based vehicle tracking and women employee security system that provides the combination of GPS device and specialized software to track the vehicles location as well as provide alerts and messages with an emergency button trigger. 3. Self Defense System for Women

Safety with Location Tracking and SMS Alerting - By Usha Kiran Reddy, P. Sumitha in the year 2017, Women.

### 3. BLOCK DIAGRAM OF WOMEN SAFETY DEVICE

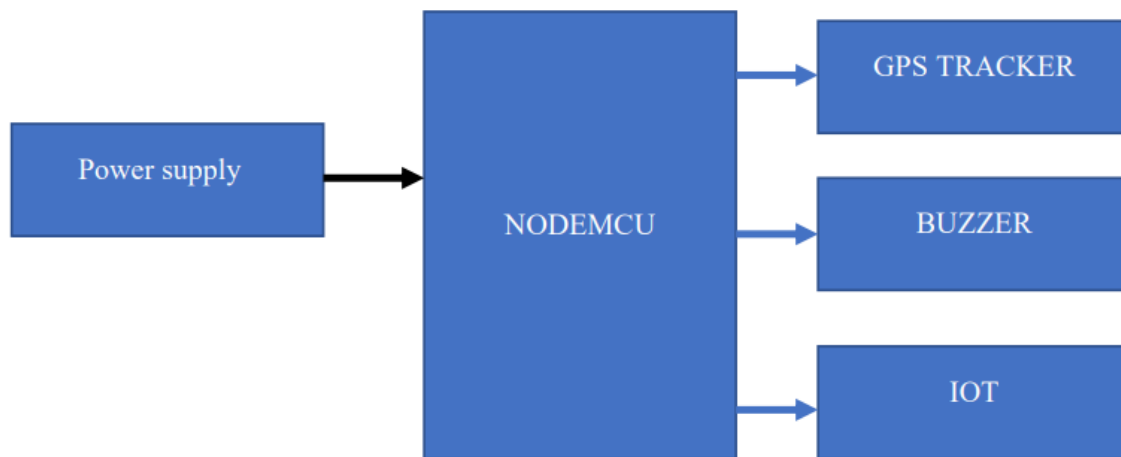


Fig 3.1: Block diagram of women safety device

#### 3.1. POWER SUPPLY

In this project we have power supplies with +5V & -5V option normally +5V is enough for total circuit. Another (-5V) supply is used in case of OP amp circuit Transformer primary side has 230/50HZ AC voltage whereas at the secondary winding the voltage is step downed to 12/50hz and this voltage is rectified using two full wave rectifiers .the rectified output is given to a filter circuit to filter the unwanted ac in the signal After that the output is again applied to a regulator LM7805(to provide +5v) regulator. Whereas LM7905 is for providing -5V regulation.(+12V circuit is used for stepper motors, Fan and Relay by using LM7812 regulator same process like above supplies).

#### 3.2 Introduction to NodeMCU

NodeMCU is an open-source LUA based firmware developed for the ESP8266 wifi chip. By exploring functionality with the ESP8266 chip, NodeMCU firmware comes with the ESP8266 Development

board/kit i.e. NodeMCU Development board.



Figure 2 :NodeMCU Development Board/kit v0.9 (Version1)

Since NodeMCU is an open-source platform, its hardware design is open for edit/modify/build. NodeMCU Dev Kit/board consist of ESP8266 wifi enabled chip. The ESP8266 is a low-cost Wi-Fi chip developed by Espressif Systems with

TCP/IP protocol. For more information about ESP8266, you can refer to the ESP8266 WiFi Module. There is Version2 (V2) available for NodeMCU Dev Kit i.e. NodeMCU Development Board v1.0 (Version2), which usually comes in black colored PCB.

#### 4. WI-FI LIMITATIONS - WIRELESS NETWORK LIMITATIONS

WiFi technology supports two types, one is called —infrastructure another one is —Ad hoc. In ad hoc Ethernet network can be connected without central device known as router or access point. Ad hoc mode is always preferred over infrastructure mode, however ad hoc networks have following issues. Ethernet devices configured on Ad hoc mode offers nominal security against network intruders. Ad hoc WiFi configured devices cannot disable SSID broadcast in contrast to infrastructure mode. Network attackers will not require much of effort to prevail in Ad hoc Network.

#### Security concerns

It is simple to set Ethernet network but keeping it secure takes much more effort. Access points of Ethernet do not deploy encryption methods. It is required to be done as network is enabled. Secure Ethernet network can be easily attacked by hackers to steal private information. Guests who are not potentially harmful can still utilize the network resources and minimize the performance.

#### Interference from other devices

Ethernet transmits data at 2.4 GHz making it susceptible to interfere Bluetooth enabled devices, mobile phones, cordless, Microwaves and other communication devices. Closer the interfering devices are the poor communication will be and vice versa.

#### Specifications:

IEEE 802.11 is standard used world widely for Wireless Local Area network, WLAN; it stands for Institute of Electrical and Electronics Engineers. In simple words it is standard of communication between computers and wireless devices. The standards were set by IEEE LAN/MAN Standard committee in 5GHz and 2.4 GHz public spectrum bands. IEEE 802.11 is consisting of numerous mechanisms and services that interrelate to present station mobility translucent to the higher layers of the network. IEEE 802.11 is a combination of wireless LAN. We can use IEEE 802.11 and Wi-Fi often as interchangeably depends on market demand. It is a basic protocol of any high speed wireless network from 1997 to 2008. There are lots of changes occurred in it but the basics —"high performance" never change. The frequency of it is from 2.4 GHz to 5 GHz and range is from 100 meter to 5000 meter.

#### 5. EXPERIMENTAL SETUP

##### 5.1 WOMAN SAFETY DEVICE KIT:

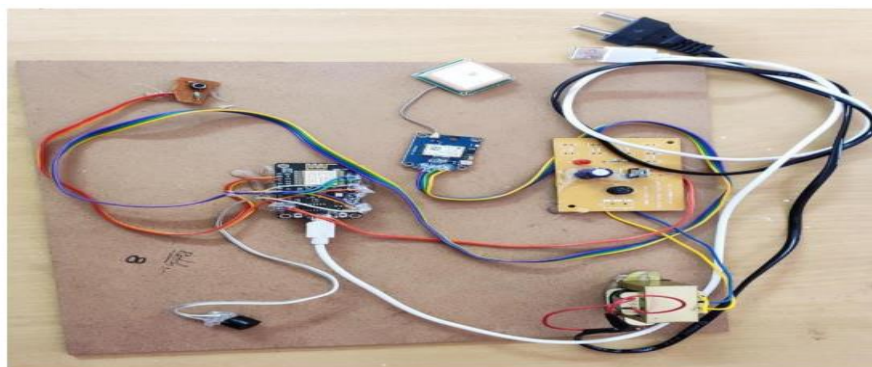
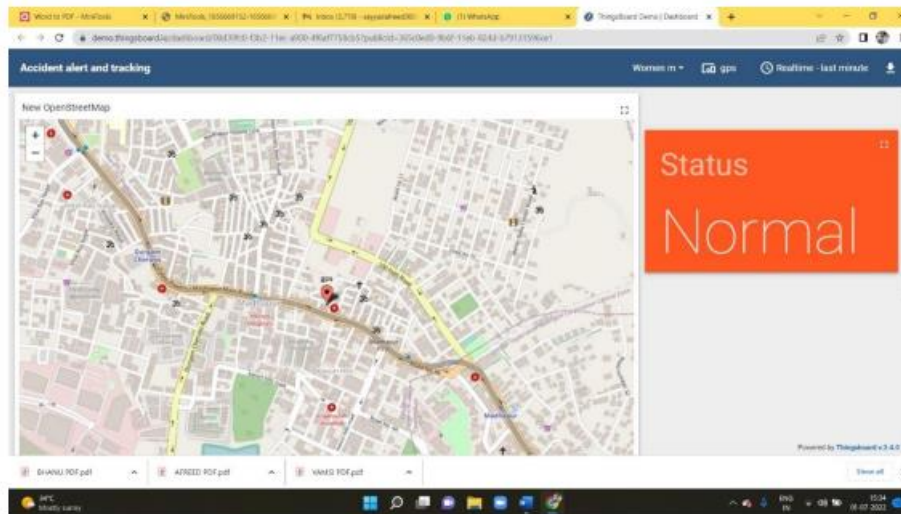


Fig:5.1 kit diagram

5.2 OUTPUT:



## CONCLUSION AND FUTURE SCOPE

Maximum Women's safety is the utmost concern of our project. So, we designed our project with few unique features. One of the key features is that our system can work in both online and offline mode. Police and volunteers who are positioned near the user's location in both modes, they will assist the user. On the other hand, the most important and unique feature of our app is that when the user is in trouble, she will get help by fixed volunteers and movable volunteers who are closest to the user. The app user will get help much faster because this app does the job of finding volunteers at its own discretion. We will add a camera module to the device which will have video and audio recording options. Through the camera, specific information about the attacker can be sent to the police. We will add a watch interface and pulse sensor and Blood Oxygen Sensor with Smart Band so that the user can provide information about her physical condition and her family can feel relaxed by receiving this information. In the app, we will also add a Walking Partner feature that allows users to find a partner with whom she can go to the destination together. This will make her journey safer and secure. Without women's progress, a country cannot move forward, yet we see women suffer a lot for harassment on their way, which is a

hindrance to their progress. For this reason, we decided to work on a project which will help millions of women. The main benefit of using this safety system is that women can feel confident when they go outside as they can quickly get support through the system when they are in danger. The device we invented for Women's Safety is made up of two separate tools. One is a smart band and the other is the CWS app. The two tools are able to provide women's safety independently. But it is expected that maximum safety will be ensured when using the full system together. We have encountered some issues in designing the Smart Band. The size of the smart band designed here is slightly bigger, so it can be a little difficult for the user to wear the band. In the future, we will work to make the band more user-friendly by using 3D printing and nanotech.

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