

# Design And Development of E-Jacket for Women Safety

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***Abstract— Women who are victims of abuses are even deprived of fundamental human rights. Gender-based violence has become a national and international program through decades of civil society and women's struggles. Though there are unprecedented numbers of laws against domestic violence, sexual assault and other forms of violence in each and every country to protect their female citizens to become a victim of any such violence but they are facing major challenges in implementing such laws. This makes society unfair and unsafe to women as in the majority of cases the offender remains unpunished.***

***Atrocities against women can now end with the help of a device known as a safety jacket for women. It is to flash a warning giving an instant location of the distressed victim to the police so that the incident could be prevented and the culprit apprehended. It would reduce the crime against women.***

***Indexed Terms-- GPS, Buzzer, Camera, Nodemcu8299 wifi module, Gps module.***

## I. INTRODUCTION

In a global scenario, the first issue in the minds of all girls is their security and harassment issues. The only thought haunting in every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. Women who are victims of violations are also deprived of basic human rights. Gender based violence has become a national as well as international agenda because of decades long struggles by civil society accompanied by women's movements. That's why there are unprecedented numbers of laws against domestic violence and other forms of violence in each and every country. This project suggests a method to protect women. It focuses

on providing security for women so they never feel defenseless.

The system consists of various modules such as buzzer, NodeMcu ESP3266 WIFI Module. An electronic jacket for women safety. It is based on women's security.

It is a simple and easy to carry device with various functions. The basic approach is to bully the instant location and a distress message to the police and recorded number, to avert unfortunate incidents and provide real-time evidence for swift action against perpetrators of crimes against women. The women's safety system, which allows for immediate response to harassment, focuses primarily on two different parts, one is developing mobile applications for women's security and protection and the other, users can press a button that is located on device. The wifi module is embedded with it and sends data to the mobile phone. Mobile phone app sends the messages to predefined contact with live location.

Before initiating for designing an autonomous system which may detect the parameters related to the miner who is working in local mines of Pakistan; it was very important to study the previous suggested systems being proposed in past for same issue and do comparative analysis. There are huge manuscripts available describing the same autonomous systems by which one can get an accurate and exact situation awareness along with alert generation for rescue teams. One may get a rapid support from data acquiring if it is done through pervasive or ubiquitous computing technology. This will not only increase the computational capability for communicating but it will also provide an ease to perform useful tasks that minimizes the less interaction with computers.

2. In some of the literature, the usage of audio communication is also proposed but this may create an overload and a confusion for rescuers as this system design is proposed to provide an easy way out for rescuers to set a priority to dig at particular places where one may find maximum chances to retain the live of a miner. Moreover, there are several systems, which are easy to carry, and wearable i.e. a wrist band using Arduino Platform for the rescuer.

The main objectives of various papers are related to generating an alert to rescue team using android applications but what rescue team will do if they do not know where the exact miner is lying beneath the debris. Discussing some of very sensitive solutions i.e. designing of incubators where data acquisition and transmitting that wirelessly both are challenging tasks but yet one may find various systems being designed on micro-controller based and receiving some of essential data.

Being an engineer, people expect us to provide a solution which should be under community services and due to this various research scholar strive hard to propose various solutions.

These solutions are majority proposed in the area where one sewer may go underground and clear the drain line. Discussing further one may see such autonomous systems which may not only detect the various gases using Average Slope Multiplication techniques.

In Proposed papers there are plenty of papers which will not only detect the gas leakage but recognize it as well i.e. Methane or any hazardous or poisonous gases which may harm the labour inside a drain line or in mines in our case.

The main issue in the establishment of such an underground monitoring system is to have a communication alive and in this regard one may explore the use of low frequency magnetic fields for communication, and present a new hardware platform that features triaxle transmitter/receiver antenna loops.

## II. MAIN COMPONENTS

The hardware parts of the project include

- Power Supply circuit (consisting of Diode, LED, Capacitor, Voltage Regulator and Battery)
- Buzzer connected to Microcontroller (AT89C2051)
- Emergency Switch and Strain Wire connected to Microcontroller
- ESP8266 WIFI module
- E-Jacket
- Android Phone to connect mobile with the hardware part of the Jacket through wifi Module.
- Gps Module

Battery: -

1. Constant 9v Output till lasts
2. Metal Jacket Body
3. Good Built Quality and hence Leakproof
4. Easy to install and Replace
5. Corrosion-free Connector point for long-term use
6. 0% Mercury and Cadmium.Environment-friendly
7. OEM Compatible

Active buzzer: -

1. Product name:3.3 to 5V Active Buzzer Alarm Module Sensor
2. Transistor drive module uses 8550
3. With Fixed bolt hole-easy installation-2.6mm aperture.
4. Operating voltage 3.3V-5V
5. PCB Dimensions:34.28(L) \* 13.29mm(W) \*11.5(H)

ESP8266 WIFI Controller:

1. Microcontroller: Tensilica 32-bit RISC CPU Xtensa LX106
2. Operating Voltage:3.3V
3. Input Voltage:7-12V
4. Digital I/O Pins (DIO):16
5. Analog Input Pins(ADC):1
6. UARTs:1
7. SPIs:1
8. I2Cs:1
9. Flash Memory:4MB
10. SRAM:64KB
11. Clock Speed:80MHz
12. USB-TTL based on CP2102 is included onboard,Enabling Plug n Play

### 13. PCB Antenna

#### ESP32CAM:-

1. Wireless Module: ESP32-S WIFI 802.11 b/g/n + Bluetooth 4.2 LE module with PCB antenna,u.FL connector,32Mbit SPI flash,4Mbit PSRAM.  
Camera: FPC connector,Support for OV2640,Support for -OV2640 or OV2670 camera
2. Expansion:16x through-holes with UART,SPI,I2C,PWM.
3. Misc:Reset button.
4. Power Supply: 5V via pin header.
5. Power Consumption.
6. Flash LED off:180Ma@5V
7. Flash LED on to maximum brightness: 310mA @ 5V min.
8. Deep-sleep:20mA @5V min.
9. Modern-sleep:20Ma @5Vmin
10. Light-sleep:6.7Ma @ 5V min

#### Blink –App:-

A typical program used by beginners, akin to Hello, World! is "blink

", which repeatedly blinks the on-board LED integrated into the Arduino board.

This program uses the functions pinMode() , digitalWrite() and delay() , which are provided by the internal libraries included in the IDE environment.

### III. METHODOLOGY

The proposed system is to design a portable device which resembles a normal jacket. It consists of WIFI microcontroller, WIFI/GPS modules, screaming alarm, LED modules and emergency switch. The prototype includes two independent system controlled using switch.

When switch is pressed the device will get activated, immediately the location of the victim will be tracked with the help of GPS and emergency message along with latitude and longitude value will be sent to stored contacts every one minute with updated location.

Simultaneously the LED module along with the screaming alarm unit will be activated. The LED module consists of high intensity LED's connected in

series that will let out a flash which will make the attacker lose his veering for few seconds, while the alarm will send out sirens to call out for help. When second switch is pressed coordinates which can be used to find exact location using GOOGLE MAPS.

The project is powered by a 12V DC power supply, it consists of atmega8a microcontroller which is a 24 pin IC.

The circuit consists of two switches which functions differently to give different output and activate the circuit. The circuits include GPS, LCD,LED and buzzer.

The GPS module is connected to the RX pin of the microcontroller through its TX pin and sends the location via the GSM module .The GSM module which is connected to the TX pin of the microcontroller through its RX pin.

The output devices include the LCD, LED module and the buzzer .The LCD is used to show the longitude and latitude value which is not the part of end product. The two LED modules and the buzzer are used to grab attention of nearby people and throw the attacker off-guard.

When switch one is pressed all these feature i.e. location , LED modules and the buzzer start working simultaneously, and when switch two is pressed only the location is send to the emergency contacts.

#### Result:

In this system Push button is pressed alarm should ON. After pressing push button camera must ON and send the streaming to authorized person.

GPS module must send live location to authority.

- Advantages

1. Provides Safety in the critical conditions.
2. Live location can also be tracked by the Authorized persons.
3. System is compact and easy to carry in the Jacket.

- Disadvantages

1. Cost on higher side
2. Corrective action can't be taken immediately as the system has limited Functions

3. Mobile Network plays an important role in the Process

### CONCLUSION

The women safety jacket allows immediate response and mainly focuses on different parts for protecting the women in distress, first is providing instant protection to the user by an alarming sound by using a buzzer. In the second part, the user can send real time location to the predefined numbers using GPS. Bluetooth transmits data serially. The main aim of designing this jacket is to implement a simple, reliable, comfortable and easy to carry device with magnanimous functionality for women which allows immediate response in case of harassment or assault providing protection in an affordable cost which can be easily endured by the common users.

The major limitation is power drainage due to continuously keeping the circuit on but we can also overcome this problem by using small size battery like wrist watch batteries or rechargeable batteries like mobile batteries this would make the system compact and light in weight.

A battery level indicator along with alarm can be used to notify women about battery condition so she can replace or recharge battery on time.

### FUTURE SCOPE

By using image processing techniques fear, distress, anger of user can be analyzed using camera and other sensors and automatic alarm or message sending operations can be performed rather than manually pressing the emergency switch. In short by using digital image processing techniques the circuit can be made partially automatic. The setup can be made detachable for day-to-day using, so that the same setup can be used on different outfit.

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