Women Security System Using GPS Tracker And Safe Jacket

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Abstract: All over the world, the number one concern on every girl's mind is her safety and bullying. The only Concept that impresses all girls is that even in awkward times, the Can move freely without having to worry about their safety. This project introduced new technologies for the protection of women. With, the project focuses on providing women with a safe place to avoid being helpless. The system consists of GSM, GPS, memory card, oscillator circuit, buzzer and other modules. There are many women today. Now is the time for us women to change. This work is based on women's safety where women feel safe. This article describes electrical safety for women in public transport such as cars, buses and automatic rickshaws as today is the fourth time women Are harassed by stealing and attacking drivers. Women have a special influence in all sports, dance, education, business and politics. Women are leaders in every field. Are Indian girls really Safe? We always get the answer no. The generator is installed in the shirt, there are GPS, GSM, shock circuit, buzzer, memory card and they are connected to Arduino board to control all the functions mentioned above.

Keywords— GSM, GPS, memory card, oscillator circuit

I INTRODUCTION:

The number one question on every girl's mind, around the world, is about her safety and bullying. The only Concept that impresses all girls is that even in awkward times, the Can move freely without having to worry about their safety. This project introduced new technologies for the protection of women. With, the project focuses on providing women with a safe place to avoid being helpless. The system consists of GSM, GPS, memory card, oscillator circuit, buzzer and other modules. There are many women today. Now is the time for us women to change. This work is based on women's safety where women feel safe. This article describes electrical safety for women in public transport such as cars, buses and automatic rickshaws as today is the fourth time women Are harassed by stealing and attacking drivers. Women have a special influence in all sports, dance, education, business and politics. Women are leaders in every field. Are Indian girls really Safe? We always get the answer no. For this reason, an

electronic system with GPS, GSM, shock circuit, buzzer, memory card interface is installed on the shirt.

A. PROBLEM STATEMENT

In an emergency, women cannot secure and operate their smartphones. Also, they cannot set an alarm on, they cannot suddenly cross in a dangerous situation, and they cannot send their location to Police and family. And women can't have any self-defense equipment. Therefore, she could not protect himself.

B. OBJECTIVES

➢ We created a program for women to share their places with their families, police and relatives.
➢ Create an electrical circuit to generates the electric shock.
➢ We need to create a jacket that will hold these circuits and make it easier for the users.
➢ By all these circuits we need to develop the project to protect the women.

II. LITERATURE SURVEY

This work [1] had suggested that it will notify the parents and police of the women's current whereabouts. The victim's current location is tracked using a GPS system, and the message is delivered to the pre-specified numbers via a GSM. This piece [2] had made the suggestion that whenever a woman feels threatened, she should turn on the gadget. When the device is turned on, it uses GPS to determine the women's present location and uses GSM to transmit emergency messages to registered mobile numbers and the police control center. The victim's pulse is checked by the pulse sensor, and when the victim's health is abnormal, the gadget also sends an SMS with the victim's current GPS location to the ambulance every 10 seconds. This work [3] made suggestions on both various female health issues and violence against women

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(VAW). We have created and presented the framework for a user-friendly mobile application called Women Empowerment that can include entirely distinct VAW legislation as well as various health suggestions for women, which can facilitate and assist both rural and urban women. The victim woman will activate the emergency system once they are in danger because it has one. In this work [4], a new model for women's security was developed. When the switch is pressed, the location of the woman is recorded and sent via GMS to the phone numbers stored in the Arduino. A dc motor, buzzer, and shock system are also utilized in this device, and the L293D is used to drive them. This work [5] has proposed Using a GPS module and an RFID card, the proposed system uses both to track the location and identify the child. The system's primary microcontroller is an Arduino Mega 2560. Additionally, proposed safety systems were included in this work, including a system to prevent drunk driving using an alcohol sensor (MQ-3), an accident alert with location using a piezoelectric sensor, a system to detect objects in front of a vehicle's wheels using a ping sensor, and a system to detect foot movements using IR proximity sensors. When the device is turned on, this work[6] suggested that it should follow the victim's whereabouts using GPS and transmit emergency messages through GSM to three emergency contacts as well as the police control center. The device includes a screaming alarm that utilizes a real-time clock to decide who needs assistance and generates an electrical shock to hurt the attacker in self-defense. This piece [7] had suggested that the customer may obtain speedy assistance in any emergency case. It employs GPS technology. The system uses the messaging service to deliver the message to request assistance and consults the GPS to determine the person's location. The mail Glassfish server controls and manages the complete flow of operations. The emergency contacts listed in the application are sent the message. This work [8] had suggested that the gadget be triggered when the switch is pressed. The live occurrence can start to be recorded by the audio and video recorder. If the pressure detecting component detects physical pressure, a message with a live recording is sent to the contacts via GSM. A buzzer is included into the device, and when it is engaged, It makes a loud noise that can be heard far away. So that anyone nearby would be able to hear the sound and come to the rescue. When the gadget is turned on, the spy camera begins to record video of the current location and stores the footage on an SD card. This work [9] offered the implementation in the form of a partially wearable and partially portable system. The information is transferred to an RFID reader that talks with a PIC microcontroller, and through GSM, the "help" message is sent to predetermined contacts. This work [10] had proposed to offer security to both working and nonworking women. When she presses the trigger of this key then at that time the ARM7 start working the first GPS is trace the location of the woman and with the help of GSM the message will be sent to the registered number that is saved in the SIM. With this system's modification, an emergency key is also available. When a woman touches it when she feels in danger, a loud buzzer sound. In this paper [11], they examined different sensors integrated with a microcontroller. The sensor receives the input from the human body, and the signal output from the sensors is given from to the Arduino Uno microcontroller as input, activate the device by pressing the button, it is recognized by the sensor. This is an unusual patient for women, as are associated with the body. In the proposed architecture, temperature LM35 sensor, MEMS accelerometer, heart rate sensor, flex sensor and sound sensor are used. In this project, LCD 16*2 screen was used to show that the detected body is not in danger. Status, the female (victim) sensor uses an additional signal, it is sent to the GSM record, the alert is sent to the phone number, and GPS is used to track the location of the person (woman). Deep Inder Kaur [12] designed prototype of

Feminine Safety system, like other existing smart devices, they created code to set alarm, Microcontrollers like Arduino, Raspberry Pi and other things. In, women created electronic devices to protect themselves in situations, and the help messages sent to the parents of the victims with the device was tortured. This article surveyed people [13] mainly because of women's safety as there were people. In fact, even women have to do the work. women and children were victims, were abused and beaten on the streets, in public cars and in public places. This model is made in the form of a shirt, which has a temperature sensor and is integrated with an LCD to control and display the detection parameters of women in unusual situations. Developed by members of the [14] group, the model is based on RFID technology with GSM and GPS distribution. development is done by using radio frequency identification (RFID) reader. The main idea of model is to scan the RFID reader and send the location information and message with the help of GPS with the GSM and this data, namely received by the GPS module, is sent. AT89C52 will be sent to single-chip microcomputer (MCU), people in the data newspaper taken from the single-chip microcomputer, and all simulations have been recorded. from is protein. G C Hari Kiran [15] and his team developed bracelets for women in distress. The team added sensors, such as temperature sensors, number sensors, and motion sensors, to understand the physical condition of victims in extreme situations. The working principle of the development is that the wristband developed by the team is connected to the mobile phone via Bluetooth. In order to connect to mobile phone, to which mobile phone is connected by GPS and GPRS, with its help, he can call the reserved number in case of emergency.

III. BLOCK DIAGRAM AND ITS DESCRIPTION

The block diagram of women safety is as shown below
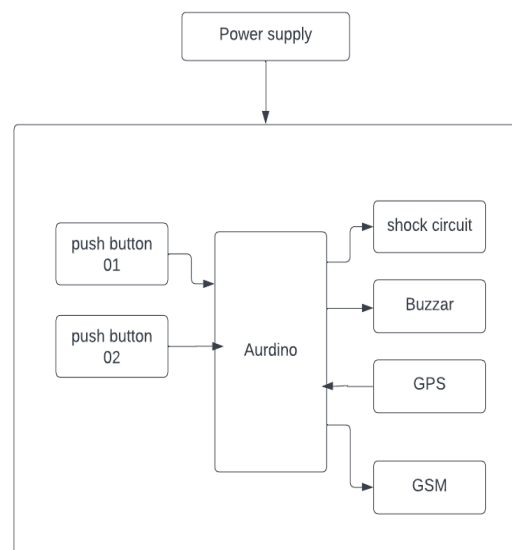
Fig 1 BLOCK DIAGRAM

In this project we are using Arduino as the core. The module has a total of 20 pins. We use two Buttons in our project. The bottom of the first of the two buttons is for GPS, GSM and buzzer. The second button is used to interact with the Circuit. When the first button is clicked, GSM is activated and GPS is activated. Sends the location to a predefined number. We have three numbers, on and our numbers are police, neighbors and parents. The location is sent to us with the number in the form of latitude and longitude,

and the message "My life is in danger" the state of using the GSM warning message. The bell will ring at that time. When the second button is pressed, the time shock circuit is activated. When an attacker attacks a woman, a time shock circuit is used to injure the attacker in self-defense.

IV. WORKING PRINCIPLE

A. ARDUINO NANO

In this project, the Arduino Nano serves as the main microcontroller that controls all the equipment's used in this project.
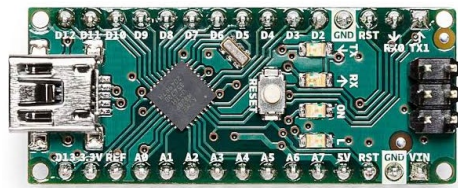
**Fig 2 ARDUINO NANO**

B. GPS MODULE

We are using the GPS tracker in this project to collect the women location where she was in dangerous. This GPS module collect the location of women and saves only longitude and latitude of that location. This information is stores in the Arduino module.

Fig 3 GPS MODULE

C. GSM MODULE

In this project we are using the GSM module to share the collected data from the GPS tracker to the given mobile numbers like family, police station, closer.
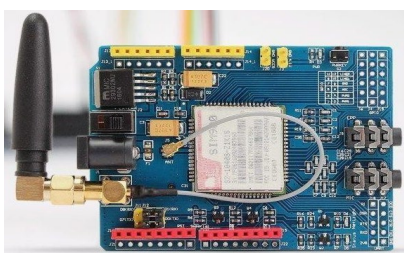
Fig 4 GSM MODULE

D. BUZZER

In this project we are using the buzzer for creating the noise in the place of where the women facing the critical situation to alert the neighbors for help.

Fig 5 BUZZER

E. SHOCK CIRCUIT

We are using the shock circuit in this project to damage the attacker or kidnapper for the self-defense. In this shock circuit we are converting the 12V input DC supply to 110V AC supply, and this voltage is sufficient to gives the electric shock. And this electric shock is flowing through the conductors of the jacket.
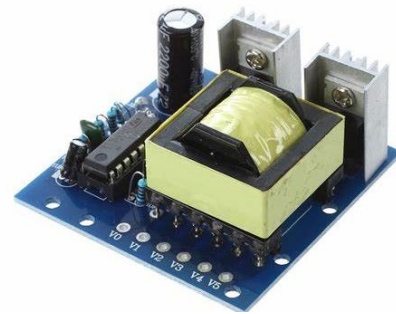
Fig 6 SHOCK CIRCUIT

F. BUTTONS

In this project we are using two emergency buttons for the user to operate the system. Button (1) is to turn on the GPS, GSM and buzzer. When the button 1 is pressed from the user the GPS tracker on and collect the location of the women where she was facing the critical situation and gives to the GSM module, and this GSM module shares the collected data from the GPS tracker to the given mobile numbers. Button (2) is used to turn on the shock circuit. When the user is pressed the button (2) the shock circuit is on and generate the 110V electrical shock and this shock is flowing through the conductor of the jacket. And the buzzer is turn on.

Fig 7 BUTTON

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G. POWER SUPPLY

We are using the DC supply of 12V, 7A by the rechargeable battery. The 12V DC supply is converted into 5V DC supply and is given to the GPS, GSM, buzzer, and we convert 12V DC supply into 110V AC supply by using the invertor and this 110V AC supply is given to the shock circuit module. These are the power supplies we are using in this project.

Fig 8 BATTERY

V. RESULTS

In this project we achieve both location of the women sends to the family and generate Electric shocks to injured attacker to protect themselves. In this Project, we get the result of sharing location to given numbers within 3 to 5 seconds, and location is updated Every second, so it is easy to check the location of women. And the electric shock generated by this project is 110V AC supply. This shock is more than enough to ward off attackers. The attacker is electrocuted through the shirt within 2 to 3 seconds, so that the female can protect herself from the attacker alone.
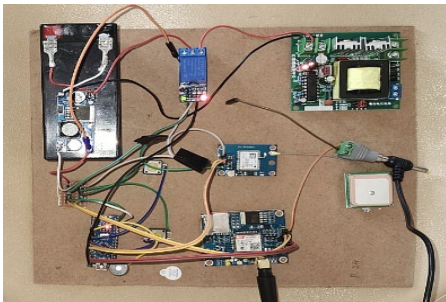
Fig 9 HARDWARE IMPLEMENTATION

Figure 9 shows the hardware implementation of women security system project.

Fig 10 SHOCK GENERATED

Figure 10 shows the shock circuit generate the 110v to 170 volts AC power.

Fig 11 LOCATION RECEIVING

Figure 11 shows the location receiving from the women to the predefined mobile number.

VI. ADVANTAGES AND DISADVANTAGES

A. ADVANTAGES

➤ Best for women's safety.

➤ Keep others alert.

➤ Help prevent theft**.**

➤ The location is easy to find.

B. DISADVANTAGES

➤ There may be failure of signal.

➤ There may be failure of battery.

➤ The battery is too heavy.

VII. APPLICATIONS

➤ The woman's safety device with a GPS tracker can be used while walking through the dark street atnight.

➤ This project is also useful in case of an accident.

➤ Can be used to get rid of robbers.

VIII. CONCLUSION

Women's Electronic Jacket, we use wireless to send information, Source. It is useful for security. The Shock Circuit is used to injure the attacker for Self-defense. Therefore, this system is used to protect and control other activities That occur in today's life. Buzzer is used for help. All these little lines are connected to the

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Arduino module. It is a controllable and efficient system and is more than enough for this project. Through this study, we can better ensure women's safety.

IX. FUTURE SCOPES

1. Decrease battery weight : The future development of this project could involve the decrease of battery weight by the advance chemical battery. By the decrease of the battery weight the over all project weight will be decrease. Hence the women can easily carry this project.

2. Advanced location tracking: The use of advanced location tracking in this project to avoid the signal failure in this project. In future we use the mobile help for the location tracking to avoid the GPS and GSM module in this project. From this the over all weight of the project will decrease.

3. Advanced conductors: The development of advanced conductors is used for the easy flow of electrical shock. We can develop conductors like a tape in feature

4. Advanced insulation: The development of advanced insulation is protecting the women from the internal shock.

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ANNEXURE

```
#include <Arduino.h>
#include <TinyGPS++.h>
#include <SoftwareSerial.h>

TinyGPSPlus gps;
SoftwareSerial gpsSerial(5, 6); // RX, TX
char buffer[100];
SoftwareSerial mySerial(9, 10);

double lat;
double lng;

int Switch1_value, Switch2_value = 0;

int Switch2 = 4; // emergency button
int Switch1 = 3; // shock button
int relay = 11;
int buzzer = 13;

void printData() {
 if (gps.location.isUpdated()) {
 lat = gps.location.lat();
 lng = gps.location.lng();
```

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```
    Serial.println(lat);
    Serial.println(lng);
    Serial.println(lat);
    double altitude = gps.altitude.meters();

int year = gps.date.year();
 int month = gps.date.month();
 int day = gps.date.day();

int hour = gps.time.hour();
 int minute = gps.time.minute();
 int second = gps.time.second();
 snprintf(buffer, sizeof(buffer),
 "Latitude: %.8f, Longitude: %.8f, Altitude: %.2f m, "
 "Date/Time: %d-%02d-%02d %02d:%02d:%02d",
 lat, lng, altitude, year, month, day, hour, minute, second); //
Serial.println(buffer);
    }
}
void setup() {
 mySerial.begin(9600); // Setting the baud rate of GSM Module
 Serial.begin(9600); // Setting the baud rate of Serial Monitor
(Arduino)
 gpsSerial.begin(9600);
 pinMode(Switch1, INPUT_PULLUP);
 pinMode(Switch2, INPUT_PULLUP);
 pinMode(relay, OUTPUT);
 pinMode(buzzer, OUTPUT);
 digitalWrite(relay, HIGH);
 delay(100);
}

void loop() {
 Switch1_value = digitalRead(Switch1);

 if (Switch1_value == 0) {
 Serial.print("shock button pressed");
 delay(500);
 for (int i = 0; i < 10; i++) {
 digitalWrite(relay, LOW);
 delay(100);
 digitalWrite(relay, HIGH);
 delay(100);
 }

}
 Switch2_value = digitalRead(Switch2);

 if (Switch2_value == 0) {
 digitalWrite(buzzer, HIGH);
 delay(100);
 digitalWrite(buzzer, LOW);
 delay(100);
 Serial.print("location button pressed");
 delay(200);
 SendMessage();
 delay(1000);
}

 if (mySerial.available() > 0)
 Serial.write(mySerial.read());

while (gpsSerial.available() > 0) {
 if (gps.encode(gpsSerial.read())) {
 printData();
    }
```

```
  }
}

void SendMessage()

  {
 mySerial.println("AT+CMGF=1");
 delay(1000);
 mySerial.println("AT+CMGS=\"+918660545812\"\r");          //
Replace x with mobile number
 delay(1000);
 mySerial.println(" I am in trouble"); //
mySerial.println(" my location is ");
delay(100);
 mySerial.print(" latittude = ");
 delay(100);
 mySerial.println(lat);
 delay(100);
 mySerial.print(" Longitude = ");
 mySerial.println(lng);
 delay(100);
 mySerial.println((char)26); // ASCII code of CTRL+Z
 delay(1000);
 Serial.print("done");
 digitalWrite(buzzer, HIGH);
 delay(100);
 digitalWrite(buzzer, LOW);
 delay(1000);
}
```