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GPS ENABLED PROTECTIVE STRATAGEM FOR WOMEN FEATURING ADVISORIES

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Abstract: Women safety is an essential issue due to the rising crimes against women these days. To help resolve this issue we propose a GPS based women safety system that has dual security features. This device can not just be used by women when in distress but also by children when their travel modes are sans elders. For elderly people with issues like Alzheimer's this device can turn out to be very useful for them as well as their families. This device sends the current location of the woman/child/elderly to the family members and concerned authorities in case of any harassment faced or if in any sort of trouble. The device also has a panic button which is an in-built 400kV electric shock generator, which upon pressing will knock the assaulter down due to a sudden shock but without any fatality. The device is made using an AVR microcontroller, a GPS module, a GSM module and a high voltage generator.

Index Terms **– GPS Module, AVR Microcontroller, GSM Module, High Voltage Generator**

I. INTRODUCTION

Women and Child Safety Device using GPS and Electric Taser, is designed to be a compact low power device, easy to carry and that could fit in anywhere. The primary goal of this project is to enhance the safety of women, children and elderly people.

This device has been designed for both safety as well as for self defence in case of emergency. This device is designed to have two buttons, a panic button and a taser button. In case of an emergency the panic button should be pressed due to which a SOS message with current location will be sent to the family members and concerned authorities. The SOS message will repeatedly be sent at time intervals of 5-10 seconds until help is sought .

On pressing the other button, the taser button, a high voltage electric shock generator will be activated, which produces a high voltage of up to 400 kV, which immobilizes the assaulter for a few minutes, and since the current is less, it wouldn't prove to be fatal to the assaulter.

The fact that the device is of light weight and compact, it can easily be carried in a purse or in the soles of shoes or heels. Given proper training to children and the elderly on using the device, they can carry the device in their school bags or pockets as well. The low cost of the device makes it suitable for women all around the country to afford buying the device and travel without any fear.

II. LITERATURE SURVEY

The present scenario of security to women is very less and in order to provide security to women is very essential. Hence to provide the security, an application is to be built and given with sufficient data like human behavior. It has to be accessed to GPS services. This application can detect the location and check the condition of women health by which actions can be taken accordingly. Hence this proposed system helps in dealing with the problem faced by women which can be solved with technical knowledge. [1]

Nowadays the important issue in the society is women safety. In this paper the model will help to protect the women from the attackers. The proposed model contains various devices like GPS, GSM and panic button. Here GPS is used to detect the location of the device. This paper model is proposed a band which will provide to a woman so that they can do work at late night. In this paper to ensure a security to a woman in the society by providing sending of threats and sends a notification to their relatives and nearest police station.[2]

In this paper, the author discussed about how the system is designed to ensure women's security. This system is used to locate women based on GPS technology. In this way, the signals that have been created are sent to the board, manage the signals and provide SMS services, so emergency calls can be shared with the location of the coordinates to save women from harassment.[3]

Today in this world the women are being molested, kidnapped and harassed by physically strong people. So, to ensure safety and security of women the idea of smart device is built which is comfortable and very easy compared to other bulky system which already exists? This paper proposes the dangerous issues faced by the women and it will help in finding the culprit easily with help of high technologies. And it will be easy to implement in different areas for security and surveillance of women.[4]

This paper is all about providing safety to women on designing the smart device. This device helps to identify the critical situation of women. Women safety has become major issue in day-to- day world. They can't have real freedom as the men as since they are not physically strong enough. Thus, in dangerous situations this will act as protecting hand. This uses GPS and GSM module with Arduino device. When a woman feels insecure in any situation, she can press the wireless key which provides the location from GPS and GSM. This design helps to handle the dangerous situation faced by women. This paper also helps for the further development of the design by providing the basic and the technical information. [5]

In our country there is no safety for women so this paper is designed for women in emergency and in distress. It is simple and easy to use. [6]

Many people use smart phase which has many applications and it is useful to people if any emergency occurs then our intension is to provide you with proof. [7]

III. PROBLEM IDENTIFICATION

1. No proper safety for women and other individuals in certain scenarios.
2. In emergency situation, individuals get panicked and they won't be able to operate any smart-phone applications.
3. In certain scenarios, the individual will not be able to defend the attackers and protect themselves.
4. Due to rise in crime rates and violence against women and kids, often they find themselves in helpless situation.

IV. METHODOLOGY

The proposed device will create a circuit (an emergency kit) that the victim can carry easily, allowing location tracking and alerts to be sent whenever and wherever they are needed. The main parts are an Arduino Nano interface with a GSM and GPS module for sending and receivingmessages, respectively. By turning on the circuit, the person connected to the device can ensure security. A buzzer and a shock circuit are two additional characteristics that are included in a circuit. For instantaneousshielding, separate buttons are given for each component.

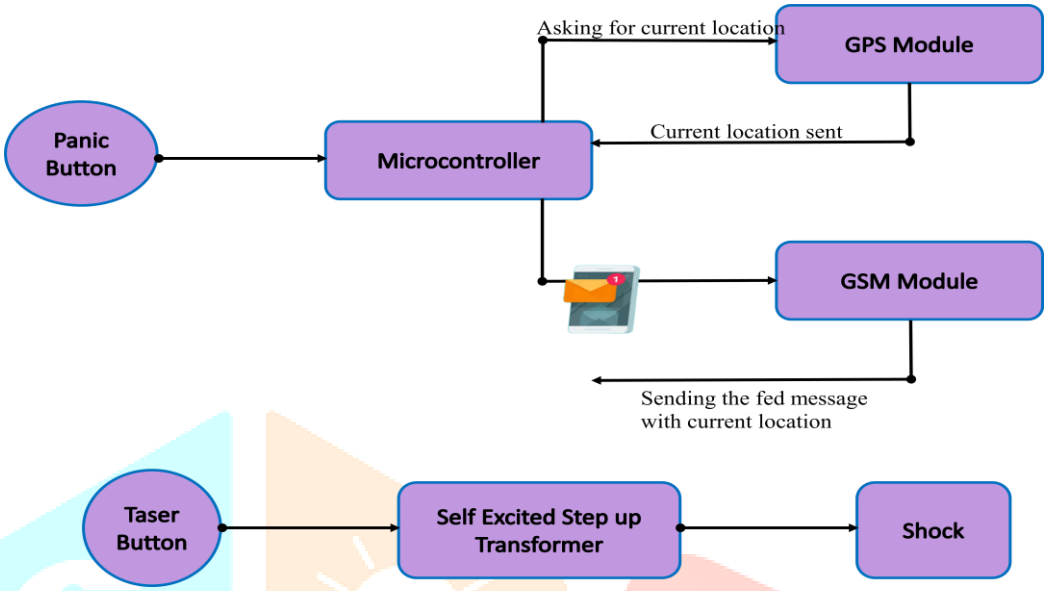

Figure 4.1: Block diagram of Project Proposed

4.1 Working of the proposed system

We propose a smart device which is portable and easy to carry. T h e brain of this device is the AVR microcontroller that is used. The GPS module is connected to the microcontroller using the serial port. A GSM module is connected to the micro controller through the software serial port.

There are two buttons which are connected to the microcontroller. The panic button and the teaser button. On pressing the panic button, the microcontroller will extract the current location of the user using the GPS module, the location will be sent to recipient numbers (family/authorities) using the GSM module. We can add as many recipient numbers as we want. A SOS message will be sent simultaneously to all the numbers added once every 5-10 seconds. On pressing the teaser button, the micro controller will turn on the relay, which will turn on the high voltage electric generator. The output of the high voltage generator is 400kv. This generates a shock to the assaulter which will knock down the assaulter for a couple of minutes without any fatality.

4.2 Program for Arduino Uno

```
#include <TinyGPS++.h>
#include <SoftwareSerial.h>   //Library used to create software serial port

String str="";
 int relay= 12 ;

          int Number_of_SATS;    // Variable used to store number of satellite
String latitude;     // variable to store latitude
String longitude;   // variable to store longitude
TinyGPSPlus gps;   // create oject gps to class TinyGPSPLUS
SoftwareSerial serial2(10, 11);   // create software serial "serial2" tx pin of gps to pin11 and rx to pin 10
 int button = 4;

void setup()
```

```
{
Serial.begin(9600);
pinMode(button,INPUT_PULLUP);  // initialize button as input
pinMode(relay,OUTPUT);
digitalWrite(relay,LOW);
serial2.begin(9600);   //serial2 is for communication with the computer with baud rate 9600
}
 void loop()  // put your main code here, to run repeatedly:
{
 getGPS();

if (!digitalRead(button))
{
digitalWrite(relay,HIGH);
 getGPS();  // Get gps data
 str = String ("Person X is in Emgergency Sutiation his live location=
http://maps.google.com/maps?q="+latitude+"," +longitude);

Serial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
delay(1000);    // Delay of 1000 milli seconds or 1 second
Serial.println("AT+CMGS=\"+918431281303\"\r");   // Replace x with mobile number delay(1000);
Serial.println(str);  // The SMS text you want t,m nb o send
delay(100);
            Serial.println((char)26);  // ASCII code of CTRL+Z

Serial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
delay(1000); // Delay of 1000 milli seconds or 1 second Serial.println("AT+CMGS=\"+919113956640\"\r");
// Replace x with mobile number
delay(1000);
Serial.println(str);// The SMS text you want t,m nb o send
delay(100); Serial.println((char)26);// ASCII code of CTRL+Z

Serial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
delay(1000); // Delay of 1000 milli seconds or 1 second
Serial.println("AT+CMGS=\"+918088662388\"\r"); // Replace x with mobile number delay(1000);
Serial.println(str);// The SMS text you want t,m nb o send delay(100);
Serial.println((char)26);// ASCII code of CTRL+Z

Serial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
delay(1000); // Delay of 1000 milli seconds or 1 second
Serial.println("AT+CMGS=\"+918197180558\"\r"); // Replace x with mobile number delay(1000);
Serial.println(str);// The SMS text you want t,m nb o send
delay(100);
Serial.println((char)26);// ASCII code of CTRL+Z

Serial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
delay(1000); // Delay of 1000 milli seconds or 1 second
Serial.println("AT+CMGS=\"+919686850628\"\r"); // Replace x with mobile number delay(1000);
Serial.println(str);// The SMS text you want t,m nb o send
delay(100);
Serial.println((char)26);// ASCII code of CTRL+Z

digitalWrite(relay,LOW);
}
}
            void getGPS() // Get Latest GPS coordinates
{
while (serial2.available() > 0) //check for gps data available in serial port
{
 gps.encode(serial2.read());
```

```
 } // encode the gps data into latitude and longitude
latitude =String( gps.location.lat(),6);  //fe tch latitude and store
 longitude =String (gps.location.lng(),6);  // fetch longitude and store
```

V. RESULTS AND DISCUSSION

5.1 Sending location of the victim

First objective of our project is to send a location of individual who are being attacked to the family members as well as police station using GPS (Global positioning system) and GSM (Global system for mobile communication). And programming language to save mobile numbers in the microcontroller, these three are connected to the Arduino board with an AVR microcontroller. Which is supplied by battery.

If any individual pressed a button whenever attacked the power supply automatically received Arduino Uno fromthe battery and the GPS, GSM also will turn ON, immediately

GPS determine the attacked individual location through latitude and longitude and finally it will send a location with the link to the family and police through GSM.

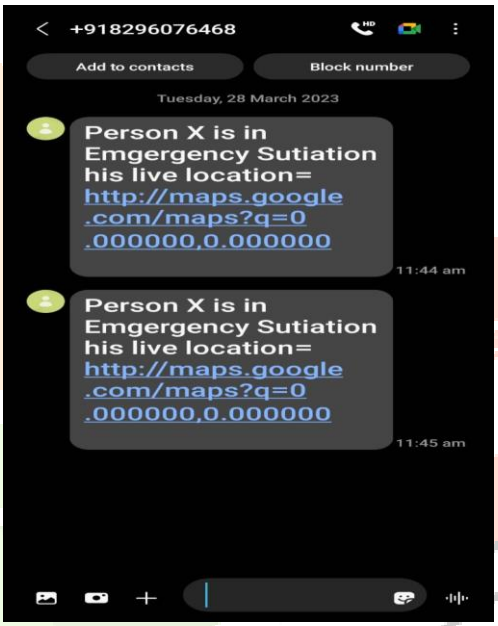

Figure 5.1 : Location of the Victim

5.2 Develop a shocking circuit

1. Our second result of our project is shocking device which is the protective device used to give a shock (mild shock) to the attacker.
2. We developed this shocking circuit using high voltage generator which consisting of a high frequency transformer with high turns ratio is used to increase the voltage and input to the high voltage generator is5V provided.

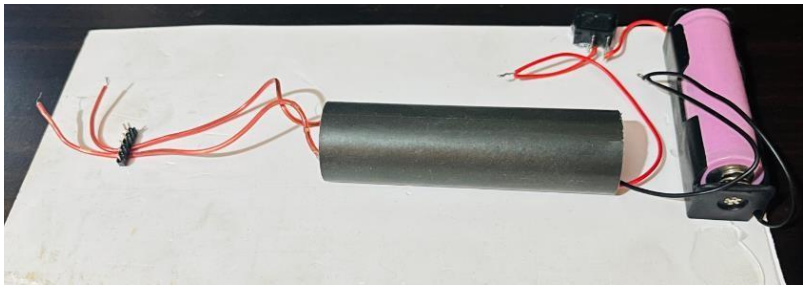

Figure 5.2 : Shocking Circuit

5.3 Alarm

Our third result of project is to alarming device actually whenever individual press a button in any time the alarming device that is buzzer which is connected to the Arduino Uno with 5volts input automatically turn on and alarming the surrounding people.

Figure 5.3 : Alarm

5.4 GPS Module

The brain of this device is the AVR microcontroller that is used. The GPS module is connected to the microcontroller using the serial port. A GSM module is connected to the micro controller through the software serial port.

There are two buttons which are connected to the microcontroller. The panic button and the taser button. On pressing the panic button, the microcontroller will extract the current location of the user using the GPS module, the location will be sent to recipient numbers (family/authorities) using the GSM module. We can add as many recipient numbers as we want. A SOS message will be sent simultaneously to all the numbers added once every 5-10 seconds. On pressing the taser button, the micro controller will turn on the relay, which will turn on the high voltage electric generator. The output of the high voltage generator is 400kv. This generates a shock to the assaulter which will knock down the assaulter for a couple of minutes without any fatality.

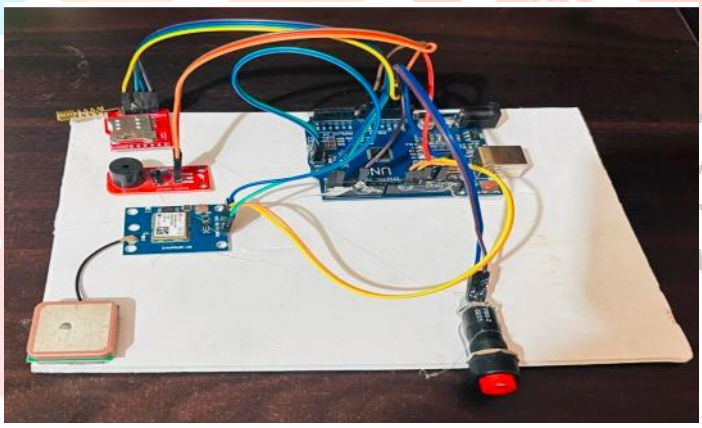

Figure 5.4 : GPS Module

VI. CONCLUSION

The idea described here is crucial for quickly safeguarding the protection of women because it is the first of its kind. Modern technologies will be used in the proposed design to address and resolve important issues that women have lately experienced. With more research and creativity, this concept may be used in a variety of security-related fields. The goal of this project is to develop and create a small device that can benefit from personal security features and emergency response capabilities that are beneficial for women in criminal situations. It is a low-cost system that may keep the information of the local members and send out an immediate notice in the event of a crime against women. Women are given security by this. The current requirement is for security and safety.

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