

GSM based Security Device

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Abstract— Even though being a developing country, still there are number of crimes taking place against women. This problem can be tackled by our system named “GSM Based Security Device” using AT mega 328P microcontroller for the hardware device and push button to trigger the controller. We’ve analyzed that there are no security devices that can stop the crime immediately, for this instead of a device we will be providing an entire security system consisting of siren secured zone so that if crime takes place in that zone immediately the sirens will be triggered and alert call and message would be sent to preset number. This would be working in smart cities that have Wi-Fi installed all over the place. The device would automatically connect and disconnect according to the area in which the victim is present. As soon as there is a threat in the area the device gets triggered and the siren in that particular area gets activated and the people in that area would be informed about the incident and accordingly act to it.

Keywords: GSM SIM 900A, Wi-Fi Module, Smart Cities

I. INTRODUCTION

Introduction of our Women Safety Device is a security device cum system specially designed for women in emergency and in distress. It is simple and easy to use and consists of various functions. Like other women safety devices which consist of an android application, we don’t have an android app. Or we won’t be using a mobile phone because in a rape situation, a woman can’t easily remove her mobile and click a button. So, a push button is simplest and easiest way a woman can use with ease which can be attached to her watch or a bracelet.

Our intention is to not only aware the preset numbers but also to stop that crime at that point of time by the sirens which will be triggered in that zone. By the sound of siren, the criminal will get scared and people in surrounding can come for help. This device can be miniaturized in future and can be embedded in jewelries etc. in order to make handy. This can also help the police department to reduce the crime which are against women. Our system is a guide which also aids senior citizens to take preventive measures when they are alone at home. if there are any medical issues then the ambulance can be called by just pressing the push button.

This device can help in reducing in number of Crimes and it would lay a barrier in the heart of the criminal. So that it would have a Thought in the mind of Criminal it may obstruct him from performing that act. This can not only used by women but can be used by any commoner in the society. This may not be that costly because it has to be affordable by every individual.

Our device can be used as a preventive measure during being followed by strangers while walking on lonely road, while being victimized during sexual assault, Old person living alone at home that needs help during emergency, Also it can be used by kids who are home alone if faced a situation during robbery.

This device can be used for all ages, Right from a kid to a old man. This does not even require any pre-requisite knowledge or any information about the device.

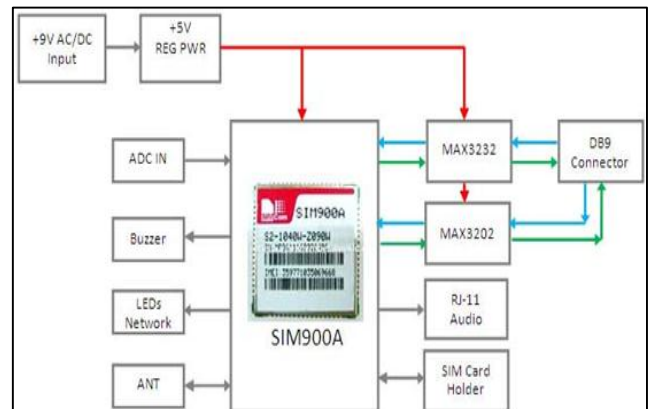
II. LITERATURE SURVEY

One of the problems that the women have been facing in India is large number of rapes. According to the research perform in National Crime Bureau in the year 2013 there were around 24,923 rape cases that were registered till 2012 [2].The probability of the issue being carried out by someone who is known is maximum. People in India or any other part of the world are scared to publish or reveal the incident that have been happened to them.

There is a tremendous amount of rape cases that go unreported. Although the count has been increased in reporting matters over the years. According to AARP 12% of the senior citizens of the total population it has been noted that over 5 million people need assistance and they prefer to remain at home most of the time. There may be a situation that they require some medical support or assistance from some of the person they know.

III. PROBLEM STATEMENT

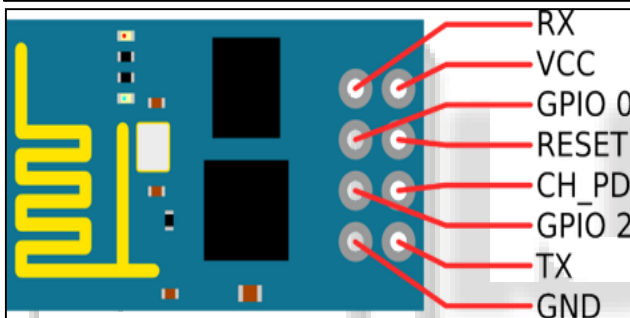
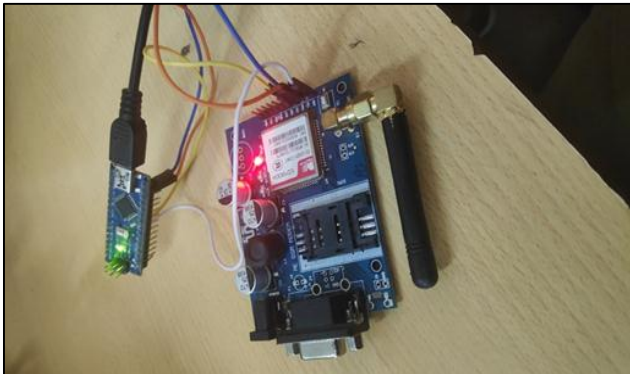
With the aid of the device there will be chances in reducing the number of rape case attempts and it will help the senior citizen who need assistance when they are really helpless. Especially for the women when they are far away from home travelling alone can rely on the device. Which will make them feel safer and even for the kids who are home alone



IV. SYSTEM HARDWARE

- GSM SIM 900A: This is an ultra-compact and reliable wireless module. The SIM900A is a complete Dual-band GSM/GPRS solution in a SMT module which can be embedded in the customer applications. Featuring an industry-standard interface, the SIM900A delivers GSM/GPRS 900/1800MHz performance for voice, SMS, Data, and Fax in a small form factor and with low power consumption.
- ATmega328P (microcontroller)(3): The high-performance Microchip Pico Power 8-bit AVR

- RISC-based microcontroller combines 32KB ISP flash memory with read-while-write capabilities, 1024B EEPROM, 2KB SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI serial port, a 6-channel 10-bit A/D converter (8-channels in TQFP and QFN/MLF packages), programmable watchdog timer with internal oscillator, and five software selectable power saving modes. The device operates between 1.8-5.5 volts.



ESP8266 (Wi-Fi module): ESP8266 comes with capabilities of:-

- 2.4 GHz Wi-Fi (802.11 b/g/n, supporting WPA/WPA2),
- general-purpose input/output (16 GPIO),
- Inter-Integrated Circuit (I²C) serial communication protocol,
- analog-to-digital conversion (10-bit ADC)
- Serial Peripheral Interface (SPI) serial communication protocol,
- I²S (Inter-IC Sound) interfaces with DMA(Direct Memory Access) (sharing pins with GPIO),
- UART (on dedicated pins, plus a transmit-only UART can be enabled on GPIO2), and
- pulse-width modulation (PWM).
- Push Button: Normal Push button will be used as a triggering device for triggering microcontroller, which will be attached to their wrist watch or bracelets.
- Siren: Siren is a type of alarm which is used in ambulances, police vans and in defence areas, to aware the citizens about the critical situation. This siren will scare the criminals and can immediately help to avoid further consequences.



V. SYSTEM SOFTWARE

We have programmed the microcontroller according to c language as it is easier. The following is the code:

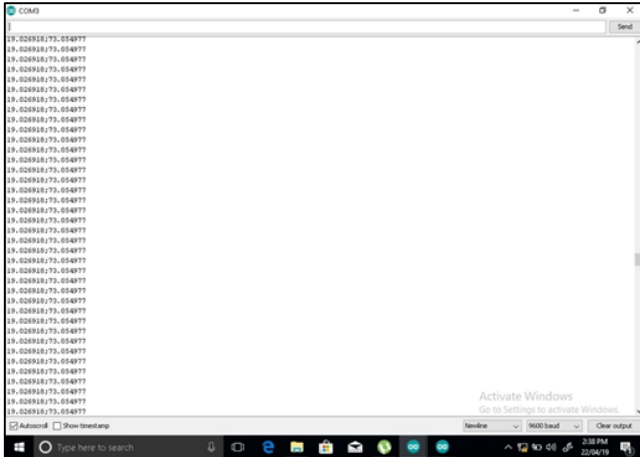
```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(9, 10);
void setup()
{
  mySerial.begin(9600); // Setting the baud rate of GSM
  Module
  Serial.begin(9600); // Setting the baud rate of Serial
  Monitor (Arduino)
  delay(100);
}
void loop()
{
  if (Serial.available()>0)
  switch(Serial.read())
  {
    case 's':
      SendMessage();
      break;
    case 'r':
      RecieveMessage();
      break;
  }
  if (mySerial.available()>0)
  Serial.write(mySerial.read());
}
void SendMessage()
{
  mySerial.println("AT+CMGF=1"); //Sets the GSM Module
  in Text Mode
  delay(1000); // Delay of 1000 milli seconds or 1 second
  mySerial.println("AT+CMGS=\"+918356044881\"r"); //
  Replace x with mobile number
  delay(1000);
  mySerial.println("I am SMS from GSM Module");// The
  SMS text you want to send
  delay(100);
  mySerial.println((char)26);// ASCII code of CTRL+Z
  delay(1000);
}
void RecieveMessage()
{
  mySerial.println("AT+CNMI=2,2,0,0,0"); // AT Command
  to receive a live SMS
  delay(1000);
}
```

VI. CONCLUSION

This device can help to reduce threats to women in the society and even old persons to a great extent. This project can take us step closer to a safer world. This project can take us step closer to a safer world.

This device can be further minimized using nano technology into jewelries, Bracelets and Necklaces. Including wrist watches

VII. OUTPUT OF LOCATION OF GPS



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