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Chapter-1

INTRODUCTION

1.1 Background

Women safety in India is widely discussed everywhere nowadays. It has now become a major issue. The crime rate is on the spike. Women are neither safe outside nor at home. Women travelers from other countries are also in a dubious state while thinking about coming to India. However, this fear cannot keep them away from any kind of social activity. There are laws but there should be proper safety measures which we have to follow strictly to protect the women from violence.

Women's life is endangered due to violence and discrimination and kept them away from participating in any social activity. In India domestic abuse, sexual assault and murder are common forms of violence against women. Domestic violence or domestic abuse is done by one partner with the other partner in a relationship. The rate of domestic violence is increasing in India. 70% of women are victims of domestic violence. It leads to depression and suicides. It's not a direct murder but it is a cause of murder for sure.

Women safety is a crucial concern in India and a lot of organizations started working on it after Nirbhaya's case. Women should adopt some self-defence tips and tricks so that it proves helpful during the worst sceneries for them. Countless videos and information about such defensive techniques are available online for educating women's safety. Primary and frontier tip for women is if it seems even a slight unsafe it's better to get out of that place immediately.

Hence this project's major target is to enable women to live in a safer environment without any fear. This way every woman would be able to live a fear free and danger free life.

Fig 1.1 SOS alert system using IOT

This figure depicts how Arduino is used as SOS in fetching location or tracking details of woman.

Chapter-2

LITERATURE SURVEY

2.1 Introduction

In this chapter, literature survey regarding the SOS alert system using IOT Using Arduino UNO, NE0-6 GPS module, SIM800A GSM module, push button and role SOS alert system is described.

2.2 Literature Survey

The reviews of some literatures related to this thesis given as below:

Muhammad Adnan Elahi, Yasir Arafat Malkani, Muhammad Fraz, Department of Engineering and Design, University of Sussex, Brighton, UK,Department of Informatics, University of Sussex, Brighton, UK

Tracking systems were first developed for the shipping industries to determine the position of ships and boats in the sea. Initially passive systems were developed to support in tracking and navigation for location-based applications. For the applications that require real time location information of the vehicle, these systems cannot be employed, because they store the location information in the internal storage that can only be accessed when vehicle is available. Recently, Automatic Vehicle Location (AVL) systems are developed and deployed in numerous environments. These systems are capable of transmitting vehicle's location information in real time. In these systems, the device installed in the vehicle can transmit the location information in real time to a remote data centre, in stead of storing into local storage, using some radio network. In this paper, we present the design and implementation of a real time AVL system that incorporates a hardware device installed in the vehicle and a remote Tracking Server (TS).

Laptop tracking mechanism using GSM/GPS technology,Venkata Surya Narayana T*and S. Anil Srikanth,ECM Department, K L University, Guntur.

Renewable sources of energy are becoming more and more desirable in today's times, due toIn this paper we explain, the need of Organizations facing the real problem on physical, mechanism to protect their IT systems such as Laptops or notebooks and palm taps. All IT systems have become difficult to protect because they can easily be stolen. Not only in

companies but also in universities and colleges, social places it became a major problem for students, staff and people. Even though the laptops are password protected, that type of security is not providing any kind of use in finding the laptops once they are stolen. This is a method which gives better way in finding the laptops and also catching the thieves. In this paper, we are designing an anti-theft security system to track the location of the laptop. By using the GSM/GPS module connected to laptop the current location of the laptop is read and it is sent through message to the owner. By which it is possible to get back our laptops .As result we can reduce the laptop thefts.

International Journal of Computer Science and Mobile Computing, Vol.3 Issue.9, September- 2014, pg. 244-258 RESEARCH ARTICLE Intelligent Vehicle Control Using Wireless Embedded System in Transportation System Based on GSM and GPS Technology,
Dept. Electronics and Communication Engineering Sri Eshwar College of Engineering, Kinathukadavu .

Currently almost of the public having an own vehicle, theft is happening on parking and sometimes driving in security places. The safe of vehicles is extremely essential for public vehicles. Vehicle security and accident prevention is more challenging. So in order to bring a solution for this problem this system can be implemented. Vehicle security enhancement and accident prevention system can be developed through the application of ignition control (tracking and locking), fuel theft, accident detection and prevention, driver fatigue, pollution control and speed limiting with efficient vehicle management system. The need for this project is to provide security to the vehicles by engine locking system which prevents the vehicle from unauthorised access. This technique helps to find out the exact location of the accident and with the help of server an emergency vehicle can be sent to the exact location to reduce the human life loss. It also detects the behaviour of the driver through sensors whether he/she is drowsy or drunk, so that occurrence of accident can be prevented .The place of the vehicle identified using Global Positioning system (GPS) and Global system mobile communication (GSM).This is more secured, reliable and low cost.

International Journal of Engineering Research & Technology (IJERT)ISSN: 2278-0181www.ijert.org IJERTV4IS09015Vol. 4 Issue 09, September-2015 121Smart Fuel Theft Detection using Microcontroller ARM7 Nandini Hiremath, MrunaliKumbhar ,Aakriti Singh Pathani

Electronics and Telecommunication Engineering Department, Bharati Vidyapeeth Deemed University College of Engineering,Pune-411043, India.

Vinod Patil Faculty, Electronics and Telecommunication Engineering Department,

Bharati Vidyapeeth Deemed University College of Engineering,Pune411043, India.

With rising prices of oil, fuel theft has become a very common incidence. From economic point of view a system is devised that will take care of these practices. This system makes use of smart fuel theft detection with GSM alert and GPS tracking system. Using the ARM7 microcontroller, the real time position of vehicle and its fuel content is sent to owners' mobile in case of intrusion. The system includes GPS module, Microcontroller, GSM module, LCD and a keypad. The GPS module transmits coordinates to the microcontroller that converts the data which is sent to the user in text format. This text message contains longitude and latitude of the location. This smart system gives 24x7access to fuel consumption, alerts when fuel drains and storage tank leaks immediately identified.

RTOS Based Advanced Vehicle Security System for Best Controlling by Gajjala Ashok

In the proposed system Design and development of Vehicular monitoring, tracking and Accident Identification system using RASPBERRY PI is presented. here The vehicular module is used to track, monitor, and surveillance and finds the accident spot and intimate to the monitoring station. The proposed design provides information regarding vehicle Identity, and position on real time basis. This information are collected by the RASPBERRY PI by using different modules like Sensors and GPS, and dispatch it to the monitoring station where it stores the information in database and display it on graphical user interface (GUI) that is user friendly. Here we are using the GSM and internet connectivity to dispatch the information to monitoring station

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Department of Electrical and Electronic Engineering, School Of Engineering and Engineering Technology, Modibbo Adamma University of Technology Yola, Adamawa State. Nigeri.

Antitheft security system utilizes an embedded system design with Dual Tone Multi Frequency (DTMF) and a GSM to monitor and safeguard a car. It secures the car against theft. Upon activation, it automatically demobilizes the car by disconnecting the ignition key supply from the car battery. This now makes it impossible for anybody so starts the car, let alone moving with it. In an attempt of theft through the car doors or boot, the system sends text message to the car owner and at the same time starts up an alarm .This design popped out due to the increasing rate at which packed cars are stolen especially in our country, but with this design this packed car is being monitored irrespective of where it is packed, provided there is GSM network coverage .From the research conducted, it was found out that majority of the existing car security system uses only alarm, and doesn't send text message to the car owner let alone of demobilizing the car. But with the use of GSM network, the owner is guaranteed that the car will send text message to his phone, and at the same time, have people around alerted of what is happening. Added to this is that the car will not be move because it has been demobilize.

Chapter-3

3.1 METHODOLOGY

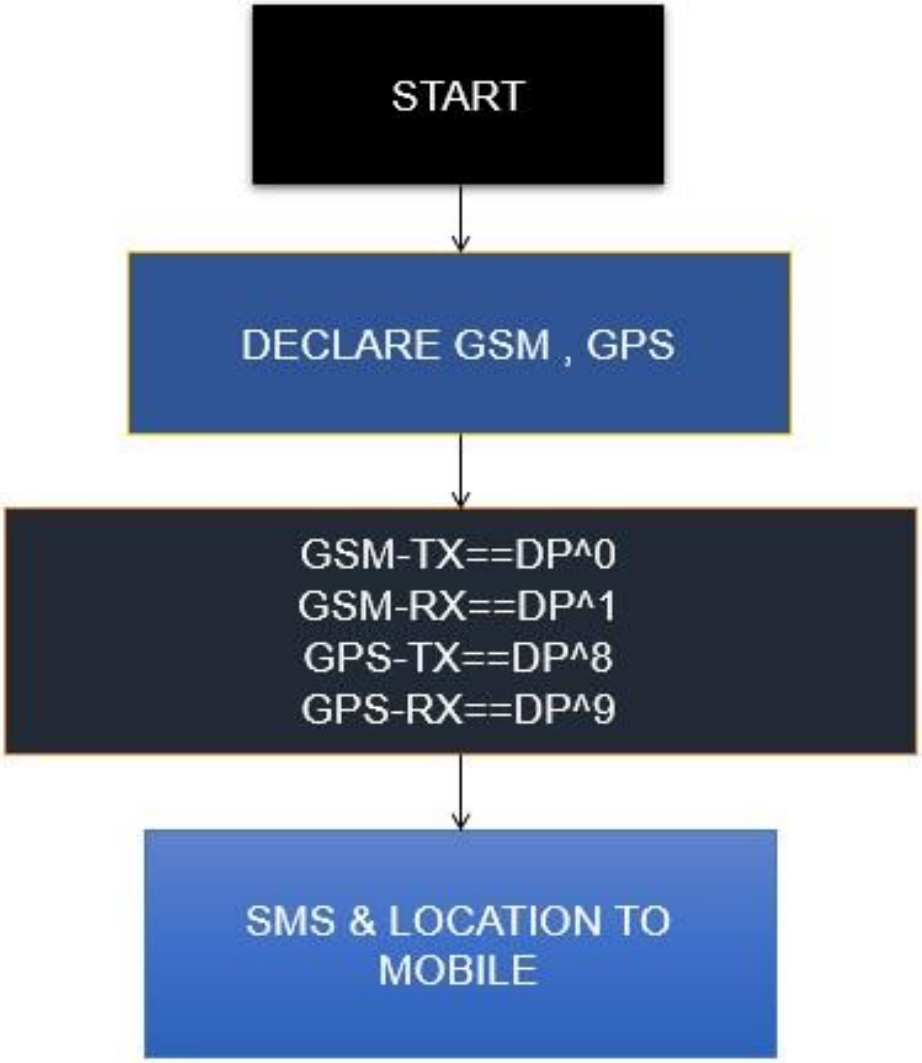

Fig. 3.1.1 Flowchart for simulation

This figure depicts how the simulation works.

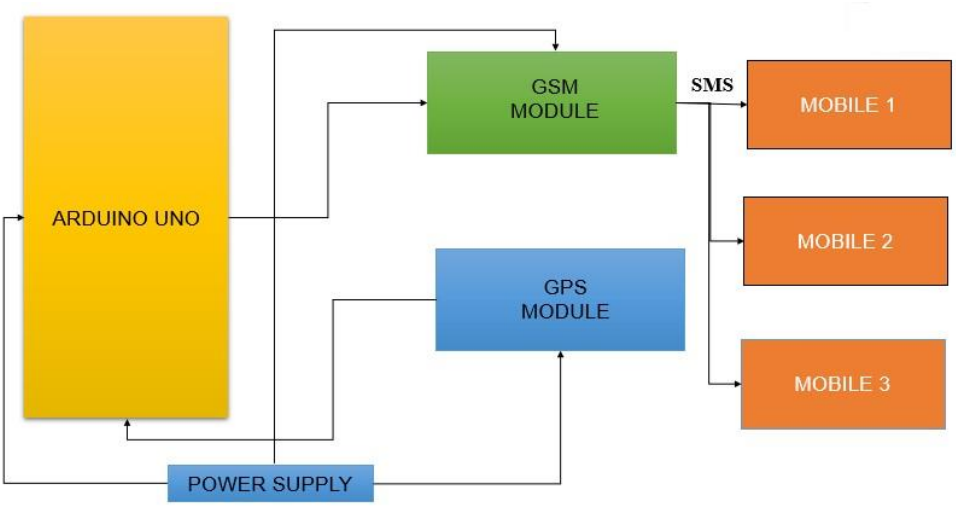

Fig.3.1.2 Block diagram

The above block diagram represents the way in which the SOS system works.

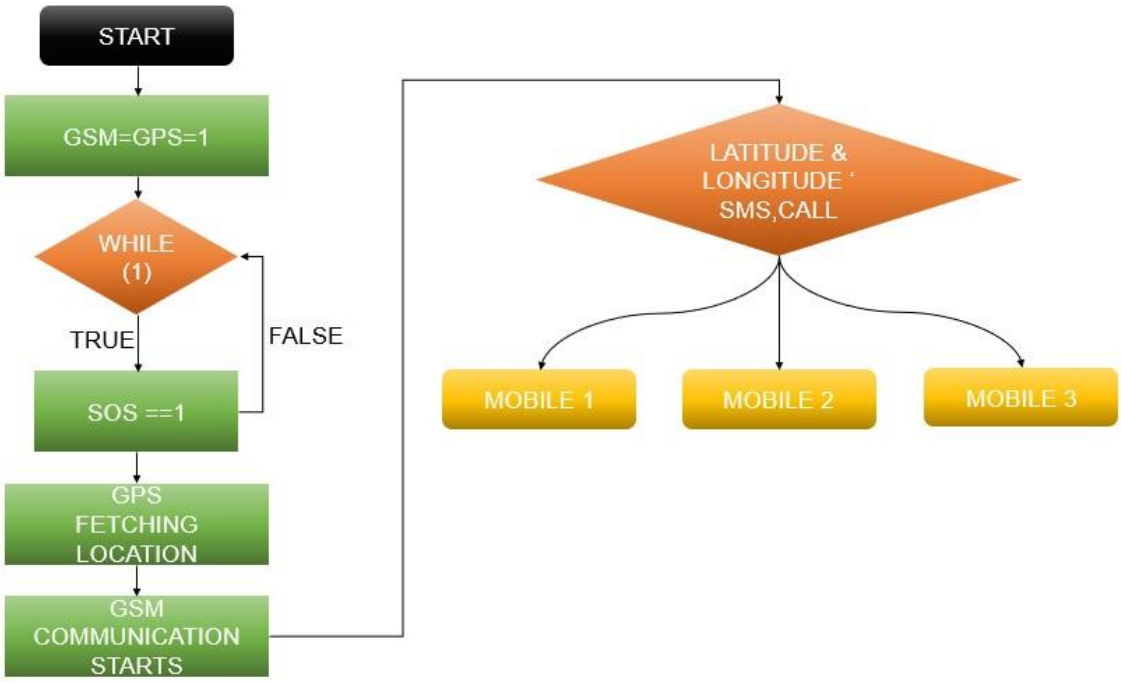

Fig 3.1.3 Algorithm for the code

The above figure shows the algorithm of the code.

3.2 IMPLEMENTATION

3.2.1 Arduino UNO

Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), a USB connection, a power jack, an ICSP

header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your Uno without worrying too much about doing something wrong, in a worst-case scenario you can replace the chip for a few dollars and start over again.

"Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards.

NO R3 SMD is the open source Embedded Development board based on Atmega328 SMD Package Microcontroller. Because Atmel is moving more and more of their production capacity to surface mount ICs, the DIP packaged ATmega is becoming more and more difficult to get. To keep up with demand, we now offer the Uno R3 with an SMD ATmega. The board is identical to the PTH version of the Uno, but you won't be able to remove the

ATmega without some hot-air. This change shouldn't affect most users

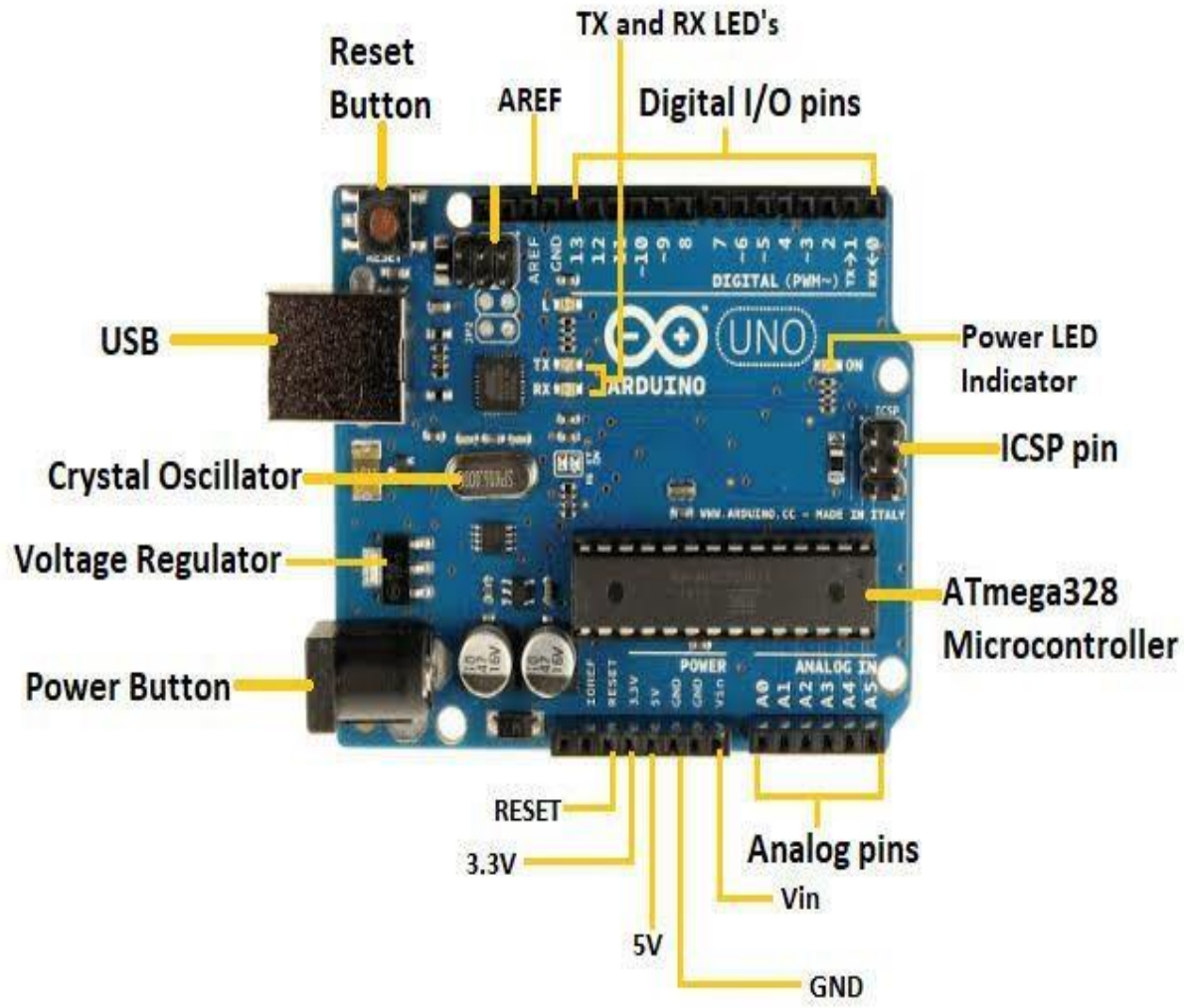

Fig 3.2.1 Pin out diagram of Arduino UNO The above figure depicts the Pin out diagram of Arduino UNO **Technical Specifications:**

MICROCONTROLLER	ATmega328P
OPERATING VOLTAGE	5V
INPUT VOLTAGE (RECOMMENDED)	7-12V
INPUT VOLTAGE (LIMIT)	6-20V
DIGITAL I/O PINS	14 (of which 6 provide PWM output)
PWM DIGITAL I/O PINS	6
ANALOG INPUT PINS	6
DC CURRENT PER I/O PIN	20 mA
DC CURRENT FOR 3.3V PIN	50 mA

FLASH MEMORY	32 KB (ATmega328P) of which 0.5 KB used by bootloader
SRAM	2 KB (ATmega328P)
EEPROM	1 KB (ATmega328P)
CLOCK SPEED	16 MHz
LED_BUILTIN	13
LENGTH	68.6 mm
WIDTH	53.4 mm
WEIGHT	25 g

Programming

The Arduino Uno can be programmed with the (Arduino Software (IDE)). Select "Arduino Uno from the Tools > Board menu (according to the microcontroller on your board). For details, see the reference and tutorials.

The ATmega328 on the Arduino Uno comes preprogrammed with a bootloader that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol (reference, C header files).

You can also bypass the bootloader and program the microcontroller through the ICSP (InCircuit Serial Programming) header using Arduino ISP or similar; see these instructions for details.

The ATmega16U2 (or 8U2 in the rev1 and rev2 boards) firmware source code is available in the Arduino repository. The ATmega16U2/8U2 is loaded with a DFU bootloader, which can be activated by:

On Rev1 boards: connecting the solder jumper on the back of the board (near the map of Italy) and then resetting the 8U2.
On Rev2 or later boards: there is a resistor that pulling the 8U2/16U2 HWB line to ground, making it easier to put into DFU mode.

You can then use Atmel's FLIP software (Windows) or the DFU programmer (Mac OS X and Linux) to load a new firmware. Or you can use the ISP header with an external programmer (overwriting the DFU bootloader). See this user-contributed tutorial for more information.

Warnings

The Arduino Uno has a resettable polyfuse that protects your computer's USB ports from shorts and overcurrent. Although most computers provide their own internal protection, the fuse provides an extra layer of protection. If more than 500 mA is applied to the USB port, the fuse will automa tically break the connection until the short or overload is removed.

Differences with other boards

The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter.

Power

The Arduino Uno board can be powered via the USB connection or with an external power supply. The power source is selected automatically.

External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the GND and Vin pin headers of the POWER connector.

The board can operate on an external supply from 6 to 20 volts. If supplied with less than 7V, however, the 5V pin may supply less than five volts and the board may become unstable. If using more than 12V, the voltage regulator may overheat and damage the board. The recommended range is 7 to 12 volts.

The power pins are as follows:

Vin. The input voltage to the Arduino board when it's using an external power source (as opposed to 5 volts from the USB connection or other regulated power source). You can supply voltage through this pin, or, if supplying voltage via the power jack, access it through this pin.

5V. This pin outputs a regulated 5V from the regulator on the board. The board can be supplied with power either from the DC power jack (7 - 12V), the USB connector (5V), or the VIN pin of the board (7-12V). Supplying voltage via the 5V or 3.3V pins bypasses the regulator and can damage your board. We don't advise it.

3V3. A 3.3-volt supply generated by the on-board regulator. Maximum current draw is 50 mA.

GND. Ground pins.

IOREF.

This pin on the Arduino board provides the voltage reference with which the microcontroller operates. A properly configured shield can read the IOREF pin voltage and select the appropriate power source or enable voltage translators on the outputs to work with the 5V or 3.3V.

Memory

The ATmega328 has 32 KB (with 0.5 KB occupied by the bootloader). It also has 2 KB of SRAM and 1 KB of EEPROM (which can be read and written with the EEPROM library).

Input and Output

See the mapping between Arduino pins and ATmega328P ports. The mapping for theAtmega8, 168, and 328 is identical.

Each of the 14 digital pins on the Uno can be used as an input or output, using pinMode(), digitalWrite(), and digitalRead() functions. They operate at 5 volts. Each pin can provide or receive 20 mA as recommended operating condition and has an internal pull-up resistor (disconnected by default) of 20-50k ohm. A maximum of 40mA is the value that must not be exceeded on any I/O pin to avoid permanent damage to the microcontroller.

In addition, some pins have specialized functions:

Serial: 0 (RX) and 1 (TX). Used to receive (RX) and transmit (TX) TTL serial data. These pins are connected to the corresponding pins of the ATmega8U2 USB-to-TTL Serial chip.

External Interrupts: 2 and 3. These pins can be configured to trigger an interrupt on a low value, a rising or falling edge, or a change in value. See the attachInterrupt() function for details.

PWM: 3, 5, 6, 9, 10, and 11. Provide 8-bit PWM output with the analogWrite() function.

SPI: 10 (SS), 11 (MOSI), 12 (MISO), 13 (SCK). These pins support SPI communication using the SPI library.

LED: 13. There is a built-in LED driven by digital pin 13. When the pin is HIGH value, the LED is on, when the pin is LOW, it's off.

TWI: A4 or SDA pin and A5 or SCL pin. Support TWI communication using the Wire library.

The Uno has 6 analog inputs, labeled A0 through A5, each of which provide 10 bits of resolution (i.e., 1024 different values). By default they measure from ground to 5 volts, though is it possible to change the upper end of their range using the AREF pin and the analogReference() function. There are a couple of other pins on the board

AREF. Reference voltage for the analog inputs. Used with analogReference().

Reset. Bring this line LOW to reset the microcontroller. Typically used to add a reset button to shields which block the one on the board.

Communication

The Arduino Uno has several facilities for communicating with a computer, another Arduino board, or other microcontrollers. The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The 16U2 firmware uses the standard USB COM drivers, and no external driver is needed. However, on Windows, a .inf file is required. The Arduino Software (IDE) includes a serial monitor which allows simple textual data to be sent to and from the board. The RX and TX LEDs on the board will flash when data is being transmitted via the USB-to-serial chip and USB connection to the computer (but not for serial communication on pins 0 and 1).

A SoftwareSerial library allows serial communication on any of the Uno's digital pins.

The ATmega328 also supports I2C (TWI) and SPI communication. The Arduino Software (IDE) includes a Wire library to simplify use of the I2C bus; see the documentation for details. For SPI communication, use the SPI library.

Automatic (Software) Reset

Rather than requiring a physical press of the reset button before an upload, the Arduino Uno board is designed in a way that allows it to be reset by software running on a connected computer. One of the hardware flow control lines (DTR) of the ATmega8U2/16U2 is connected to the reset line of the ATmega328 via a 100 nano-farad capacitor. When this line is asserted (taken low), the reset line drops long enough to reset the chip. The Arduino Software (IDE) uses this capability to allow you to upload code by simply pressing the upload button in the interface toolbar. This means that the bootloader can have a shorter timeout, as the lowering of DTR can be well-coordinated with the start of the upload.

This setup has other implications. When the Uno is connected to either a computer running Mac OS X or Linux, it resets each time a connection is made to it from software (via USB). For the following half-second or so, the bootloader is running on the Uno. While it is programmed to ignore malformed data (i.e., anything besides an upload of new code), it will intercept the first few bytes of data sent to the board after a connection is opened. If a sketch running on the board receives one-time configuration or other data when it first starts, make sure that the software with which it communicates waits a second after opening the connection and before sending this data.

The Uno board contains a trace that can be cut to disable the auto-reset. The pads on either side of the trace can be soldered together to re-enable it. It's labeled "RESET-EN". You may also be able to disable the auto-reset by connecting a 110-ohm resistor from 5V to the reset line; see this forum thread for details.

Revisions

Revision 3 of the board has the following new features:
1.0 pinout: added SDA and SCL pins that are near to the AREF pin and two other new pins placed near to the RESET pin, the IOREF that allow the shields to adapt to the voltage provided from the board. In future, shields will be compatible with both the board that uses the AVR, which operates with 5V and with the Arduino Due that operates with 3.3V. The second one is a not connected pin, that is reserved for future purposes.
Stronger RESET circuit.
Atmega 16U2 replace the 8U2.

3.2.2 SIM800A (GSM MODULE)

The SIM800A Quad-Band GSM/GPRS Module with RS232 Interface is a complete Quad-band GSM/GPRS solution in an LGA (Land grid array) type which can be embedded in the customer applications. SIM800A support Quad-band 850/900/1800/1900 MHz, it can transmit Voice, SMS, and data information with low power consumption.

With tiny size of 100 x 53 x 15 mm, it can fit into slim and compact demands of custom design. Featuring and Embedded AT, it allows total cost savings and fast time-to-market for customer applications.

The SIM800A modem has a SIM800A GSM chip and RS232 interface while enables easy connection with the computer or laptop using the USB to the Serial connector or to the microcontroller using the RS232 to TTL converter. Once you connect the SIM800A modem using the USB to RS232 connector, you need to find the correct COM port from the Device Manager of the USB to Serial Adapter.

Then you can open Putty or any other terminal software and open a connection to that COM port at 9600 baud rates, which is the default baud rate of this modem. Once a serial connection is open through the computer or your microcontroller you can start sending the AT commands. When you send AT commands for example “ATr” you should receive back a reply from the SIM800A modem saying “OK” or other response depending on the command sent.

Application:

1. Remote Data Monitor and Control.
2. Water, gas, and oil flow metering.
3. AMR (automatic meter reading).
4. Power station monitoring and control.
5. Remote POS (point of sale) terminals.
6. Traffic signals monitor and control.
7. Fleet management.
8. Power distribution network supervision.
9. Central heating system supervision.
10. The weather station data transmission.
11. Hydro-logic data acquisition.
12. Vending machine.

13. Traffic info guidance.
14. Parking meter and Taxi Monitor.
15. Telecom equipment supervision (Mobile base station, microwave or optical relay station).

Features*:*

1. Quad-band 850/900/1800/1900MHz.
2. GPRS class 2/10.
3. Control via AT commands (3GPP TS 27.007, 27.005 and SIMCOM enhanced AT command set).
4. High-Quality Product (Not hobby grade).
5. 5V interface for direct communication with MCU kit.
6. Configurable baud rate.
7. Built-in SIM Cardholder.
8. Built-in Network Status LED.
9. Inbuilt Powerful TCP/IP protocol stack for internet data transfer over GPRS.
10. Low power.

Fig. 3.2.2.1 Sim800A Module

This is the picture of a physical SIM800A Module

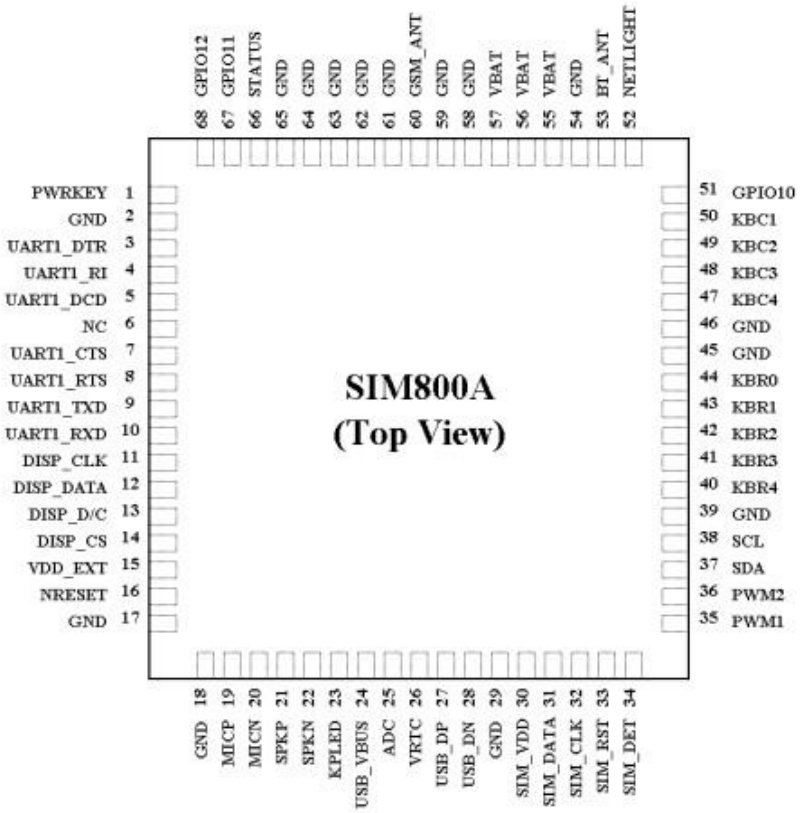

Fig. 3.2.2.2 Pin-out Diagram of SIM800A

3.2.3 NEO-6M (GPS Module)

This is a complete GPS module that is based on the **NEO 6M GPS**. This unit uses the latest technology to give the best possible positioning information and includes a larger builtin **25 x 25mm** active GPS antenna with a UART TTL socket.

A battery is also included so that you can obtain a GPS lock faster. This is an updated GPS module that can be used with ardupilot mega **v2**. This GPS module gives the best possible position information, allowing for better performance with your Ardupilot or other Multirotor control platform.

The GPS module has serial TTL output, it has four pins: **TX, RX, VCC, and GND**.

Interfacing NEO-6M with Arduino:

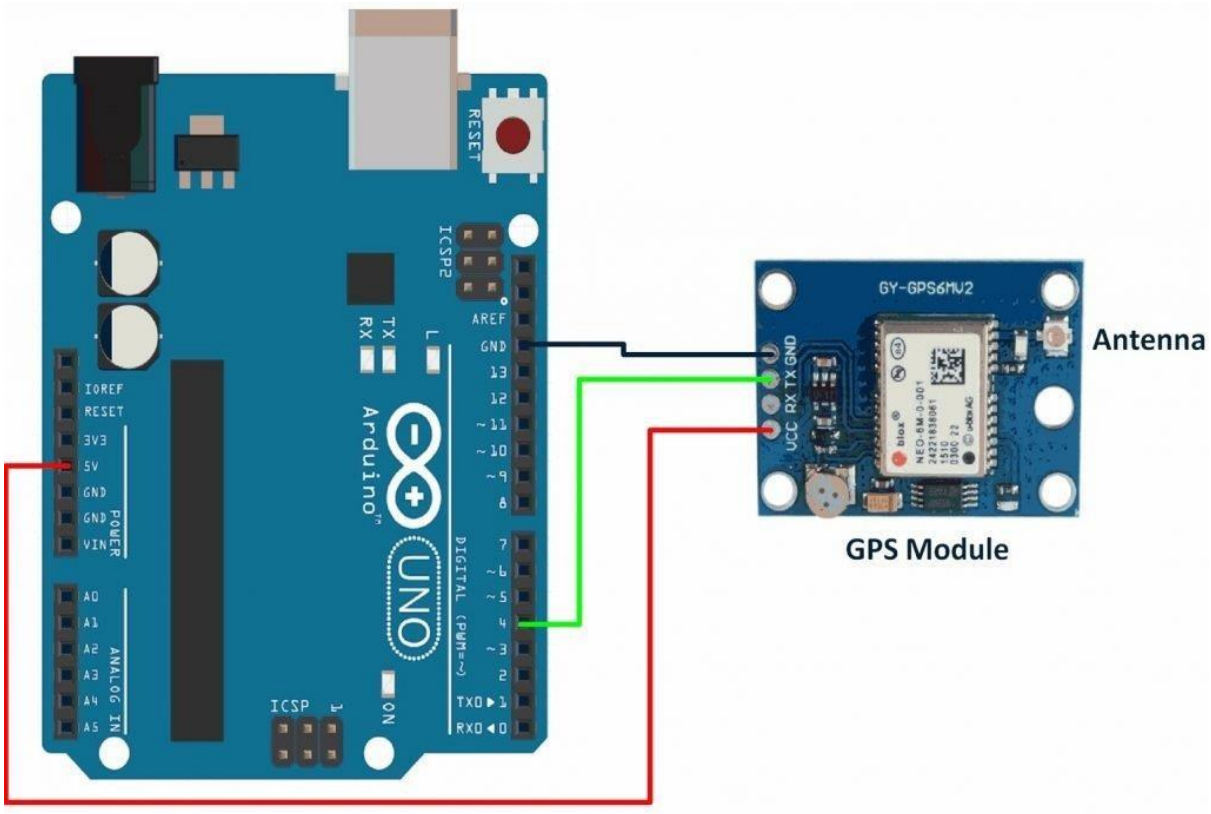

Fig3.2.3 Arduino and GPS module

The above figure is a schematic representation of interfacing of GPS module with Arduino UNO

Features:

1. 5Hz position update rate
2. Operating temperature range: -40 TO 85°CUART TTL socket
3. EEPROM to save configuration settings
4. Rechargeable battery for Backup
5. The cold start time of 38 s and Hot start time of 1 s
6. Supply voltage: 3.3 V
7. Configurable from 4800 Baud to 115200 Baud rates. (default 9600)
8. SuperSense ® Indoor GPS: -162 dBm tracking sensitivity

9. Support SBAS (WAAS, EGNOS, MSAS, GAGAN)
10. Separated 18X18mm GPS antenna

3.3: Software Requirements:

Arduino IDE

- The Arduino integrated development environment (IDE) is a cross platform application (for Windows, macOS, Linux) that is written in the programming language Java.
- It is used to write and upload programs to Arduino compatible boards, but also, with the help of 3rd party cores, other vendor development boards.
- The source code for the IDE is released under the GNU General Public License, version 2. The Arduino IDE supports the languages C and C++ using special rules of code structuring.
- The Arduino IDE supplies a software library from the Wiring project, which provides many common input and output procedures. User-written code only requires two basic functions, for starting the sketch and the main program loop, that are compiled and linked with a program stub main () into an executable cyclic executive program with the GNU toolchain, also included with the IDE distribution.
- The Arduino IDE employs the program argued to convert the executable code into a text file in hexadecimal encoding that is loaded into the Arduino board by a loader program in the board's firmware. Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the text editor and are saved with the file extension.
- The editor has features for cutting/pasting and for searching/replacing text. The message area gives feedback while saving and exporting and displays errors. The console displays text output by the Arduino Software (IDE), including complete error messages and other information. The bottom right-hand corner of the window displays the configured board and serial port.
- The toolbar buttons allow you to verify and upload programs, create, open, and save sketches, and open the serial monitor. Verify Checks your code for errors compiling it. Upload Compiles your code and uploads it to the configured board See uploading below for details.
- Note: If you are using an external programmer with your board, you can hold down the "shift" key on your computer when using this icon. The text will change to "Upload using Programmer" New Creates a new sketch. Open Presents a menu of all the sketches in your sketchbook. Clicking one will open it within the current window overwriting its content. Save Saves your sketch. Serial Monitor Opens the serial monitor.

3.4: Software Coding

```
#include <TinyGPS.h>
```

```
#include <SoftwareSerial.h>
SoftwareSerialGsm (8,9);

char phone_no1[] = "7[redacted]12";

char phone_no2[] = "8[redacted]97";

char phone_no3[]="8[redacted]6"//Here we can put the registered mobile numbers without +91


TinyGPSgps;  //Creates a new instance of the TinyGPS object


void      setup()      {
Serial.begin(9600);
Gsm.begin(9600);
 {bool newData = false;
  // For one second we parse GPS data

 for (unsigned long start = millis(); millis() - start < 1000;)
  {
    while (Serial.available())
    {
      char c =
Serial.read();
Serial.print(c);      if
(gps.encode(c))
newData = true; }
  }

  if (newData)      //If newData is true
{ floatlatt, lon;
   unsigned long age;
```

```
gps.f_get_position(&latt, &lon, &age);
Serial.print("Latitude is");
Serial.print(latt);
Serial.print("Longitude is");
Serial.print(lon);
Gsm.print("AT+CMGF=1\r"); delay(1000);

Gsm.print("ATD+91");
Gsm.print("phone_no1");      delay(400);
//delay to initiate the module

Gsm.print("AT+CMGS=\"");
Gsm.print(phone_no1);
Gsm.println("\"");
Gsm.print("http://maps.google.com/maps?q=loc:");
Gsm.print(latt == TinyGPS::GPS_INVALID_F_ANGLE ? 0.0 :latt, 6);
Gsm.print(",");
Gsm.print(lon == TinyGPS::GPS_INVALID_F_ANGLE ? 0.0 :lon, 6); delay(200);

Gsm.println((char)26); // ASCII code of Ctrl Z to end the msg delay(200);

Gsm.println(); delay(5000);

Gsm.print("AT+CMGF=1\r");
Gsm.print("ATD+91");
Gsm.print("phone_no2");      delay(400);
//delay to initiate the module

Gsm.print("AT+CMGS=\"");
Gsm.print(phone_no2);
Gsm.println("\"");

Gsm.print("http://maps.google.com/maps?q=loc:");
```

```
Gsm.print(latt == TinyGPS::GPS_INVALID_F_ANGLE ? 0.0 :latt, 6);
Gsm.print(",");
Gsm.print(lon == TinyGPS::GPS_INVALID_F_ANGLE ? 0.0 :lon, 6); delay(200);
Gsm.println((char)26); // ASCII code of Ctrl Z to end the msg
delay(20000); }  else
Serial.println("failed to fetch coordinates");

}



}

void loop()
{}
}
```

CHAPTER-4

4.1: APPLICATIONS

This project has a wide range of real-world applications. A few are listed below:

- Women Safety purposes
- Detection of Vehicle Accidents
- For the Safety of children
- Emergency alarm systems in Malls, Railway stations and other public places

4.1.1 Advantages:

- Feasible for small size applications.
- Handy as it can be triggered on the click of a button.
- Low Cost.
- Hassle free as no maintenance is required.

4.1.2 Disadvantages:

- Needs a sim card for its working.
- Battery is to be charged regularly.

CHAPTER-5

5.1 OUTPUT:

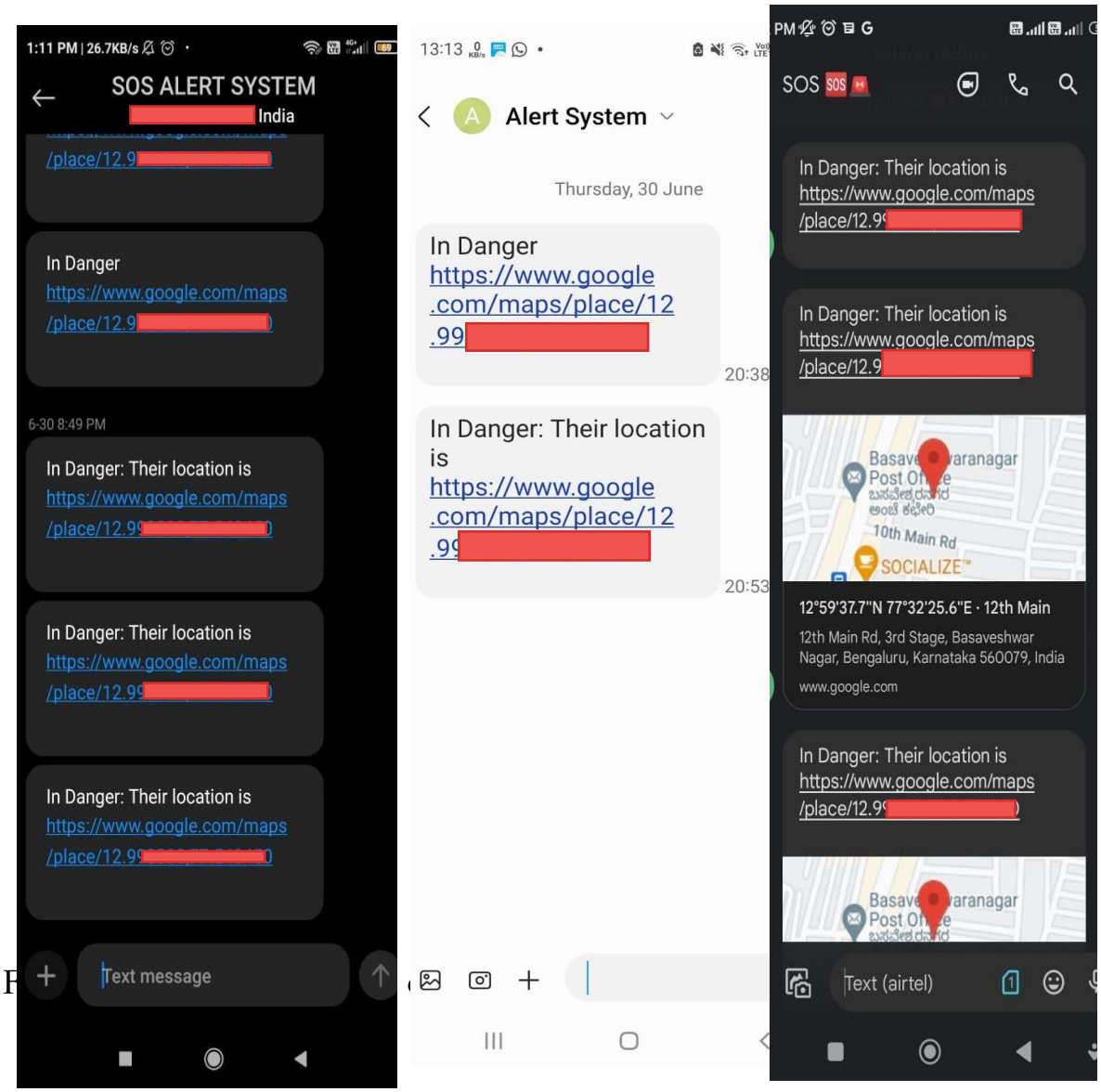

Fig 5.1.1 Screenshot of the messages

The above images are the screenshots from the mobiles using the three registered mobile numbers **Link to the output video:** https://sjbitedu-my.sharepoint.com/:v:/g/personal/1jb19ee045_sjbit_edu_in/EbhezazyEGJMsStOlvz1r00BAdMonSv4DDs1Jm3O0SBGBA?e=u4onNz

5.2 Conclusion:

- The Women safety Management project is to design and fabricate a gadget which is so compact that provide advantage of personal security system the emergency response system which is helpful for women in the incidents of crime.
- It is a low-cost system which can store the data of the members in the locality and provide immediate alert in case of crime against women. This provides women security.
- Being safe and secure is the demand of the day. The women safety device can secure her in a distress situation. It provides immediate message notification to the near police station and parent which can very critical environment. The family member can locate their women and take necessary action to rescue the women from danger.
- The safety device can be enhanced much more in the future by using highly compact Arduino uno modules.
- The Women's Safety Device serves its purpose efficaciously by providing tracking information. The response of the device is fast, and it may assist the user to live safe in any place.
- This prototype may be in addition developed similarly to make a wearable device. The design may be made extra compact and lighter in weight so that it could be easily transportable and person friendly. It can have provisions to enter multiple contact information as in keeping with the consumer’s requirements. More defense capabilities may be added which can be managed by numerous monitoring system.

5.3 Future Scope

As the number of crimes increased against women that has growing as a planted seeds of fear and security in the minds of Indian people and other countries people, because of these fears ultimately end point in the imposition of restrictions and strict rules every woman has compromise with, willingly, unwillingly to win their goals and achievements. Instead of bringing the confidence in a young women and children, these restrictions normally and again turn them into meek beings dare less and uncap able of facing in front of the world. To get rid of the fear of family members and to help a woman and child move around with confidence and encouragement, many developers have made up with of many applications and some security devices

1. FEMME:

It is used by the women in the time of emergency and distress for the security. It is designed like an application that can used by everyone who would have installed and this and make use of this in their mobiles and devices. The basic approach of this device is that the victim wants to trigger (single click) by that it can trace the location of the person and the emergency message.

2. WOMEN SAFETY DEVICE DESIGN:

This women safety device, it has been designed in form of a glove and it is used through electrically completely. The person wants to wear this glove and it works by activating it by the person itself during emergency. They want to activate circulatory in that glove.

3. EYEWATCH SOS FOR WOMEN:

Eye watch SOS are specially made for women that captures the video and can record the audio of the surroundings near the women and sends an alert through message to the special contacts (Advanced Electronics System for Human Safety) this application can be used at the high locations like mountain, hills and without GPRS thus we can receive a safety confirmation message clicking button I am safe button.

4. SMARTBELT:

Design of this system is similar like normal belt and this system is also portable. The main parts of this system are Arduino Board, screaming alarm and pressure sensors. The device will be

automatically activated when the sensor crosses the threshold of the pressure for asking help, to send sirens, the activation of screaming alarm should be done

5. SHE (SOCIETY HARNESSING EQUIPMENT):

The design of this equipment is garment embedded with an electronic device. The voltage generating capacity of the electronic circuit in this garment is about 3800 KV. 80 Electric shocks can be sent if there were multiple attacks. The principal limitation of these model, systems or devices is that the first approach is to be made by the victims itself. That time, during that strange situation we are not give assurance that all the victims should activate that system. So, we want to build an SHE application that works autonomously in situation encountered.

5.4 References

1. *Research Papers*:

- Saikat Mukherjee; Arpita Ghosh; Subir Kumar Sarkar:***Arduino based Wireless Heart-rate Monitoring system with Automatic SOS Message and/or Call facility using SIM900A GSM Module***
- Reuben O Jacob; Shoaib M Alyaan; K Nikitha; H.S. Niranjana Murthy: ***IoT Based GPS tracking system with SOS Capabilities***
- Dantu Sai Prashanth; Gautam Patel; B. Bharathi: ***Research and development of a mobile based women safety application with real-time database and data-stream network***

2. *Websites*:

- https://simcom.ee/documents/SIM800A/SIM800A_Hardware%20Design_V1.02.pdf
- https://create.arduino.cc/projecthub/muchika/vehicle-tracking-system-based-ongps-and-gsm-57b814

- GPS+GSM Based Vehicle Tracking System using Arduino
  (how2electronics.com)
- Interfacing GSM and GPS Module using Arduino: A step-by-step guide tutorial for tracking — Steemit