RAJAGOPAL POLYTECHNIC COLLEGE

(Govt. Aided / AICTE Approved / NBA Accredited: Civil, Mech, EEE & ECE)
GANDHINAGAR, GUDIYATTAM – 632602.

DEPARTMENT OF ELECTRONICS & COMMUNICATIONENGINEERING

Project Work On

"WOMEN SAFETY DEVICE WITH GPS AND GSM TRACKING"

Done by Batch Students

REGISTER NO	NAME
21401329	KRISHNA KUMAR H
21401322	JANARTHANAN S
21401319	HARISH K
21401330	LALITH KUMAR S
21401306	ABISHEK T

GUIDED BY : Thiru**. M. MOHAN,**Lecturer / ECE. Dept.

APRIL–2023

RAJAGOPAL POLYTECHNIC COLLEGE

(Govt. Aided / AICTE Approved / NBA Accredited: Civil, Mech, EEE & ECE)
GANDHINAGAR, GUDIYATTAM – 632 602.

BONAFIDE CERTIFICATE

This is to certify that the project work titled **"WOMEN SAFETY DEVICE WITH GPS AND GSM TRACKING"**is the bonafide record of work doneby (Name) **……..……..**(Reg. No) **……..……** of **VI Semester ELECTRONICS & COMMUNICATION ENGINEERING**student during the year**2022-2023.**

It is submitted in partial fulfillment of the requirement for the award of **DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING BY THE DIRECTORATE OF TECHNICAL EDUCATION CHENNAI -25.**

Submitted for Diploma Education held on …….

PROJECT GUIDE **HOD/ECE**

INTERNAL EXAMINER **EXTERNAL EXAMINER**

Acknowledgement for Project Work

ACKNOWLEDGEMENT

Project work is an application of our subject that we gathered during our course.To make a project work successful. Eminent person's involvement is very required.

It is my pleasure and proud privilege to place on record my gratitude to our management of **RAJAGOPAL POLYTECHNIC COLLEGE, GUDIYATTAM** for creating a conductive atmosphere for completing my diploma course.

We take this opportunity to dedicate our gratefulness to **Dr.C.DHANDAPANI, M.E., Ph.D., M.B.A., M.Sc.,** Principal and Department Head ofElectronics & Communication Engineeringwhose under spirit is our complimentary force, expert guidance and encouragement pushed us to peak of success and encouragement in carrying out this project **"WOMEN SAFETY DEVICE WITH GPS AND GSM TRACKING "**successfully.

I express my heartfelt thanks forever to our Project Guide **Thiru.M.MOHAN** Lecturer /ECE for suggesting this work, invaluable and untiring guidance, encouragement, unfailing support and valuable criticism throughout my project work.

My special thanks to all technical faculties of our department who support me directly and indirectly for completion of my project work.

I would like to express my eternal appreciation towards my parents and family who have been there for me no matter where I am, for all unconditional support and patience.

---- x ---

“WOMEN SAFETY DEVICE WITH GPS AND GSM TRACKING”

CONTENTS

CONTENTS

SYNOPIS

“WOMEN SAFETY DEVICE WITH GPS TRACKING AND ALERT”

In this project is “Women safety device with GPS tracking and alert”

The mobile phone is used for tracking and sending alert signals.GSM is preferred for this application. A switch is maintained for sending and alarm signal. In the worst condition when the switch is pressed, the location information will be sent to the android mobile which is enrolled in the memory IC. It sends a message like “Help needed”.

GPS gives only the longitude and latitude values but by using android application in the mobile the location name can be identified. The controller takes the switch as its input. When some threat has occurred one need to press that switch and the controller makes the GSM module to message to the pre stored number. In this way the location of the person is identified and the person is rescued. This module may be interfaced to wide range of serial communication devices. Hence the location information may be transmitted instantly.

INTRODUCTION

Safety of Women in **India has become a major issue in India** now. The crime rates against women in the country have only risen to a great extent. Women think twice before stepping out of their homes, especially at the night. This is, unfortunately, the sad reality of our country that lives in constant fear.

In **today's world, women** safety has become major issue as they can't step out of their house at any given time due to physical/sexual abuse and a fear of violence. Even in the 21st century where the technology is rapidly growing and new gadgets were developed but still women's and girls are facing problems.

Women are adept at mobilizing diverse groups for a common reason. They often work serous ethnic, religious, political, and cultural divides to promote liberty. We are all aware of importance of women safety, but we must analyses that they should be properly protected. Women are not as physically fit as men, in an emergency situation a helping hand would be assistance for them. The best way to cur tail your probability of becoming a dupe of violent crime (robbery. sexual assault, rape, domestic violence) is to recognize, defiance and look up resources to help you out of hazardous situation.

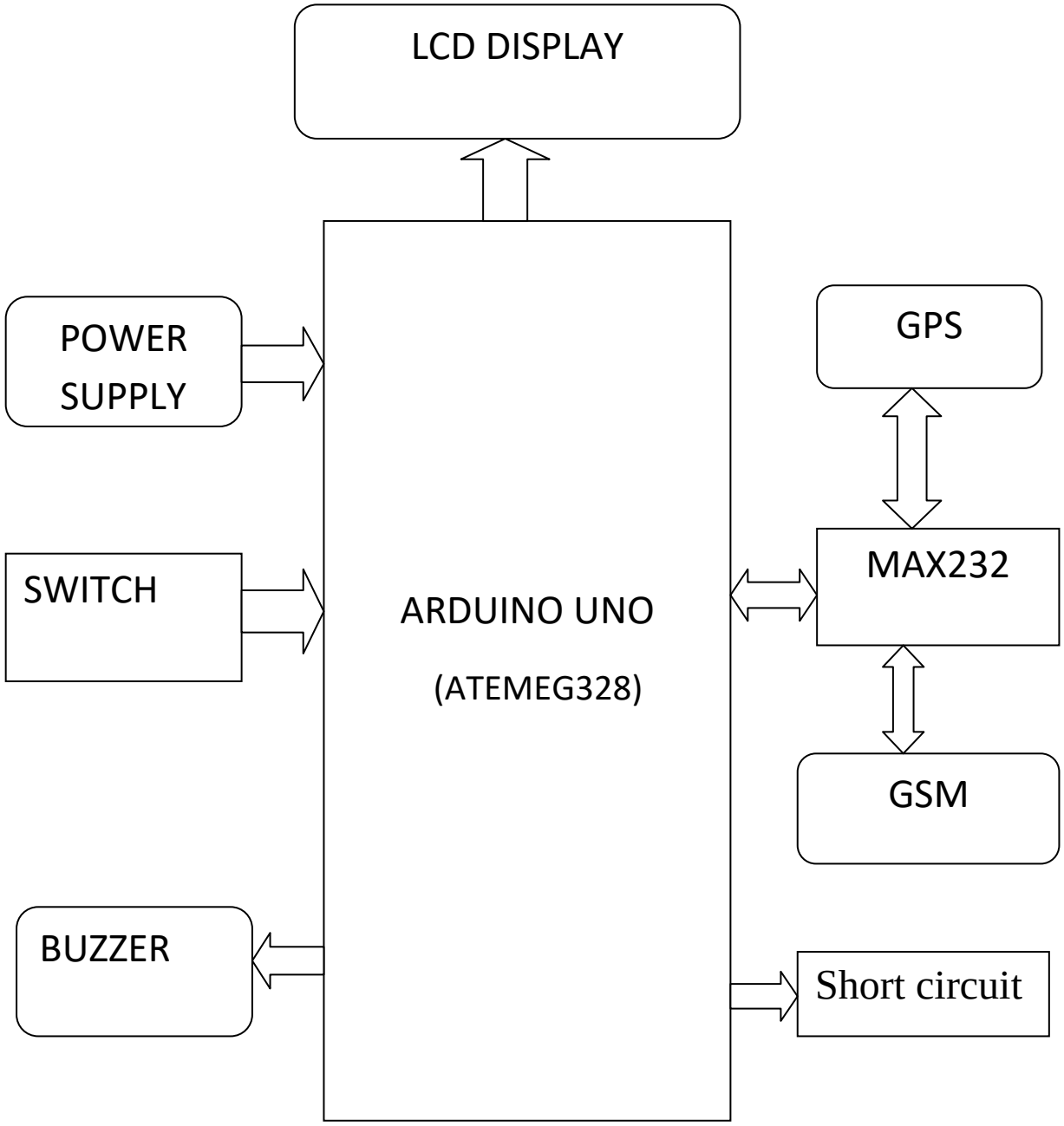
If you're in dilemma or get split from friends during a night out and don’t know how to find back residence, this device with you will guard you and can reduce your risk and bring assistance when you need it.

This are several app reduce the risk of sexual assault on women by informing **control centre and their associates through SMS**, hot in lay of those this apparatus have much more efficient way to inform those this respected personals and also has a defending system which cannot be provide by existing app.

If a woman is subjected to attack by an adversary, then a switch has to be pressed by her, manually, (**which will be ideally located at a convenient location on the body)**, which in turn will trigger the AVR MICRO-CONTROLLER to activate the on body GPS Tracker and simultaneously capture the ACCURATE AREA in link.

Its Link click ⟶ current location in this mobile.

BLOCK DIAGRAM

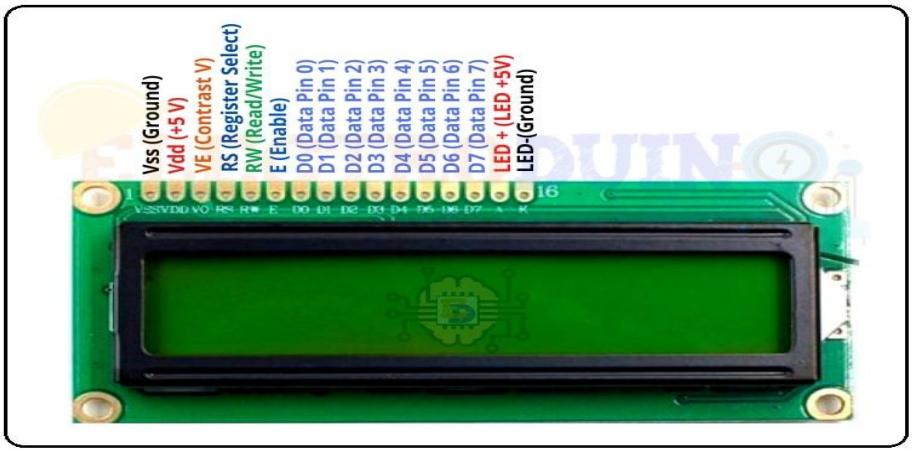


BLOCK DIAGRAM

EXPLANATION OF BLOCK DIAGRAM

DESCRIPTION

LCD DISPLAY:



Fig, LCD

LCD-(liquid crystal display) is the technology used for display in notebook and others smaller components.LCD is **a type of flat panel display which use liquid crystals in its primary form of operation**.

AUDUINO UNO:

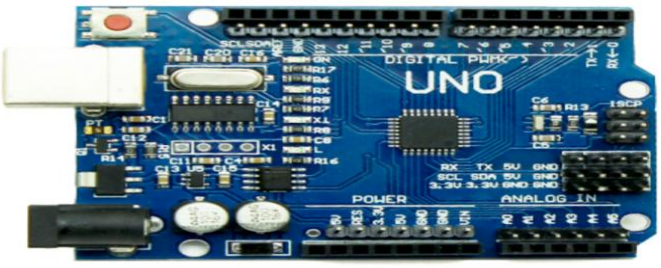


Fig ,ARDUINO-UNO

The Arduino-UNO is categorized as a microcontroller that uses the ATmega328 as a controller in it. The

Arduino-UNO board is **used for an electronics project and mostly preferred by the beginners**. The Arduino-UNO board I type of Arduino board only. The Arduino board is the most used board of all Arduino board.

We will learn about the different components on the Arduino board. We will study the Arduino UNO board because it is the most popular board in the Arduino board family. In addition, it is the best board to get started with electronics and coding. Someboards look a bit different from the one given below, but most Arduinos have majority of these components in common.

12V DC ADAPTER:

The 12V DC power supply is among the leading power supplies in today's technological world. Mainly because of its affordability, reliability, and ease of use. Do you want to know what the 12V DC power supply is, how it works, its applications, and how you can make one at home? In this article, you will find answers to all of the above questions, and we even offer you differences between the AC and DC.

Fig, 12 v dc adapter

A 12VDC power supply is a device that supplies electrical energy to a load. In other words, a power supply's primary purpose is converting electric current from the source into the

required voltage, frequency, and current, which powers the load. The 12V DC power supplies fall into two categories, namely

- 12V regulated power supplies
- 12V unregulated power supplies

In addition, the 12V regulated power supply has three subgroups:

- Switching regulator AC to DC
- Linear regulator AC to DC
- Switching regulator DC to DC

Let us have a closer look at each.

PUSH-BUTTON :

A device for making and breaking the connection in an electric circuit, an act of changing to or adopting one thing in place of an this definition explains .The meaning of the network switch and describes how it route traffic one segment of the network to another. Button press send to the mobile link.

When the button is pressed down, the electromagnet is energized to generate magnetism, and the circuit is connected or disconnected by the adsorption device to realize functions such as remote control circuit.

Fig, push-button

GPS:

The GPS (**Global Positioning System**) is a "constellation of approximately 30 well- spaced satellites that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic location. The location accuracy is anywhere from 100 to 10 meters for most equipment. **To provide an accurate location almost anywhere on Earth**.

Fig, GPS

GSM:

GSM (**Global System for Mobile communications**) is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation (2G) digital cellular networks used by mobile devices such as mobile phones and tablets. Use to by **mobile phone users in Europe and other parts of the world**.

Fig, GSM

ARDUINO-UNO SOFTWARE :

The Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world.

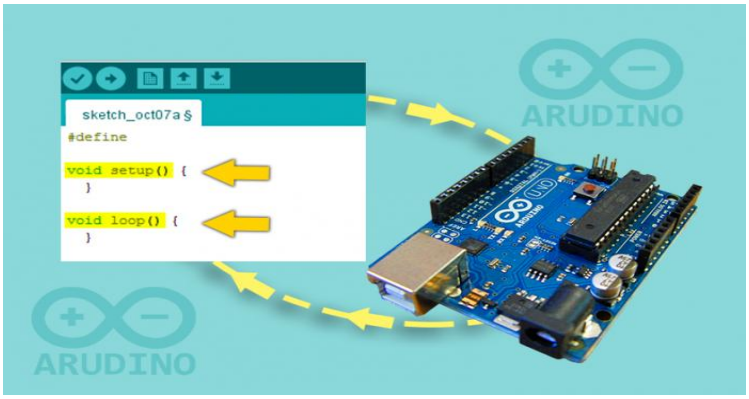


Fig , program download to arduino board

Arduino will collect the input from the switch and monitor the me ms position. Women's getting any troubles with the help of a panic switch sent the alert message to the authorized person with location and buzzer ringing.

Fig, USB program downloaded

button is pressed, the Buzzer starts beeping and an SMS will come to the authorized number containing the latitude and

longitude of the location of the victim. The screenshot of the output is shown below.

In a nutshell, an Arduino is an open hardware development board that can be used by tinkerers, hobbyists, and makers **to design and build devices that interact with the real world**.

In a nutshell, an Arduino is an open hardware development board that can be used by tinkerers, hobbyists, and makers **to design and build devices that interact with the real world**.

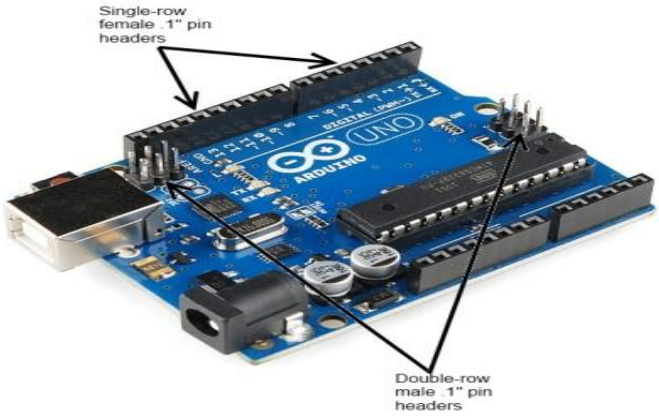
MALE & FEMALE CONNECTOR:

A. MALE CONNECTORES:

A male connector is a connector attached to a wire, cable, or piece of hardware, having one or more exposed, unshielded electrical terminal s, and constructed in such a way that it can be inserted snugly into a receptacle (female connector) to ensure a reliable physical and electrical connection .

Fig, MALE CONNECTORS

B. Female connectors:



Fig, **female connectors**

These come in male and female versions, and are the connectors used **to connect Arduino boards and shields together**. Users can easily connect jumper wires to breadboards. 0.1" pin header connectors, male and female, on an Arduino Uno board.

10k pot:

A potentiometer is a manually adjustable variable resistor with 3 terminals. Two terminals are connected to both ends of a resistive element, and the third terminal connects to a sliding contact, called a wiper, moving over the resistive element. The position of the wiper determines the output voltage of the potentiometer.

Fig, 10K pot

Buzzer:

A buzzer or beeper is an audio signal device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers any **devices .**Buzzer is the handy **sound generator** used in electronic circuits to give audio indication .It is widely used as alarm generator in electronic devices. It is available in various types and size to suit the requirements.

A Pezos buzzer has a disc and an oscillator inside. When the buzzer is powered, the oscillator generates a frequency around 2-4 kHz and the Piezoelectric element vibrates accordingly to produce the sound. An ordinary buzzer works between 3-12 volts DC.

Fig, BUZZER

LCD (liquid crystal display):

A liquid crystal display (LCD) is a flat panel display, electronic visual display, or video display that uses the light modulating properties of liquid crystals (LCs). LCs does not emit light directly.

They are used in a wide range of applications, including computer monitor, television, instrument panels. Aircraft cockpit displays, signage, etc. They are common in consumer devices such as video players. Gaming devices, clocks, watches, calculators, and

telephones. LCDs have replaced cathode ray tube (CRT) displays in most applications.

They are available in a wider range of screen sizes than CRI and plasma displays, and since they do not use phosphors, they cannot suffer image burn-in. LCDs are however, susceptible to image persistence.

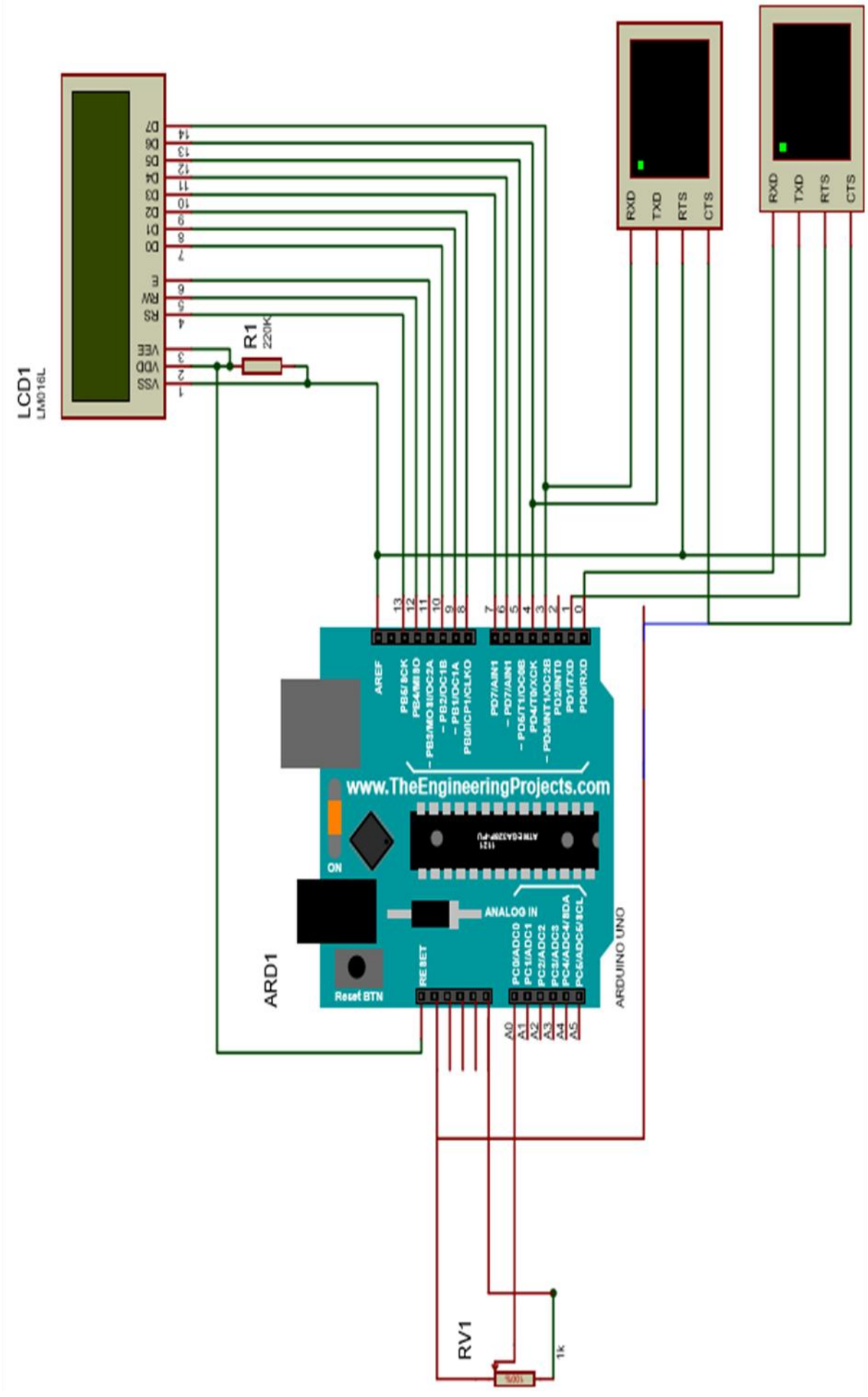
Fig, LCD WORKING

LCDs are more energy efficient and offer safer disposal than CRTs. Its low electrical power consumption enables it to be used in battery-powered electronic equipment.

It is an electronically modulated optical device made up of any number of segments filled with liquid crystals and arrayed in front of a light source (backlight) or reflector to produce images in colour or monochrome.

The most flexible ones use an array of small pixels. The earliest discovery leading to the development of LCD technology, the discovery of liquid crystals, dates from 1888. By 2008, worldwide sales of televisions with LCD screens had surpassed the sale of CRT units.

CIRCUIT DIAGRAM


LCD1
LM016L
R1
220K
RXD
TXD
RTS
CTS
RXD
TXD
RTS
CTS
www.TheEngineeringProjects.com
ON
ANALOG IN
Reset BTN
ARD1
ARDUINO UNO
RV1
1k

WORKING

WORKING

This project uses PIC microcontroller for receiving the input. It also sends message through GSM (**Global System for Mobile communications**) module to a pre programmed number. It the location details through a GPS (**Global Positioning System**) module and sends location ails also the circuit operates at a voltage of 5V.

This device is carried by woman in watch, or chain or a place close to reach. At the time of distress the woman presses the key. This sends the signals to PIC microcontroller receiver .The location through GPS module. It keeps updating the location data

When the key is pressed a microcontroller sends the location information to the display.

Also generates a distress signal like "HELP ME" and send the message and location information to two different pre programmed phone number. For sending the message GSM module is used.

LCD (liquid crystal display) display is provided in the kit itself. If displays the location Formation so that the user knows the location. The circuit user a 5V power supply power is contracted using transformer and a bridge rectifier a 7085 regulator is used to provide a regulator 5V supply.

A buzzer is also included in the circuit to give an audible alarm.

This project clearly uses two main modules of GSM and a microcontroller. The user when sends the messages through his

phones those reaches the GSM through the AT commands all those messages reaches the microcontroller. That microcontroller takes the data in terms of bits through the Max232.Those information will be transmitted to the LCD display.

ADVANTAGES & APPLICATION

ADVANTAGE OF PROPOSED DEVICE:

- Best for women's security
- Location tracking becomes easy.
- Can be used for the safety of children.
- Can be used for the safety of elderly aged people.
- Keeps others alert.
- Can be used for the safety of physically challenged people.
- Helps to keep safe from robbers
- Can be used as a legal evidence of crime with exact location information for prosecution.

Application of the proposed device:

- The woman's safety device with a GPS tracker can be used while walking through the dark street at night.
- This project is also useful in case of an accident.
- Can be used to get rid of robbers.
- Compact in size.
- Wireless connectivity.
- Easy and fast to install.
- Easy Maintenance
- Low cost with high performance.
- Works round the clock.

CODING

CODE

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(8,7,6,5,4,3);
int sensorPin=A0;
int sensorPin1=A1;
int sensorValue1;
int sensorValue2;
void SendSMS()
{
 Serial.println("AT+CMGF=1");    //To send SMS in Text Mode
delay(1000);
Serial.println("AT+CMGS=\"+91 7639314550\"\r"); //Change to destination phone number
  delay(1000);
  Serial.println("women not safety");
  Serial.println("lat 12.9519'N");
  Serial.println("lon 78.8902'E");
  //the content of the message
  delay(200);
  Serial.println((char)26); //the stopping character Ctrl+Z
```

```
  delay(1000);
}
void setup()
{
Serial.begin(9600);
pinMode(6, OUTPUT);
lcd.begin(16,2);
lcd.setCursor (0,0);
lcd.print ("*WOMEN SAFETEY*");
lcd.setCursor (0,1);
lcd.print ("SYSTEM");
delay(1000);
pinMode(sensorPin, INPUT);
pinMode(sensorPin1, INPUT); //Gas sensor will be an input to the arduino

digitalWrite(6,LOW);
}
void loop()
 {
sensorValue1=analogRead(sensorPin);
if (sensorValue1<=200)
{
```

```
  lcd.clear();
 lcd.setCursor (0, 0); // lcd.print("SHOCK generator");
lcd.setCursor (0, 1);  //lcd.print("women not safe");
delay(1000);
lcd.clear();
lcd.setCursor (0, 0);
lcd.print("Women not safety");
lcd.setCursor (0, 1);
lcd.print("women unsafe");
delay(1000);
SendSMS();
lcd.clear();
lcd.setCursor (0, 0);
lcd.print("Long:12.9692'E");
lcd.setCursor (0, 1);
lcd.print("Lati:79.1559'E");
Serial.print("women unsafe");
Serial.print("Long:12.9692'E");
Serial.print("Lati:79.1559'E");
digitalWrite(6,HIGH);
delay(1000);
```

```
}
else
{
  lcd.clear();
 lcd.setCursor (0, 0);
lcd.print("women Safe");
Serial.print("women safe");
lcd.setCursor (0, 1);
lcd.print("No Problem");
delay(10000); //Give enough time for GSM to register on Network
    //Send one SMS
delay(1000);
digitalWrite(6,LOW);
}
}
```

CONCLUSION

CONCLUSION

Women Safety Essay: Women's safety is our priority. Everyone must come collectively to make our nation a safer place for women so that they can live peacefully. It is not an individual responsibility, but everyone, including government, corporate individuals, should take responsibility.

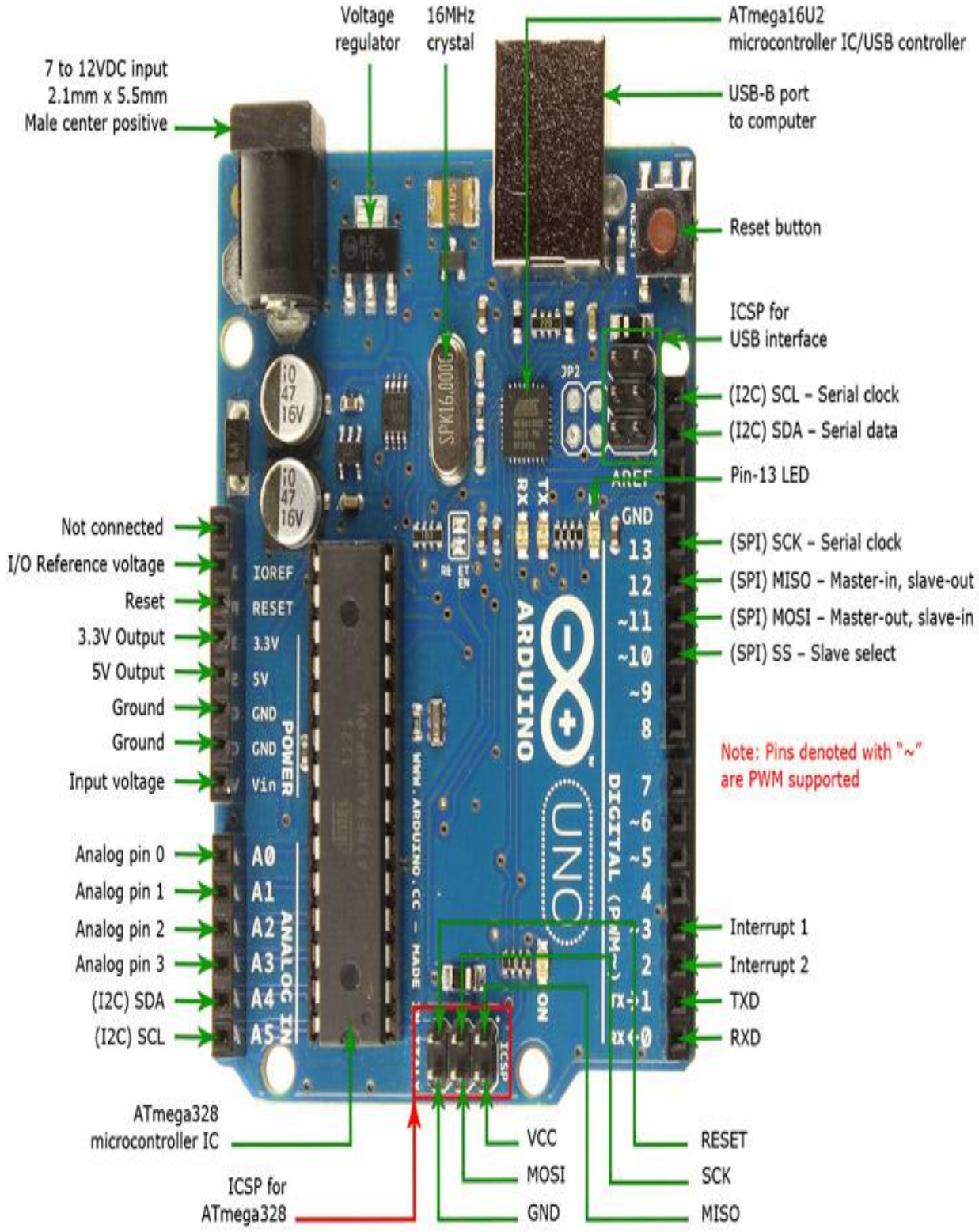
Being safe and secure is the demand of the day. Our effort behind this project is to design and fabricate a gadget which is So compact in itself the provide advantage of personal security system.

This design will deal with most of the critical issues faced by women and will help them to be secure. Existing systems provide the mechanism to track the vehicle but no other emergency mechanism is proposed.

The proposed mechanism provides viewing the location of the victim in terms of latitude and longitude which can further be tracked using Google maps. This system helps to decrease the crime rate against women. Women's security is a critical issue in current situation.

These crimes can be brought to an end with the help of real time to implementation of our proposed system. very use full for women safety and child.

BASIC COMPONENTS



Fig, ARDUINO-UNO

SPECIAL PIN FUNCTIONS:

Each of the 14 digital pins and 6 analog pins on the Uno can be used as an input or output, under software control They operate at 5 volts. Each pin can provide or receive 20 mA as the recommended operating condition and has an internal pull-up resistor (disconnected by default) of 20-50K ohm. A maximum of 40mA must not be exceeded on any I/O pin to avoid permanent damage to the microcontroller.

The Uno has 6 analog inputs, labeled A0 through A5; each provides 10 bits of resolution (i.e. 1024 different values). By default, they measure from ground to 5 volts, though it is possible to change the upper end of the range using the AREF pin and the analogReference function.

In addition, some pins have specialized functions:

- **Serial / UART:** pins 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:** pins 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.
- **PWM** (pulse-width modulation): pins 3, 5, 6, 9, 10, and 11. Can provide 8-bit PWM output with the analogWrite() function.
- **SPI** (Serial Peripheral Interface): pins 10 (SS), 11 (MOSI), 12 (MISO), and 13 (SCK). These pins support SPI communication using the SPI library.
- **TWI** (two-wire interface) / I²C: pin SDA (A4) and pin SCL (A5). Support TWI communication using the Wire library.
- **AREF** (analog reference): Reference voltage for the analog inputs.

GENERAL PIN FUNCTIONS:

- **LED**: 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 is off.
- **VIN**: The input voltage to the Arduino/Genuino board when it is 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
- **SUPPLY 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 - 20V), the USB connector (5V), or the VIN pin of the board (7-20V). Supplying voltage via the 5V or 3.3V pins bypasses the regulator, and can damage the board.
- **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/Genuino 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
- .**Reset**: Typically used to add a reset button to shields that block the one on the board.

ARDUINO-UNO FEATURES OF DEVICE:

SI.N0	Main features	Pic16F877A
1	Microcontroller	ATmega232
2	Operation voltage	5V
3	Input voltage(recommended)	5v-12v
4	Input voltage (limits)	5v-20v
5	Digital I/O Pins	14 pins(6 provide PWM output
6	Analog I/O Pins	6 pins
7	DC current per I/O Pin	40mA
8	DC current for 3.3V pin	50mA
9	Clock speed	16MHz
10	Flash memory	32 KB (ATmega328)&(0.5 KB used by boot loader)
11	SRAM	2KB(ATmega328)
12	EEPROM	1KB(ATmega328)
13	Length	68.6 mm
14	Width	53.4 mm
15	Weight	25g

Fig, FUTURES ARDUINO-UNO

10k pot:

A potentiometer is a manually adjustable variable resistor with 3 terminals. Two terminals are connected to both ends of a resistive element, and the third terminal connects to a sliding contact, called a wiper, moving over the resistive element. The position of the wiper determines the output voltage of the potentiometer.

- Display controller in this port.

12V –ADAPTOR PROCESS STEPS:

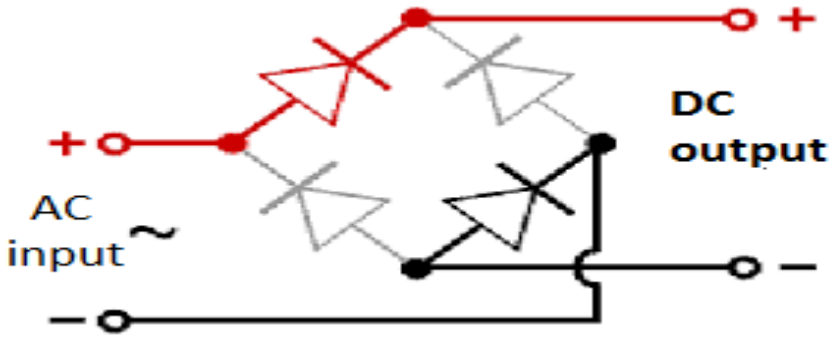
TRANSFORMER:

Supply voltage input side 230v AC 50 Hz line frequency and Output voltage at other side is 0-12v AC. The rated maximum output current is 1A.rugulator and 12V supply device.

Fig, TRANSFOMER

RECTIFIER:

The bridge rectifier is a type of full-wave rectifier that uses four or more diodes in a bridge circuit configuration to convert alternating (AC) current to a direct (DC) current.



Fig, RECTIFIER

AC input is 230V **bridge rectifier** dc output is **12V.**

CAPACITOR:

While the electricity flowing out is AC, most electronic circuits work with DC. Therefore, AC is converted into DC using a rectifier circuit. However, the converted DC is an unstable current that includes ripples. A capacitor is used **to remove these ripples and maintain a constant voltage**.

Fig, Capacitor

BIBLIOGARAPHY

BIBLIOGARAPHY

SI.NO	TITLE	AUTHOR	PUPLISHERS
1	SMS alerting through GSM N/W	VIJAYLAKSHMI.B	IJRET
2	All in one intelligent safety	PARADKAR.A	international journal of computer application
3	GOS and GSM vehicle Tracking	BHILARE.P	IJRET
4	One touch alarm system for women safety using GSM	PRA,KUMAR.P	IJRET
5	Design and development of Suraksha	BHARADWAR.N	IJRET
6	Mobile phone embed with medical and security	BAISHYA.B.K	IOSR journal of computer engineering
7	I safe apps	MANDPATI.S	IOSR journal of computer engineering
8	Smart girl security system Smart intelligent security	CHOUGULA.B	International journal of apps of innovation in engineering and management
9	System for women	MIRIYALA.G.P	IJECET