## Working Explanation

In this project, **Arduino** is used for controlling whole the process. Here we have used GSM wireless communication for controlling home appliances. We send some commands like "#A.light on*", "#A.light off*" and so on for controlling AC home appliances. After receiving given commands by Arduino through GSM, Arduino send signal to relays, to switch ON or OFF the home appliances using a relay driver.
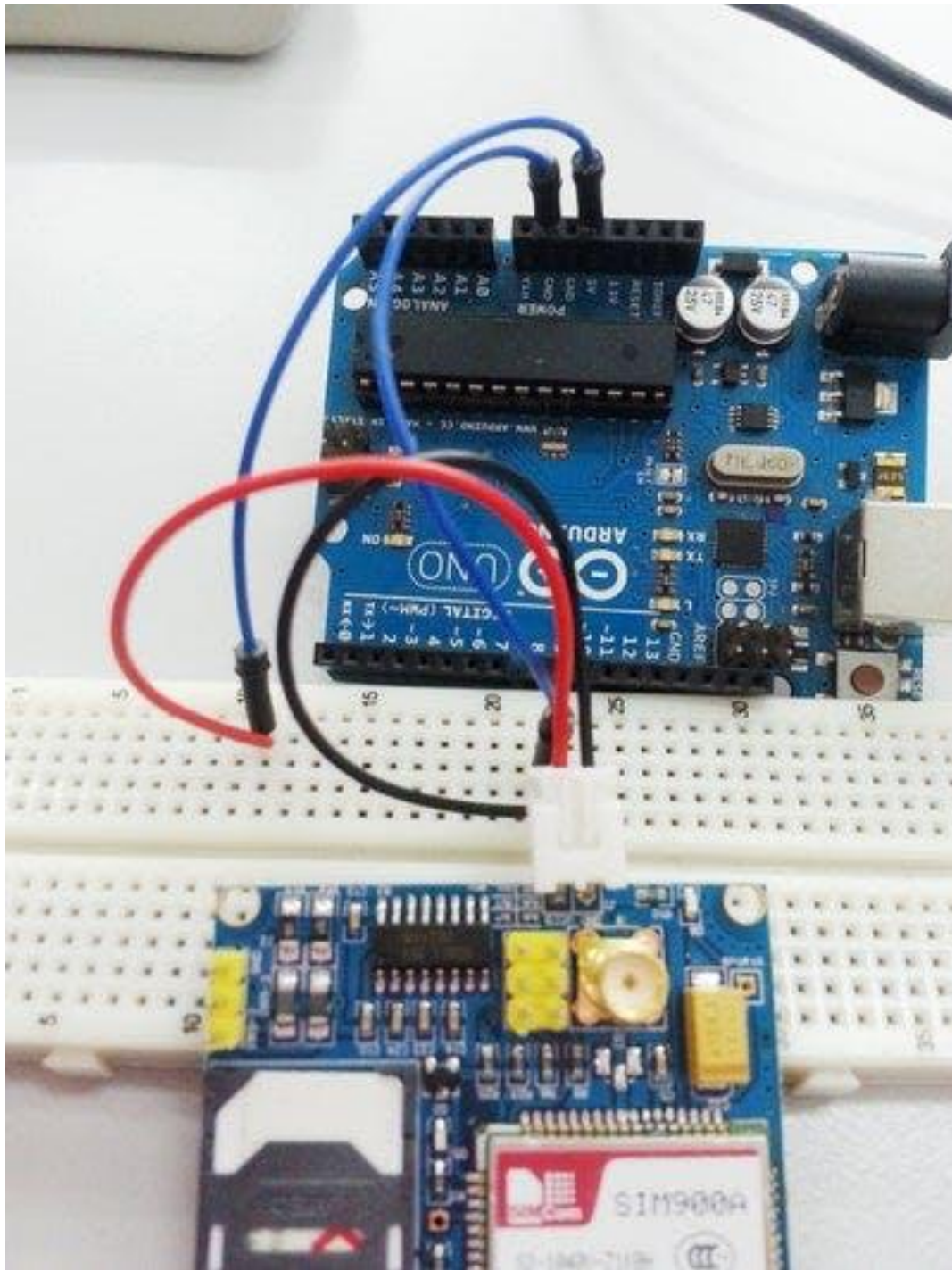
Gsm Based home automation Component required:-

- Arduino Uno
- GSM
- 4 channel relay
- AC bulb
- Socket
- 220ohm resistor
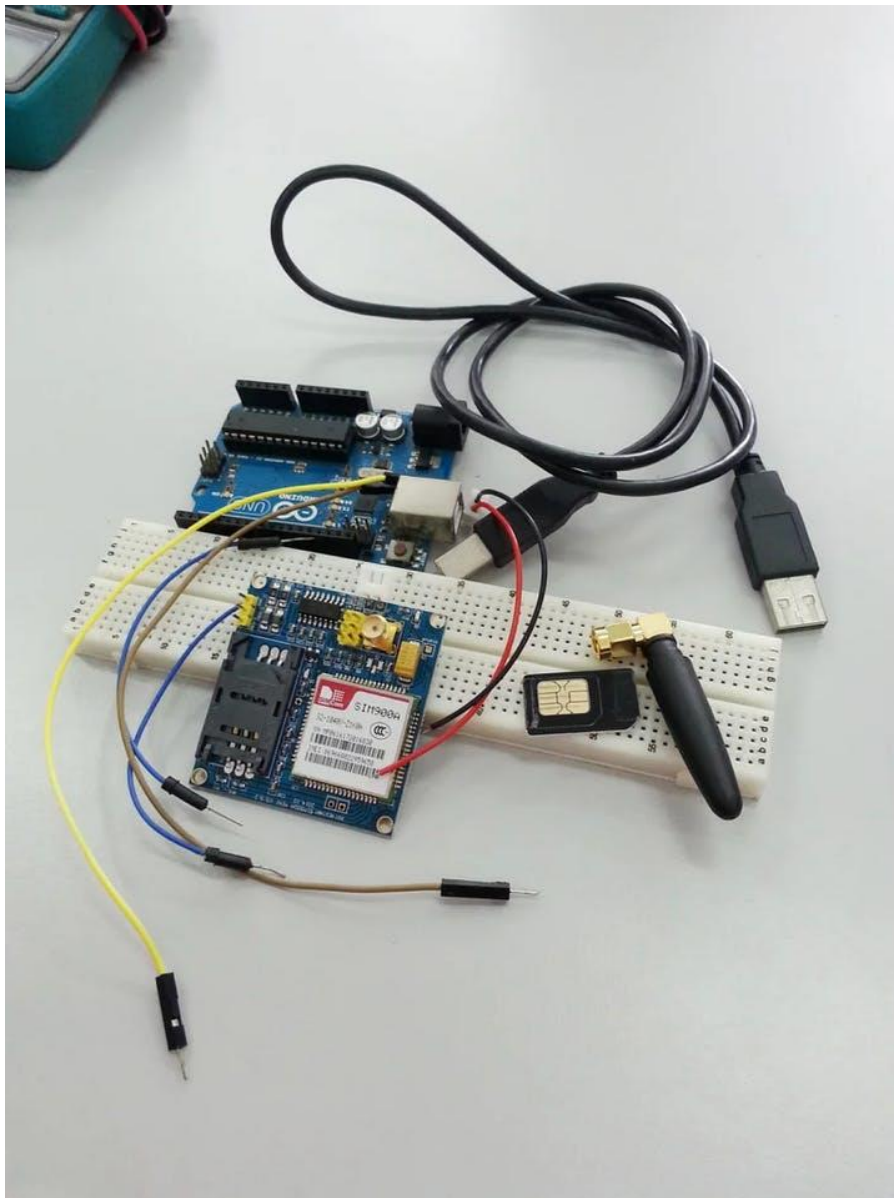
Booting Up SIM900A

1. Insert your SIM card to GSM module and lock it. (picture 1 and 2)2. power up your gsm by connecting it to Arduino's 5V and GND (picture 3)3. Connect the Antenna (picture 4)4. Now wait for some time (say 1 minute) and see the blinking rate of 'status LED' or 'network LED' (D6, refer picture 5) //GSM module will take some time to establish connection with mobile network//5. Once the connection is established successfully, the status/network LED will blink continuously every 3 seconds. You may try making a call to the mobile number of the sim card inside GSM module. If you hear a ring back, the gsm module has successfully established network connection.
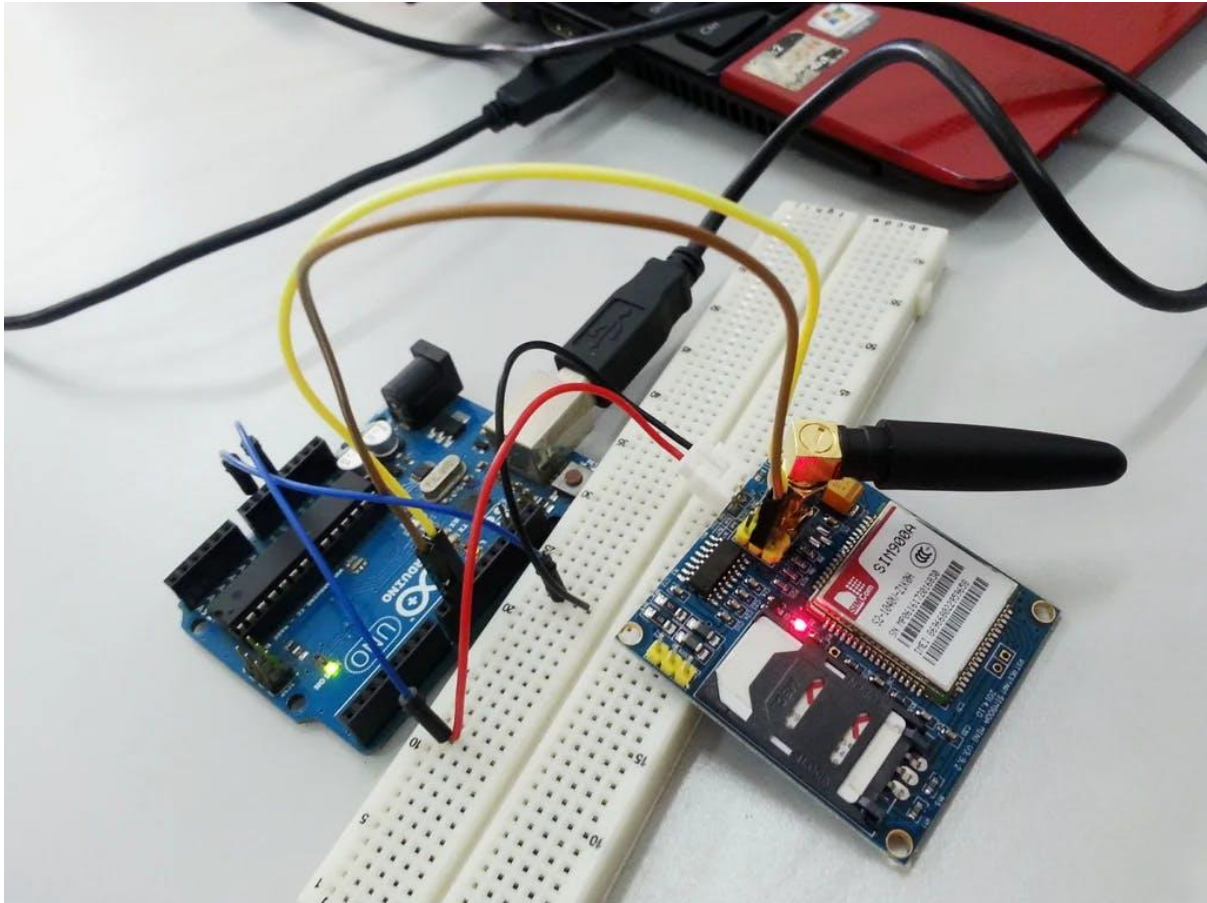
Basic AT Command

1. To change sms sending mode : **AT+CMGF=1**

```
mySerial.println("AT+CMGF=1");
```

2. To read SMS in text mode : **AT+CNMI=2, 2, 0, 0, 0**

```
mySerial.println("AT+CNMI=2,2,0,0,0");
```

3. To make a call : **ATD+60XXXXXXXX;** //replace X with number you want to call, change +60 to your country code

```
mySerial.println("ATD+60XXXXXXXX;");
```

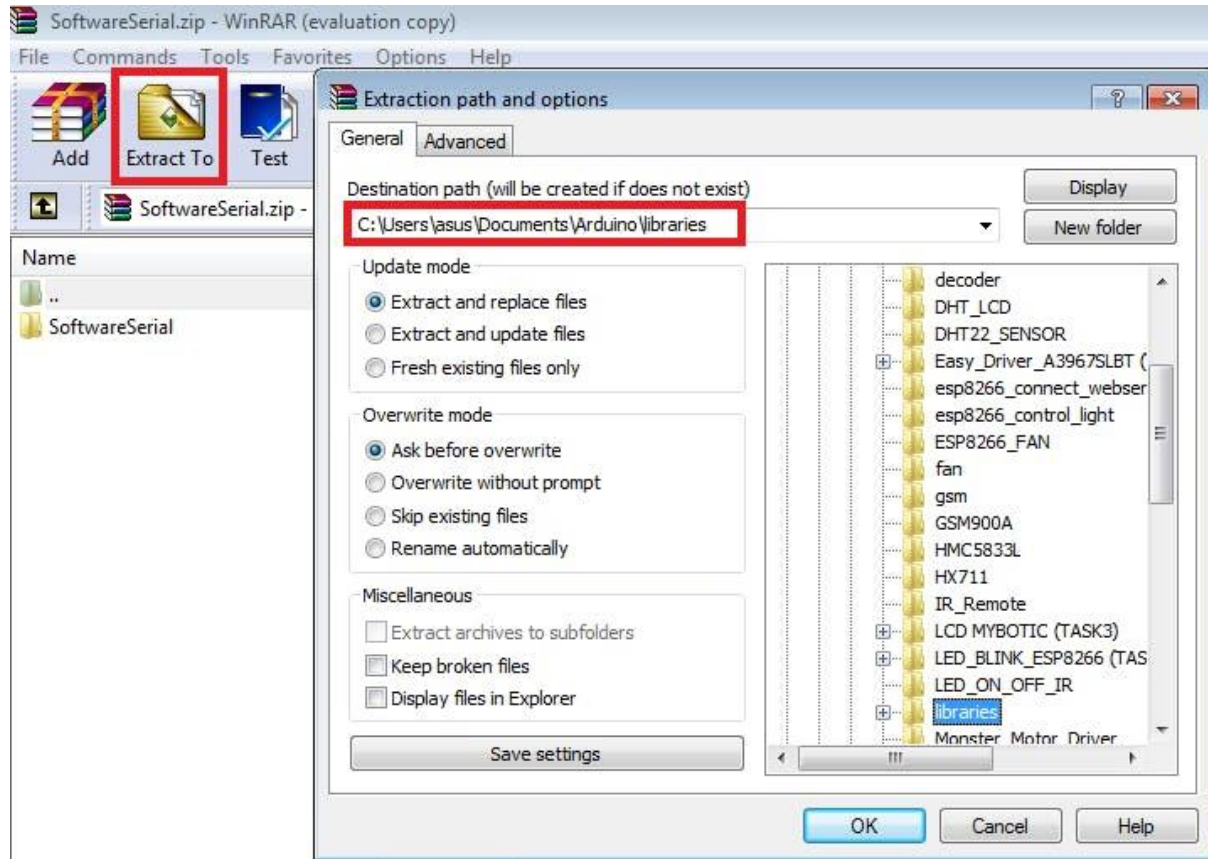4. To disconnect / hangup call : **ATH**

```
mySerial.println("ATH");
```

5. To redial : **ATDL**

```
mySerial.println("ATDL");
```

6. To receive a phone call : **ATA**

```
mySerial.println(
"ATA");
```

Library

SoftwareSerial is a library of Arduino which enables serial data communication through other digital pins of Arduino. The library replicates hardware functions and handles the task of serial communication. To be able to interface gsm module with arduino, you will have to download this library and extract it into your Arduino's libraries.

Circuit
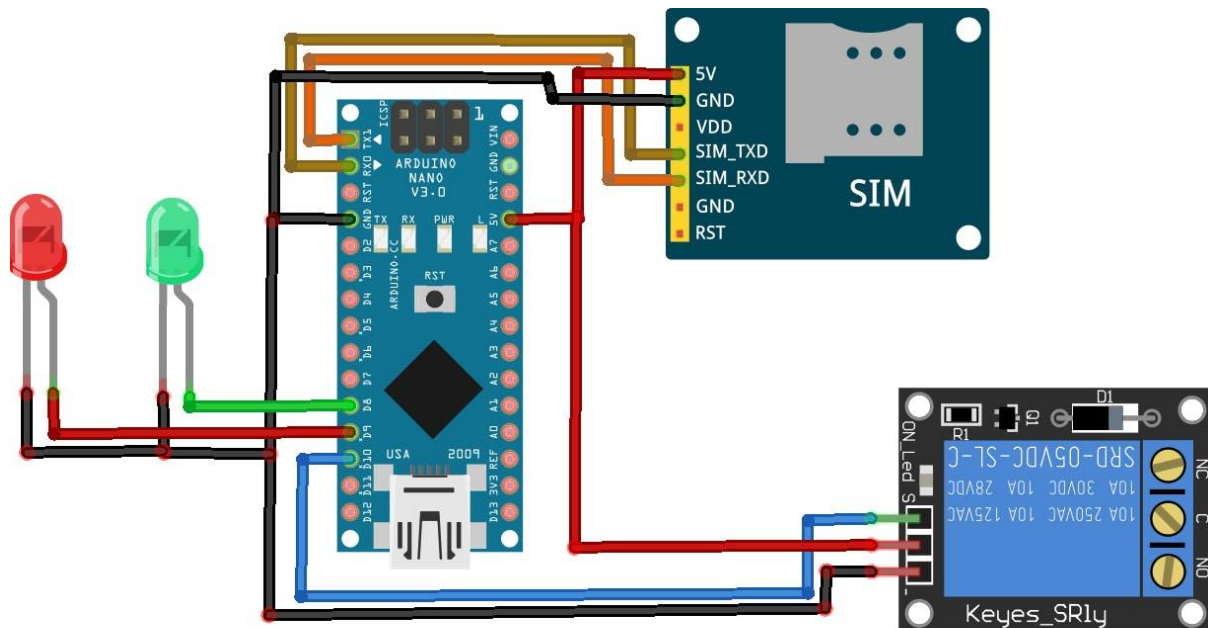
Connections:

GSM Sim900A :

- **GSM Rx to Arduino Tx.**
- **GSM Tx to Arduino Rx.**
- **5v to external 5v supply whichcan deliver up to 1 amp**.
- **Ground to ground.**

Relay :

- **VCC to 5V**
- **GND to GND**
- **Relay to D1**

CODE

Visit DiY Projects Lab For code And Circuit