SMART HOME AUTOMATION

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FINAL APPROVAL

This project is to be submitted to the Department of Informatics, University o Management and Technology Lahore, for the fulfillment for the requirement of Bachelor's Degree in Telecommunication and Network System.

Project Advisor:

Mr. Muhammad Fahad Zia

Signature: _____

DEDICATION

I dedicatethis report to my parents their complacent personalities induced and persuaded me to complete the task. They encouraged me in a pursuit of knowledge and selflessly support me for my whole life

ACKNOWLEDGEMENT

All praises to ALLAH, the source of knowledge, wisdom and beyond comprehension who enable us to accomplish our goal.

The completion and production of every book and project is not single man task. One should definitely take the assistance and cooperation of some people. Many people have extended their valuable assistance which enabled me to give a final shape to this manuscript.

I express my heartfelt gratitude to my family for their prayer moral support and sincere wishes for the completion of my work.

I want to thank my project advisor Mr. MUHAMMAD FAHAD ZIA for his continuing interest and support of my work. His generosity to share his ideas with me was the starting point for the work of this thesis.

ABSTRACT

Home automation is a way to control any household appliance by remote control or by fully automating. The world's first home automation began in 1898, and because of the contribution of Nikola Tesla, a labor-saving machine such as a washing machine was invented, so he obtained a patent for remote control devices that could be used to control ships and / or vehicles. Some home automation applications can be considered independent because they do not communicate, for example, garage door sensors, and others become part of the Internet of Things for the transmission of data. But even so, most of these home automation systems can be easily implemented including a group of products designed to work together, while other products can only work independent.

Home automation provides us with access to our control equipment through our home any handheld device. The thermostat and / or sprinkler system can even be considered part of it Of home automation devices, since they can be programmed to work with the smallest host Intervening, but more precisely, home automation actually describes a house almost everything, from lights to electrical sockets, are hooked and can be controlled through a remote network. From a security point of view, this will also include an alert System, Windows monitoring, or any device or system that can be connected to a sensor will be able to relay information.

The biggest advantage of home automation systems is unparalleled energy efficiency feature. At the most basic level, home automation allows scheduled programming Sensors so that we can use enough energy that may be needed instead of more. When needed the power outlet can also be automatically powered automatically to save energy.

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CHAPTER 1: Introduction

1.1. Introduction

In 1792, the French engineer Claude Chappe established the first fixed visual telegraph system, although it requires the use of skilled operators, costly, can be regarded as the first modern telecommunications breakthrough. But in the 1950s, the first step in the development of the Internet began.

Telecommunication science is defined as a means of communication or transmission of remote information that is usually not possible to cover. It allows us to communicate information in a fastest and accurate way. This is one of the greatest efforts of mankind to seek new inventions and to achieve sustained success.

1.2. Objective

The world around us is getting smaller and smaller, every service we can think of it just at the tip of our fingers. From planning travel around the world to simply pay the bill. More importantly, if there are ways to control and maintain contact with our house, just as we control and get notifications from social applications.

The purpose of this project is to relieve the burden of your house while maintaining the owner's confidence and accessibility. Even its just from switching off unnecessary lights and get notify about this unnecessary light on smart phone, this project provide easy solution to home improvement and energy saving.

1.3. Features

For this project to work, the major issue would be sending and receiving information from arduino to smart phone through Bluetooth module. In doing so we have to wary about security and safety issues such as limiting access to the application to only those who have user name and password.

CHAPTER 2: Home Automation

Home automation is a way to get control of a home application by remote, manual, or automatic response, without any disturbance. The earliest home automation technology began with power generators such as washing machines. But the original credibility to the Nicholas Tesla, he was the first in 1899 "remote control" patent. The remote control is an infrared device that can send digitally encoded infrared radiation pulses to control the function.

At present, some home automation devices are still considered independent because they cannot communicate with other devices because it takes cumbersome time to control a device with a ripple voltage. With the development of the Internet, most household appliances can be easily controlled from any part of the world, such as programmable light, switches etc as shown in Figure 1.

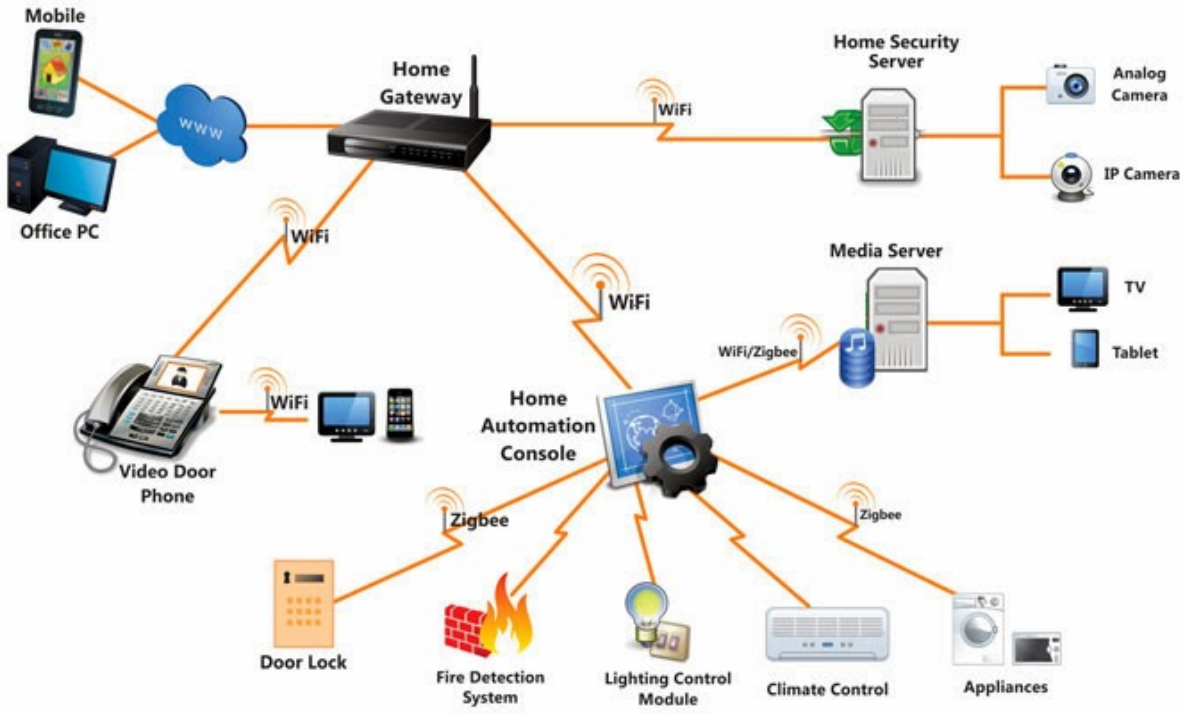


Figure 1: Basic Block DiagramOf Home Automation

Internet of Things (IoT) can be considered a physical device network that allows users to combine and exchange data. IoT provides the ability to remotely identify and control objects on pre-installed network structures, creating the possibility of connecting and controlling the physical world directly for computer-based systems.

Combing Home Automation and internet of Things gives us the benefit to access any home application from anywhere such as:

- Heating, ventilation and air condition
- Audio-Visual
- Electronic Appliance control
- Security System
- Leak or gas detection
- Indoor positing and controlling systems

CHAPTER 3: Hardware Description

3.1. Arduino Uno

Arduino is free platform for everyone to build new electronic endeavors or make modifications in board freely. Arduino includes a physical programmable circuit board and software Integrated Development Environment that runon the PC for composing and transferring the code written by user on the computer to the arduino board. Arduino Uno is Arduino's first board of Arduino. Arduino Uno does not require a additional equipment to stack the new code on the board and can be transferred by means of USB. Moreover, the Arduino IDE utilizes a rearranged variant of C ++ to make it less demanding to learn programming. Arduino offers a standard shape consider that divide the operations of the microcontroller into number of bundles so task can be performed easily and efficiently. Arduino Uno can communicate with buttons, LEDs, engines, speakers, GPS units, and cameras, the Internet and even cell phones and TVs. Arduino programming is free, the equipment board is affordable, programming and equipment can be easily understand, bringing about countless clients for an assortment of Arduino-based ventures give code and guidelines. Arduino has 14 digital input/output pins, 6 analog I/O pins and 6 PWM pins also having rest button USB port and power jack on the board as shown in the Figure 2.

For this project Arduino Uno is specifically chosen because of its flexibility with relays and other wireless devices .It provide plug and plug interference between devices. It contain everything which is required by programmer for supporting microcontroller, it is simply plug and play board just provide power from adapter or USB cable to use it.

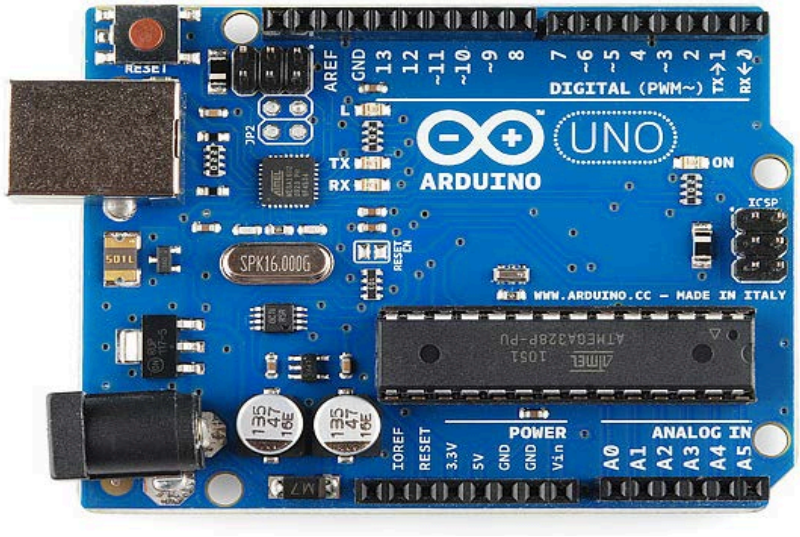


Figure 2: Arduino Uno

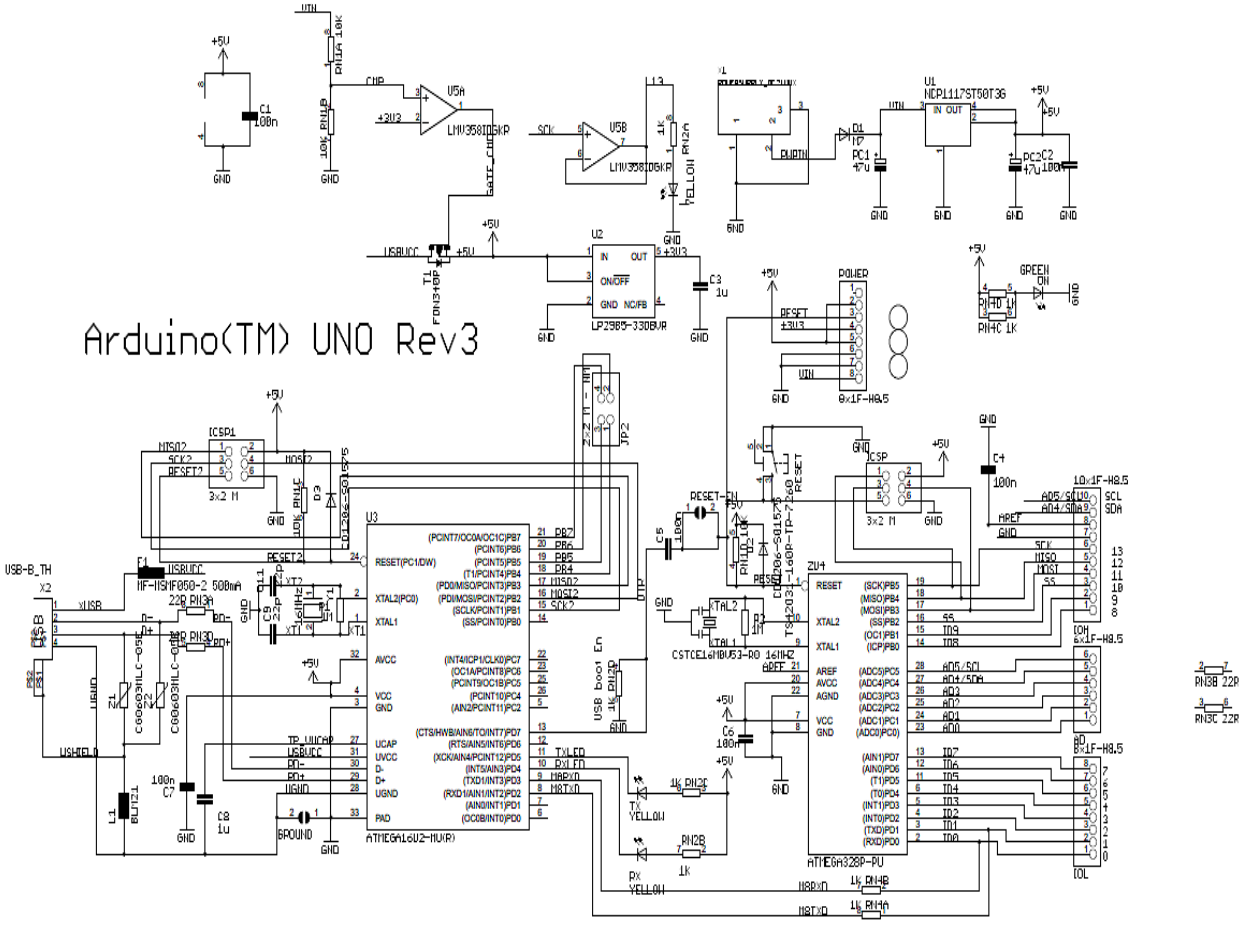


Figure 3: Arduino Uno Circuit Diagram

3.2. Types of Arduino Boards

Types of Arduino Boards are as following:

- Arduino Uno-R3
- Uno-R3 SMD
- RedBoard
- Arduino Pro
- Arduino Mini
- Mini Pro
- Arduino Ethernet
- Arduino Leonardo
- Pro Micro
- Arduino Mega
- Arduino Due
- Arduino Fio
- Lillypad Arduino

3.3. Relay Module

The relay is an electromagnetic switch that is activated by allowing a small current to pass through the electromagnet. The relay is used to control a circuit with a low power signal

3.4. Types of Relay

- **Latching Relay**

The latch relay or common relay remains in contact with the position for a long time without applying power to the coil. Design of the relay is shown in Figure 4 while some may have a residual core, allow them to keep in touch by placing a trace of magnetic force in their operating position.

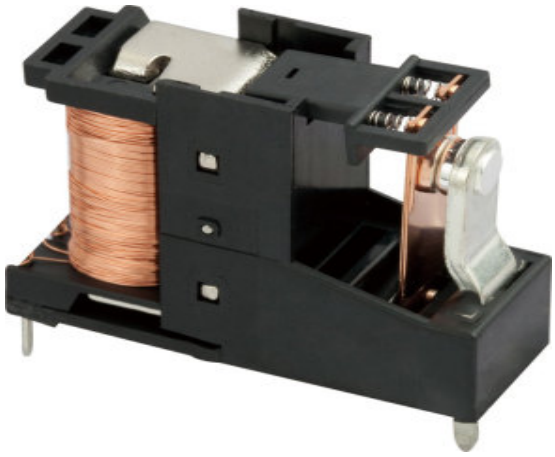


Figure 4: Latching Relay Module

- **Mercury relay**

Instead of the universal armature, the relay uses the mercury material of the armature. These are used for the next few seconds where the contact loss is considered to be the problem of conventional relay contacts

- **Polarized relay**

The relay places the arms of the relay between the two poles of the permanent magnet. Connection can only be made by changing the polarity of the arm

- **Machine tool relay**

This is usually used to control machine or sequential control machines in industry.

- **Coaxial Relay**

The coaxial relay is used as a TR relay, and when the radio transmitter and the receiver share an antenna, the antenna needs to switch from the receiver mode to the transmitter mode instantly. This allows the receiver to be protected from high power during transmission.

- **Time delay relay**

Timing relays give a deliberate delay to working contacts. As shown in the Figure 5 with the help of node on the relay we can set time for delaying.

Figure 5: Time Delay Relay

- **The Solid state relay**

A solid state relay is a device that uses a thyristor as its armature to switch the controlled load as opposed to utilizing traditional solenoid. This device has 4 pins 2 of them are signal pin and two are VCC and Ground can be seen in Figure 4.

Figure 6: Solid State Relay

- **Buchholz relay**

A bucholz relay is utilized as safety gadget more so than as ordinary relay. From the Figure 7 we can it is utilized to detect the collection of gas in extensive oil filled. On the off chance that the aggregation of gas is moderate it can either raise an alert or even kill the transformer if the gas is being framed at a high rate. Rather than utilizing an electric current the contacts are worked by the pressure of collected gas.

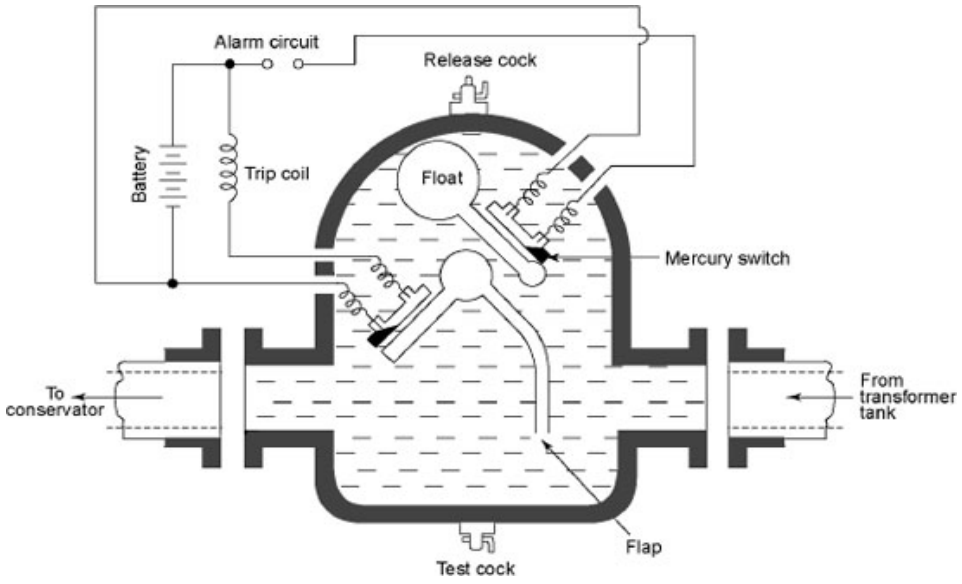


Figure 7 : Bucholz Relay

- **SRD 4 channel 5V relay**

For this project SRD 4 channel relay is used shown in Figure 8. It is a basic electromagnetic relay that is utilized as a part of local appliances and office space, for example, screen show and sound equipment's. From the Figure 9 we see each relay is associated with a diode clippers association that clasps the voltage if there should be an occurrence of low reverse leakage and transistor that increases the current. In this way if there is change of voltage or current the machine associated with the transfer and the relay itself won't be harmed by the fluctuating force.

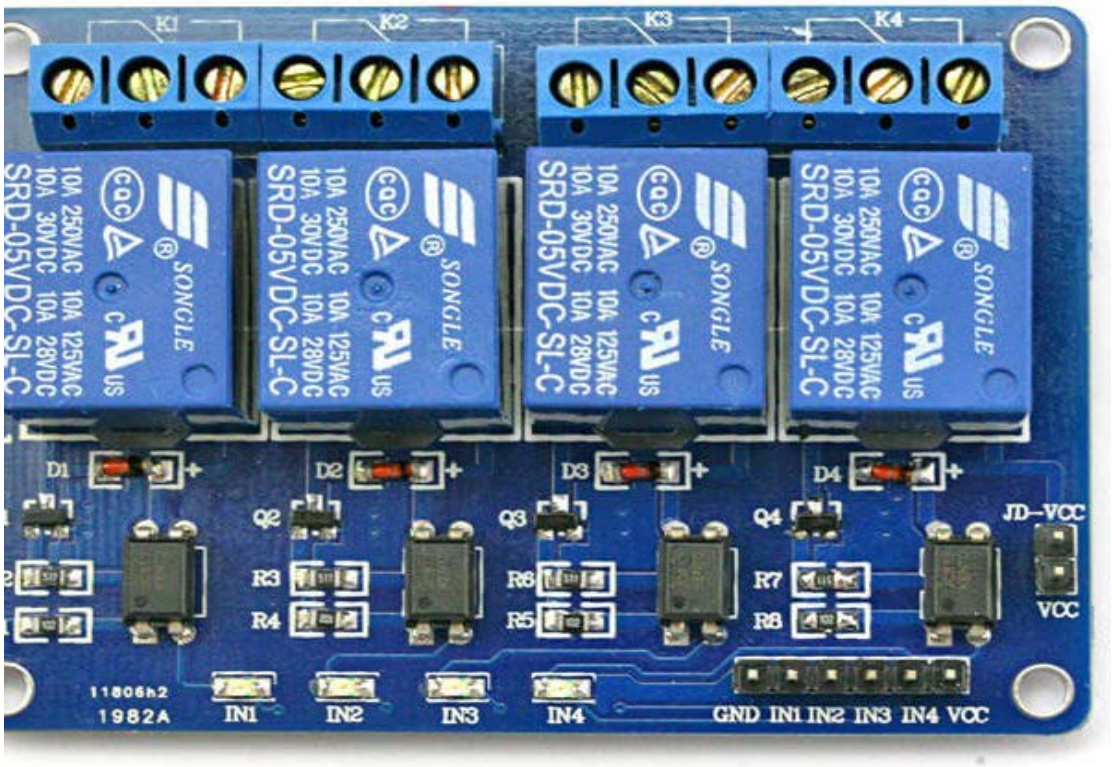


Figure 8: An SPST 5v 4 channel Relay Module

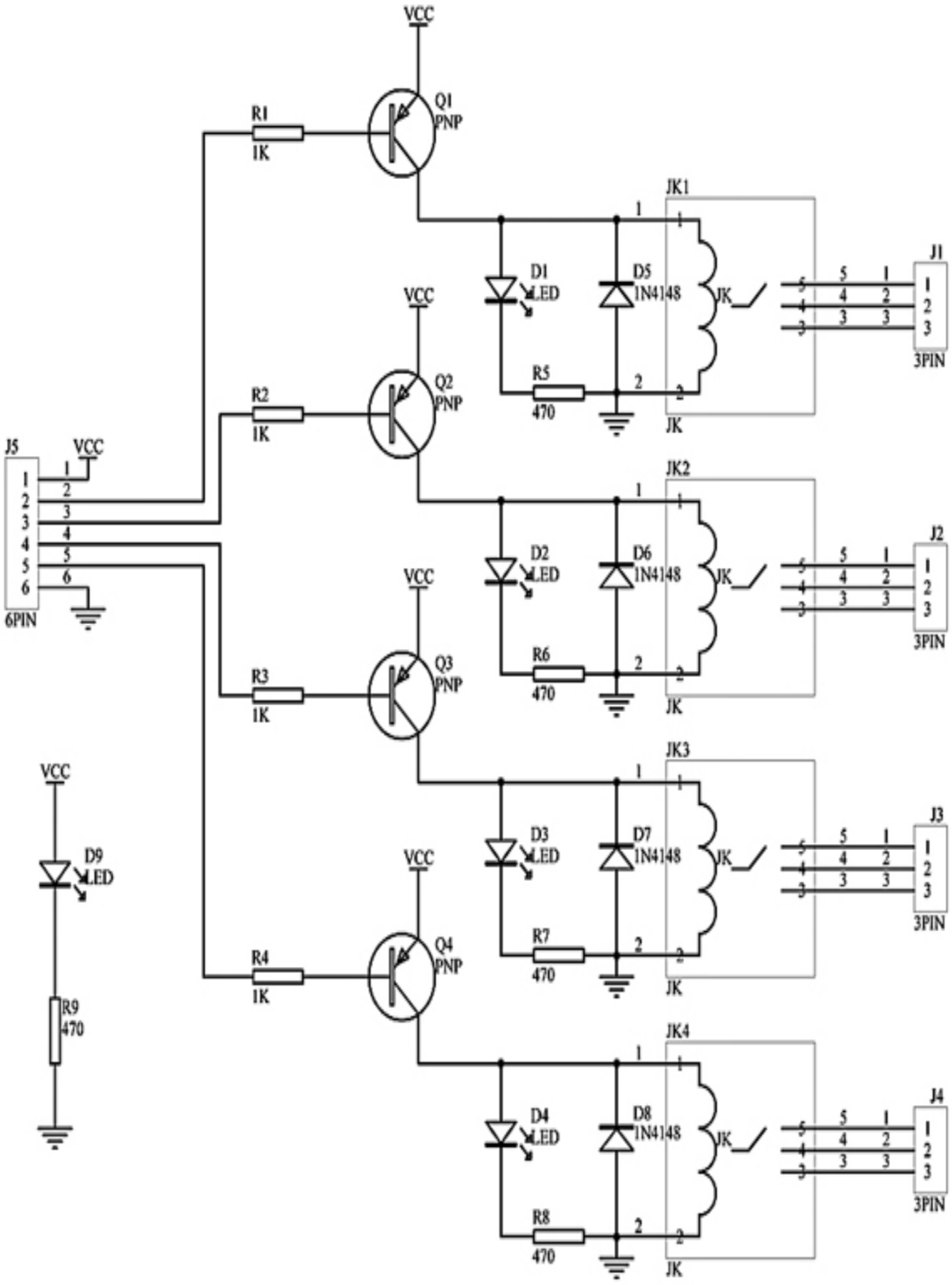


Figure 9: Circuit Diagram of SPST Relay Module

3.5. HC Bluetooth Module

These modules are utilized for changing over serial port to module. Thesedeviceshave two different modes master and slave. Which devices is going to be master or slave is decided in manufacturing process and given a number weather it will be master or slave when out of manufacturing plant then there modes cannot be changed.

3.6. Types of HC Bluetooth Module

Bluetooth serial interface modules are of three different levels according to their usage and they are as following:

Commercial level:

- HC-04(Master & Slave)
- HC-03

Domestic level:

- HC-05
- HC-05-D
- HC-06(Master & Slave)
- HC-06-D

Bluetooth adapter:

- HC-M4
- HC-M6

3.7. HC-06 Bluetooth Module

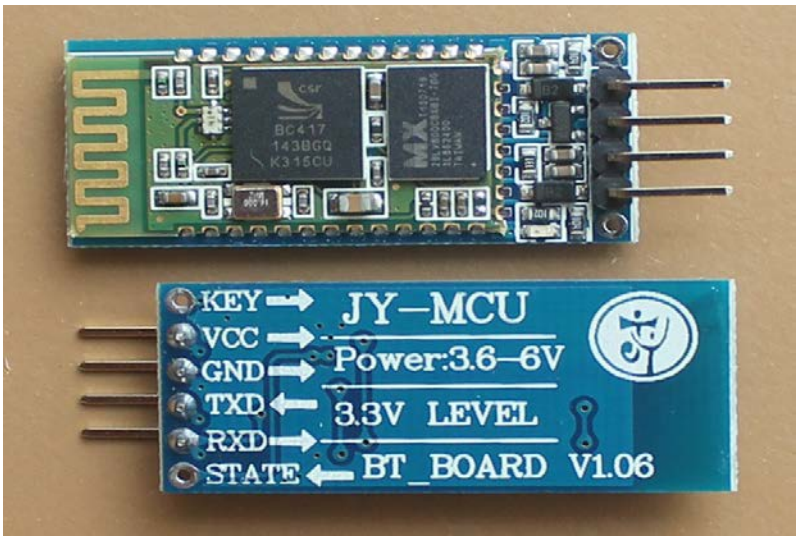


Figure 10: HC-06 Bluetooth Module

HC-06 Serial port Bluetooth module shown in Figure 10,itallow communicating without wires it can send and receive information from the devices and to the devices. It can be utilizing just for a serial port substitution to set up association among MCU and GPS, PC to implanted venture.

3.8. Features of HC-06

- Use Bluetooth V2.0 protocol for communication purpose
- Plug and play can be use easily
- Voltage Required for operating is 3.3V DC
- Changeable baud rate : 1200-115200
- Dimension: 27MM*13MM*2MM
- Current Required for operating 40 mA
- Sleep Current is smaller than 1mA

CHAPTER 4: Software Description

4.1. Arduino IDE

Programs which are written on Arduino IDE are called sketch. ArduinoIDE programmers see the Arduino C / C ++ sketch that contains only two functions shown in Figure 11.

- **Setup:**This function operateswhen a sketch gets started after getting power supply or after being reset. Function of setup is to introduce different variables, I/O pin modes, and different libraries required for the sketch.

- **Loop:** After setup has been called, function loop started to execute continuously in the primary program. It controls the board until the board is turned off or reset button is pressed.

Most Arduino boards have a light-emitting diode (LED) and a resistor associated between pin 13 and GND pin, which is an advantageous component for some tests and projects. An average program for starting Arduino software flickers a LED over and again. This program utilizes the functions pinMode, digitalWrite, and delay, which are given by the interior libraries incorporated into the IDE platform. The program is generally uploaded in the Arduino by the producer.

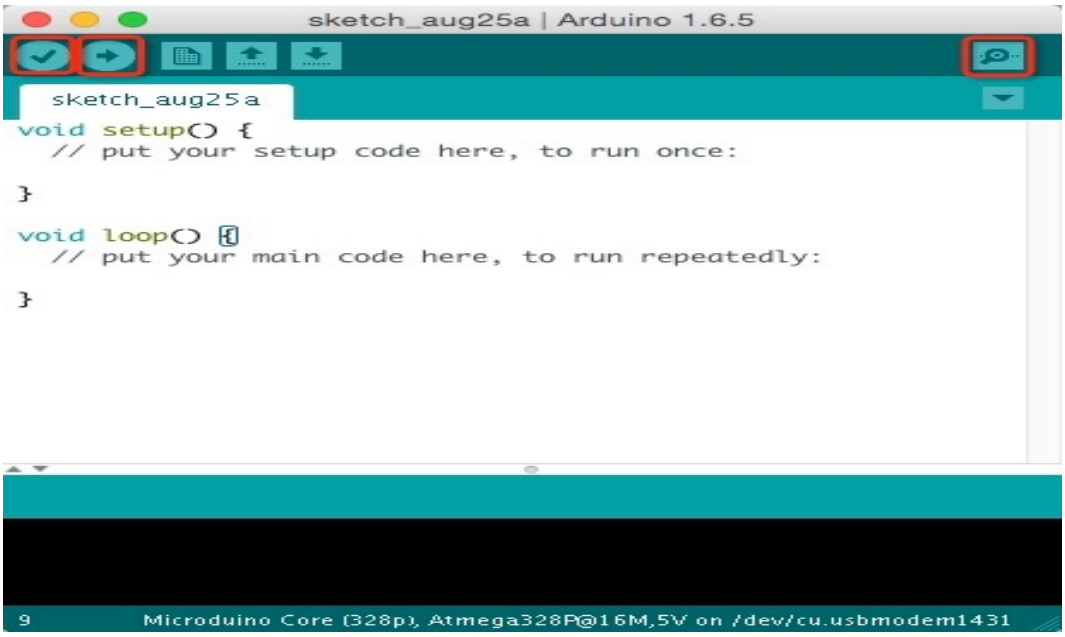


Figure 11: Arduino IDE Functions

4.2. App Inventor for Android

App Inventor for Android is free Web application started by Google and is now under the supervision of Massachusetts Institute of Technology (MIT). It provide free platform for learners to get familiar with android programming to make programming applications for the Android working framework. It provides a graphical interface that is almost the same as the Scratch and Star Logo TNG UIs, enabling programmer to applygraphicalcommands to make applications that can run on Android smart phones and other Android devices. When creating App Inventor, Google borrowed from advanced educational computing research and work in the Google online development environment. This web application have two section in one application layout,desigining and component are given which will be going to used in coding section ref to Figure 12 and 13.

This web applicationand the project under which it is based on the construction of learning theory to inform, focusing on the programming can be active learning to attract a strong idea. So this is the target of the computer and education movements, which began with the work of the sixties Seymour paper and Massachusetts Institute of Technology logo group, and also showed Mitchel Resnick about LEGO brainstorming and interstellar logo works.

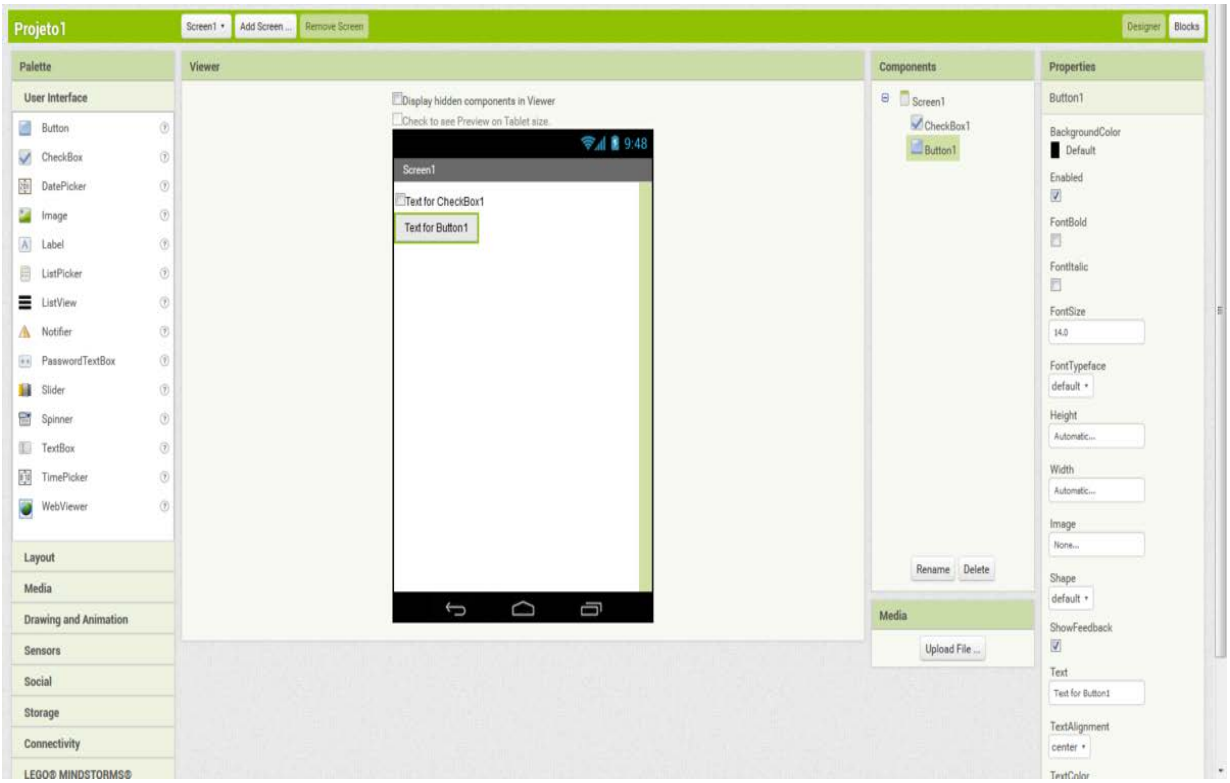


Figure 12: App Inventor 2 Designing Section

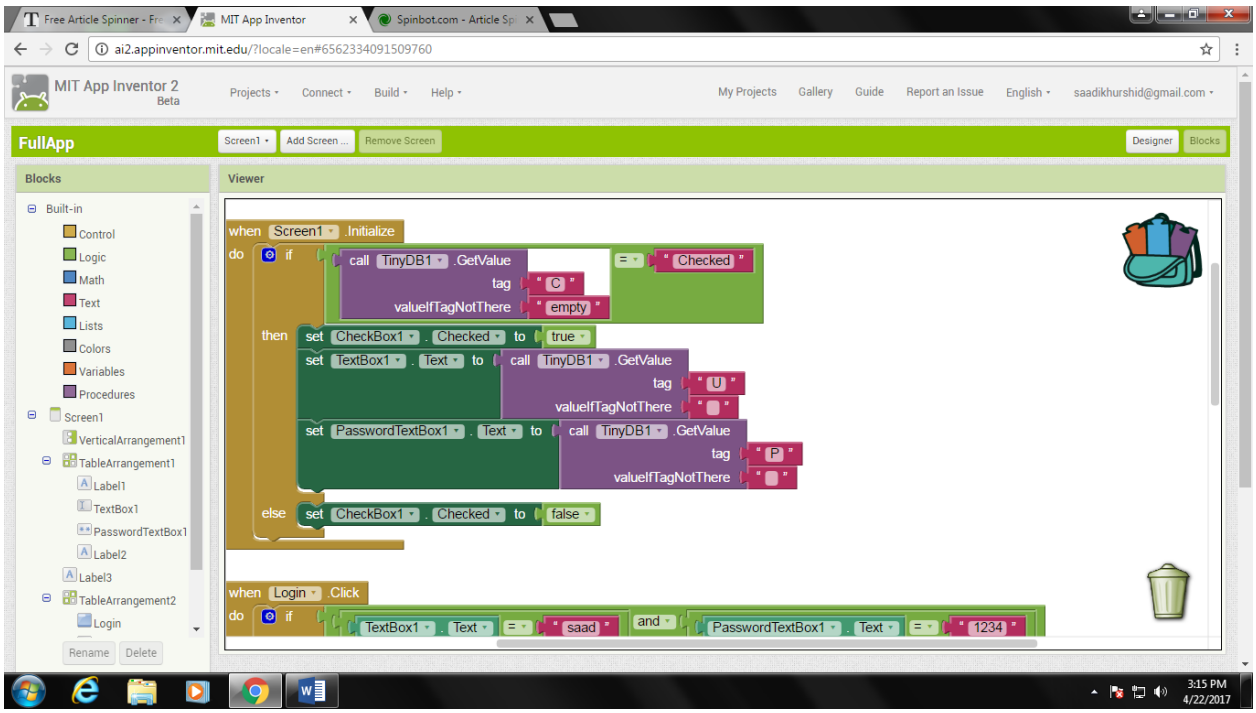


Figure 13: App Inventor 2 Coding section

CHAPTER 5: Implementation of Project

5.1. General Working

Smart home system operates from user voice. User send the instruction for controlling appliances through smart phone application those instruction are transmitted to Bluetooth module. When Bluetooth module receives the instruction it will send the instructions to arduino. Arduino will check the instructions if the instructions are correct then it will generate the signals to relay for turning on or off. Once relays performed the action on the signals arduino will send confirmation to the application through Bluetooth and from there application will generate the text message to the defined phone number about the actions perform on the instructions this working can be seen in Figure 14.

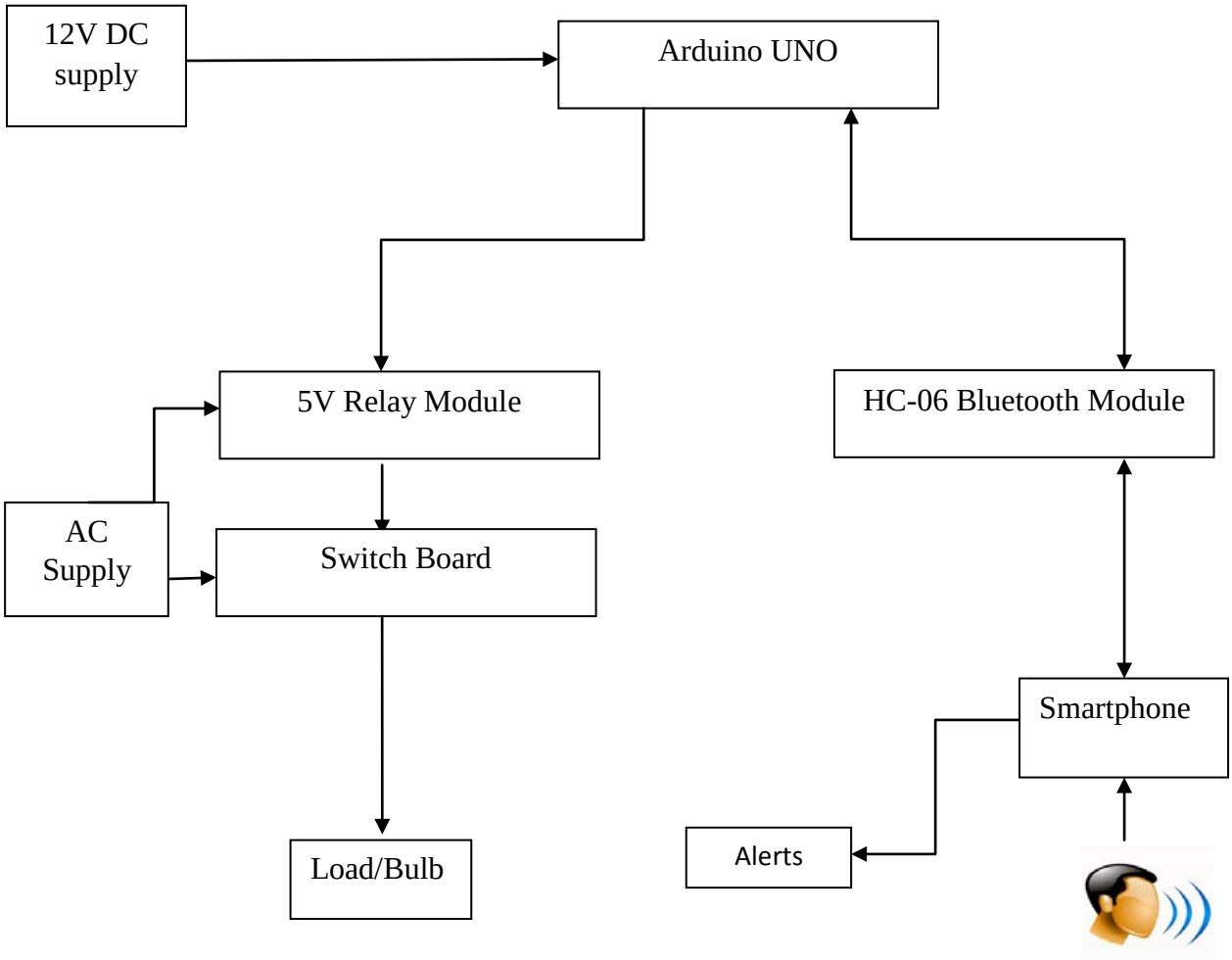


Figure 14: Block Diagram

5.2. Software Implementation:

Arduino plays the main role in this project as all the other devices (relay & Bluetooth) are connected to Arduino. When user sends any command through phone to Bluetooth module those instructions is transfer to the Arduino as Bluetooth module is connected to Arduino TX, RX pins. Then Arduino reads the instructions if the instruction matches the string stored in coding then Arduino will generate the signal to the relays according to the instructions and then relays will perform action according to Arduino instructions and relay would be Turn ON and OFF. Signal generated to the relays according to the instructions shown in Figure 15.

User can interact with this system from smart phone through application. User need to login into the application before giving commands to the system. After login user have to paired with bluetooth device HC-06 before sending any commands .When the pairing process is completed user send the instructions through its voice over Speech Recognizer component used in application. This component will access smart phone Google Voice application and receive instruction from user through its voice after receiving the instructions application will convert the voice instruction into text. Then this text is further transmitted to bluetooth module by application from there bluetooth will receive the instruction and transmit it to arduino. When function is perform on the related instruction Arduino will send the result to Bluetooth module after performing action and implanting of result Bluetooth will receive the result and send it to the application from which it received command.Application will read the result and compare the result with the string stored in blocks if the result matches the string then its mean operation is being performed on the instruction and application will send the detail about that switch which is connected to the resultant relay on the defined phone number.

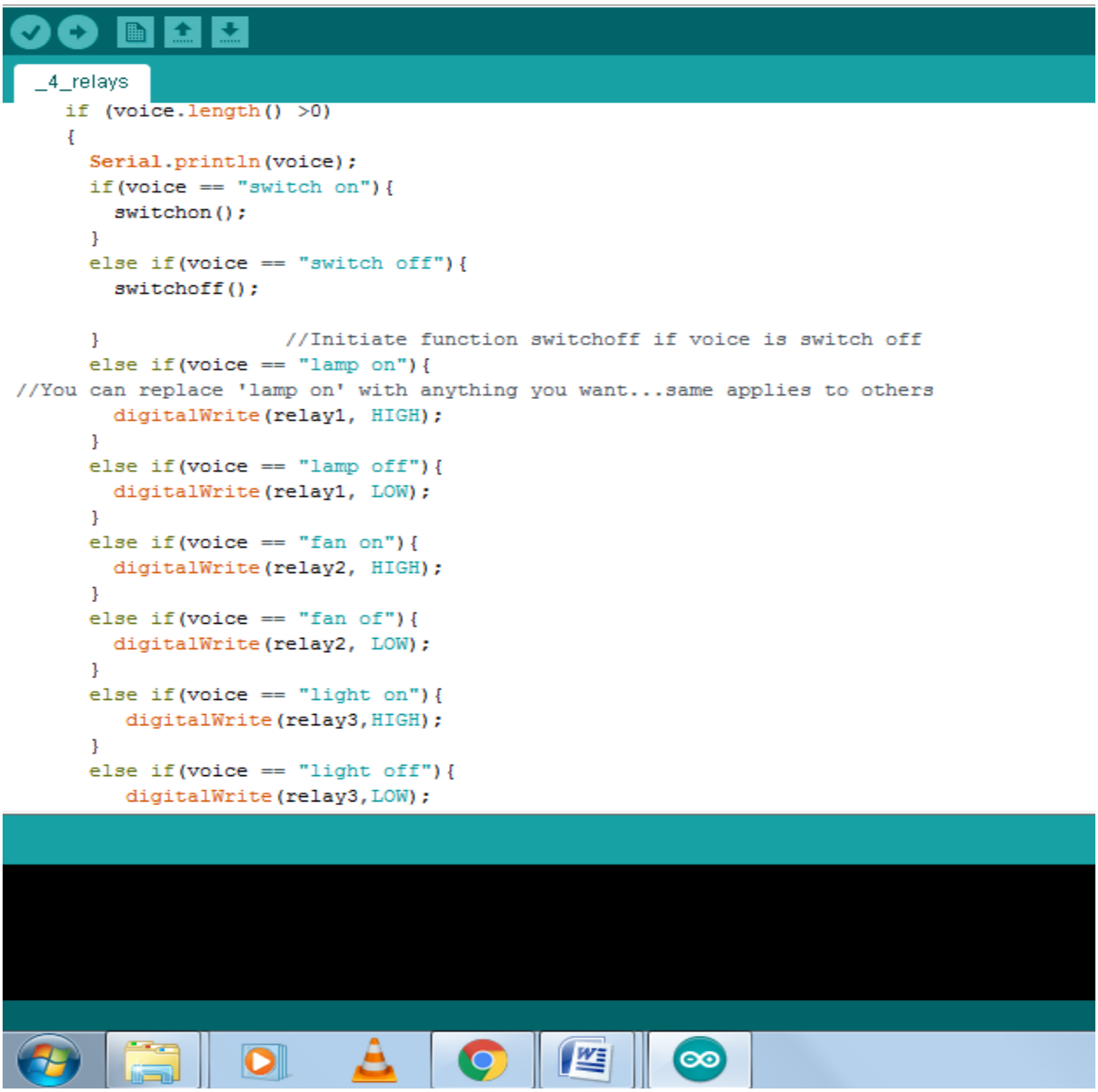


Figure 15: Instructions for Relays

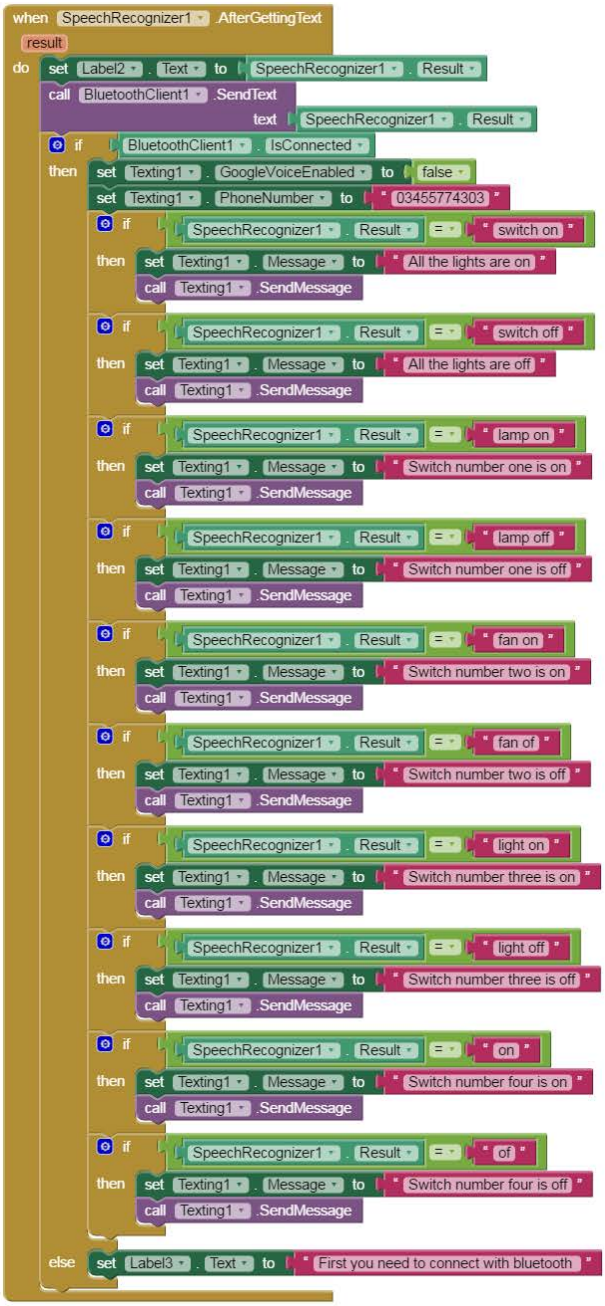


Figure16: Smart App instructions

5.3. Hardware Implementation:

Before making actual hardware connection between the devices all the connections should be implemented before providing power supply to the devices. Arduino should not be connected directly with power supply since it works on max 20V and min 5V caution should be measured.

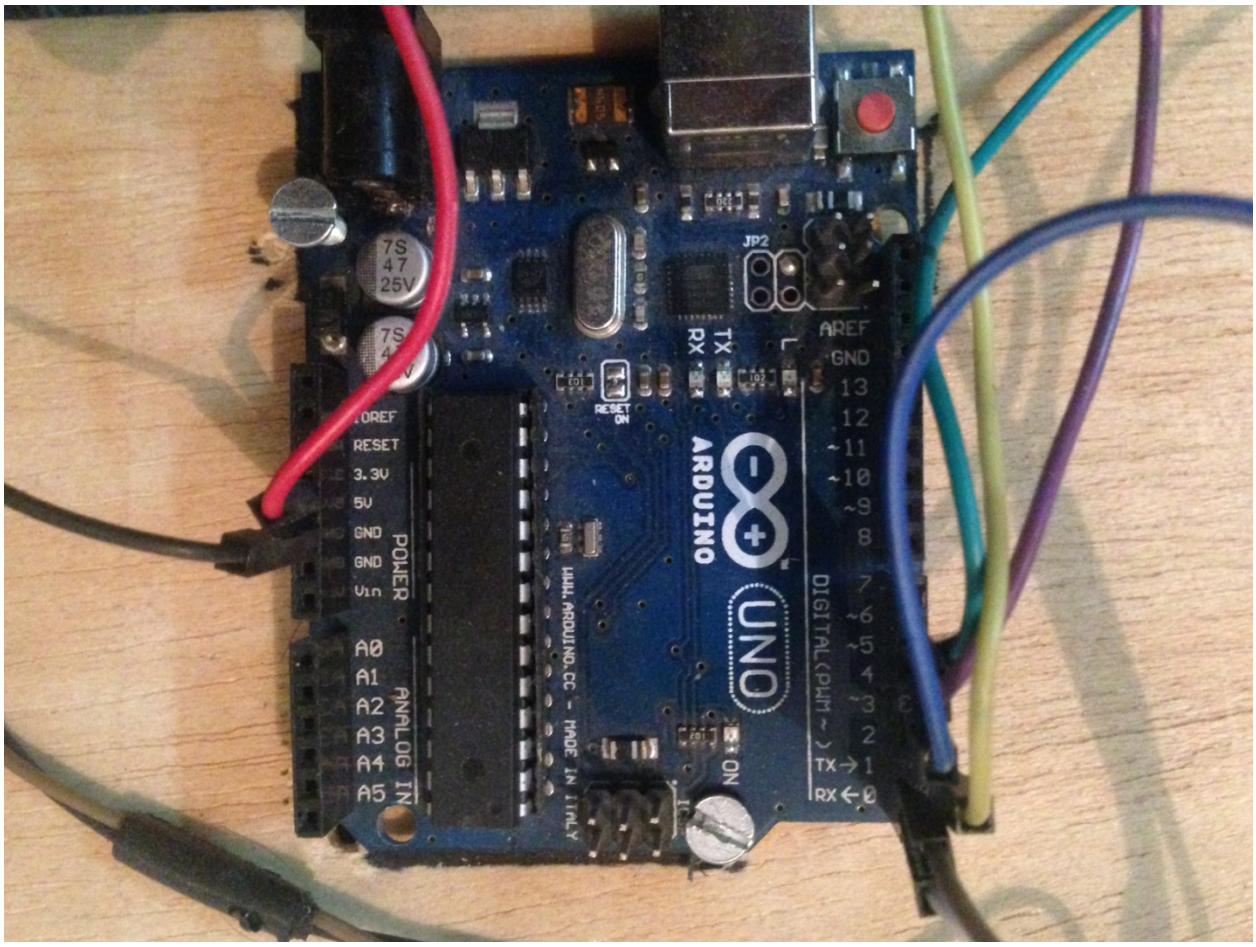


Figure17: Arduino Connection

According to IDE coding the relay module is connected to arduino digital pins 2,3,4,5 from these pins arduino send signals to the relay module PWM pin 4 begin the VCC and power PWM pin 3 GROUND as shown in above Figure 17.A separate charger of 12V is connected to the arduino for power supply. PWM pin 4 from arduino is connected to veroboard from there it provide 5v supply to both bluetooth and relay module same in the case of ground pin 3.The connection between these three devices is made through a manually. Relay and bluetooth module both use power from arduino to switch on and off. A switch board is connected with relay each

switch is connected to different relay parallel. Phase wire from the AC supply is directly connected to the relays NC (Normally Closed) port. Each switch on the switch board is connected to relay module through its COM (Common) pin as shown in the Figure 18. Switch board is of parallel circuit neutral wire is directly coming from AC supply and phase or active wire is coming through relay module. AC supply should have to go through relays to the board so when the relay is high then it only allows AC supply to pass through it and enables the switches.

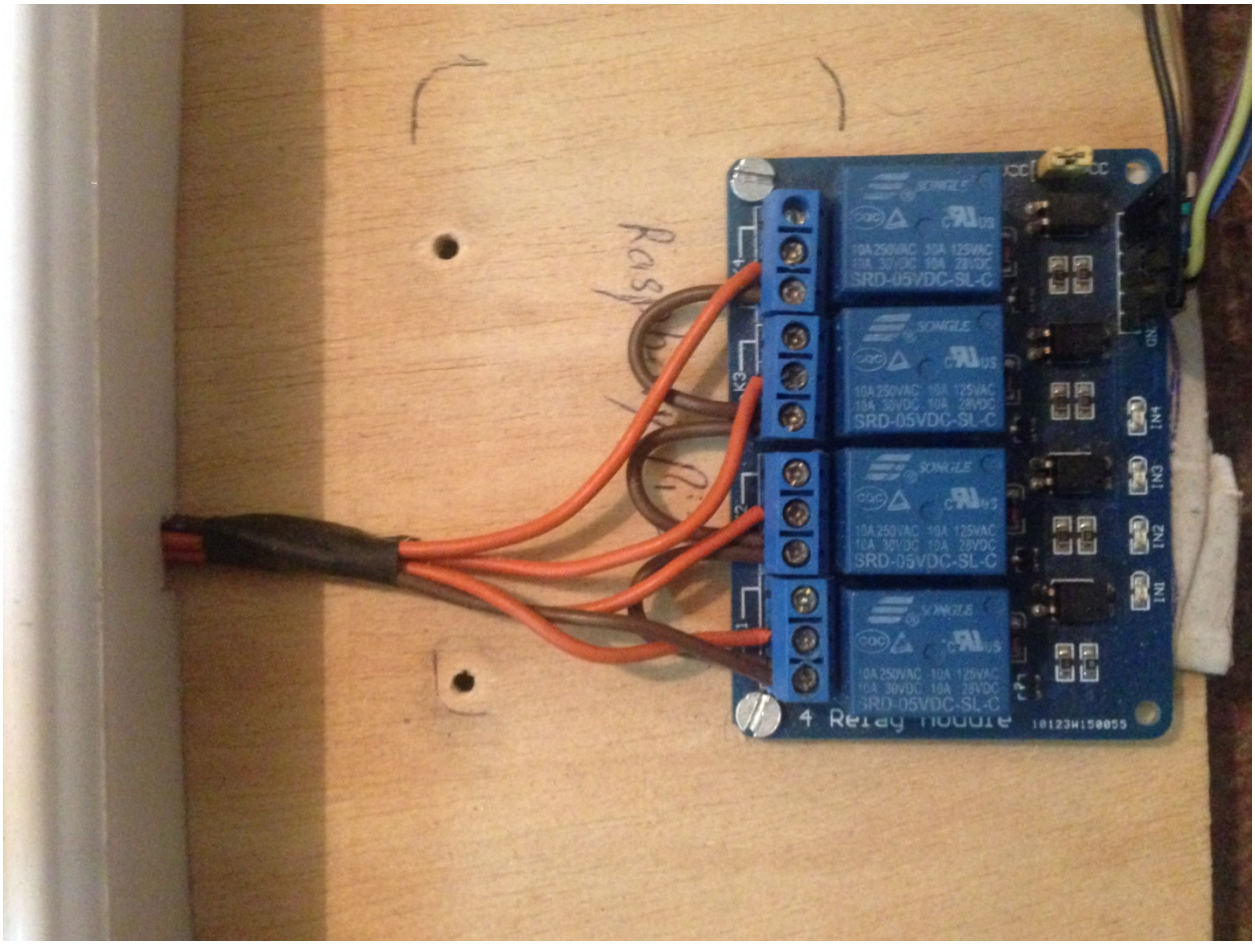


Figure 18: Relay Connection with Switch Board and AC Supply

Bluetooth is connected on veroboard and receive power from arduino PWM pin 4 and Grounded with arduino PWM pin 3.Bluetooth module TX pin is connected to arduino RX pin and its RX pin is connected to arduino TX pin to provide communication between user and the system connection between arduino and bluetooth is shown in the Figure 19. Two bulbs are

connected to the switch board one from male plug and other directly with the switch when relay number 4 is high then bulb connected to switch will be turn on and when other three relays are high and male plug is connected with female plug it will turn on the bulb as per instruction given by user.

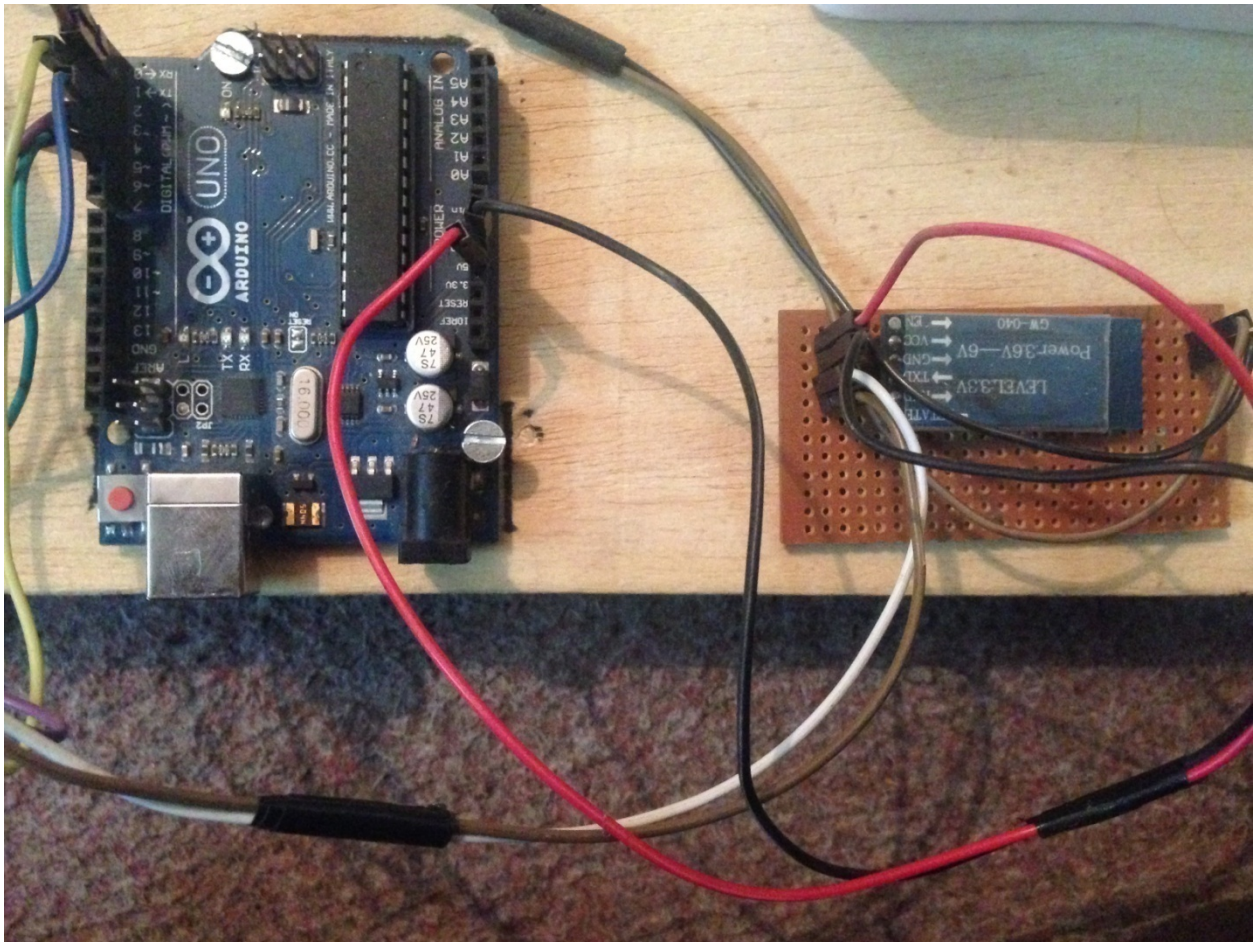


Figure 19: Arduino and bluetooth connection

Chapter 6: Conclusion and Result

6.1. Results

For my project the goal was to control home appliances from user voice through smart phone application and get notified whenever the appliances are On or OFF. And I was able to achieve my goal can be seen in Figure 20. When I say lamp on relay number one is high and bulb gets on and text is being sent on the phone number as shown in Figure 23.If the instructions are switch on then all the relays will be high and current will flow in all the switches. If system did not have any instruction then current will not pass through relays and nothing will happen as shown in Figure 22.If user is not connected to bluetooth device then application will generate a text on smart phone screen for connection. Once device is connected I can communicate with the smart home and control the appliances attached with it. Blubs attached to switch board shown in Figure 21 will only turn on if relay module allow them.

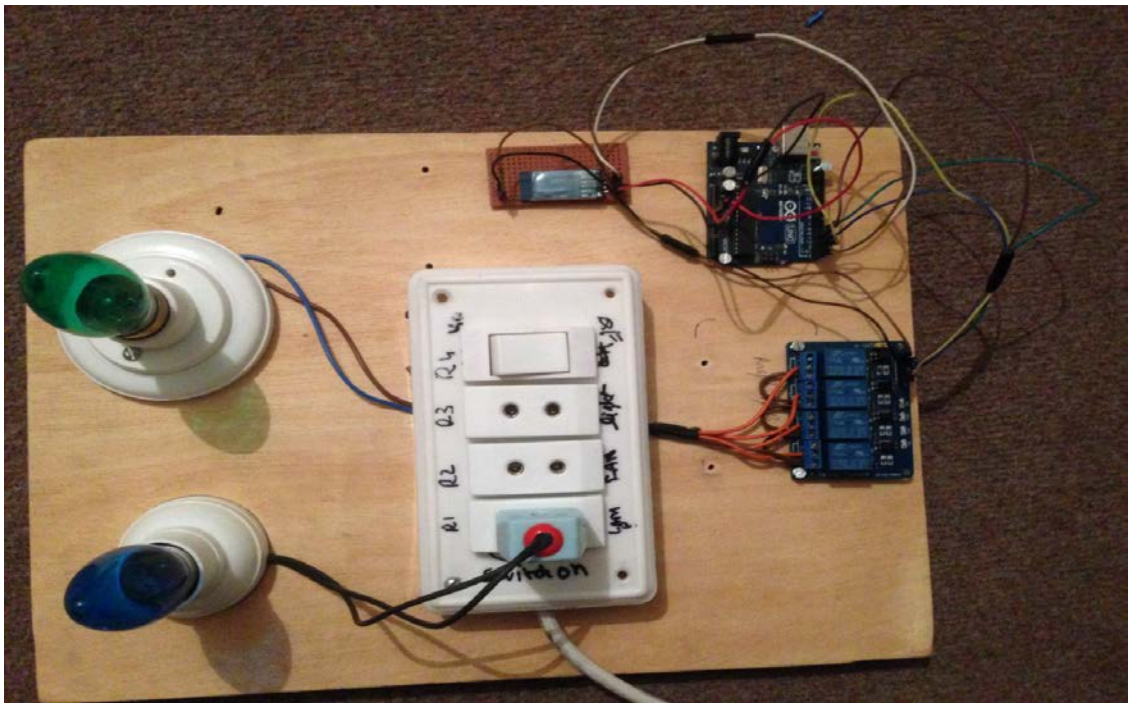


Figure 20: Smart Home connection

Figure 21: Switch Board and Load Connection

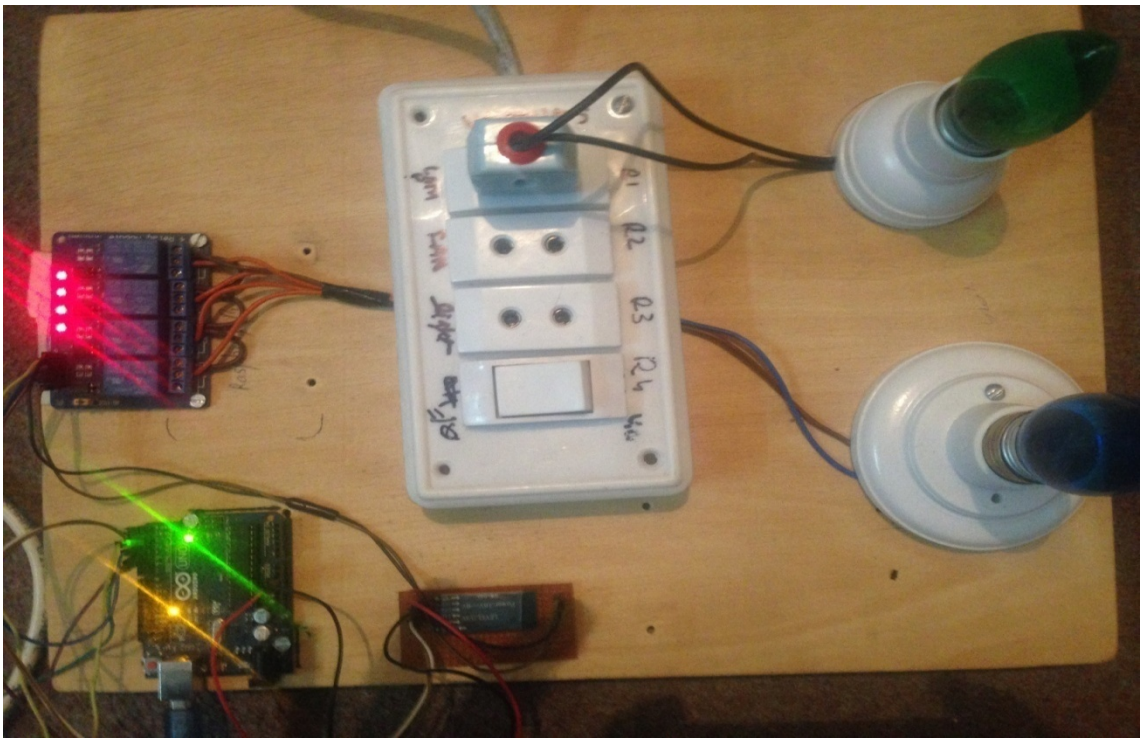


Figure 22: Smart Home Turn On

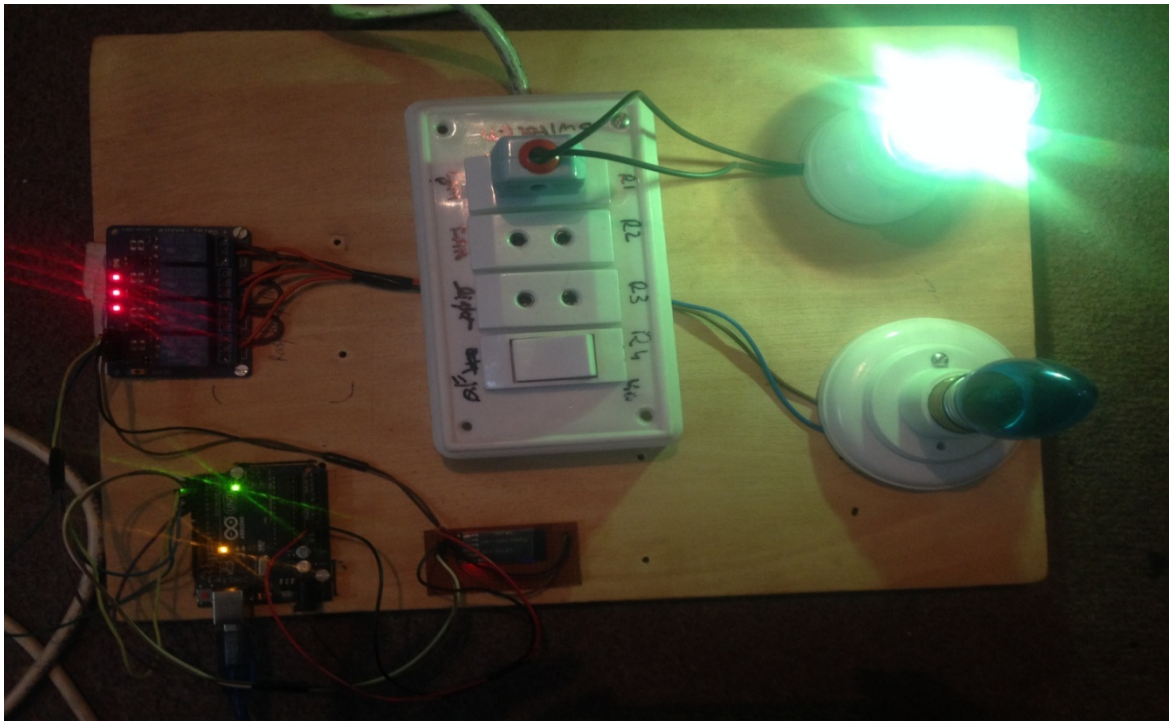


Figure23: Smart Home when receive commands

6.2. Limitations

Limitation in this project is that user has to be in the reach of bluetooth which is not more than20m so numbers of systems are required for one house. Size of the system is also little big for installing within the switch boards. Smart phone is required with internet to for using google voice component.

6.3. Future Work

For this project, applications are not bounded to Smart Home. With the help of these basic principles mentioned in the report we can easily update this project to control devices on larger platform such as industries even can be used to make Home security system.

- Wi-Fi module can be used for communication
- Arduino mini can be used to reduce the size
- GUI can be modified to attract the user

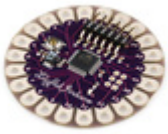
- More appliances can be controlled such as doors and TV

6.4. Conclusion

Homeautomation is the process of controlling electrical appliances from smart phone, Web pages etc. We can access our home appliances from anywhere without getting in physical contact with the appliances. With smart home we can preserve our energy. This system is also affordable and devices required for making this system are also cheap and easily available in the market.

Appendix I

Item	System Voltage	Clock Speed	Digital I/O	Analog Inputs	PWM	UART	Programming Interface
 Arduino Uno - R3	5V	16MHz	14	6	6	1	USB via ATMega16U2
 Arduino Uno R3 SMD	5V	16MHz	14	6	6	1	USB via ATMega16U2
 RedBoard	5V	16MHz	14	6	6	1	USB via FTDI
 Arduino Pro 3.3V/8MHz	3.3V	8MHz	14	6	6	1	FTDI-Compatible Header
 Arduino Pro 5V/16MHz	5V	16MHz	14	6	6	1	FTDI-Compatible Header
 Arduino Mini 05	5V	16MHz	14	8	6	1	FTDI-Compatible Header

 **Arduino Pro Mini 3.3V/8MHz**	3.3V	8MHz	14	8	6	1	FTDI-Compatible Header
 **Arduino Pro Mini 5V/16MHz**	5V	16MHz	14	8	6	1	FTDI-Compatible Header
 **Arduino Ethernet**	5V	16MHz	14	6	6	1	FTDI-Compatible Header
 **Arduino Fio**	3.3V	8MHz	14	8	6	1	FTDI-Compatible Header or Wirelessly via XBee[†]
 **LilyPad Arduino 328 Main Board**	3.3V	8MHz	14	6	6	1	FTDI-Compatible Header
 **LilyPad Arduino Simple Board**	3.3V	8MHz	9	4	5	0[‡]	FTDI-Compatible Header

 **Arduino Leonardo**	5V	16MHz	20*	12	7	1	Native USB
 **Pro Micro 5V/16MHz**	5V	16MHz	12	12	5	1	Native USB
 **Pro Micro 3.3V/8MHz**	3.3V	8MHz	12	12	5	1	Native USB
 **LilyPad Arduino USB**	5V	16MHz	9	12	5	0	Native USB
 **Arduino Mega 2560 R3**	5V	16MHz	54	16	14	4	USB via ATMega16U2
 **Mega Pro 3.3V**	3.3V	8MHz	54	16	14	4	FTDI-Compatible Header
 **Mega Pro 5V**	5V	16MHz	54	16	14	4	FTDI-Compatible Header

 **Mega Pro Mini 3.3V**	3.3V	8MHz	54	16	14	4	FTDI-Compatible Header
 **Arduino Due**	3.3V	84MHz	54	12	12	4	USB native

APPENDIX II

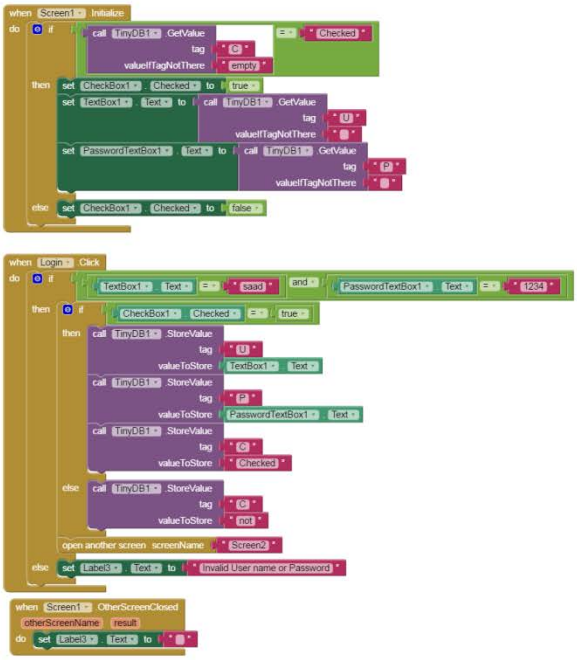
```
String voice;
#define relay1 2    //Connect relay1 to pin 2
#define relay2 3
#define relay3 4
#define relay4 5    //Connect relay2 to pin 5
void setup()
{
Serial.begin(9600);           //Set rate for communicating with phone
pinMode(relay1, OUTPUT);       //Set relay1 as an output
pinMode(relay2, OUTPUT);
pinMode(relay3, OUTPUT);
pinMode(relay4, OUTPUT);//Set relay2 as an output
digitalWrite(relay1, LOW);     //Switch relay1 off
digitalWrite(relay2, LOW);     //Swtich relay2 off
digitalWrite(relay3,LOW);
digitalWrite(relay4,LOW);


}
void loop()
{
```

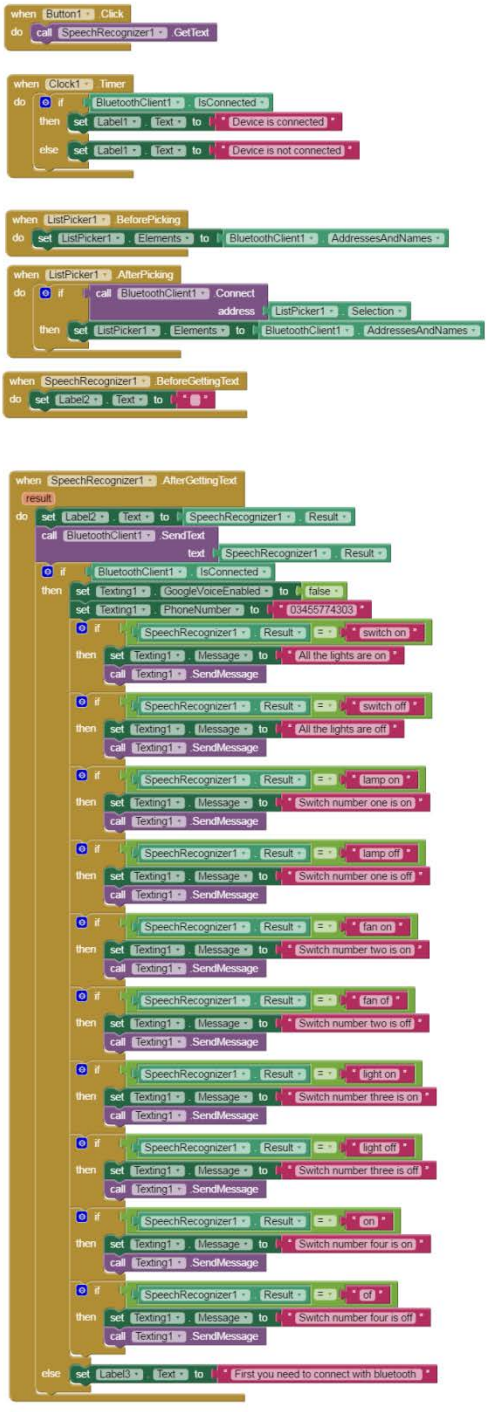
```
while(Serial.available())    //Check if there are available bytes to read
  {
delay(10);                  //Delay to make it stable
char c = Serial.read();    //Conduct a serial read
if (c == '#'){
break;                     //Stop the loop once # is detected after a word
    }
voice += c;                 //Means voice = voice + c
  }
if (voice.length() >0)
    {
Serial.println(voice);
if(voice == "switch on"){
switchon();
      }
else if(voice == "switch off"){
switchoff();

      }              //Initiate function switchoff if voice is switch off
else if(voice == "lamp on"){
//You can replace 'lamp on' with anything you want...same applies to others
digitalWrite(relay1, HIGH);
      }
```

```
else if(voice == "lamp off"){
digitalWrite(relay1, LOW);
    }
else if(voice == "fan on"){
digitalWrite(relay2, HIGH);
    }
else if(voice == "fan of"){
digitalWrite(relay2, LOW);
    }
else if(voice == "light on"){
digitalWrite(relay3,HIGH);
    }
else if(voice == "light off"){
digitalWrite(relay3,LOW);
    }
else if(voice == "on"){
digitalWrite(relay4,HIGH);
    }
else if(voice == "of"){
digitalWrite(relay4,LOW);
    }
voice="";
  }
```

```
}
voidswitchon()              //Function for turning on relays
{
digitalWrite(relay1, HIGH);
digitalWrite(relay2, HIGH);
digitalWrite(relay3, HIGH);
digitalWrite(relay4, HIGH);
}
voidswitchoff()             //Function for turning off relays
{
digitalWrite(relay1, LOW);
digitalWrite(relay2, LOW);
digitalWrite(relay3, LOW);
digitalWrite(relay4, LOW);
}
```

APPENDEX III




when Button1 . Click
do call SpeechRecognizer1 . GetText
when Clock1 . Timer
do if BluetoothClient1 . IsConnected
then set Label1 . Text to " Device is connected "
else set Label1 . Text to " Device is not connected "
when ListPicker1 . BeforePicking
do set ListPicker1 . Elements to BluetoothClient1 . AddressesAndNames
when ListPicker1 . AfterPicking
do if call BluetoothClient1 . Connect
address ListPicker1 . Selection
then set ListPicker1 . Elements to BluetoothClient1 . AddressesAndNames
when SpeechRecognizer1 . BeforeGettingText
do set Label2 . Text to " "
when SpeechRecognizer1 . AfterGettingText
result
do set Label2 . Text to SpeechRecognizer1 . Result
call BluetoothClient1 . SendText
text SpeechRecognizer1 . Result
if BluetoothClient1 . IsConnected
then set Texting1 . GoogleVoiceEnabled to false
set Texting1 . PhoneNumber to " 03455774303 "
if SpeechRecognizer1 . Result = " switch on "
then set Texting1 . Message to " All the lights are on "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " switch off "
then set Texting1 . Message to " All the lights are off "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " lamp on "
then set Texting1 . Message to " Switch number one is on "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " lamp off "
then set Texting1 . Message to " Switch number one is off "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " fan on "
then set Texting1 . Message to " Switch number two is on "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " fan of "
then set Texting1 . Message to " Switch number two is off "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " light on "
then set Texting1 . Message to " Switch number three is on "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " light off "
then set Texting1 . Message to " Switch number three is off "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " on "
then set Texting1 . Message to " Switch number four is on "
call Texting1 . SendMessage
if SpeechRecognizer1 . Result = " of "
then set Texting1 . Message to " Switch number four is off "
call Texting1 . SendMessage
else set Label3 . Text to " First you need to connect with bluetooth "