NORTH EAST UNIVERSITY BANGLADESH

Department of Computer Science and Engineering

Project Report: Home Automation System.

Course Code: CSE-322

Course Tittle: Microprocessor & Interfacing

Submitted To:

SHAHADAT HUSSAIN PARVEZ

Lecturer Department of CSE

North East University Bangladesh.

Submitted By:

Name	Id
Md.Abdul Motin	160103020007
Sri Linkon Chandra Das	160103020035
Suranjit Biswas	160103020026
Md.Amran Hussain	160103020017

INTRODUCTION

Every Home Automation box is a stand-alone device. It is connected to the mains and controls thepower outlet of the electrical Device that is Plugged into it. There will be a receiver and transmitter in each of the box, so they Can exchange information with the IR Remote.We can control power supply of electrical devices in order to create an interactive Home Environment To facilitate the control without changing any home appliance.

This report demonstrates a simple home automation system which consists of IR Remote, host controller, and several home appliances. At home, we generally operate (switch on/off) all the electrical and electronics appliances such as fan, light, cooler, air conditioner, and so on through switches of the regular switch board. We can use the unconventional remote control technology for controlling the home appliances easily without using the fixed wall switch boards. There are different types of remote control technologies such as infrared or IR remote technology.

DESCRIPTION:

All these appliances can be easily controlled by a single controller, using personal area network in a home environment. Busy environment and personal limitation the market is going towards the home automation and networking and Remote is an ideal solution for this Report. electronic devices can be easily controlled by home automation. This report a simple home automation system which consists of ir remote, host controller, and several home appliances. At home, we generally operate (switch on/off) all the electrical and electronics appliances such as fan, light, cooler, air conditioner, and so on through switches of the regular switch board.

 IR Remote Controlled Home Automation In this project, we are using IR Remote wireless communication for controlling home appliances. In this project, Arduino is used for controlling whole the process. After receiving signal from IR remote, Arduino sends related signal to relays which are responsible for switching ON or OFF of the home appliances through a relay driver.

Working Explanation:

Working of this project is easily understandable. When we press any button of IR Remote then remote sends a code in form of train of encoded pulses using modulating frequency. These pulses are received by sensor and read by Arduino and then Arduino decodes received train of pulse into a hex value and compares that decoded value with the predefined hex value of the pressed button. When it identifies that signal, then the arduino activates the relay hooked up to its digital pin by passing 5V through it. Thus the relay is switched ON and the corresponding appliance connected to the relay is turned ON as well.

Requirement:

1.Arduino Uno R3.

2.Infrared Wireless Remote Control.

3. 9v 2A Power Adapter

3. Relay Module.

3. A Board.

4. Two Light.

5.Two Light Holder.

6. Wire

1.Arduino Uno R3.
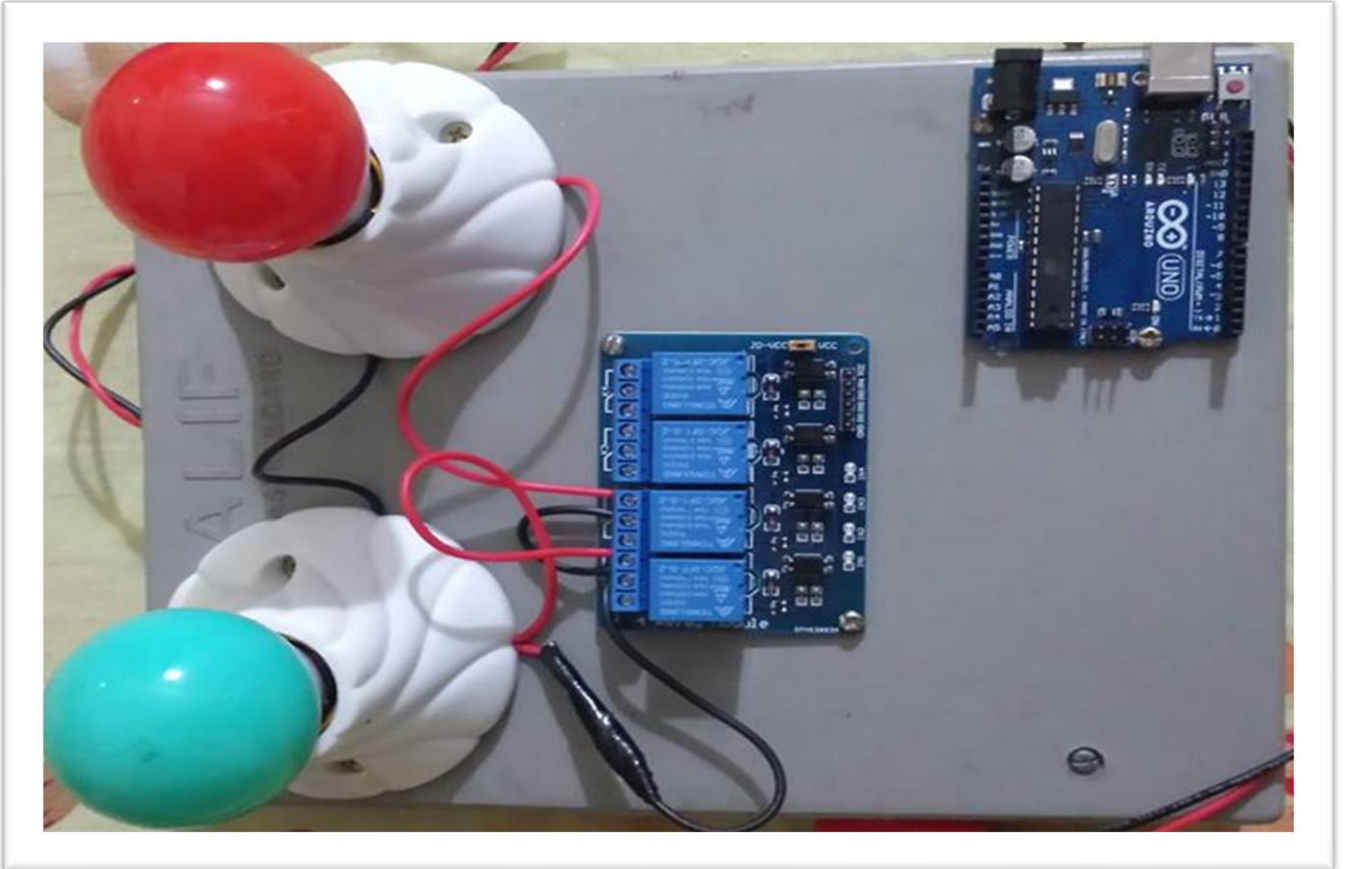
The connection Image for arduino is as shown. For setting up this system, wiring connections have to be made between the arduino and IR Remote Wireless, Power Adapter and the relay Module. And also using Computer By Uploading Code.

Arduino Code:

```
#include <IRremote.h>
int IRpin = 8;
IRrecv irrecv(IRpin);
decode_results results;
void setup()
{
Serial.begin(9600);
irrecv.enableIRIn();
pinMode(13,OUTPUT);
pinMode(12,OUTPUT);
}
void loop()
{
if (irrecv.decode(&results))
{
Serial.println(results.value);
delay(10);
if(results.value==16736925)
digitalWrite(13,HIGH);
if(results.value==16753245)
digitalWrite(13,LOW);
if(results.value==16720605)
digitalWrite(12,HIGH);
if(results.value==16769565)
digitalWrite(12,LOW);
irrecv.resume();
}
}
```

Step I:

Connecting IR Remote Wireless The Wireless Tx is connected to arduino Rx (digital pin 0) and the Wireless Rx to arduinoTx (digital pin 8). 5V and GND of the Wireless is connected to the arduino's 5V and GND.

Step II:

Connecting Relay Module The relay driver Module chip consist of 4 pins uses where pin 2 To 12 and pin 3 to 13 are input from digital pins of Arduino. The Relay pin 8 is connected to Arduino ground Pin and Relay pin 1 to Connected Arduino Pin +5v supply.

Step III:

Power Adapter Connected 9v