HOME AUTOMATION SYSTEM

Introduction:

In this project, we will learn how to make IoT Based Home Automation Project using Google Firebase , NodeMCU (ESP8266) and MIT appinventor. you will come across the internet is Home Automation Project. By Home Automation we mean controlling home appliances without a manual switch. When connected with the Internet, home devices are an important constituent of the Internet of Things (“IoT”) Application.

Team Members:

Our following team members with highly full of passion and done hard work till the start of course to complete this project.

- Khubaib Hanif Khan
- Muhmmad Taha Khan
- Ahsan Siddique
- Hassan Khan

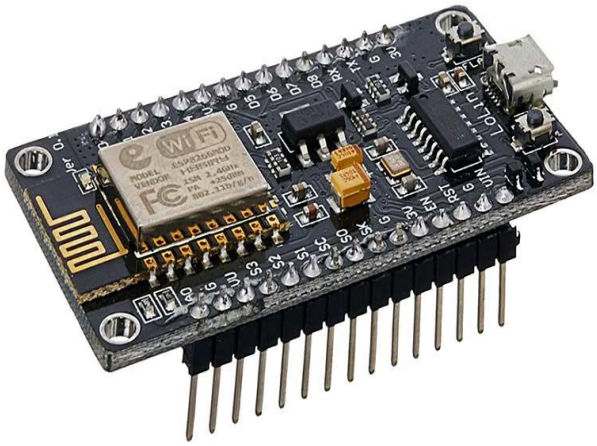
Hardware Installed:

- NodeMCU ESP8266
- 4 Channel Relay
- USB TO Micro USB data cable
- Jumper Wires

- 220V electric wires
- Two bulb holders
- Two 220V bulbs
- Two 5volt dc motors
- Two fans wings
- Two 220V bulb holder
- 220v to 5v Adapter

Hardware description:

Node MCU (ESP8266)



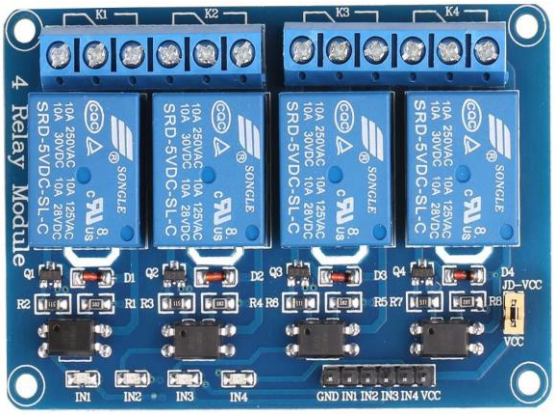
NodeMCU is a IoT platform It initially included firmware which runs on the ESP8266.

It operate on Micro python in thonny software and C language in Arduino software.

It get power laptop or any 2 volt adapoter

We are using lolin variant of node mcu in this project

4 Channel relay



A relay is an electrically operated switch. It consists of a set of input terminals for a multiple control signals as output IN1 and IN2 are isolated with each other in same manner IN3 and IN4 are isolated, for giving output supply through IN3 AND IN4, remove plastic jumper and connect jdcc to vin pin in node mcu and vcc pin in 3v.

BULB HOLDER

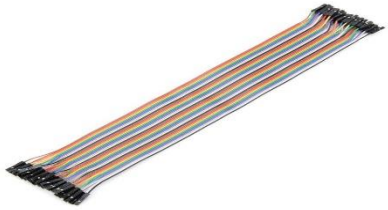
It’s a 220v bulb hold holder which passes current from wire through bulb

220V BULB

Glow when get 220 volt.

Connect 1 wire from direct electricity and other in relay Its get signal from realy

Jumper wire (female to female)



Use to transmit signals and connect realy through Node MCU

Adopter

Use to convert 220v in to 5v dc. We connect it wires from motor of fan and plug it in switch board.

DC Motor 5v

Get 5 v from adapter and signal from relay by nodemcu through jumpers

USB to MicroUSB data Cable

Pass power from plug and from your desktop or laptop to Node MCU

Electric Wire

Use to connect 220v electric appliences

Procedure:

- Firstly create google fire base account.

- Setup Arduino,

Enter json package link in prefence of arduino

Enter wifi ssid and password to connect it to wifi.

Paste, Google firebase host and authentication URL in Arduino

- Connect Node MCU to power
- B y using Jumper wires connect Node MCU and Relay, use pins according to Code.
- As we know that IN1 and IN2 are isolated and in same manner IN3 and IN4 are isolated separately from IN1 and IN2 therefore we haveto give extra 5v and 3v externally to relay to give proper out from relay supply.
- Know make application using MIT app inventor

In designer have to make design button layout and graphical location of button, labels, background image and many more.

Other option is of Blocks. Mainly work is done in it make and merge proper blocks according to Code and fire base console in viewer screen.

Build it and publish it as apk.

Working :

When we Deploy our Home Automation system In our costumer home and attached it in electric main board or in Switch Board. Give minimum amount of current to Node MCU through normal adapter of micro USB Cable connect node MCU and relay by jumper wires .

We download our app of home automation system in costumer mobile and app have no limit each and every member of family download it and operate there home through this application which we downloaded in there mobiles.

When we press ONN button in app it passes signal to NodeMCU and in NodeMCU according to Coding ONN is define as high which mean 1 .

And when press OFF button it passes signal to NodeMCU which is define as low 0 in coding.

According to this (1) 220v appliances ONN and OFF system all the appliances of home, work like this.

NodeMCU transmit signal in fire base field by going in fire base field it passes to node MCU serial monitor because App in connected with Fire

Base and FireBase Is connected to NodeMCU all these Three Plat form connected to each other by a URL and Secreat key know as Token of FireBase.

According to this procedure all the buttons on application send there specific data to fire base and fire base send it to Node MCU , it passes signal to relay and relay operate appliances.

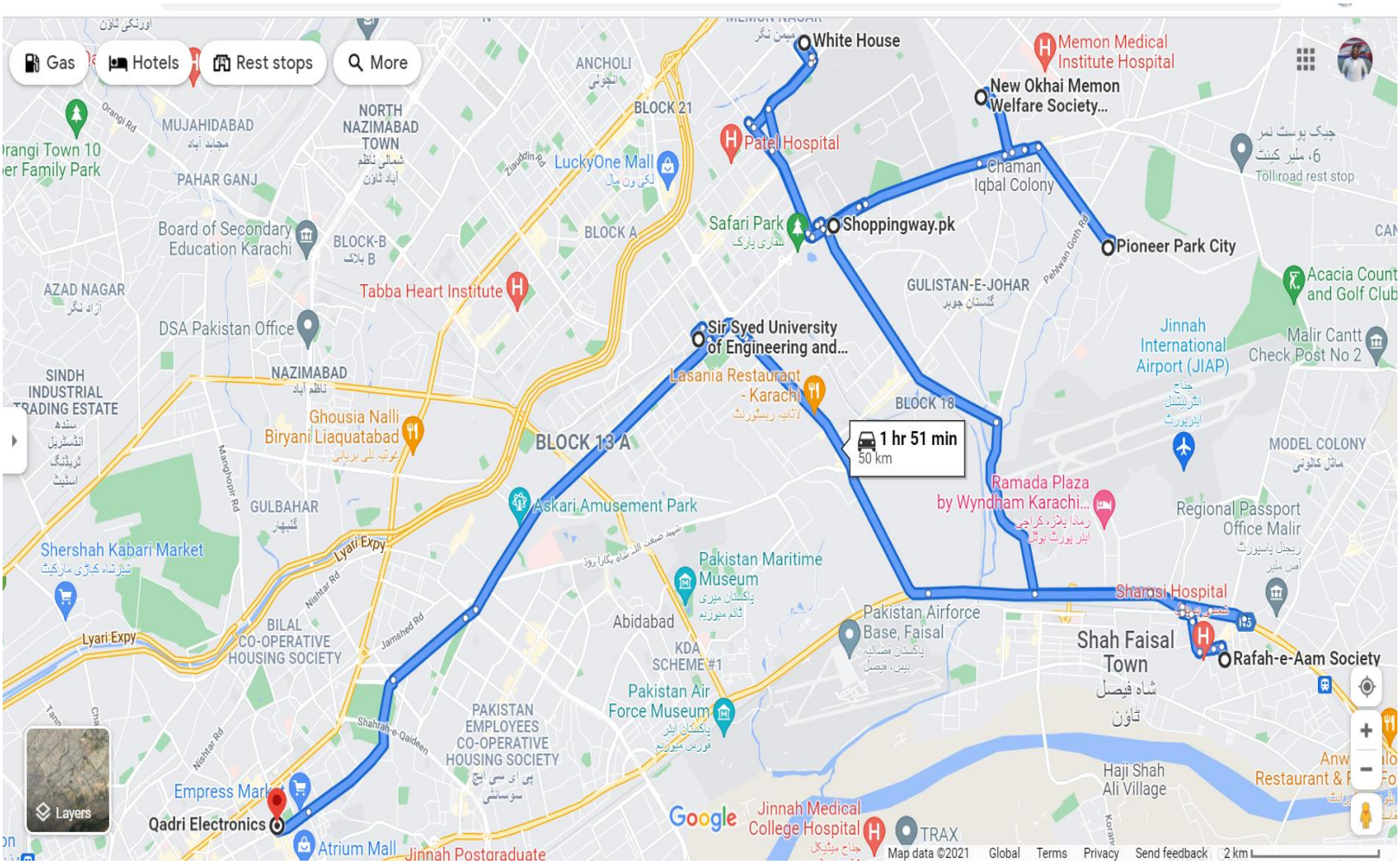
BACK END WORK IN PROJECT:

We sacrifices regularly to complete this course and perform lab with honestly take regular classes to do some thing great in this course.

But now our hard work payoff , we done this great grand project with the collaboration of our supportive team members

Routes:

Following our route Is define where we travelled to complete it.



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