EXPERIMENT NO.

TITLE: BUILDING OF IOT BASED WEB CONTROLLED HOME AUTOMATION USING ARDUNIO

AIM : To Build IoT based Web Controlled Home Automation using Ardunio.

OBJECTIVE:

1. To understand the concept of interfacing of relay.
2. To control relay for Home automation.

COMPONENTS REQUIRED:

- ESP8266
- Relay driver Board
- Blynk App (download from AppStore or Google Play)
- Connecting Wires
- 5V Power supply

THEORY:

You will learn to make a **Wifi home automation system** where can automate your home appliances using smartphone via Wi-Fi connection. The knowledge gained in this project will benefit you in making other Wi-Fi based or IOT based projects. We will be using an ESP based development board i.e. **NodeMCU ESP8266 12E**, which is the cheapest and the most useful dev board for Internet of Things Projects. You can choose other ESP8266 based boards too, all the procedure and working will be same, with some little modification in connection and code according to the boards's architecture.

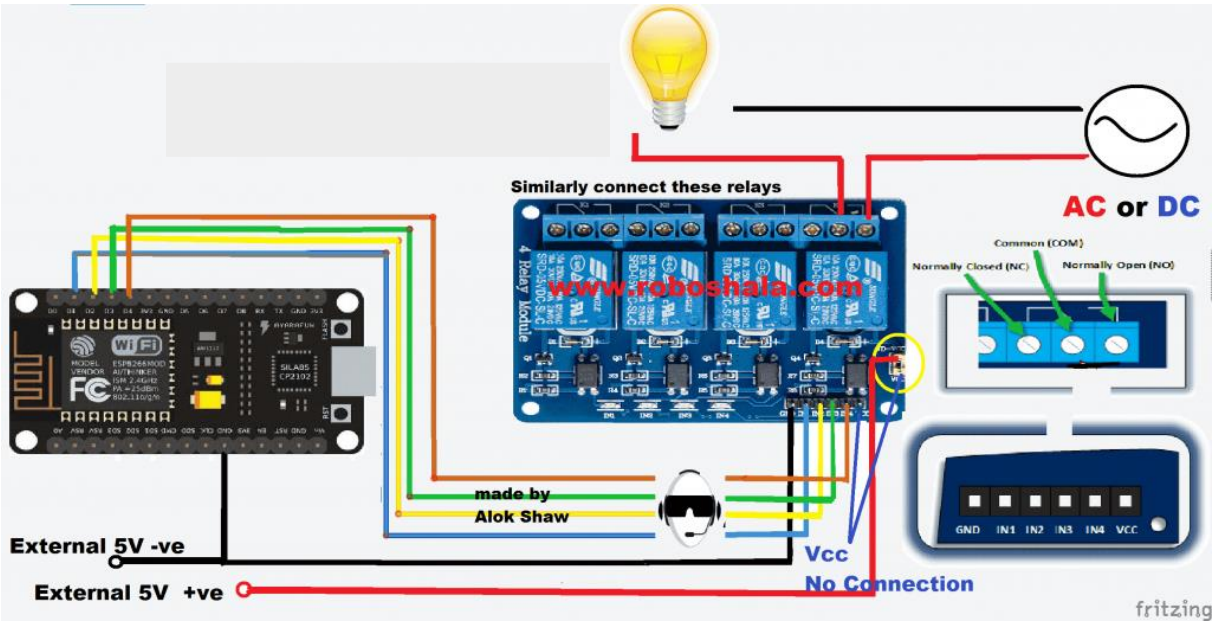
Circuit Diagram

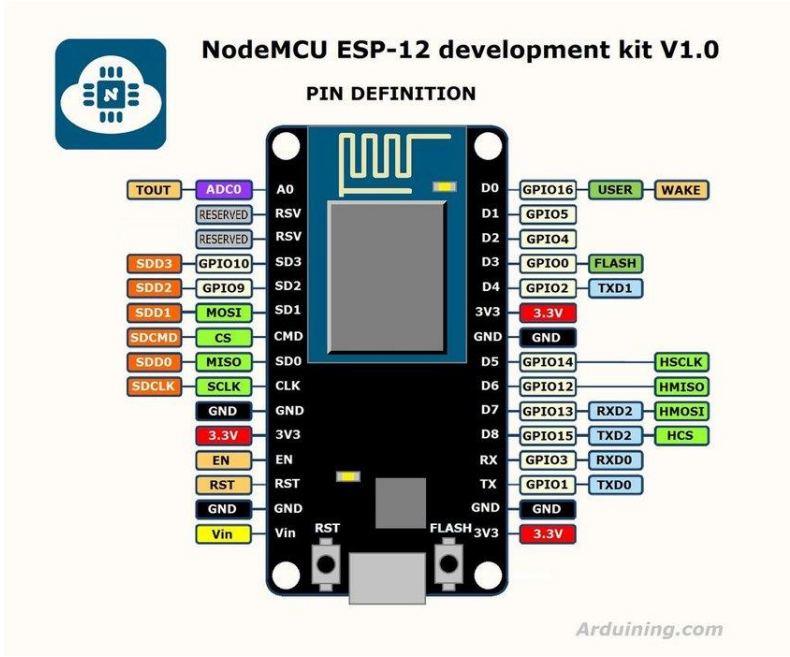
When all sensors are connected to node MCU will use blynk app its used as third party app. Blynk app is open source for all. Creating an app is tough think so we take help of blynk app. With help of WIFI Node MCU will be connected to blynk app.

Connections

- Connect D1 pin of ESP8266 to first pin of Relay driver Board
- Connect D2 pin of ESP8266 to first pin of Relay driver Board
- Connect D3 pin of ESP8266 to first pin of Relay driver Board

- Connect D4 pin of ESP8266 to first pin of Relay driver Board





Software

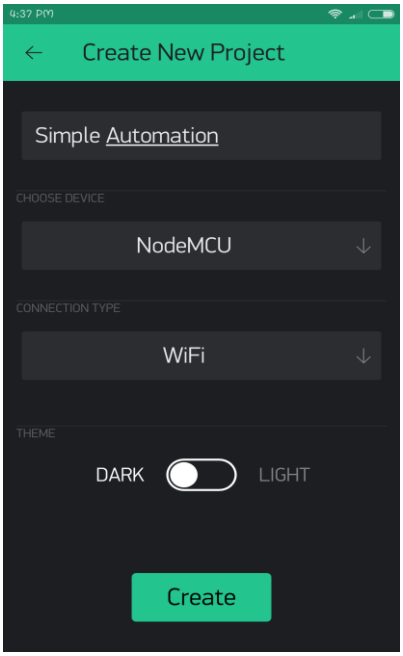
Blynk App

Blynk is a Platform with iOS and Android apps to control Arduino, Raspberry Pi and the likes over the Internet.

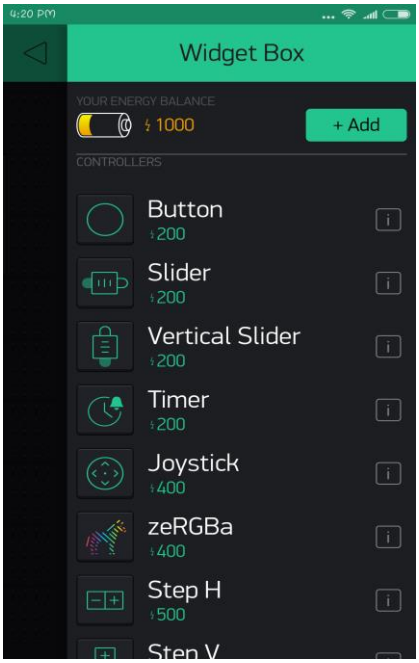
Blynk was designed for the Internet of Things. It can control hardware remotely, it can display sensor data, it can store data, vizualize it and do many other cool things. It's a digital dashboard where you can build a graphic interface for your project by simply dragging and dropping widgets. It's really simple to set everything up and you'll start tinkering in less than 5 mins. Blynk is not tied to some specific board or shield. Instead, it's supporting hardware of your choice. Whether your Arduino or Raspberry Pi is linked to the Internet over Wi-Fi, Ethernet or this new ESP8266 chip, Blynk will get you online and ready for the Internet Of Your Things.

You need to perform following steps on Blynk App.

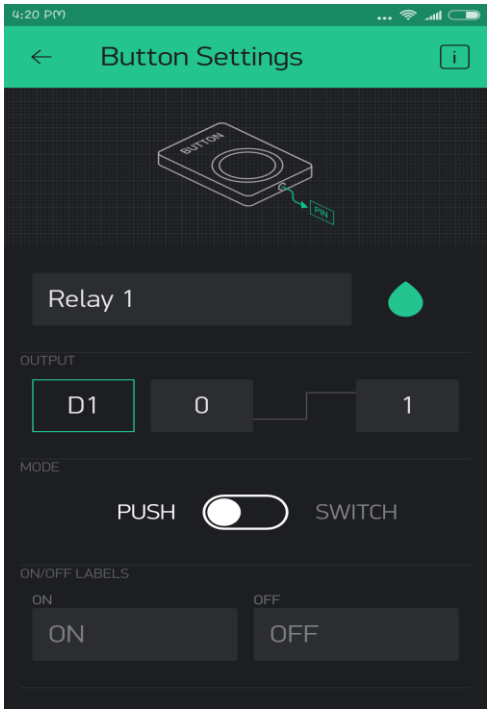
2.1 Create a New Project in BLYNK app.Write Project name Simple Automation and Select NodeMCU from drop down.

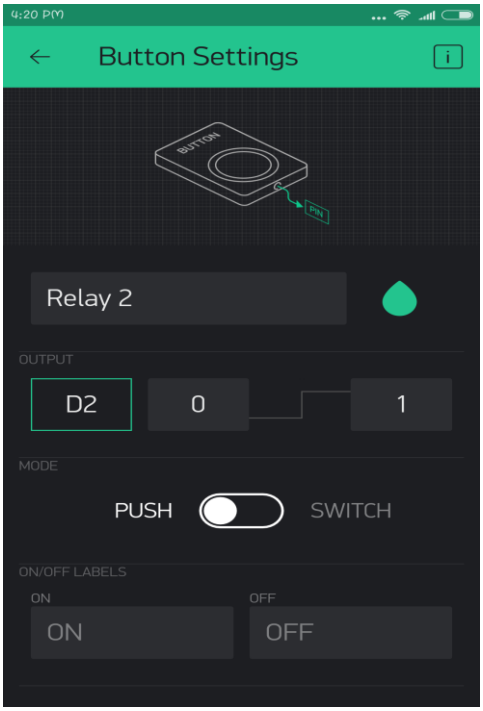


2.2 An AUTH token will be sent to your registered email, note this down. Tap on the screen and add a 2 Button.



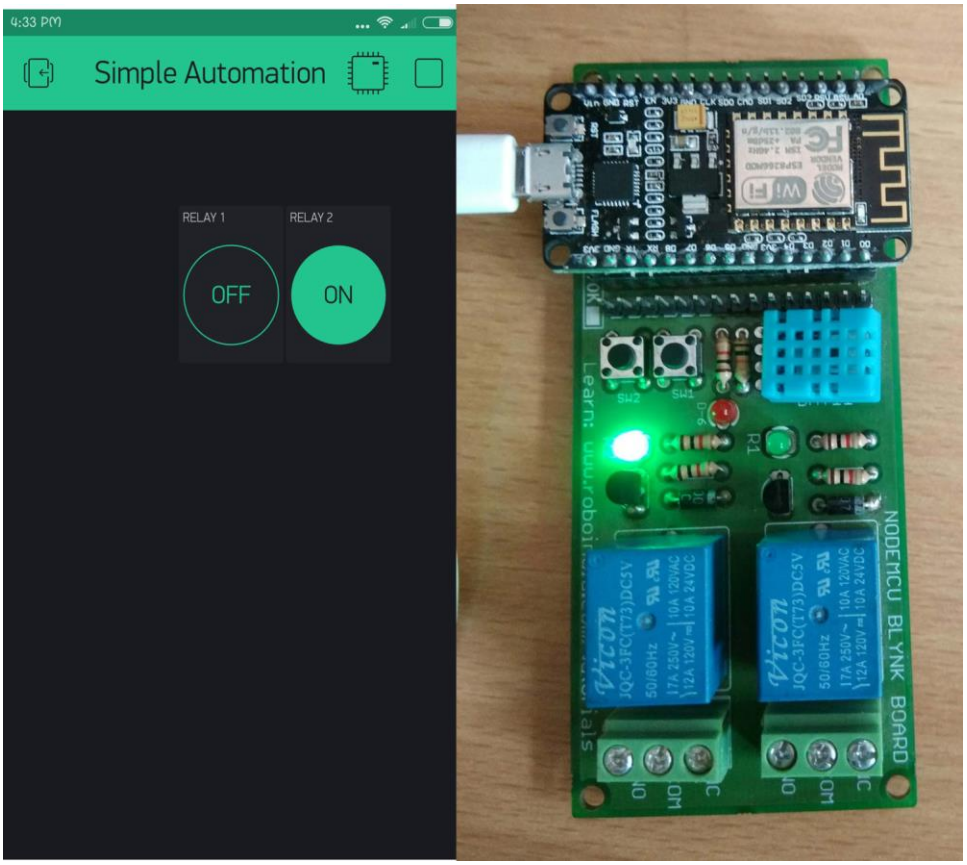
2.3 Tap on the Widget and select the respective Digital pins for switch (D1 for relay 1 and D2 for relay 2).





Output

After Uploading the Ardunio code IDE. Press the play button on blynk app .When we press the relay button on. You will see the output on NodeMCU blynk board the relay is on.



CONCLUSION: Write according to result

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Program:

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  Download latest Blynk library here:
    https://github.com/blynkkk/blynk-library/releases/latest

Blynk is a platform with iOS and Android apps to control Arduino, Raspberry Pi and the likes
over the Internet.  You can easily build graphic interfaces for all your projects by simply
dragging and dropping widgets.
You'll need:
  - Blynk App (download from AppStore or Google Play)
  - ESP8266 board
  - Decide how to connect to Blynk
    (USB, Ethernet, Wi-Fi, Bluetooth, ...)
**************************************************************/

#define BLYNK_PRINT Serial

#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

// You should get Auth Token in the Blynk App.
char auth[] = "359b85b194f143598ce41d8935ed9668";//YourAuthToken
// Your WiFi credentials.
// Set password to for open networks.
char ssid[] = "pcl";
char pass[] = "pcl@123456";

void setup()
{
  // Debug console
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
  // You can also specify server:
  //Blynk.begin(auth, ssid, pass, "blynk-cloud.com", 80);
  //Blynk.begin(auth, ssid, pass, IPAddress(192,168,1,100), 8080);

  pinMode(D1, OUTPUT);
  pinMode(D2, OUTPUT);
  pinMode(D3, OUTPUT);
  pinMode(D4, OUTPUT);

  digitalWrite(D1, HIGH);   // turn the Relay on (HIGH is the voltage level)
```

```
  digitalWrite(D2, HIGH);   // turn the Relay on (HIGH is the voltage level)
  digitalWrite(D3, HIGH);   // turn the Relay on (HIGH is the voltage level)
  digitalWrite(D4, HIGH);   // turn the Relay on (HIGH is the voltage level)
}

void loop()
{
  Blynk.run();
}
```