CONTROLLING LED CONNECTED TO ARDUINO BOARD USING WEB BROWSER

NodeMCU (ESP 8266)

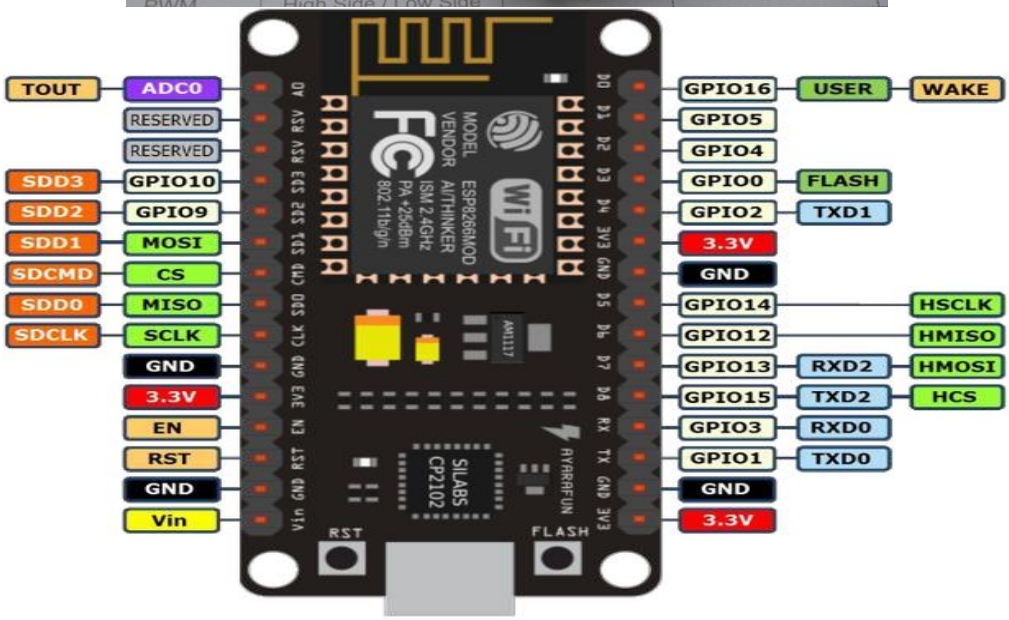
PREPARED BY: UMA KANT (1505526)

GUIDED BY: Mr. ASHUTOSH BEHURA

About NodeMCU

NodeMCU is an open source IoTplatform. It includes firmware which runs on the ESP8266 Wi-Fi SoCfrom Espressif Systems, and hardware which is based on the ESP-12 module. The term "NodeMCU" by default refers to the firmware rather than the dev kits. The firmware uses the Lua scripting language.

(https://en.wikipedia.org/wiki/NodeMCU)



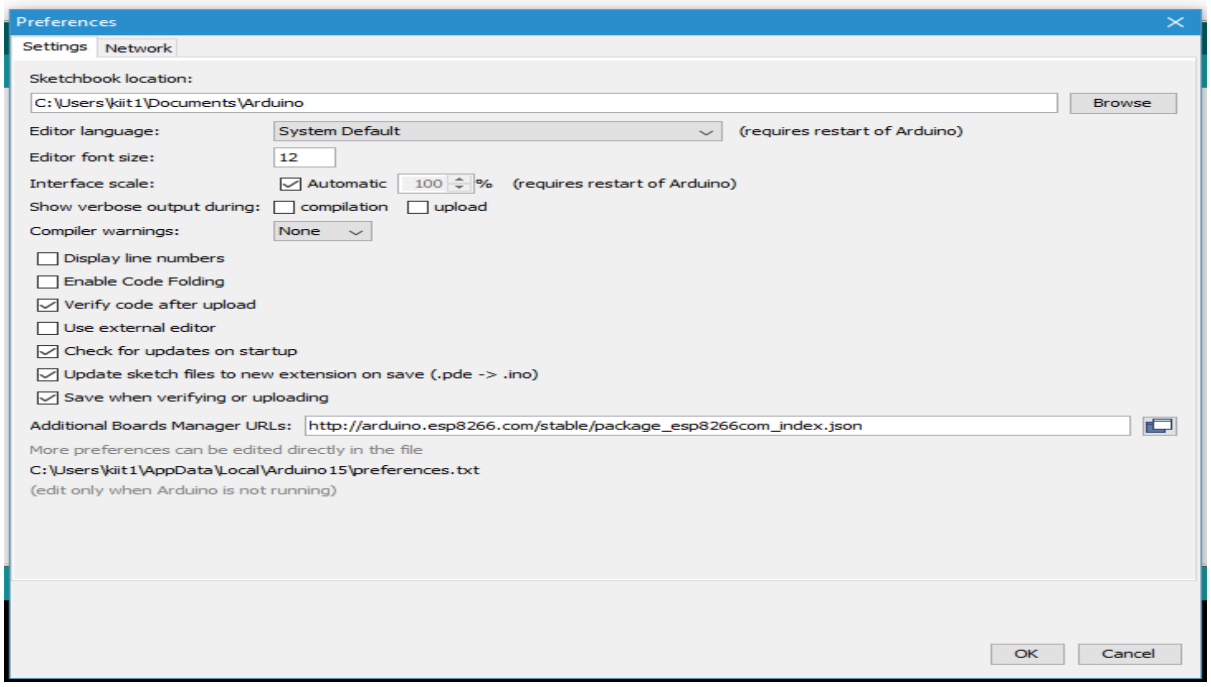
Step 1: First open the Arduino IDE.

Go to files menu and click on the preference in the Arduino IDE.

Copy the below code in the Additional boards Manager

http://arduino.esp8266.com/stable/package_esp8266com_index.json

Click OK to close the preference Tab.

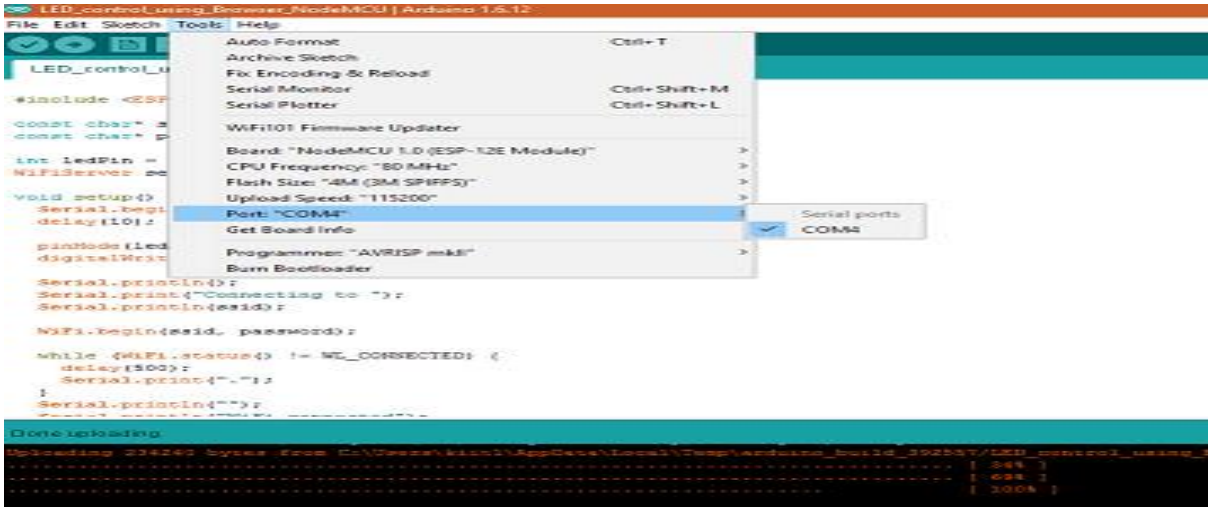


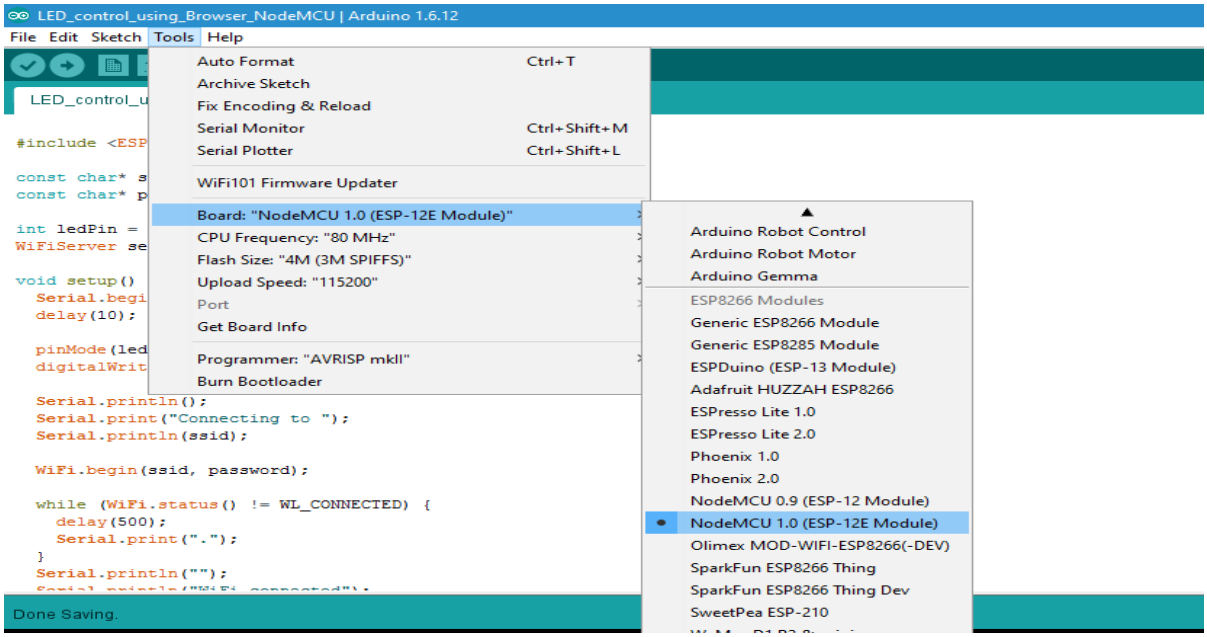
Step 2: After completing the above steps, go to Tools and board, and then select board Manager. Install the software for Arduino developed by esp8266 community.

Once all the above process been completed we are ready to program our esp8266 with Arduino IDE.

Step 3: After this you connect your NodeMCU with USB cable and check the port is highlighted.

Select the port from tool menu and make sure everything in the tools menu is same as this image.





Step 4: Then write the sketch(code) like in the picture/given below in Arduino IDE and save as NodeMcu_LED.ino and upload the sketch to NODEMCU**.**

Now connect a led to the pin D7 (GPIO13) and GND.

```
//CODE BEGIN

#include <ESP8266WiFi.h>

const char* ssid = "asdf";
const char* password = "kun12345";

int ledPin = 13;
WiFiServer server(80);

void setup() {
 Serial.begin(9600);
 delay(10);

 pinMode(ledPin, OUTPUT);
 digitalWrite(ledPin, LOW);

 Serial.println();
 Serial.print("Connecting to ");
 Serial.println(ssid);

 WiFi.begin(ssid, password);

 while (WiFi.status() != WL_CONNECTED) {
  delay(500);
  Serial.print(".");
 }
 Serial.println("");
 Serial.println("WiFi connected");

 server.begin();
 Serial.println("Server started");

 Serial.print("Use this URL to connect: ");
 Serial.print("http://");
```

```
  Serial.print(WiFi.localIP());
  Serial.println("/");

}
void loop() {

  WiFiClient client = server.available();
  if (!client) {
    return;
  }

  Serial.println("new client");
  while(!client.available()){
    delay(1);
  }

  String request = client.readStringUntil('\r');
  Serial.println(request);
  client.flush();

  // Match the request

  int value = LOW;
  if (request.indexOf("/LED=ON") != -1)  {
    digitalWrite(ledPin, HIGH);
    value = HIGH;
  }
  if (request.indexOf("/LED=OFF") != -1)  {
    digitalWrite(ledPin, LOW);
    value = LOW;
  }

  // Return the response
  client.println("HTTP/1.1 200 OK");
  client.println("Content-Type: text/html");
  client.println(""); //  do not forget this one
```

```
 client.println("<!DOCTYPE HTML>");
 client.println("<html>");

 client.print("Led pin is now: ");

 if(value == HIGH)
 {
  client.print("On");
 }
 else
 {
  client.print("Off");
 }
 client.println("<br><br>");
 client.println("<a href=\"/LED=ON\"\"><button>Turn On
</button></a>");
 client.println("<a href=\"/LED=OFF\"\"><button>Turn Off
</button></a><br />");
 client.println("</html>");

 delay(1);
 Serial.println("Client disonnected");
 Serial.println("");
}
//CODE  END
```

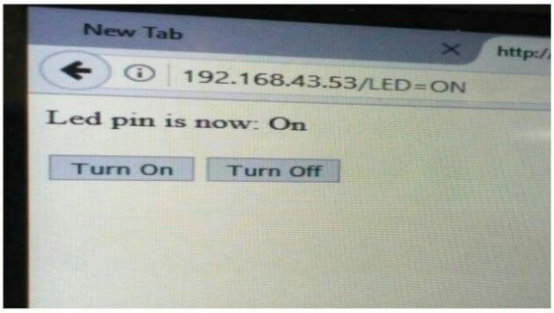
Step 5: Now open serial monitor (Tools > Serial monitor) and make sure at the bottom right corner there is **115200 baud** selected. If everything is good you will see a **URL**.

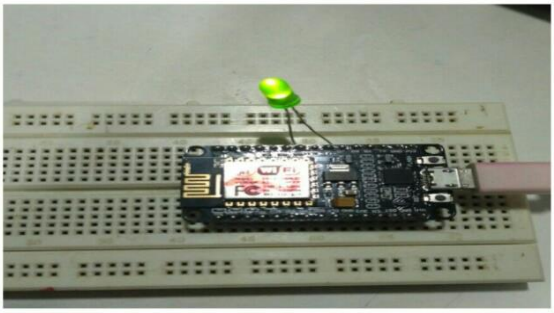
Open that **URL** in your browser (should be connected to same device or SSID). You will see a basic html page with two buttons for LED ON and LED OFF.

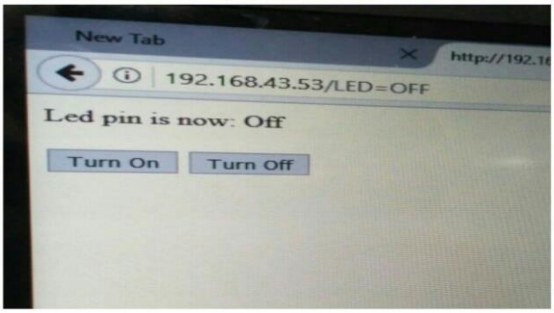
Click on the button and the LED will respond accordingly.

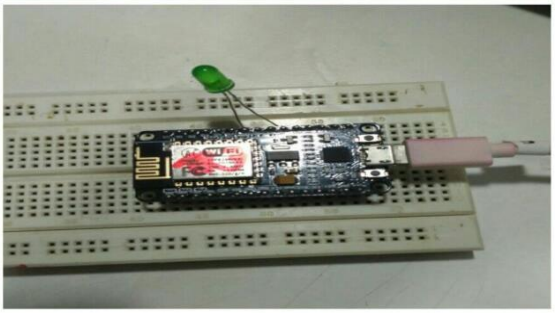
COM4

```
□à€ý□qüý
Connecting to asdf
............
WiFi connected
Server started
Use this URL to connect: http://192.168.43.53/
new client
GET / HTTP/1.1
Client disonnected

new client
GET /favicon.ico HTTP/1.1
Client disonnected

new client
GET /favicon.ico HTTP/1.1
Client disonnected

new client
GET /LED=ON HTTP/1.1
Client disonnected

new client
GET /LED=OFF HTTP/1.1
Client disonnected
```









THE END

Thank You

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