SMARTBRIDGE EXTERNSHIP

INTERNET OF THINGS

ASSIGNMENT – 3

JESU RAJA STEPHIN M
20BEC1338

TASK : In Wokwi, add a LED and switch it ON and OFF from Node-Red.

BOARD USED: ESP32)

CODE:

```
//DONE BY JESU RAJA STEPHIN M
#include <WiFi.h>
#include <PubSubClient.h>

#define LED 26

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);


#define ORG "1uw3rp"
#define DEVICE_TYPE "abcd"
#define DEVICE_ID "1234"
#define TOKEN "12345678"
String data3;


char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char subscribetopic[] = "iot-2/cmd/command/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;


WiFiClient wifiClient;
PubSubClient client(server, 1883, callback ,wifiClient);
```

```
void setup() {
  Serial.begin(115200);
  pinMode(LED,OUTPUT);
  delay(10);
  Serial.println();
  wificonnect();
  mqttconnect();
}

void loop() {
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
}

void mqttconnect() {
  if (!client.connected()) {
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!!!client.connect(clientId, authMethod, token)) {
      Serial.print(".");
      delay(500);
    }
    initManagedDevice();
    Serial.println();
  }
}
void wificonnect() {
  Serial.println();
  Serial.print("Connecting to ");

  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
}

void initManagedDevice() {
```

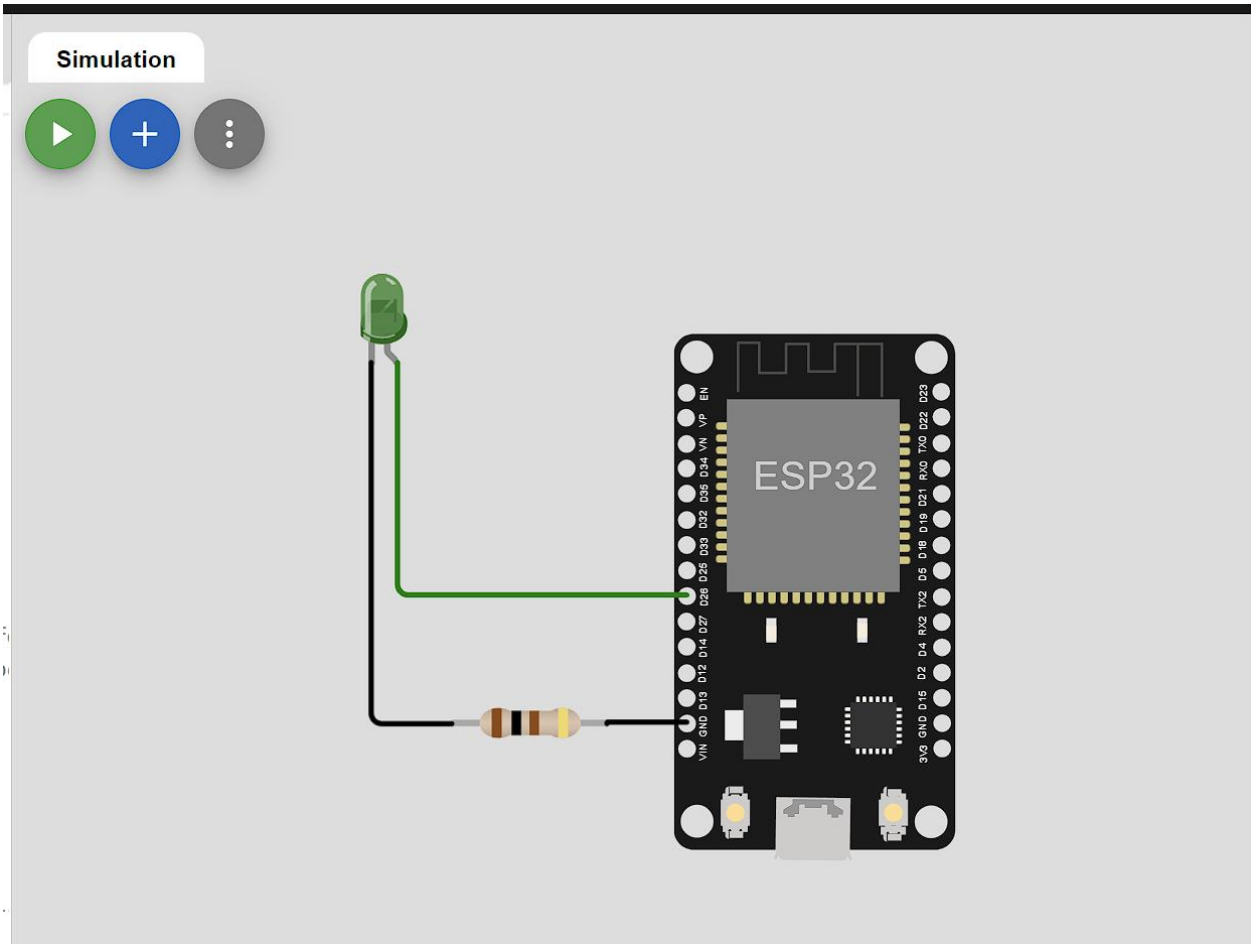
```
  if (client.subscribe(subscribetopic)) {
    Serial.println((subscribetopic));
    Serial.println("subscribe to cmd OK");
  }
  else {
    Serial.println("subscribe to cmd FAILED");
  }
}

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength) {
  Serial.print("callback invoked for topic: ");
  Serial.println(subscribetopic);
  for (int i = 0; i < payloadLength; i++) {
    data3 += (char)payload[i];
  }
  Serial.println("data: "+ data3);
  if(data3=="lighton") {
    Serial.println(data3);
    digitalWrite(LED,HIGH);
  }
  else {
    Serial.println(data3);
    digitalWrite(LED,LOW);
  }
  data3="";
}
```

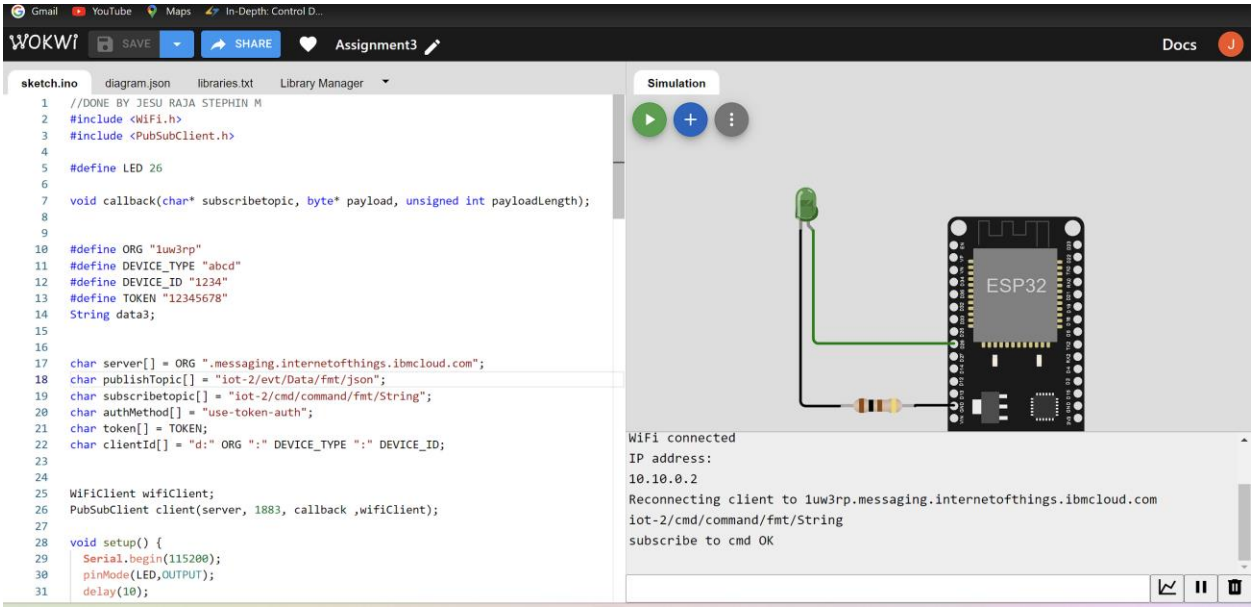
sketch.ino | **diagram.json** | libraries.txt | Library Manager

```
{
  "version": 1,
  "author": "STEPHIN",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": 2, "left": -36, "attrs"
    {
      "type": "wokwi-led",
      "id": "led1",
      "top": -26.79,
      "left": -165.53,
      "attrs": { "color": "green", "flip": "" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 145.95,
      "left": -120,
      "attrs": { "value": "100" }
    }
  ],
  "connections": [
    [ "esp:TX0", "$serialMonitor:RX", "", [] ],
    [ "esp:RX0", "$serialMonitor:TX", "", [] ],
    [ "led1:C", "r1:1", "black", [ "v0" ] ],
    [ "r1:2", "esp:GND.2", "black", [ "v0" ] ],
    [ "esp:D26", "led1:A", "green", [ "h0" ] ]
  ],
  "dependencies": {}
}
```

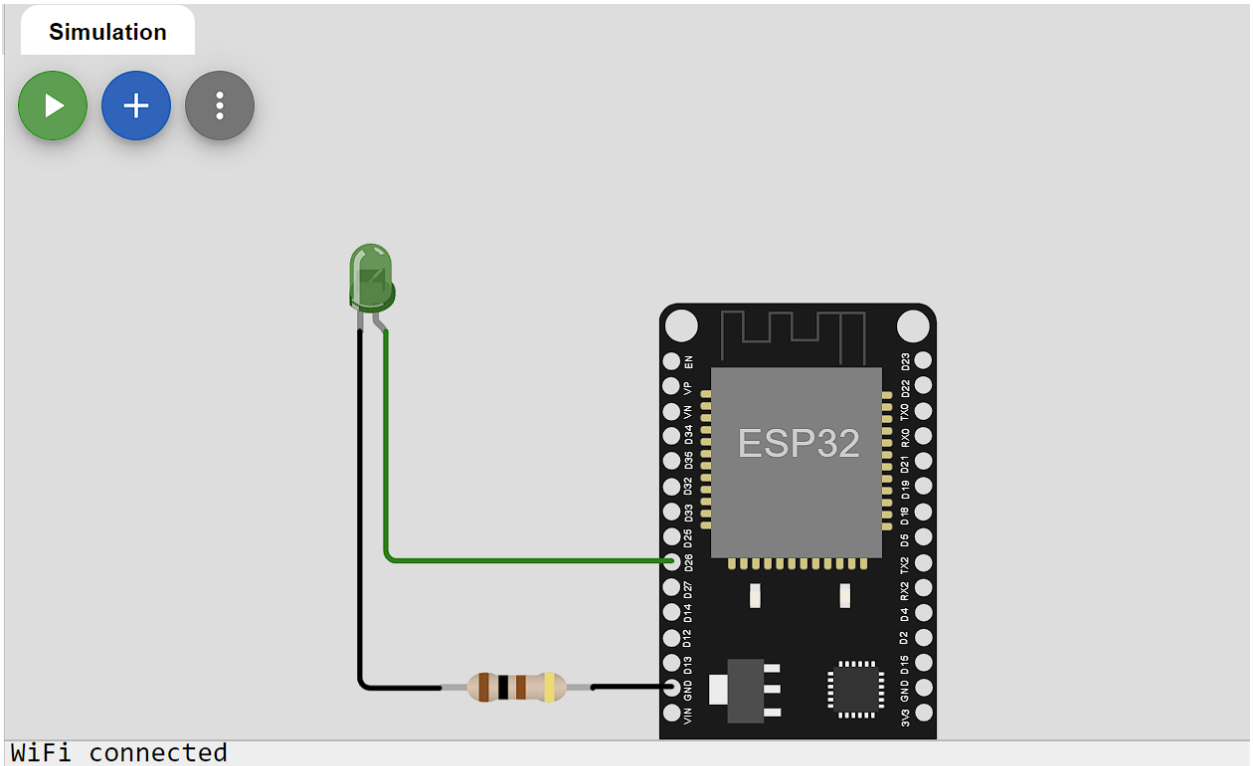
CIRCUIT:



SCREEN SHOT:


Gmail
YouTube
Maps
In-Depth: Control D...
WOKWI
SAVE
SHARE
Assignment3
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
1 //DONE BY JESU RAJA STEPHIN M
2 #include <WiFi.h>
3 #include <PubSubClient.h>
4
5 #define LED 26
6
7 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
8
9
10 #define ORG "1uw3rp"
11 #define DEVICE_TYPE "abcd"
12 #define DEVICE_ID "1234"
13 #define TOKEN "12345678"
14 String data3;
15
16
17 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
18 char publishTopic[] = "iot-2/evt/Data/fmt/json";
19 char subscribetopic[] = "iot-2/cmd/command/fmt/String";
20 char authMethod[] = "use-token-auth";
21 char token[] = TOKEN;
22 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
23
24
25 WiFiClient wifiClient;
26 PubSubClient client(server, 1883, callback ,wifiClient);
27
28 void setup() {
29 Serial.begin(115200);
30 pinMode(LED,OUTPUT);
31 delay(10);
Simulation
ESP32
WiFi connected
IP address:
10.10.0.2
Reconnecting client to 1uw3rp.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

OUTPUT:




```
WiFi connected
IP address:
10.10.0.2
Reconnecting client to 1uw3rp.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK
```