SMARTBRIDGE EXTERNSHIP

WEEKLY ASSIGNMENT 3

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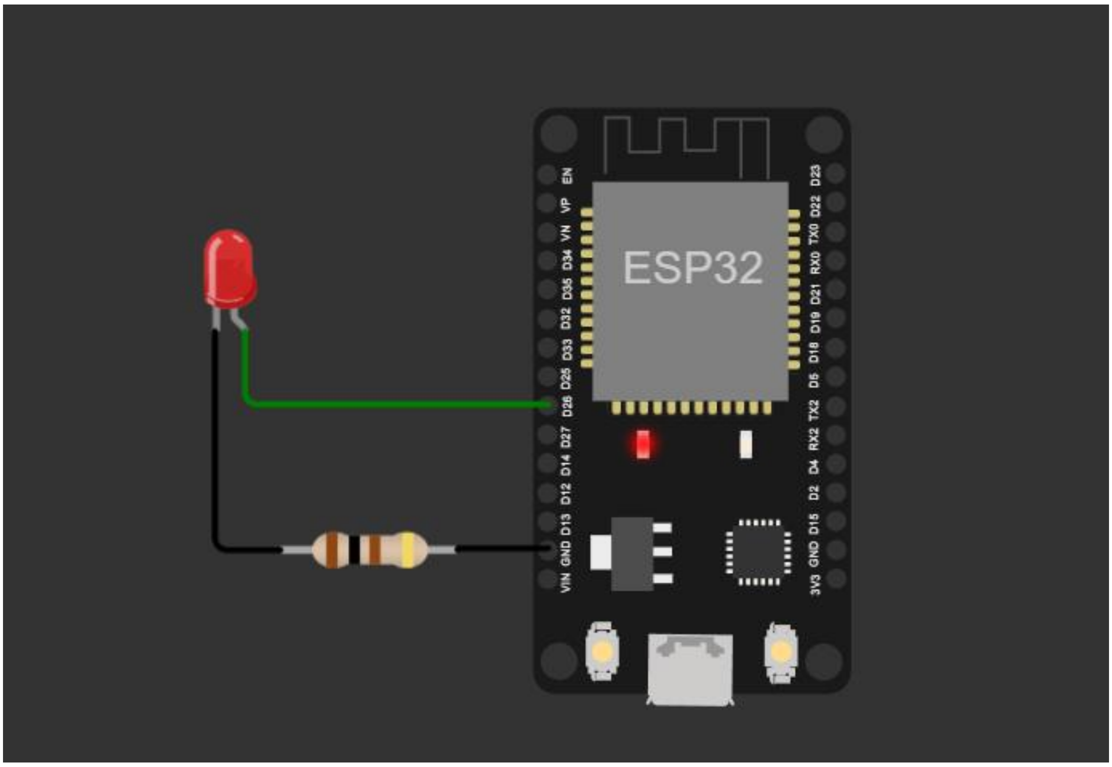
20BEC1201

TASK

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

CIRCUIT DIAGRAM:



Link:

https://wokwi.com/projects/366888488613562369

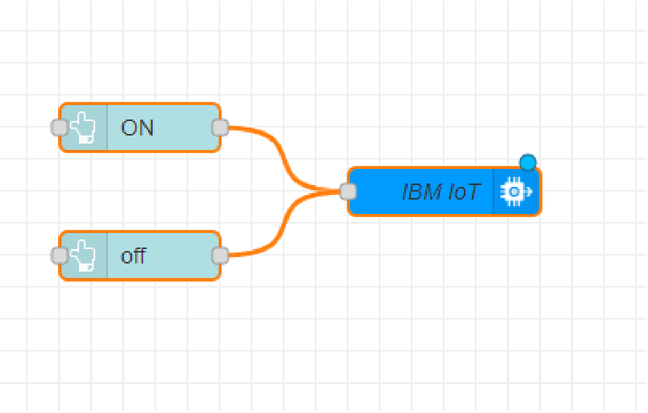
CODE:

```
#include <WiFi.h>//library for wifi

#include <PubSubClient.h>//library for MQtt
```

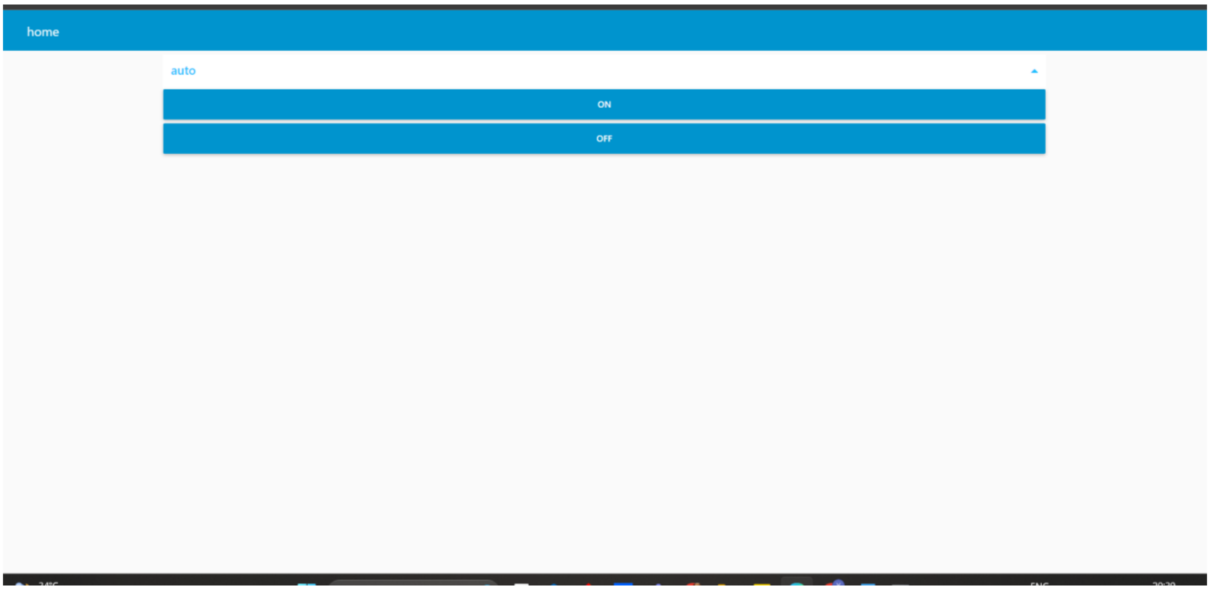
```
#define LED 26

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

//-------credentials of IBM Accounts------
#define ORG "kki7lv"//IBM ORGANITION ID
#define DEVICE_TYPE "1234"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "abcd"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "12345678"     //Token
String data3;

//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform and format in which data to be send
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd  REPRESENT command type AND COMMAND IS TEST OF FORMAT STRING
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id

//-----------------------------------------
WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient); //calling the predefined client id by passing parameter like server id,portand wificredential

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() {//function defination for wificonnect
  Serial.println();
  Serial.print("Connecting to ");

  WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish the connection
  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="";
}


}
```

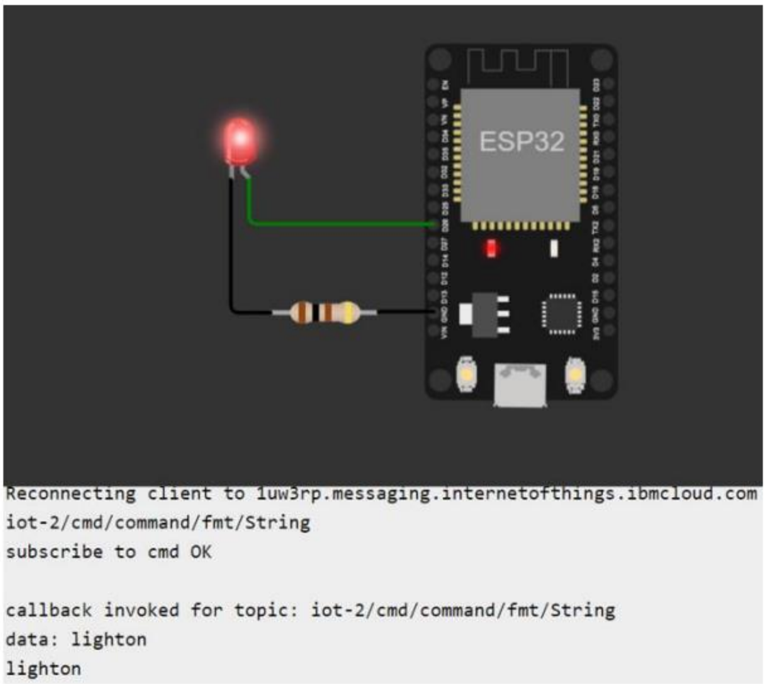
NODE FLOW DIAGRAM:



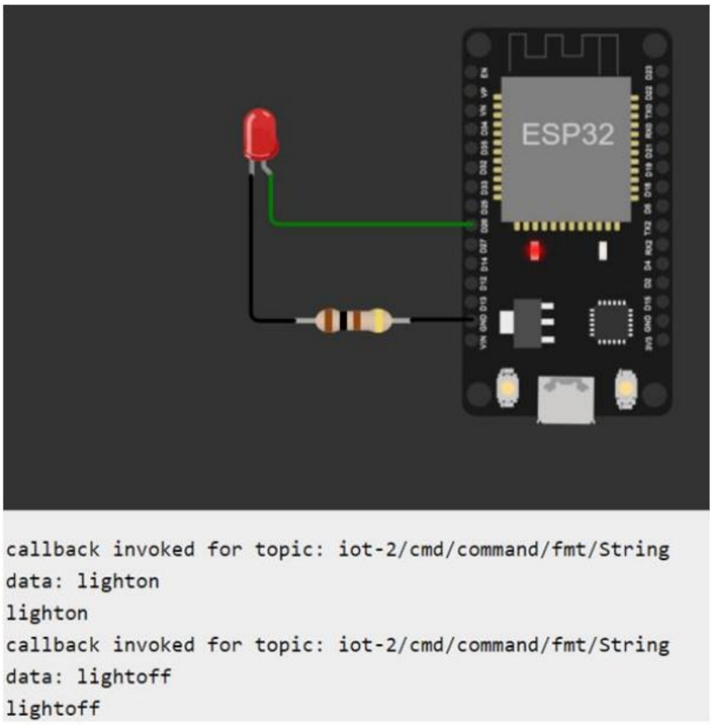
DASHBOARD:



OUTPUT:



```
Reconnecting client to 1uw3rp.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

callback invoked for topic: iot-2/cmd/command/fmt/String
data: lighton
lighton
```



```
callback invoked for topic: iot-2/cmd/command/fmt/String
data: lighton
lighton
callback invoked for topic: iot-2/cmd/command/fmt/String
data: lightoff
lightoff
```

RESULT:

The given task was implemented successfully