

Government College of Engineering – salem 11

SPRINT-1

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DEPT : ECE

ROLL NO:2031T304

```
#include <WiFi.h>
#include <PubSubClient.h>
#define temp_pin 15
void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
#define ORG "jesccj"
#define DEVICE_TYPE "ESP32_Controller"
#define DEVICE_ID "PURNI"
#define TOKEN "*Vzh&EwwgbRpqohJd+"
String data3;

char server[]= ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[]="iot-2/evt/Data/fmt/json";
char subscribeTopic[]="iot-2/cmd/test/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);

// should match the Beta Coefficient of the thermistor

void setup() {
    Serial.begin(9600);
    analogReadResolution(10);
    pinMode(32,INPUT);
    pinMode(14,OUTPUT);

    wificonnect();
    mqttconnect();
}

void loop() {
    const float BETA = 3950; // should match the Beta Coefficient of the thermistor
    int analogValue = analogRead(A4);
    float temp = 1 / (log(1 / (1023. / analogValue - 1)) / BETA + 1.0 / 298.15) - 273.15;
```

```

//float temp = 1 / (log(1 / (1023. / analogValue - 1)) / BETA + 1.0 / 298.15) - 273.15;
Serial.print("Temperature: ");
Serial.print(temp);
Serial.println(" °C");
if(temp>=35){
    PublishData2(temp);
    digitalWrite(14, HIGH);
}else{
    digitalWrite(14, LOW);
    PublishData1(temp);
}
delay(1000);
if(!client.loop()){
    mqttconnect();
}

//delay(2000);
}
void PublishData1(float tem){
    mqttconnect();
    String payload= "{\"temp\":";
    payload += tem;
    payload+="}";

    Serial.print("Sending payload:");
    Serial.println(payload);

    if(client.publish(publishTopic,(char*)payload.c_str())){
        Serial.println("publish ok");
    } else{
        Serial.println("publish failed");
    }
}
void PublishData2(float tem){
    mqttconnect();
    String payload= "{\"ALERT\":";
    payload += tem;
    payload+="}";

    Serial.print("Sending payload:");
    Serial.println(payload);

    if(client.publish(publishTopic,(char*)payload.c_str())){
        Serial.println("publish ok");
    } else{
        Serial.println("publish failed");
    }
}
}

```

```

void mqttconnect(){
  if(!client.connected()){
    Serial.print("Reconnecting 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());
}

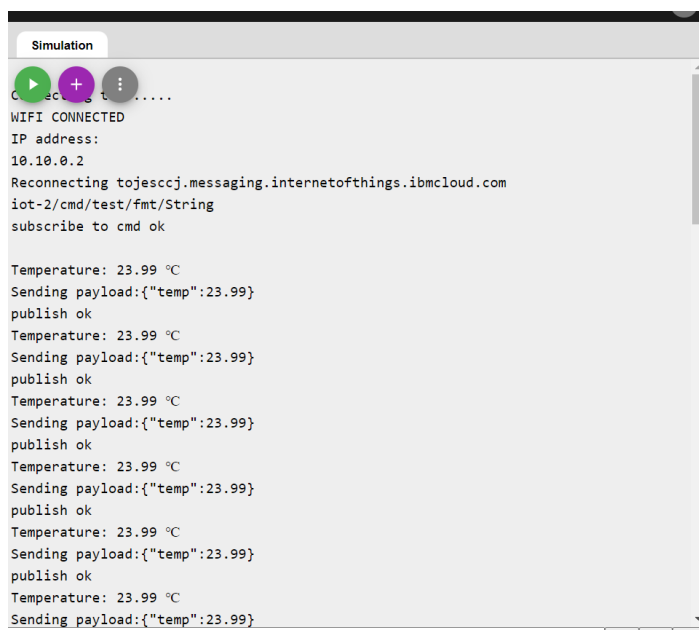
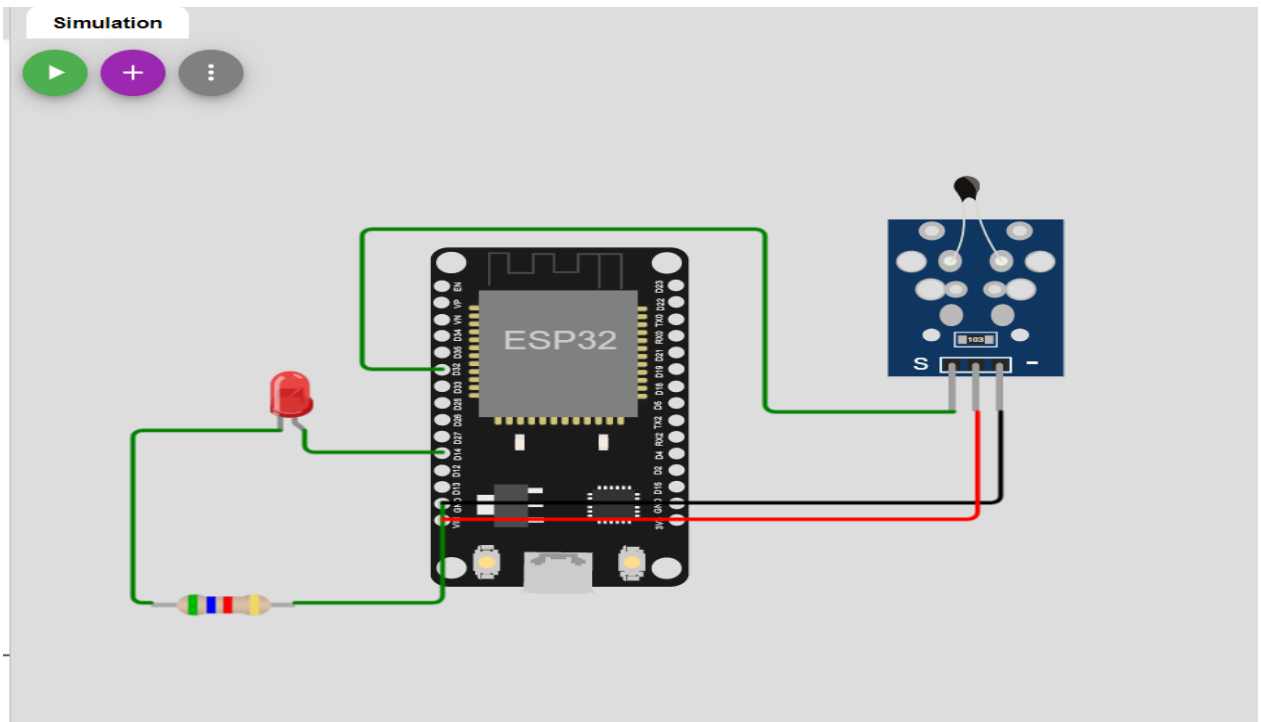
void initManagedDevice(){
  if(client.subscribe(subscribeTopic)){
    Serial.println((subscribeTopic));
    Serial.println("subscribe to cmd ok");
  }else{
    Serial.println("subscribe to cmd failed");
  }
}

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(14,HIGH);
  }else{

```

}

DIAGRAM:



```
Temperature: -11.10 °C
Sending payload:{"temp":-11.10}
publish ok
Temperature: 12.48 °C
Sending payload:{"temp":12.48}
publish ok
Temperature: 46.45 °C
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 °C
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 °C
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 °C
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 °C
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 °C
Sending payload:{"ALERT":46.45}
publish ok
```

The screenshot displays the IBM Watson IoT Platform interface. At the top, the header shows the user's email (pumi1812@gmail.com) and ID (jesccj). The main navigation bar includes tabs for Browse, Action, Device Types, and Interfaces. A sidebar on the left contains icons for various IoT functions. The central panel shows a device named 'PURNI' with a status of 'Disconnected' and a device type of 'ESP32_Controller'. The 'Recent Events' tab is selected, displaying a table of live data streams. The table has columns for Event, Value, Format, and Last Received. The data shows a series of 'Data' events with the value '{"ALERT":46.45}' in 'json' format, received 'a few seconds ago'.

Event	Value	Format	Last Received
Data	{"ALERT":46.45}	json	a few seconds ago
Data	{"ALERT":46.45}	json	a few seconds ago
Data	{"ALERT":46.45}	json	a few seconds ago
Data	{"ALERT":46.45}	json	a few seconds ago
Data	{"ALERT":46.45}	json	a few seconds ago

Wowki link:

<https://wokwi.com/projects/347829028983407186>

