

PROJECT DEVELOPMENT PHASE

SPRINT-4

TEAM ID	PNT2022TMID45219
PROJECT TITLE	INDUSTRY SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM

```
#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());
}

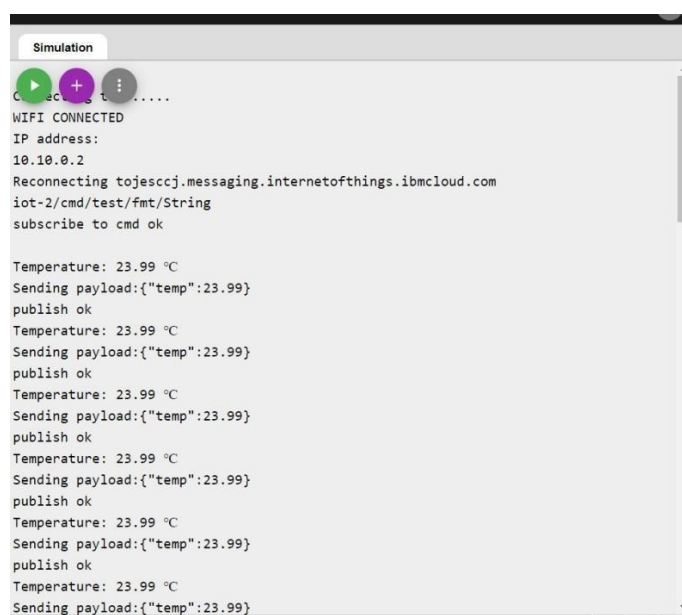
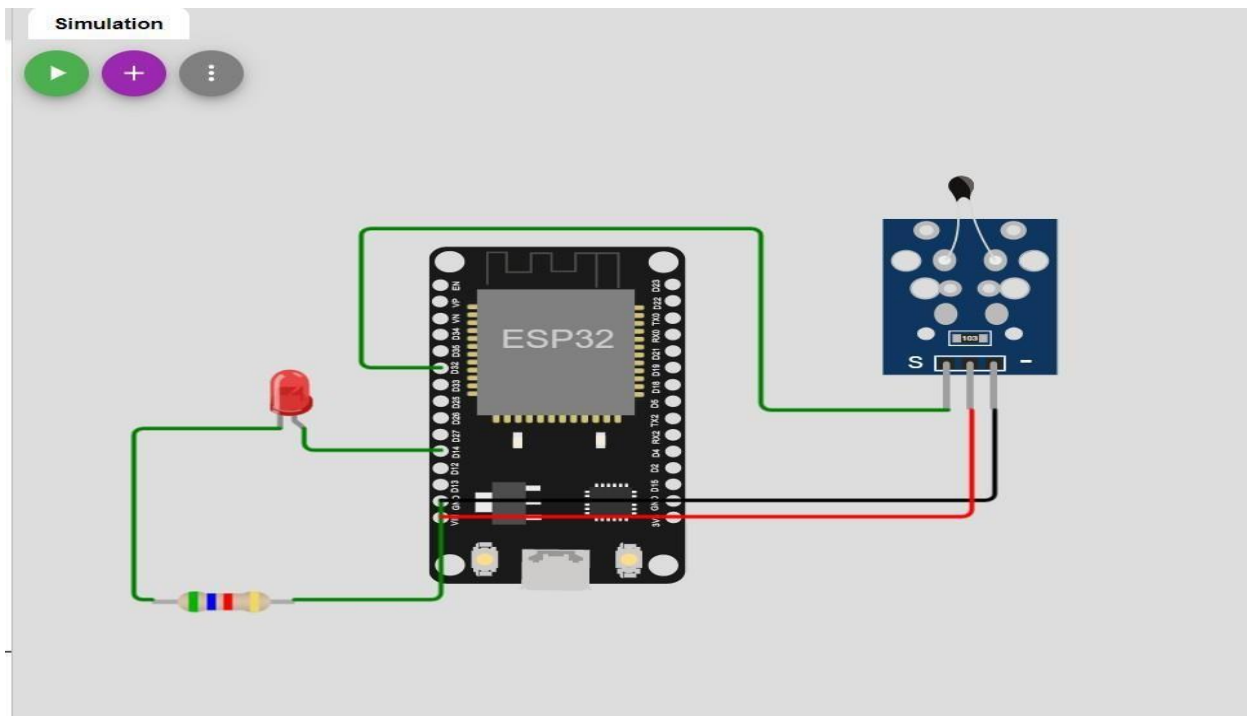
void initManagedDevice(){
    if(client.subscribe(subscribeTopic)){
        Serial.println((subscribeTopic));
        Serial.println("subscribe to cmd ok");
    }else{
        Serial.println("subscribe to cmd failed");
    }
}

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{

```

```
Serial.println(data3);
digitalWrite(14, LOW);
}
data3="";
}
```

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. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. The main content area shows a table of devices. The first device, with ID '12345', is in a 'Disconnected' state. Below the table, the 'Recent Events' tab is selected, showing a list of events. A notification at the bottom right indicates '1 Simulation running'.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12345	Disconnected	Arduino	Device	10 Nov 2022 15:05	

Event	Value	Format	Last Received
event_1	{"ALERT":47}	json	a few seconds ago
event_1	{"ALERT":5}	json	a few seconds ago
event_1	{"ALERT":48}	json	a few seconds ago
event_1	{"ALERT":1}	json	a few seconds ago
event_1	{"ALERT":21}	json	a few seconds ago

Wowki link:

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

