

PROJECT DEVELOPMENT PHASE

SPRINT-4

Date	15-11-2022
Team ID	PNT2022TMID47356
Project Name	Project-Industry specific Intelligent Fire Management System.
Maximum marks	20 marks

```
#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{

```

Simulation

```

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 tabs for '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 selected device, ID 12345, is an 'Arduino' type, currently 'Disconnected', added on '10 Nov 2022 15:05'. Below the table, the 'Recent Events' tab is active, showing a stream of events. A 'Device Simulator' toggle is visible on the right, and a status message at the bottom indicates '1 Simulation running'.

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>

