PROJECT DEVELOPMENT PHASE

SPRINT-4

TEAM ID	: PNT2022TMID16363
PROJECT NAME	: Industry–Specific Intelligent Fire Management System

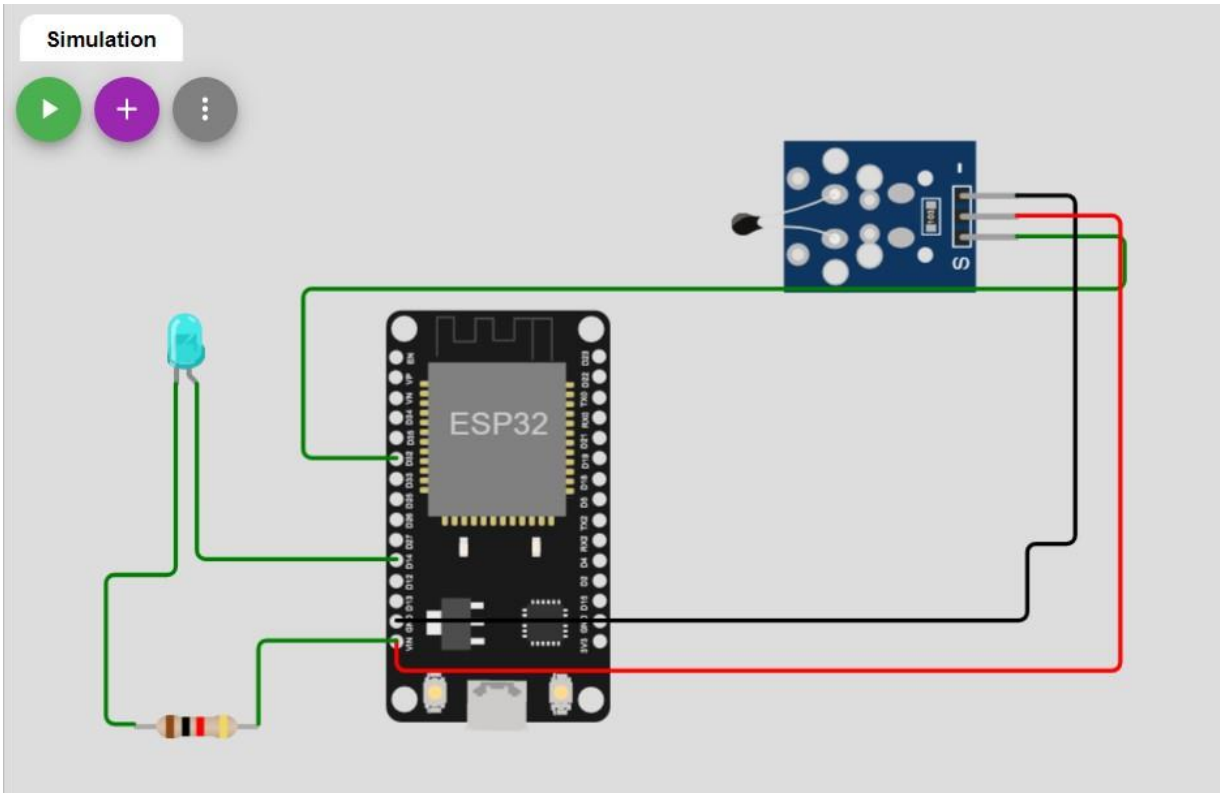
```
#include <WiFi.h>
#include <PubSubClient.h>
#define temp_pin 15
void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
#define ORG "jesccj"
#define DEVICE_TYPE "ESP32_Controller"
#define DEVICE_ID "PURNI"
#define TOKEN "*Vzh&EwwgbRpqohJd+"
String data3;

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;
```

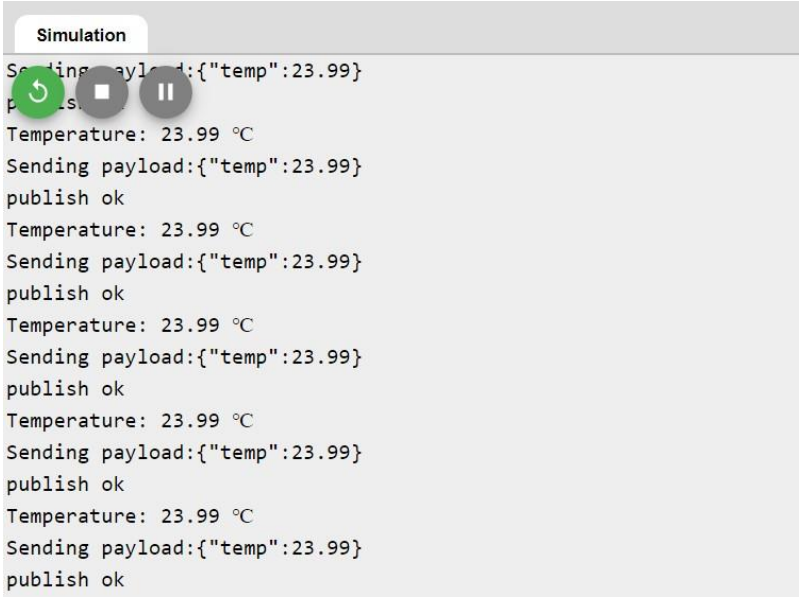
```
//float temp = 1 / (log(1 / (1023. / analogValue - 1)) / BETA + 1.0 / 298.15) - 273.15;
      Serial.print("Temperature: ");
      Serial.print(temp);
      Serial.println(" ℃");
      if(temp>=35){
        PublishData2(temp);
        digitalWrite(14, HIGH);
      }else{
        digitalWrite(14, 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:





Simulation

```
Temperature: 52.34 °C
Sending payload:{"ALERT":52.34}
publish ok
Temperature: 52.34 °C
Sending payload:{"ALERT":52.34}
publish ok
Temperature: 52.34 °C
Sending payload:{"ALERT":52.34}
publish ok
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Temperature: 52.34 °C
Sending payload:{"ALERT":52.34}
publish ok
```

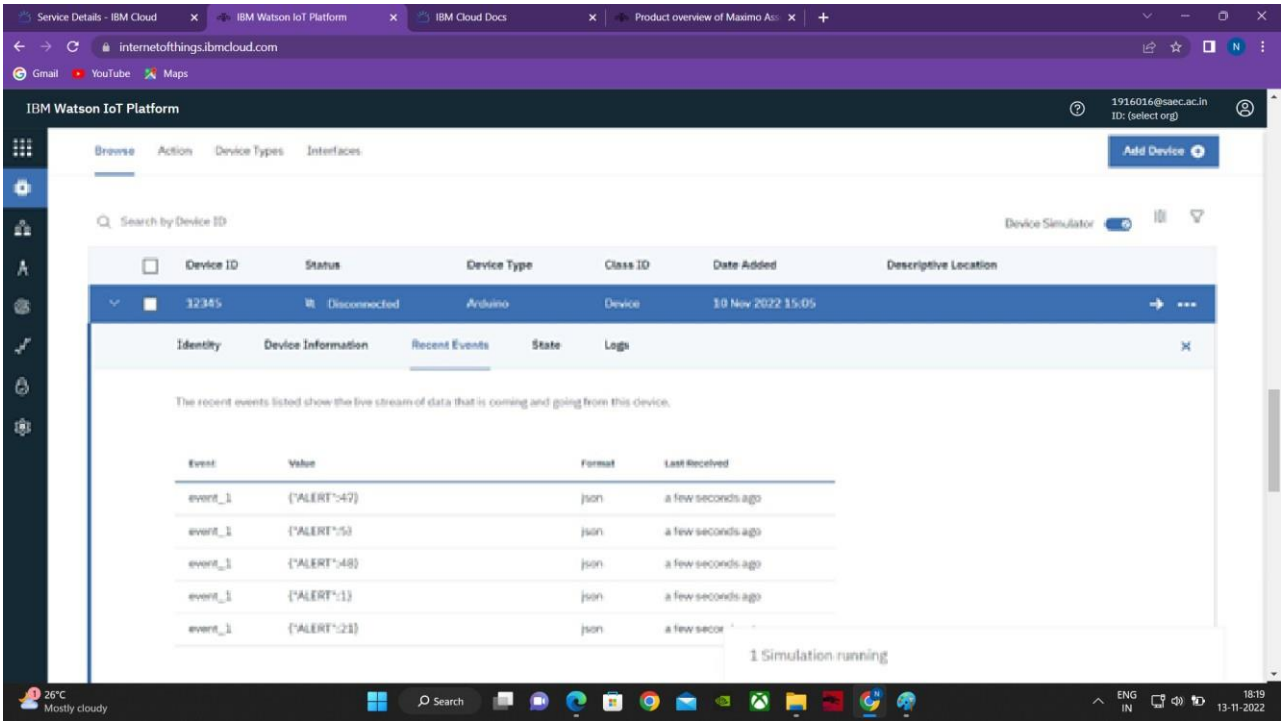

Wowki link:

https://wokwi.com/projects/347829028983407186