PROJECT DEVELOPMENT PHASE

SPRINT-4

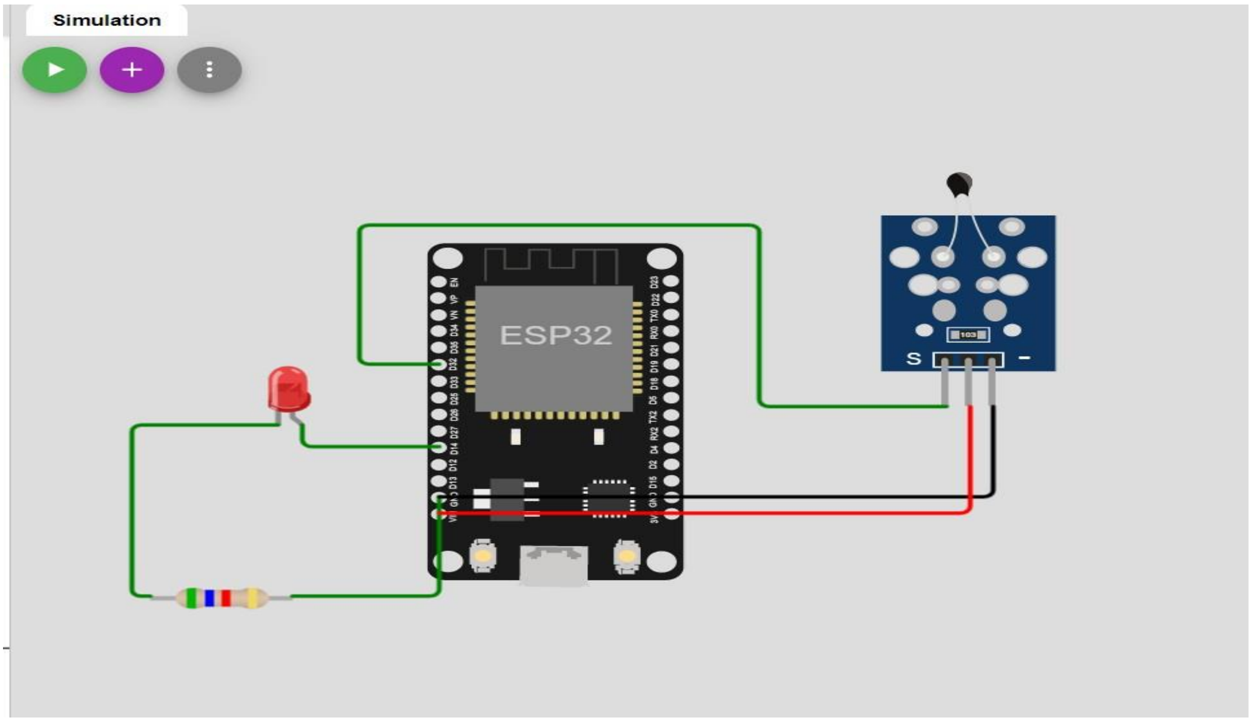
TEAM ID	PNT2PNT2022TMID53304
PROJECT NAME	**INDUSTRY SPECIFIC INTELLIGENT FIRE MANGEMENT SYSTEM**

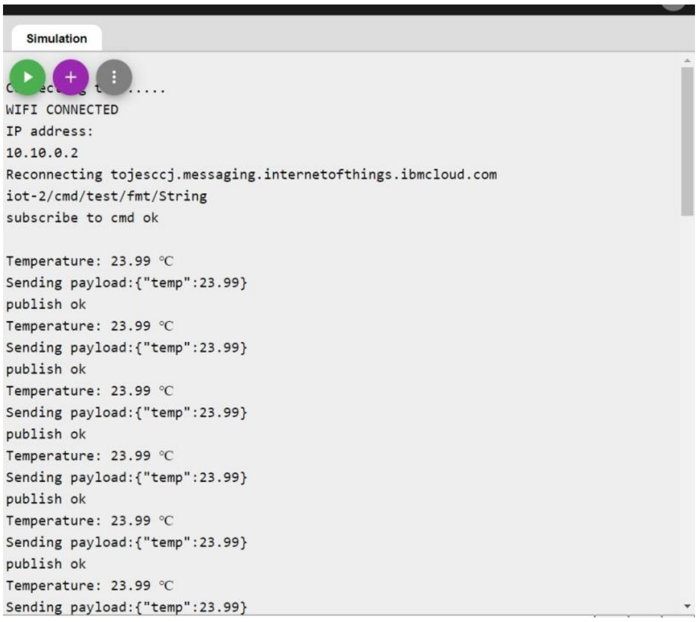
```
#include <WiFi.h>
#include <PubSubClient.h>
#define temp_pin 15
void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
#define ORG "jesccj"
#define DEVICE_TYPE "ESP32_Controller"
#define DEVICE_ID "PURNI"
#define TOKEN "*Vzh&EwwgbRpqohJd+"
String data3;

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:





```
C[illegible]ec[illegible] t[illegible]......
WIFI CONNECTED
IP address:
10.10.0.2
Reconnecting tojesccj.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd ok

Temperature: 23.99 °C
Sending payload:{"temp":23.99}
publish ok
Temperature: 23.99 °C
Sending payload:{"temp":23.99}
publish ok
Temperature: 23.99 °C
Sending payload:{"temp":23.99}
publish ok
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publish ok
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publish ok
Temperature: 23.99 °C
Sending payload:{"temp":23.99}
```

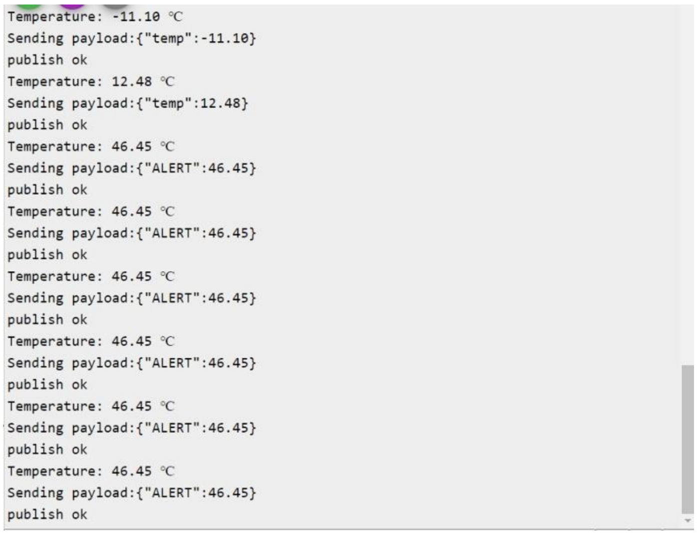

```
Temperature: -11.10 ℃
Sending payload:{"temp":-11.10}
publish ok
Temperature: 12.48 ℃
Sending payload:{"temp":12.48}
publish ok
Temperature: 46.45 ℃
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 ℃
Sending payload:{"ALERT":46.45}
publish ok
Temperature: 46.45 ℃
Sending payload:{"ALERT":46.45}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

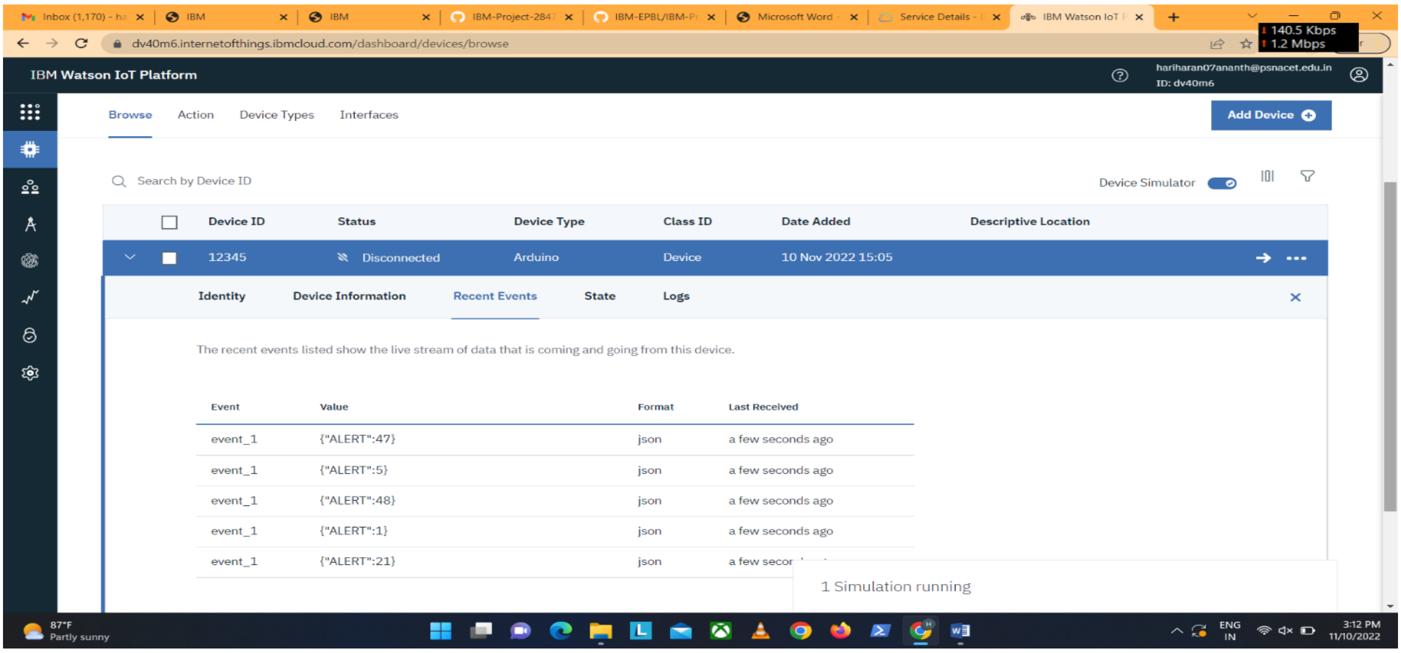

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12345	Disconnected	Arduino	Device	10 Nov 2022 15:05	

The recent events listed show the live stream of data that is coming and going from this device.

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 secor

Wowki link:

https://wokwi.com/projects/347829028983407186