

# PROJECT DEVELOPMENT PHASE

## SPRINT-1

TEAM ID :	PNT2022TMID29717
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 "ejahgo"
#define DEVICE_TYPE "abcd"
#define DEVICE_ID "12345"
#define TOKEN "1234556788"
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{

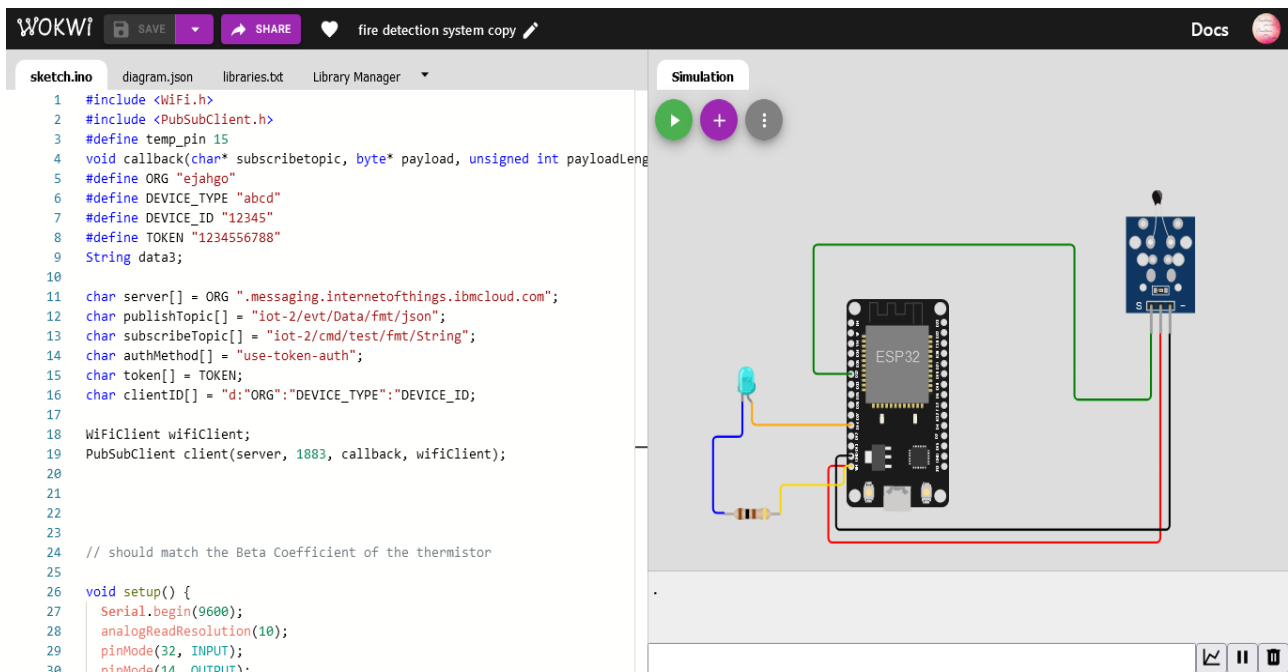
```

```

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

```

## DIAGRAM:



Output :

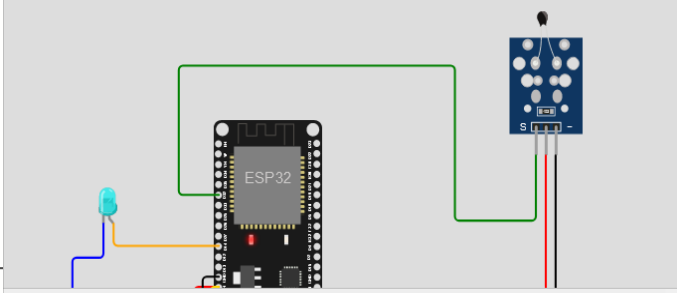
WOKWI SAVE SHARE fire detection system copy Docs

sketch.ino diagram.json libraries.txt Library Manager

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9   String data3;
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15   char token[] = TOKEN;
16   char clientId[] = "d:"ORG":DEVICE_TYPE":DEVICE_ID;
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18   WiFiClient wifiClient;
19   PubSubClient client(server, 1883, callback, wifiClient);
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24   // should match the Beta Coefficient of the thermistor
25
26   void setup() {
27     Serial.begin(9600);
28     analogReadResolution(10);
29     pinMode(32, INPUT);
30     pinMode(14, OUTPUT);
```

Simulation

01:54.915 29%



Connecting to..  
WIFI CONNECTED  
IP address:  
10.10.0.2  
Reconnecting toejahgo.messaging.internetofthings.ibmcloud.com  
iot-2/cmd/test/fmt/String

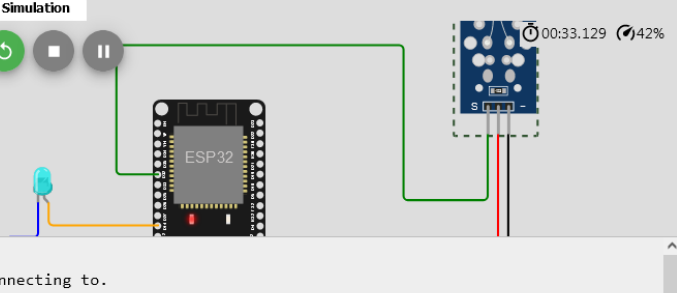
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```

Simulation

00:33.129 42%



Connecting to..  
WIFI CONNECTED  
IP address:  
10.10.0.2  
Reconnecting toejahgo.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

Wokwi link : <https://wokwi.com/projects/347870855478379092>