SPRINT 1

Date	17 November 2022
Team ID	PNT2022TMID33266
Project Name	Industry Specific Intelligent Fire Management System

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <time.h>
#include "DHTesp.h"
#define temp_pin 15
void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
#define ORG "7qysjg"
#define DEVICE_TYPE "VENGADESH"
#define DEVICE_ID "VENGAD123"
#define TOKEN "2001VENGAD"
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);
const int DHT_PIN = 15;
DHTesp dhtSensor;
bool exhaust_fan_on = false;
bool sprinkler_on = false;
float temperature = 0;
int gas = 0;
int flame = 0;
String flame_status = "";
String accident_status = "";
String sprinkler_status = "";
void setup()
 {
    Serial.begin(99900);

wificonnect();
mqttconnect();

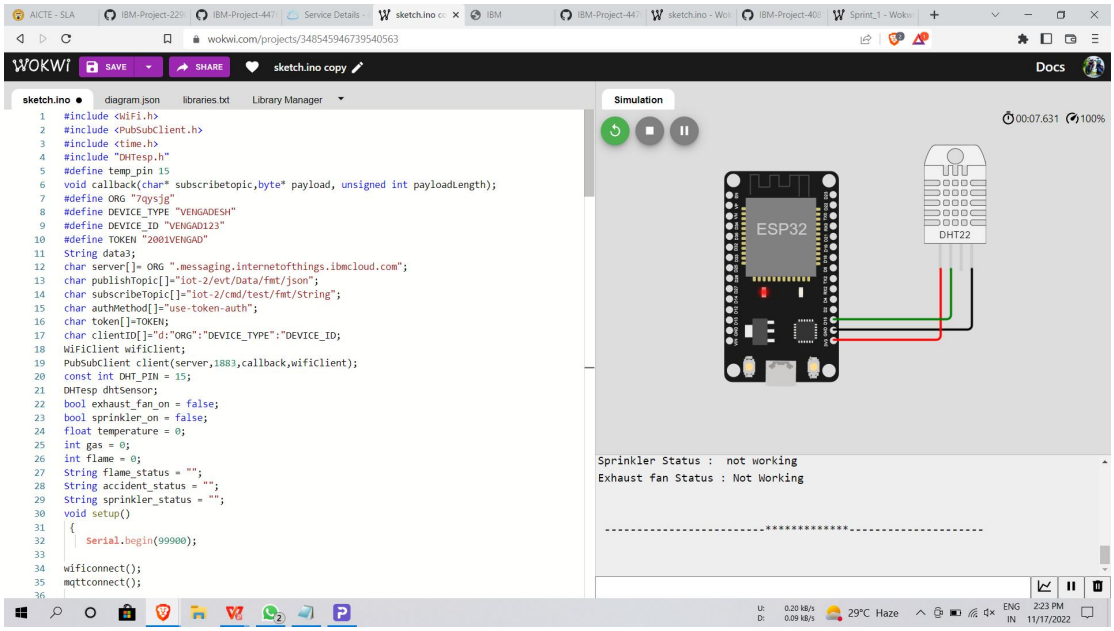
 dhtSensor.setup(DHT_PIN, DHTesp::DHT22);
}
void loop() {
 srand(time(0));
 //initial variable
 temperature = random(-20,125); gas = random(0,1000); int flamereading =
random(200,1024);
 flame = map(flamereading,0,1024,0,2);

 TempAndHumidity data = dhtSensor.getTempAndHumidity();
Serial.println("Temperature: "+ String(data.temperature, 2) + "°C");
Serial.println("Humidity: " + String(data.humidity, 1) + "%");
 Serial.println("---"); delay(1000);
if(data.temperature<38)
```

```
{
  PublishData1(data.temperature);
 flame_status = "No Fire";
 Serial.println("Flame Status : "+flame_status);
 }
 else
 {
    PublishData2(data.temperature);
    flame_status = "Fire is Detected";
 Serial.println("Flame Status : "+flame_status);

 }
 if(data.humidity<30)
 {
 Serial.println("Gas Status : Gas leakage Detected");
 }
 else
 {
 exhaust_fan_on = false;
 Serial.println("Gas Status : No Gas leakage Detected");
 }
 //send the sprinkler status if(data.temperature<38)
 if(data.temperature<38)
 {
 sprinkler_status = " not working";
 Serial.println("Sprinkler Status : "+sprinkler_status);
 }
 else
 {
 sprinkler_status = " working";
 Serial.println("Sprinkler Status : "+sprinkler_status);
 }
 //toggle the fan according to gas
 if(data.humidity<30)
 {
    exhaust_fan_on = true;
 Serial.println("Exhaust fan Status : Working");
 }
 else
 {
 exhaust_fan_on = false;
 Serial.println("Exhaust fan Status : Not Working");
 }
 Serial.println("");
 Serial.println("");
 Serial.println(" ------------------------************----------------------");
 Serial.println("");
Serial.println("");
delay(1000);
if(!client.loop()){
 mqttconnect();
}
}
void PublishData1(float temp)
{
  mqttconnect();
 String payload= "{\"temp normal\"}";
 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 temperature){
 mqttconnect();
 String payload = "{\"temp\":";
payload += temperature;
payload += ",\"ALERT!!\":""\"temperature greater than 38\""; 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];
 }
}
```

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```

```
Connecting to.....
WIFI CONNECTED
IP address:
10.10.0.2
Reconnecting to7qysjg.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd ok

Temperature: 24.00°C
Humidity: 40.0%
---
Sending payload:{"temp normal"}
publish ok
Flame Status : No Fire
Gas Status : No Gas leakage Detected
Sprinkler Status :  not working
Exhaust fan Status : Not Working
```