Team Id	PNT2022TMID46638
Project Name	Hazardous area monitoring for industrial plant powered by IOT

```
#include
<WiFi.h>
            #include <PubSubClient.h>
            #include <DHT.h>
            WiFiClient wifiClient;
            String data3;
            #define DHTTYPE DHT11
            #define DHTPIN 4
            #define MQTPIN 34
            DHT dht(DHTPIN, DHTTYPE);

            #define ORG "v6wg8x"
            #define DEVICE_TYPE "projectFinal"
            #define DEVICE_ID "FinalDeliverable"
            #define TOKEN "A1ymH))p*JB&iMWNpY"
            #define speed 0.034

            void callback(char* topic, byte* playload, unsigned int payloadLength);

            char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
            char publishTopic[] = "iot-2/evt/Data/fmt/json";
            char topic[] = "iot-2/cmd/test/fmt/String";
            char authMethod[] = "use-token-auth";
            char token[] = TOKEN;
            char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
            PubSubClient client(server, 1883, callback , wifiClient);
            void publishData();

            String command;
            String data = "";

            long duration;
            float dist;



            void setup()
            {
            Serial.begin(115200);
            dht.begin();
            wifiConnect();
```

```
mqttConnect();
}

void loop() {
publishData();
delay(500);

if (!client.loop()) {
mqttConnect();
}
}

void wifiConnect() {
Serial.print("Connecting to "); Serial.print("Wifi");
WiFi.begin("JerroldWi-Fi","75779901");
while (WiFi.status() != WL_CONNECTED) {
delay(500);
Serial.print(".");
}
Serial.print("WiFi connected, IP address: ");
Serial.println(WiFi.localIP());
}

void mqttConnect() {
if (!client.connected()) {
Serial.print("Reconnecting MQTT client to "); Serial.println(server);
while (!client.connect(clientId, authMethod, token)) {
Serial.print(".");
delay(500);
}
initManagedDevice();
Serial.println();
}
}

void initManagedDevice() {
if (client.subscribe(topic)) {
Serial.println("IBM subscribe to cmd OK");
} else {
Serial.println("subscribe to cmd FAILED");
}
}

void publishData()
{
int sensorValue = analogRead(MQTPIN); //MQT 135 connected to GPIO 34
(Analog ADC1_CH6)
Serial.print("AirQua=");
```

```
Serial.print(sensorValue, DEC);
Serial.println(" PPM");
float humid = dht.readHumidity();
float temp = dht.readTemperature(true);
String payload = "{\"Humidity\":";
payload += humid;
payload += "}";
if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish OK");
}
payload = "{\"Temperature\":";
payload += temp;
payload += "}";
if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish OK");
}
payload = "{\"Air Quality\":";
payload += String(sensorValue);
payload += "}";
if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish OK");
}
}
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++) {
dist += (char)payload[i];
}
Serial.println("data:" + data3);
if (data3 == "lighton") {
Serial.println(data3);
}
data3 = "";
}
```