SPRINT-3

PROJECT	**INDUSTRY-SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM**
TEAM ID	**PNT2022TMID10108**

PYTHON CODE:

```
#include <time.h>
#include <WiFi.h>
#include <PubSubClient.h>

#define ORG "ksgtfi"
#define DEVICE_TYPE "123" #define
DEVICE_ID "123_1"
#define TOKEN "12345678" char server[] = ORG
  ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot2/evt/data/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN; char clientId[] = "d:" ORG ":" DEVICE_TYPE ":"
DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, wifiClient); float temperature = 0;
int gas = 0; int flame
= 0;

String flame_status = "";
String Gas_status = "";
String exhaust_fan_status = ""; String
sprinkler_status = "";


void setup() {     Serial.begin(99900);
wifiConnect();   mqttConnect();
} void loop() {
srand(time(0)); //initial
variables and random
generated data

        temperature = random(-20,125);       gas = random(0,1000);    int
  flamereading = random(200,1024);         flame =
  map(flamereading,200,1024,0,2);

       //set a flame status switch (flame) {
            case 0:
flame_status = "No Fire";break; case 1:     flame_status =
"Fire is
Detected";                       break;
        }
        //send the sprinkler status

if(flame==1){ sprinkler_status = "Working";
        }            else{                        sprinkler_status
= "Not Working";

        }

        //toggle the fan according to gas reading

        if(gas > 100){
                Gas_status = "Gas Leakage is Detected"; exhaust_fan_status =
"Working";
          } else{
                Gas_status = "No Gas Leakage is Detected"; exhaust_fan_status = "Not
Working";
        }

        //json format for IBM Watson

        String          payload          =          "{";
payload+="\"gas\":";            payload+=gas;
payload+=",";
payload+="\"temperature\":";
payload+=(int)temperature;   payload+=",";
payload+="\"flame\":";
payload+=flamereading;       payload+=",";
payload+="\"fire_status\":\""+fl
ame_status+"\",";
payload+="\"sprinkler_status\":\ ""+sprinkler_status+"\",";
payload+="\"Gas_status\":\""+Gas
_status+"\","; payload+="\"exhaust_fan_status\":\""+exhaust_fan_status+"\"}";
        if(client.publish(publishTopic, (char*)
payload.c_str()))
        {
                Serial.println("Publish OK");
        } else{
                          Serial.println("Publish failed");
        } delay(1000); if
(!client.loop())

{                 mqttConnect()
;
        }
}

void wifiConnect()
{
    Serial.print("Connecting to ");
    Serial.print("Wifi");
    WiFi.begin("Wokwi-GUEST", "", 6); 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);
        }

        Serial.println();
    }
}
```