Project development phase
Sprint - II

Date	04 November 2022
Team ID	PNT2022TMID13566
Project Name	Project - Industry-specific intelligent fire management system
Maximum Marks	20 marks

OUTPUT:

sketch.ino - Wokwi Arduino and E

wokwi.com/projects/348062828084593236

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sketch.ino diagram.json libraries.txt Library Manager

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

#define ORG "wt19pm"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "12345"
#define TOKEN "12345678"

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/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();
```

Simulation

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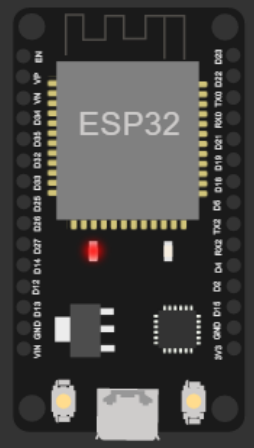


```
Publish OK
Publish OK
Publish OK
Publish OK
Publish OK
Publish OK
Publish OK
```

Type here to search sketch.ino - ... Verify your i... sketch.ino - ... *iot - Notepad ENG 01:40 12-11-2022

CODE:

```
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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\":\""+flame_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();
  } }
```