## SPRINT-2

| PROJECT | INDUSTRY-SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM |
|---|---|
| TEAM ID | PNT2022TMID49436 |

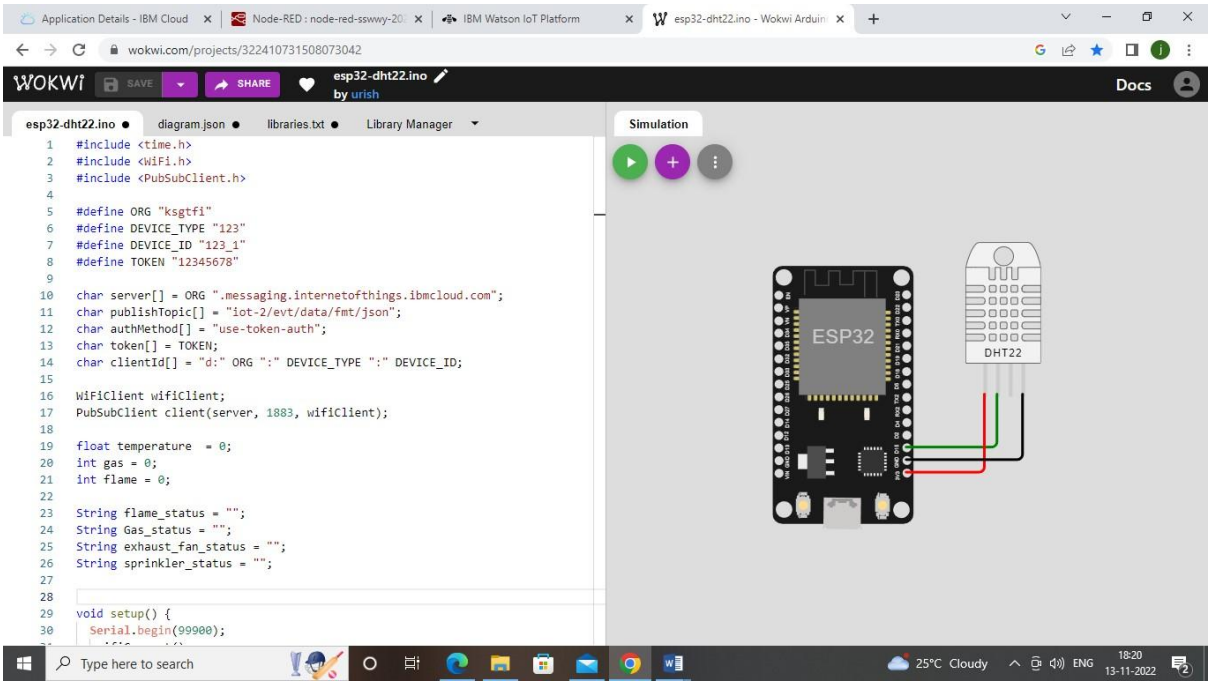
## PYTHON CODE:

```
#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[] = "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();    mqttConnect();
}
void loop() {
   srand(time(0));
//initial
variables and
random generated
data

    temperature = random(-20,125);    gas =
 random(0,1000);    int flamereading =
```

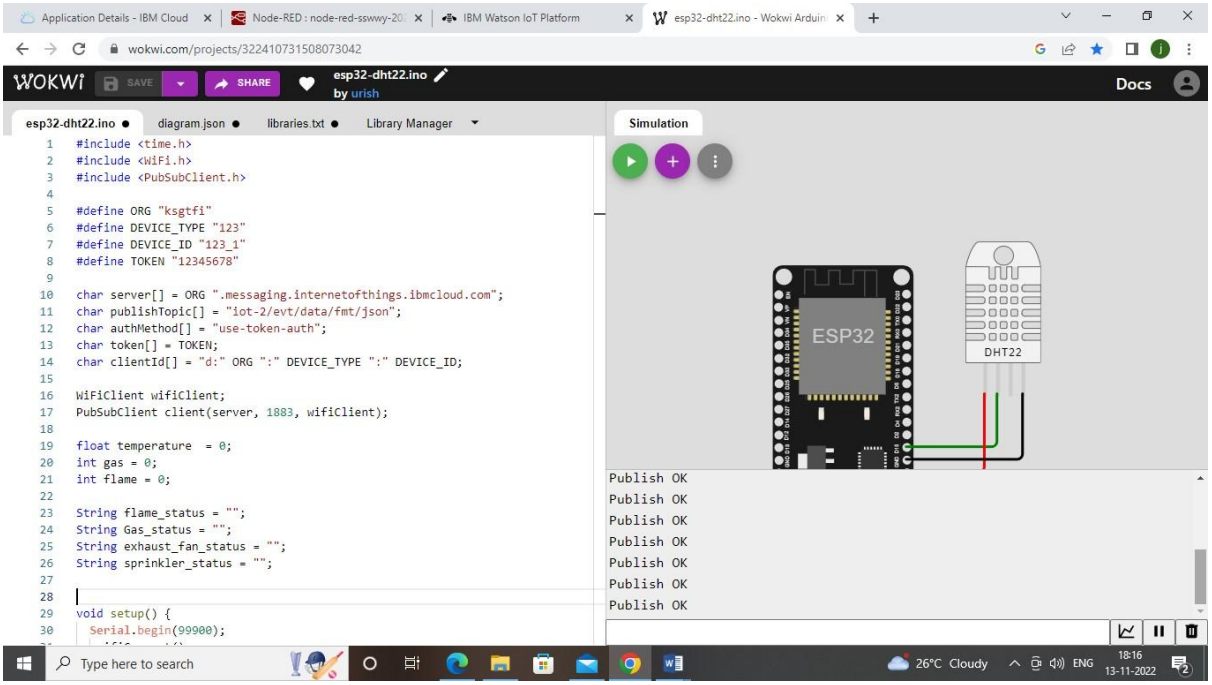
```
 random(200,1024);    flame =
 map(flamereading,200,1024,0,2);

    //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();
  }
}
```

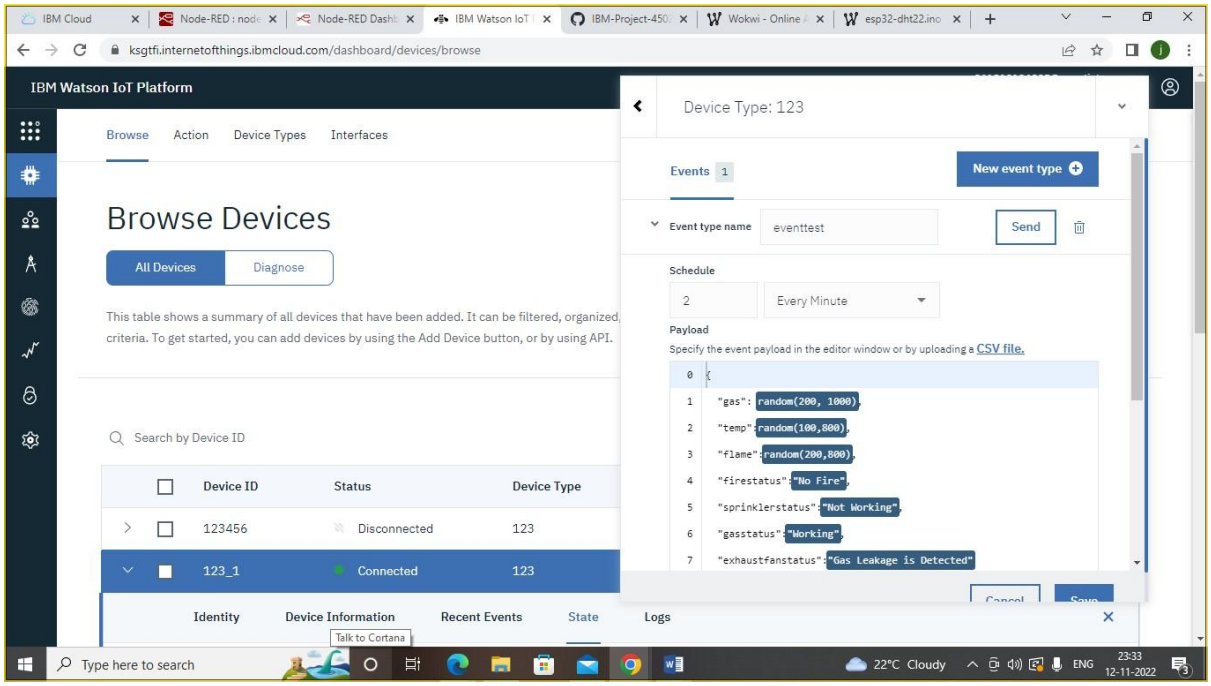
## WOKWI CONNECTION:



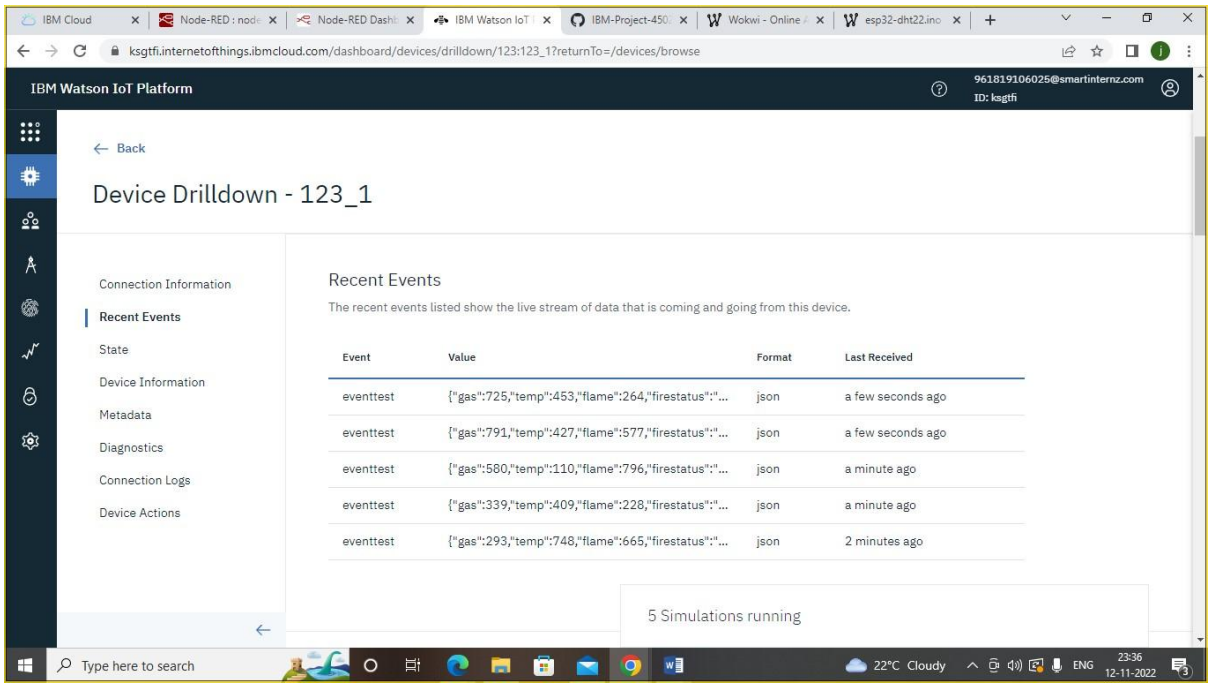

# WOKWI OUTPUT:

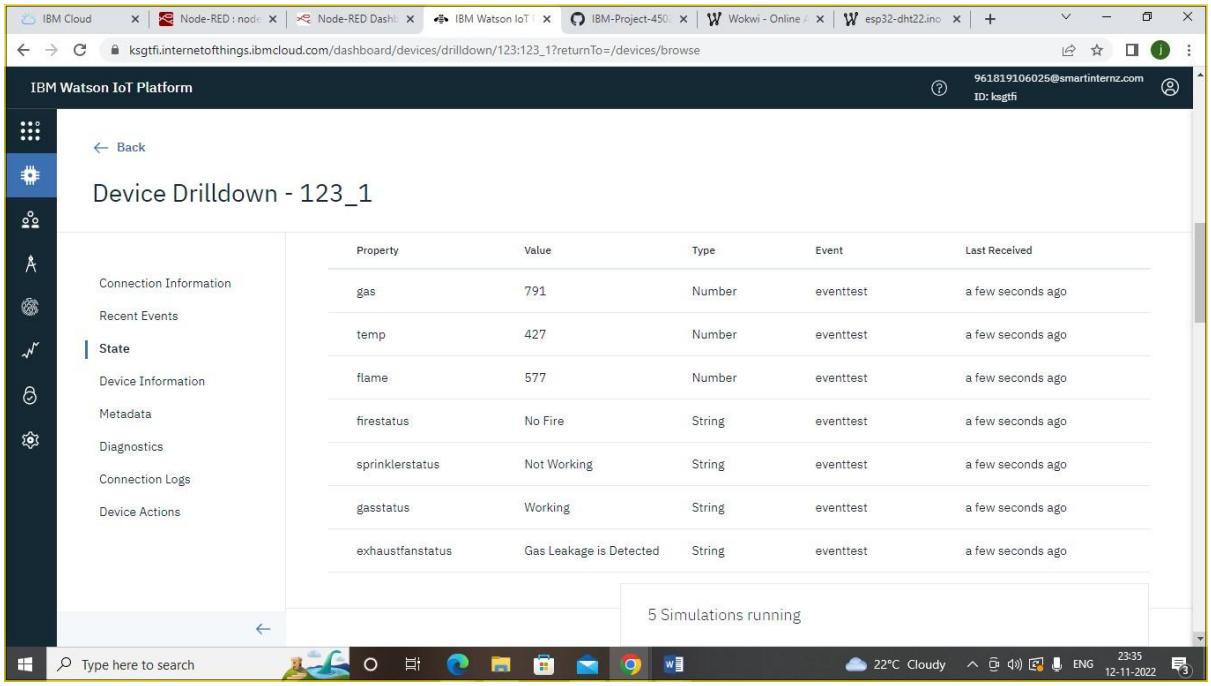



# WATSON IOT PLATFORM:


IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Browse Devices
All Devices
Diagnose
Search by Device ID
Device ID
Status
Device Type
123456
Disconnected
123
123_1
Connected
123
Identity
Device Information
Recent Events
State
Logs
Device Type: 123
Events 1
New event type
Event type name
eventtest
Send
Schedule
2
Every Minute
Payload
Specify the event payload in the editor window or by uploading a CSV file.
{
"gas": random(200, 1000),
"temp":random(100,800),
"flame":random(200,800),
"firestatus":"No Fire",
"sprinklerstatus":"Not Working",
"gasstatus":"Working",
"exhaustfanstatus":"Gas Leakage is Detected"
Cancel
Save
Type here to search
22°C Cloudy
ENG
23:33
12-11-2022

# OUTPUT:


IBM Watson IoT Platform
961819106025@smartinternz.com
ID: ksgtfi
Back
Device Drilldown - 123_1
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions
Recent Events
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
eventtest
{"gas":725,"temp":453,"flame":264,"firestatus":"...
json
a few seconds ago
eventtest
{"gas":791,"temp":427,"flame":577,"firestatus":"...
json
a few seconds ago
eventtest
{"gas":580,"temp":110,"flame":796,"firestatus":"...
json
a minute ago
eventtest
{"gas":339,"temp":409,"flame":228,"firestatus":"...
json
a minute ago
eventtest
{"gas":293,"temp":748,"flame":665,"firestatus":"...
json
2 minutes ago
5 Simulations running
Type here to search
22°C Cloudy
ENG
23:36
12-11-2022


IBM Cloud
Node-RED : node
Node-RED Dashb
IBM Watson IoT
IBM-Project-450
Wokwi - Online
esp32-dht22.ino
ksgtfi.internetofthings.ibmcloud.com/dashboard/devices/drilldown/123:123_1?returnTo=/devices/browse
IBM Watson IoT Platform
961819106025@smartinternz.com
ID: ksgtfi
Back
Device Drilldown - 123_1
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions
Property
Value
Type
Event
Last Received
gas
791
Number
eventtest
a few seconds ago
temp
427
Number
eventtest
a few seconds ago
flame
577
Number
eventtest
a few seconds ago
firestatus
No Fire
String
eventtest
a few seconds ago
sprinklerstatus
Not Working
String
eventtest
a few seconds ago
gasstatus
Working
String
eventtest
a few seconds ago
exhaustfanstatus
Gas Leakage is Detected
String
eventtest
a few seconds ago
5 Simulations running
Type here to search
22°C Cloudy
ENG
23:35
12-11-2022