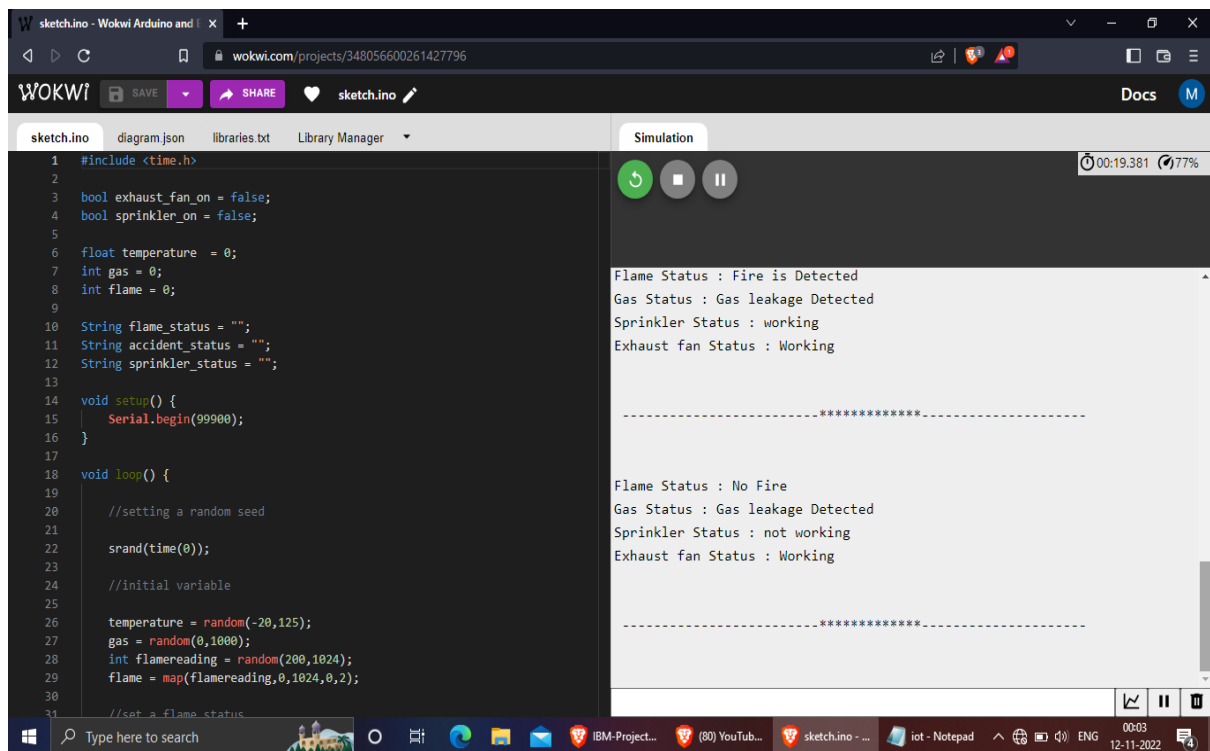


Project development phase

Sprint - I

Date	29 October 2022
Team ID	PNT2022TMID13566
Project Name	Industry-specific intelligent fire management system
Maximum Marks	8 Marks

OUTPUT:



The screenshot displays the Wokwi IoT simulator interface. On the left, the Arduino sketch is visible, featuring a setup function that initializes serial communication and a loop function that generates random values for temperature, gas, and flame, and sets the status of various components. On the right, the simulation output shows the current state of the system, with flame detected, gas leakage detected, and the sprinkler and exhaust fan working.

```
1 #include <time.h>
2
3 bool exhaust_fan_on = false;
4 bool sprinkler_on = false;
5
6 float temperature = 0;
7 int gas = 0;
8 int flame = 0;
9
10 String flame_status = "";
11 String accident_status = "";
12 String sprinkler_status = "";
13
14 void setup() {
15   Serial.begin(99900);
16 }
17
18 void loop() {
19   //setting a random seed
20   srand(time(0));
21
22   //initial variable
23
24   temperature = random(-20,125);
25   gas = random(0,1000);
26   int flamereading = random(200,1024);
27   flame = map(flamereading,0,1024,0,2);
28
29   //set a flame_status
```

Simulation Output:

```
Flame Status : Fire is Detected
Gas Status : Gas leakage Detected
Sprinkler Status : working
Exhaust fan Status : Working

-----*****-----

Flame Status : No Fire
Gas Status : Gas leakage Detected
Sprinkler Status : not working
Exhaust fan Status : Working

-----*****-----
```

CODE:

```
#include <time.h>
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);
}
void loop() {
    //setting a random seed
    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);
    //set a flame status
    switch (flame) {
        case 0:
            flame_status = "No Fire";
            Serial.println("Flame Status : "+flame_status);
            break;
        case 1:
            flame_status = "Fire is Detected";
            Serial.println("Flame Status : "+flame_status);
            break;
    }
    //Gas Detection
    if(gas > 100){
        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(flame){
        sprinkler_status = "working";
        Serial.println("Sprinkler Status : "+sprinkler_status);
    }
}
```

```
}
else{
    sprinkler_status = "not working";
    Serial.println("Sprinkler Status : "+sprinkler_status);
}
//toggle the fan according to gas
if(gas > 100){
    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(3000);
}
```