

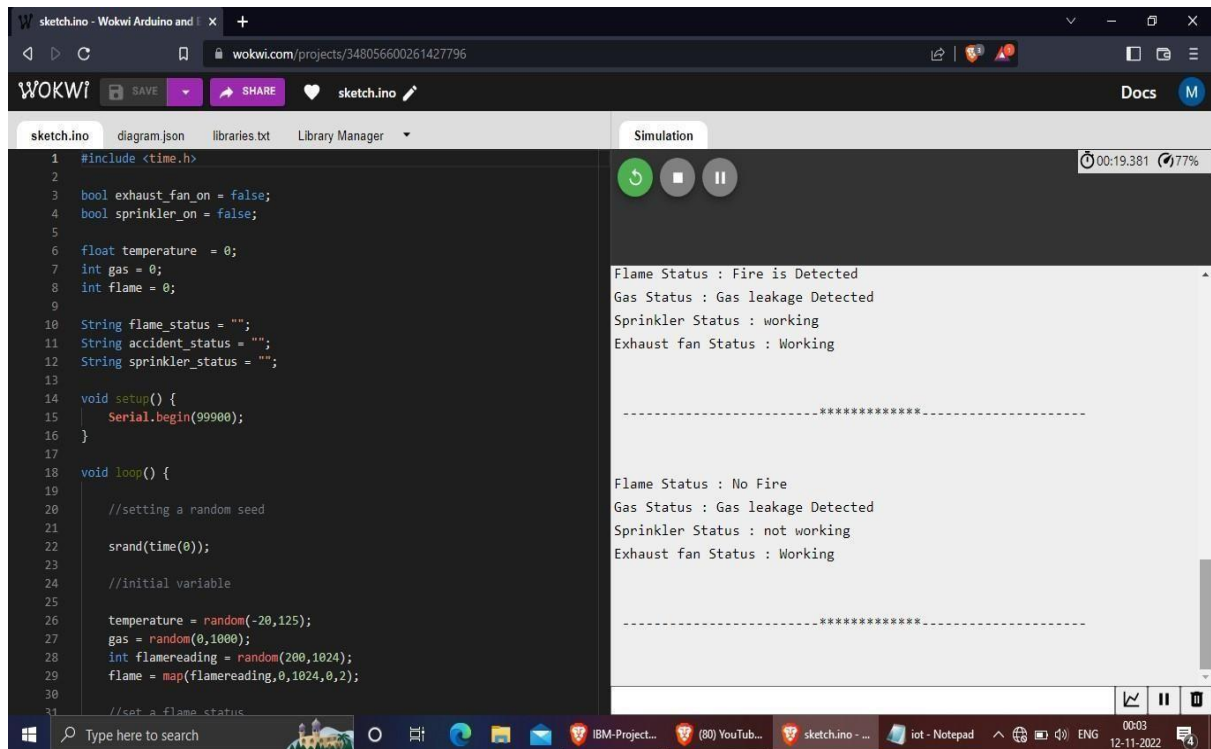
Project development phase

Sprint - I

Date	29 October 2022
Team ID	PNT2022TMID19483
Project Name	Industry-specific intelligent fire management system

Link: <https://wokwi.com/projects/348056600261427796>

OUTPUT:



The screenshot displays the Wokwi IDE interface. On the left, the 'sketch.ino' file is open, showing an Arduino sketch. The sketch includes a header file, initializes variables for fan status, temperature, gas, and flame, and defines a loop that generates random values for these variables. On the right, the 'Simulation' tab is active, showing the output of the sketch. The output displays the status of the fire management system at two different points in time, separated by a separator line. The first output shows 'Fire is Detected' and 'Sprinkler Status : working'. The second output shows 'No Fire' and 'Sprinkler Status : not 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
21   srand(time(0));
22
23   //initial variable
24
25   temperature = random(-20,125);
26   gas = random(0,1000);
27   int flamereading = random(200,1024);
28   flame = map(flamereading,0,1024,0,2);
29
30   //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);

}

```

TEST CASE:

S.NO	INPUT	OUTPUT	RESULT
1	Gas:42 Temperature:59.30 Flame:267	Exhaust Fan: Not Working Sprinkler: Not Working Status Logged: Done	PASSED
2	Gas:612 Temperature:59.30 Flame:367	Exhaust Fan: Working Sprinkler: Not Working Status Logged: Done	PASSED

--

3	Gas:327 Temperature:59.30 Flame:841	Exhaust Fan: Working Sprinkler: Working Status Logged: Done	PASSED
4	Gas:13 Temperature:59.30 Flame:601	Exhaust Fan: Not Working Sprinkler: Working Status Logged: Done	PASSED

5

Gas: 123

Exhaust Fan: Working

Temperature:59.30 Sprinkler: Not Working PASSED Flame:385

Status Logged: Done