

# Project Development

## Phase

### Sprint - I

Date	29 October 2022
Team ID	PNT2022TMID00383
Project Name	Industry-Specific Intelligent Fire Management System

Link:

OUTPUT:

```
1 #include <time.h>
2 bool exhaust_fan_on = false; bool sprinkler_on = false;
3 float temperature = 0; int gas = 0;
4 int flame = 0;
5 String flame_status = ""; String accident_status = ""; String sprinkler_status = "";
6
7 void setup() { Serial.begin(99900);
8 }
9 void loop() {
10
11 //setting a random seed srand(time(0));
12 //initial variable
13
14 temperature = random(- 20,125);
15 gas = random(0,1000); int flamereading =
16 random(200,1024); flame =
17 map(flamereading,0,1024,0, 2);
18
19 //set a flame status
20
21 switch (flame) { case 0:
22
23
24 flame_status = "No Fire";
25 Serial.println("Flame Status : "+flame_status);
26 break; case 1:
27 flame_status = "Fire is Detected";
28 Serial.println("Flame Status : "+flame_status);
```

Simulation

ESP32

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

Flame Status : Fire is Detected  
Gas Status : Gas Leakage Detected  
Sprinkler Status : 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(2000);

}

```

### **TEST CASES:**

S.NO	INPUT	OUTPUT	RESULT
1	Gas:62 Temperature:45.30 Flame:366	Exhaust Fan: Not Working Sprinkler: Not Working Status Logged: Done	PASSED
2	Gas:598 Temperature:51.40 Flame:412	Exhaust Fan: Working Sprinkler: Not Working Status Logged: Done	PASSED

3	Gas:334 Temperature:49.30 Flame:912	Exhaust Fan: Working Sprinkler: Working Status Logged: Done	PASSED
4	Gas:18 Temperature:67.90 Flame:745	Exhaust Fan: Not Working Sprinkler: Working Status Logged: Done	PASSED
	Gas: 354 Temperature:69.30 Flame:446	Exhaust Fan: Working Sprinkler: Not Working Status Logged: Done	PASSED