

SPRINT-1

TEAM ID	PNT2022TMID10968
PROJECT NAME	INDUSTRY - SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM
IBM ID	IBM-Project-62210-1658823576

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);
}

```

WOKWI SIMLUATION OUTPUT:

The screenshot displays the Wokwi simulation environment. On the left, the 'sketch.ino' file is open, showing the following code:

```

1  #include <time.h>
2  bool exhaust_fan_on = false;
3  bool sprinkler_on = false;
4  float temperature = 0;
5  int gas = 0;
6  int flame = 0;
7  String flame_status = "";
8  String accident_status = "";
9  String sprinkler_status = "";
10 void setup() {
11   Serial.begin(99900);
12 }
13 void loop() {
14   //setting a random seed
15   srand(time(0));
16   //initial variable
17   temperature = random(-20,125);
18   gas = random(0,1000);
19   int flamereading = random(200,1024);
20   flame = map(flamereading,0,1024,0,2);
21   //set a flame status
22   switch (flame) {
23     case 0:
24       flame_status = "No Fire";
25       Serial.println("Flame Status : "+flame_status);
26       break;
27     case 1:
28       flame_status = "Fire is Detected";
29       Serial.println("Flame Status : "+flame_status);
30       break;
31   }
32   //Gas Detection
33   if(gas > 100){

```

On the right, the 'Simulation' window shows the current state of the simulation. It includes a timer at 00:31.737 and a CPU usage indicator at 103%. The output text is as follows:

```

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

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

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

```