

SPRINT 3

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("");
```

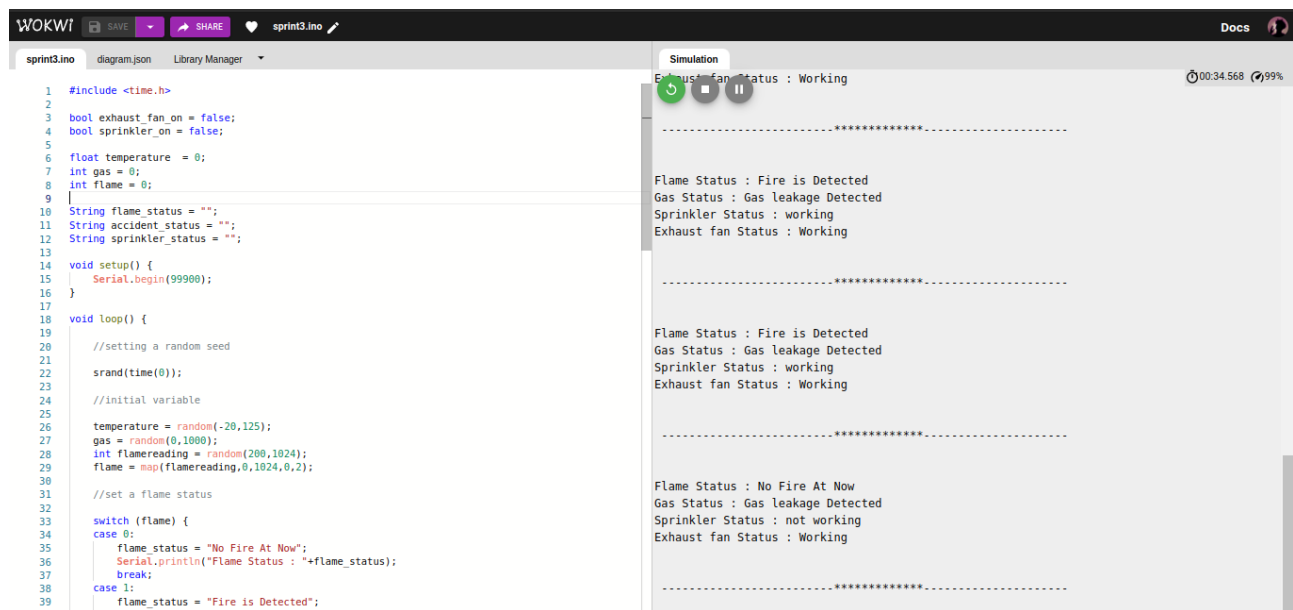
```
delay(3000);
```

```
}
```

Diagram.json:

```
{
  "version": 1,
  "author": "Sethupathi Nallathambi",
  "editor": "wokwi",
  "connections": []
}
```

Simulation Output:



The screenshot displays the Wokwi IDE interface. On the left, the code editor shows the following C++ code:

```
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
20   //setting a random seed
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
31
32   switch (flame) {
33     case 0:
34       flame_status = "No Fire At Now";
35       Serial.println("Flame Status : "+flame_status);
36       break;
37     case 1:
38       flame_status = "Fire is Detected";
39   }
```

On the right, the simulation output window shows the following status updates:

```
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
-----*****-----
Flame Status : No Fire At Now
Gas Status : Gas leakage Detected
Sprinkler Status : not working
Exhaust fan Status : Working
-----*****-----
```