

# **Delivery Sprint-1**

## **Industry-Specific Intelligent Fire Management System**

**TEAM ID: PNT2022TMID45189**

Create a smart fire management system that includes a Gas sensor, Flame sensor and temperature sensors to detect any changes in the environment. Based on the temperature readings and if any Gases are present the exhaust fans are powered ON. If any flame is detected the sprinklers will be switched on automatically. Emergency alerts are notified to the authorities and Fire station.

### **Sprint-1**

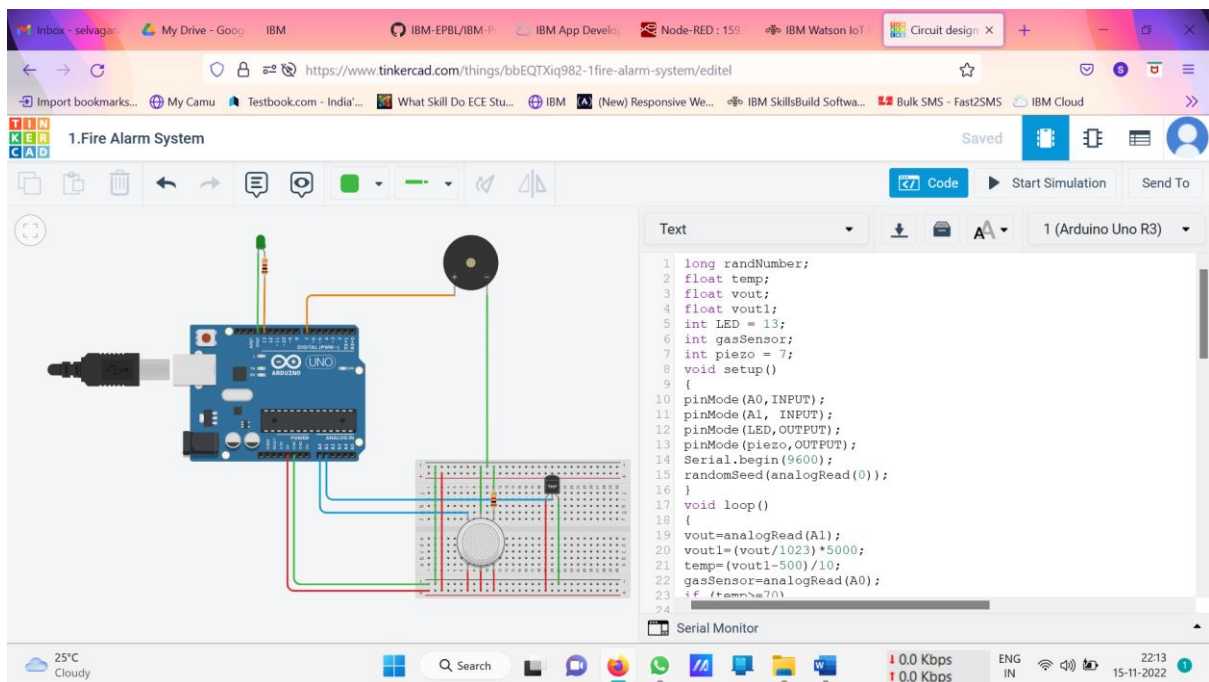
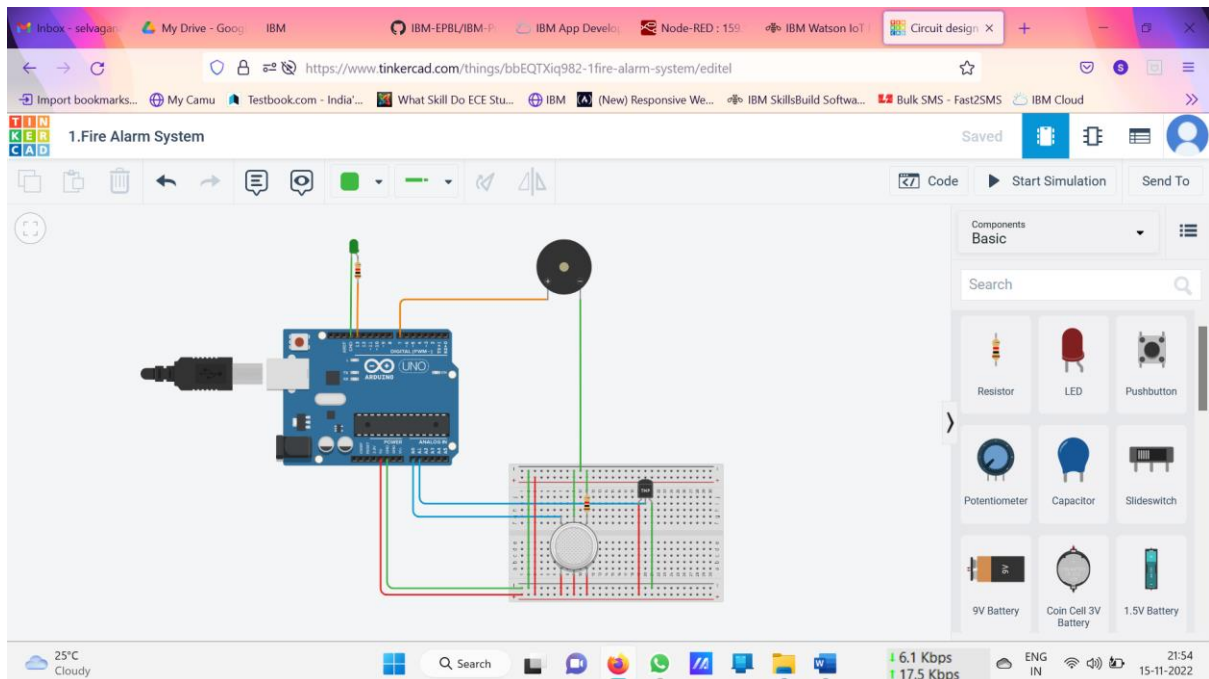
Simulation Creation (Connect sensor Arduino with Python code)

Using the Tinkercad Software create and simulate the model Industry-specific intelligent fire management system

### **STEPS**

1. Create a Tinkercad student account and start a new circuit with a name (Ex:1.Fire Alarm System)
2. Select the required components for the project with your model and Connect the components properly
3. Then code the required program to proceed for your model/Project and execute it
4. Finally the output is shown like in the below figure

# THE PROCESS



## **CODE:**

```
long randNumber;

float temp;

float vout;

float vout1;

int LED = 13;

int gasSensor;

int piezo = 7;

void setup()

{

pinMode(A0,INPUT);

pinMode(A1, INPUT);

pinMode(LED,OUTPUT);

pinMode(piezo,OUTPUT);

Serial.begin(9600);

randomSeed(analogRead(0));

}

void loop()

{

vout=analogRead(A1);

vout1=(vout/1023)*5000;

temp=(vout1-500)/10;

gasSensor=analogRead(A0);

if (temp>=70)
```

```
{  
  
digitalWrite(LED,HIGH);  
  
Serial.print("Fan is ON Automatically When HIGH Temperature in  
Degree(Temp>=70C) ");  
  
Serial.print("\n");  
  
}  
  
else  
  
{  
  
digitalWrite(LED,LOW);  
  
}  
  
if (gasSensor>=100)  
  
{  
  
digitalWrite(piezo,HIGH);  
  
Serial.print("Fan is ON Automatically When HIGH Level of Gas is  
detected(Gas=>100ppm) ");  
  
Serial.print("\n");  
  
}  
  
else  
  
{  
  
digitalWrite(piezo,LOW);  
  
}  
  
{  
  
if (randNumber>=40)  
  
{  
  
Serial.print("Sprinkler is ON Automatically When detected the flame limit reached the  
value>=40");  
  
}
```

```
Serial.print("\n");

}

else

{ //nothing

}

}

Serial.print("\n");

Serial.print("Temperature in Degree(C)= ");

Serial.print(" ");

Serial.print(temp);

Serial.print("\n");

Serial.print("Level of Gas(ppm)= ");

Serial.print(" ");

Serial.print(gasSensor);

Serial.print("\n");

randNumber = random(80);

Serial.print("Flamesensor(cd)= ");

Serial.print(" ");

Serial.println(randNumber);

Serial.print("\n");

Serial.println();

delay(1000);

}
```

## OUTPUT:

1.Fire Alarm System

```
1 long randomNumber;
2 float temp;
3 float vout;
4 float vout1;
5 int LED = 13;
6 int gasSensor;
7 int piezo = 7;
8 void setup()
9 {
10 pinMode(A0, INPUT);
11 pinMode(A1, INPUT);
12 pinMode(LED, OUTPUT);
13 pinMode(piezo, OUTPUT);
14 Serial.begin(9600);
15 randomSeed(analogRead(0));
16 }
17 void loop()
18 {
19 vout=analogRead(A1);
20 vout1=(vout/1023)*5000;
21 temp=(vout1-500)/10;
22 gasSensor=analogRead(A0);
23 if (temp>=70)
24 {
25 digitalWrite(LED, HIGH);
26 digitalWrite(piezo, HIGH);
27 }
28 }
29
```

Serial Monitor

25°C Cloudy

0.0 Kbps 0.0 Kbps

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1.Fire Alarm System

Simulator time: 00:00:07.509

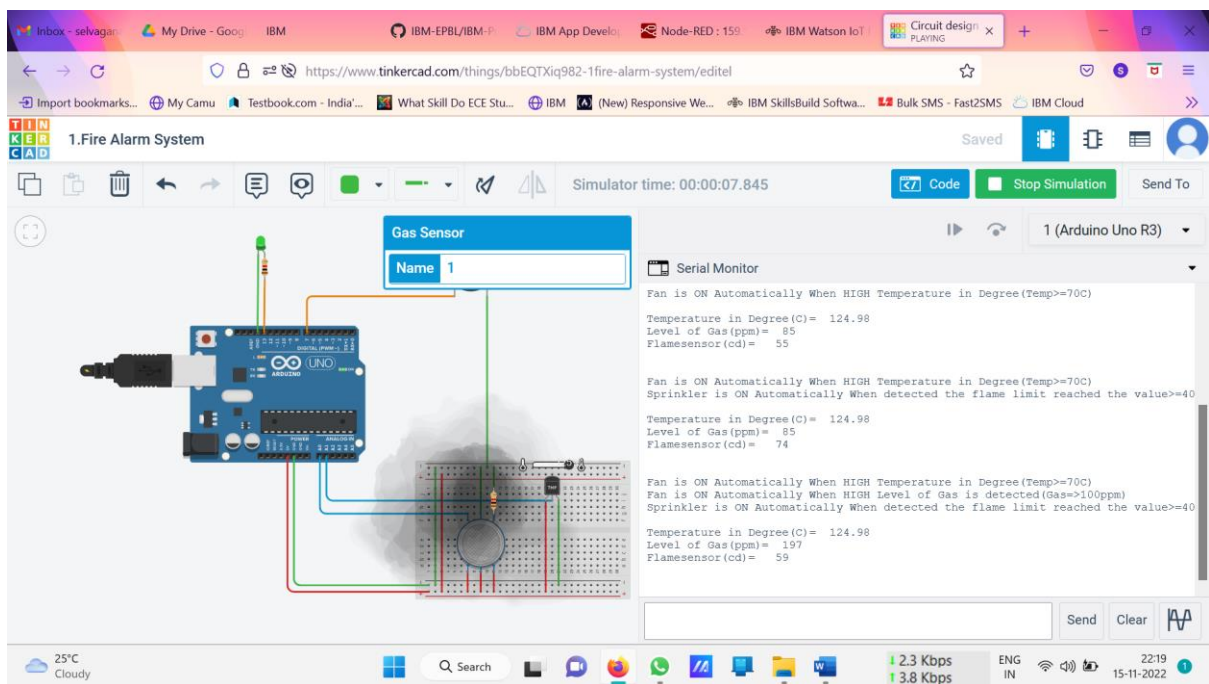
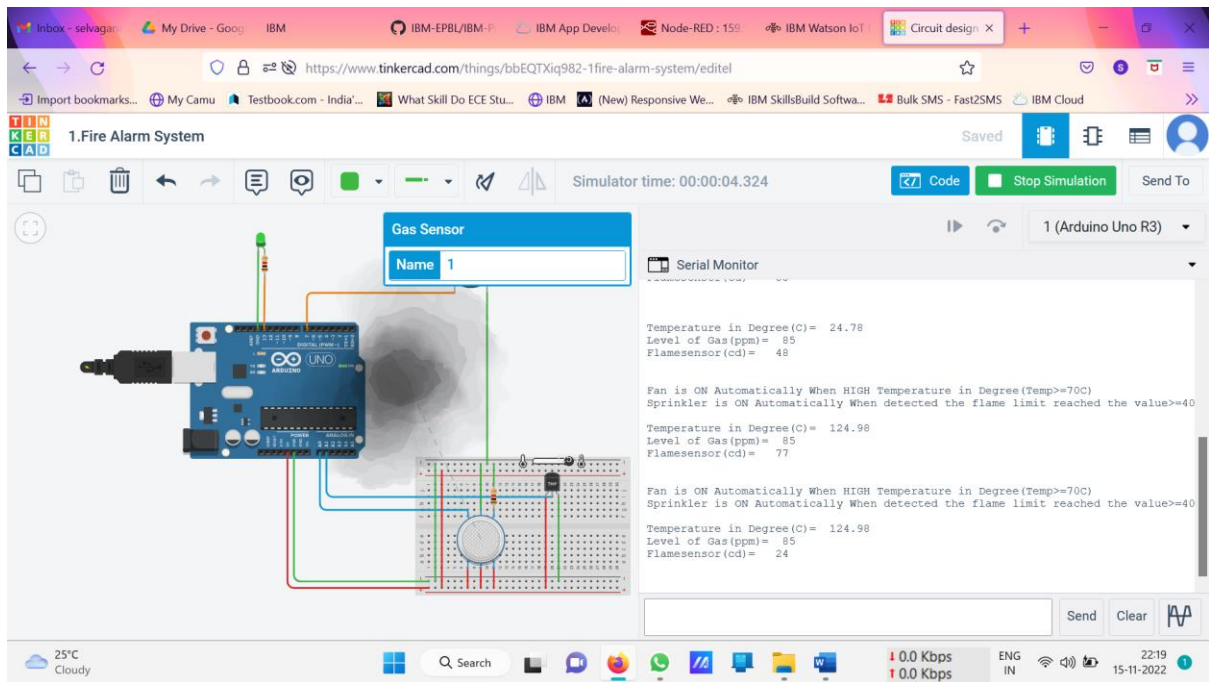
```
1 (Arduino Uno R3)
2 Flamesensor (cd) = 24
3 Temperature in Degree (C)= 24.78
4 Level of Gas(ppm)= 85
5 Flamesensor (cd)= 55
6 Sprinkler is ON Automatically When detected the flame limit reached the value>=40
7 Temperature in Degree (C)= 24.78
8 Level of Gas(ppm)= 85
9 Flamesensor (cd)= 74
10 Sprinkler is ON Automatically When detected the flame limit reached the value>=40
11 Temperature in Degree (C)= 24.78
12 Level of Gas(ppm)= 85
13 Flamesensor (cd)= 59
14 Sprinkler is ON Automatically Wh
15
```

Serial Monitor

25°C Cloudy

0.9 Kbps 1.5 Kbps

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**Link:**

<https://www.tinkercad.com/things/bbEQTxiq982>