

IBM - Nallaiya Thiran Project

Assigment 1

Industry-specific Intelligent Fire Management System

Source Code :

```
#include <Servo.h>

int output1Value = 0;

int sen1Value = 0;

int sen2Value = 0;

int const gas_sensor = A1;

int const LDR = A0;

int limit = 400;

long readUltrasonicDistance(int triggerPin, int echoPin)
{
    pinMode(triggerPin, OUTPUT);
    digitalWrite(triggerPin, LOW);
    delayMicroseconds(2);
    digitalWrite(triggerPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(triggerPin, LOW);
    pinMode(echoPin, INPUT);
    return pulseIn(echoPin, HIGH);
}

Servo servo_7;

void setup()
```

```
{  
  Serial.begin(9600);  
  pinMode(A0, INPUT);  
  pinMode(A1, INPUT);  
  pinMode(13, OUTPUT);  
  servo_7.attach(7, 500, 2500);  
  pinMode(8, OUTPUT);  
  pinMode(9, INPUT);  
  pinMode(10, OUTPUT);  
  pinMode(4, OUTPUT);  
  pinMode(3, OUTPUT);  
}  
void loop()  
{  
  int val1 = analogRead(LDR);  
  if (val1 > 500)  
  {  
    digitalWrite(13, LOW);  
    Serial.print("Bulb ON = ");  
    Serial.print(val1);  
  }  
  else  
  {  
    digitalWrite(13, HIGH);  
    Serial.print("Bulb OFF = ");  
    Serial.print(val1);  
  }  
}
```

```

    }

    sen2Value = digitalRead(9);
    if (sen2Value == 0)
    {
        digitalWrite(10, LOW);
        digitalWrite(4, HIGH);
        digitalWrite(3, LOW);
        Serial.print("    || NO Motion Detected    ");
    }
    if (sen2Value == 1)
    {
        digitalWrite(10, HIGH);
        delay(5000);
        digitalWrite(4, LOW);
        digitalWrite(3, HIGH);
        Serial.print("        || Motion Detected!    ");
    }

    int val = analogRead(gas_sensor);
    Serial.print("|| Gas Sensor Value = ");
    Serial.print(val);

    //val = map(val, 300, 750, 0, 100);

    if (val > limit)
    {
        tone(8, 650);
    }

    delay(300);

```

```
        noTone(8);

    sen1Value = 0.01723 * readUltrasonicDistance(6, 6);

    if (sen1Value < 100)
    {
        servo_7.write(90);

        Serial.print("  || Door Open! ; Distance = ");

        Serial.print(sen1Value);

        Serial.print("\n");
    }
    else
    {
        servo_7.write(0);

        Serial.print("  || Door Closed! ; Distance = ");

        Serial.print(sen1Value);

        Serial.print("\n");
    }

    delay(10);
}
```

Circuit Diagram :

