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DESIGNATION: TEAM LEAD

PROJECT TITLE: SMART SOLUTION FOR RAILWAYS

```
#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);
```

```
    // Sets the trigger pin to HIGH state for 10 microseconds
```

```
    digitalWrite(triggerPin, HIGH); delayMicroseconds(10);
```

```
    digitalWrite(triggerPin, LOW); pinMode(echoPin,  
INPUT);
```

```
    // Reads the echo pin, and returns the sound wave travel time in microseconds
```

```
    Return pulseIn(echoPin, HIGH);
```

```
}
```

```
Servo servo_7;
```

```
Void setup()
```

```

{
    Serial.begin(9600);          //initialize serial communication
    pinMode(A0, INPUT);  //LDR
    pinMode(A1, INPUT);          //gas sensor  pinMode(13,
    OUTPUT);                      //connected to relay

    servo_7.attach(7, 500, 2500); //servo motor

    pinMode(8, OUTPUT);          //signal to piezo buzzer
    pinMode(9, INPUT);           //signal to PIR
    pinMode(10, OUTPUT);         //signal to npn as switch
    pinMode(4, OUTPUT);          //Red LED
    pinMode(3, OUTPUT);          //Green LED

}

```

```

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); //npn as switch OFF    digitalWrite(4,
HIGH); // Red LED ON,indicating no motion    digitalWrite(3, LOW);
//Green LED OFF, since no Motion detected

        Serial.print("  || NO Motion Detected  ");
        }

    If (sen2Value == 1)
    {
        digitalWrite(10, HIGH); //npn as switch ON    delay(3000);
        digitalWrite(4, LOW); // RED LED OFF    digitalWrite(3,
HIGH); //GREEN LED ON , indicating motion detected

        Serial.print("  || Motion Detected!  ");
        }

    Delay(300);

    Int val = analogRead(gas_sensor);    //read sensor value

    Serial.print(" || Gas Sensor Value = ");
    Serial.print(val);    //Printing in serial monitor

    //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); // Delay a little bit to improve simulation performance
    •  }

```