

SMART SOLUTION FOR RAILWAYS

Assignment 1

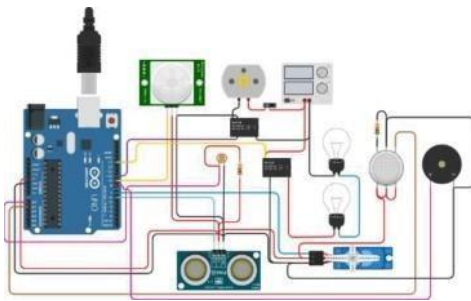
Team ID:

PNT2022TMID29870

Name: Bharath Raj M

Components:

1. Arduino unoR3
2. Led
3. Resistor
4. Pirsensor
5. Buzzer
6. Relay
7. Gassensor
8. Dcmotor
9. Microservo
10. Photoresistor SmartHome-CircuitConnection:



Code:

```
#include <Servo.h>
int output1Value =0; int
sen1Value =0; intsen2Value=0;

int const gas sensor = A1; int const LDR = AO; int limit =
400; long readUltrasonicDistance(int triggerPin, int
echoPin)

pinMode(triggerPin, OUTPUT); // Clear the trigger
digitalWrite(triggerPin, LOW);
delayMicroseconds(2);
```

```
//SetsthetriggerpintoHIGHstatefor10microseconds
digitalWrite(triggerPin,HIGH); delayMicroseconds(10);
digitalWrite(triggerPin, LOW);
pinMode(echoPin, INPUT);
//Readstheechopin,andreturnsthesoundwavetravelttimeinmicroseconds 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);//connectedtorelay
servo7.attach(7,500,2500);//servomotor
```

```
pinMode(8,OUTPUT); //signaltopiezobuzzer
pinMode(9, INPUT); //signal toPIR
pinMode(10,OUTPUT);//signaltonpnasswitch
pinMode(4, OUTPUT); //RedLED pinMode(3,
OUTPUT); //Green LED
```

```
void loop()
```

```
//-----lightintensitycontrol //
```

```
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(vall);
```

```
//----- light &fancontrol -----//
//-----
sen2Value = digitalRead(9); if
(sen2Value == 0)
```

```

    digitalWrite(10, LOW); //npn as switch OFF
    digitalWrite(4,HIGH);//RedLEDON,indicatingnomotion
    digitalWrite(3,LOW);//GreenLEDOFF,sincenoMotiondetected
    Serial.print(" IINOMotionDetected  ");

if (sen2Value == 1)

    digitalWrite(10,HIGH);//npnasswitchON
    delay(3000);
    digitalWrite(4, LOW); // RED LED OFF
    digitalWrite(3, HIGH);//GREEN LED ON , indicating motion
detected Serial.print(" I IMotionDetected!  "); delay(300);

    // -----GasSensor-----//

intval=analogRead(gassensor);      //read sensorvalue
    Serial.print(" IIGas SensorValue=");
    Serial.print(val); //Printing in serial monitor
//val=map(val,300,750,0,100); if

    (val >limit)  tone(8,  650);

    delay(300); noTone(8);

    //-----servomotor      //
sen1Value = 0.01723 * readUltrasonicDistance(6, 6);

if(sen1Value<100)

    servo7.write(90);
    Serial.print("  IIDoorOpen!;Distance="); Serial.print(sen1Value);
    Serial.print("\n");

else

    servo7.write(0);
    Serial.print("  IIDoorClosed!;Distance=");
    Serial.print(sen1Value); Serial.print("\n"); delay(10); // Delay a little
bit to improve simulation performance

```

Tinkercad Link:

<https://www.tinkercad.com/things/ef08ppHh6U4-glorious-bigery-luulia/editel>