SMART SOLUTION FOR RAILWAYS

Assignment 1

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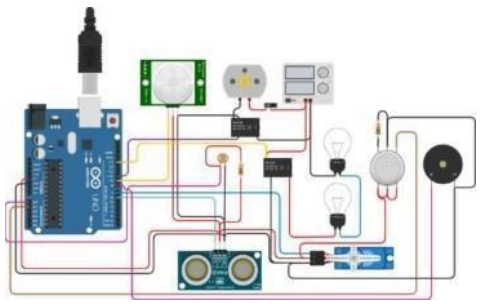
Components:

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 readUItrasonicDistance(int triggerPin, int
echoPin)

  pinMode(triggerPin, OUTPUT); // Clear the trigger
        digitaIWrite(triggerPin,          LOW);
  deIayMicroseconds(2);
```

```
//SetsthetriggerpintoHIGHstatefor10microseconds
 digitalWrite(triggerPin,HIGH); delayMicroseconds(10);
 digitalWrite(triggerPin, LOW);
 pinMode(echoPin, INPUT);
 //Readstheechopin,andreturnsthesoundwavetraveltimeinmicroseconds return
 pulseIn(echoPin,HIGH);


Servo servo 7; void setup()

 Serial.begin(9600);       //initialize       serial
 communication pinMode(AO, 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)
```

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


 if (sen2Value == 1)

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


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

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

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

 delay(300); noTone(8);


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

 if(sen1VaIue<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-luuIia/editel