Name: kausalya

Team id: PNT2022TMID53925

ASSIGNMENT 1-HOME AUTOMATION

PROGRAM:

```
#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);  // Clear the trigger
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()

{


    //------light intensity control------//

//-------------------------------------------------------------
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);
```

```
            }

//-------------------------------------------------------------
      //------ light & fan control --------//
//-------------------------------------------------------------
 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);

//-------------------------------------------------------------
     // ------- Gas Sensor --------//
//-------------------------------------------------------------
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);

//-------------------------------------------------------------
    //-------  servo motor  ---------//
//-------------------------------------------------------------
 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
}
```

OUTPUT: