

### Assignment -1

Assignment Date	19 September 2022
Student Name	M. Muthulakshmi
Student Roll Number	820419104038
Maximum Marks	2 Marks

#### Question-1:

1.Smart Home using tinkercad.

**Solution:** #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(5000);
digitalWrite(4, LOW); // RED LED OFF digitalWrite(3,
HIGH); //GREEN LED ON , indicating motion detected
Serial.print("  || Motion Detected!  ");
}
//-----
// ----- 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);
//-----

```

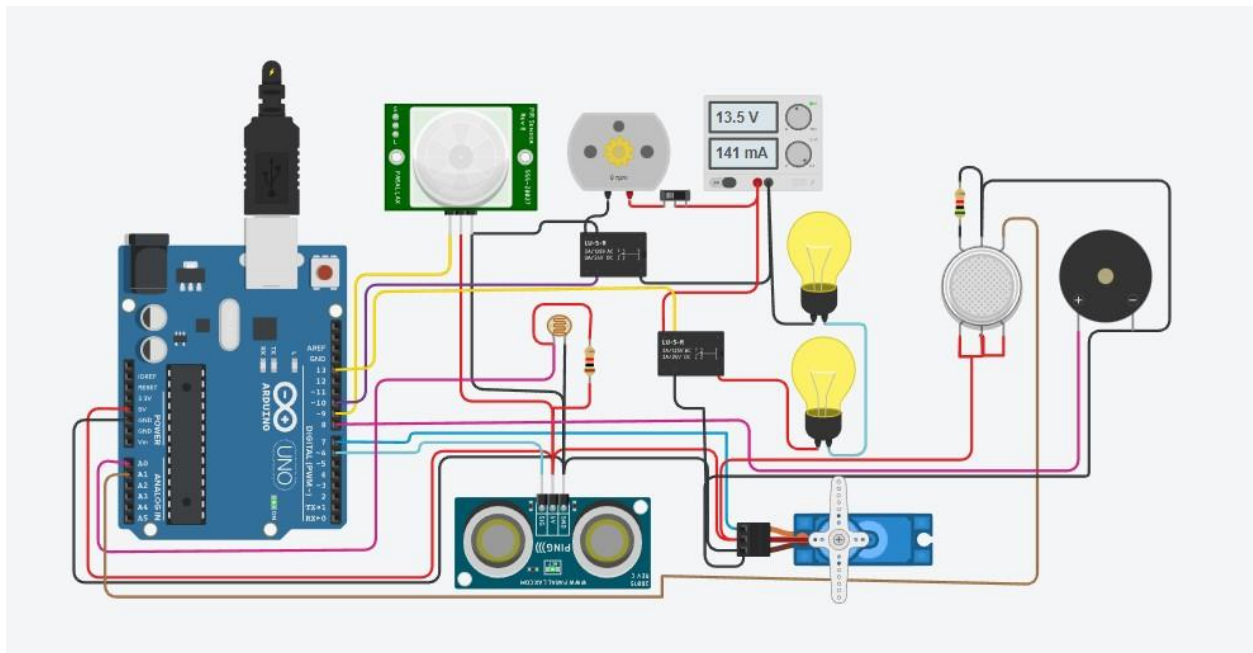
```

    //----- 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
}
O

```

Output:

[illegible]