

**Assignment -1**  
Tinkercad circuit

Assignment Date	19 September 2022
Student Name	Mr. Arun kumar.R
Student Roll Number	812419106008
Maximum Marks	2 Marks

**Question-1:**

Build a smart home in tinkercard

**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);
  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, return pulseIn(echoPin, HIGH);
}
Servo servo_7;
void setup()
{
  Serial.begin(9600); //initialize serial communication
  // Clear the trigger
  in, and returns the sound wave travel time in microseconds
  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
```

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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
}

```

