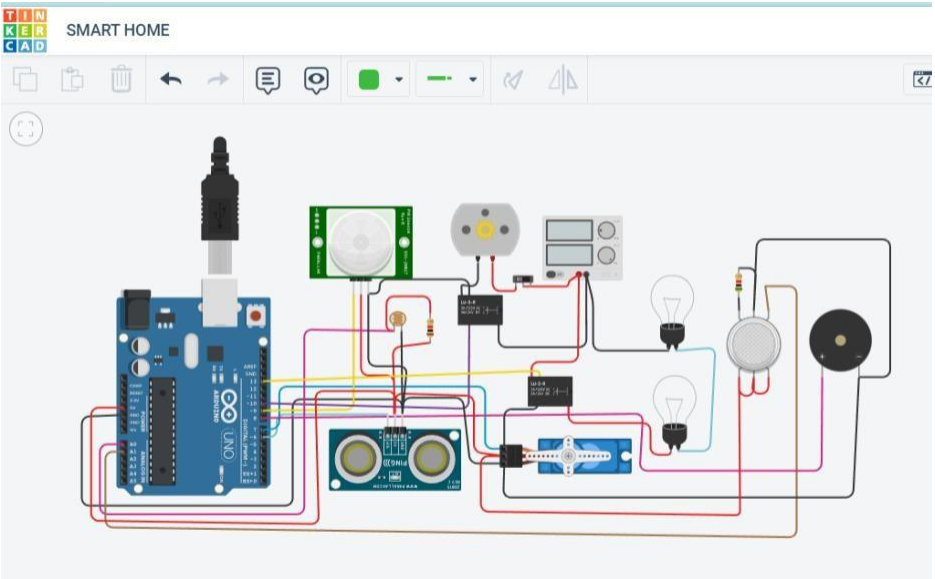
ASSIGNMENT-1

SMART HOME DESIGN IN TINKERCAD



TINKERCAD LINK:

https://www.tinkercad.com/things/ad5KcBQ4A8a

CODE:

```
#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
}
```