

# Assignment 1

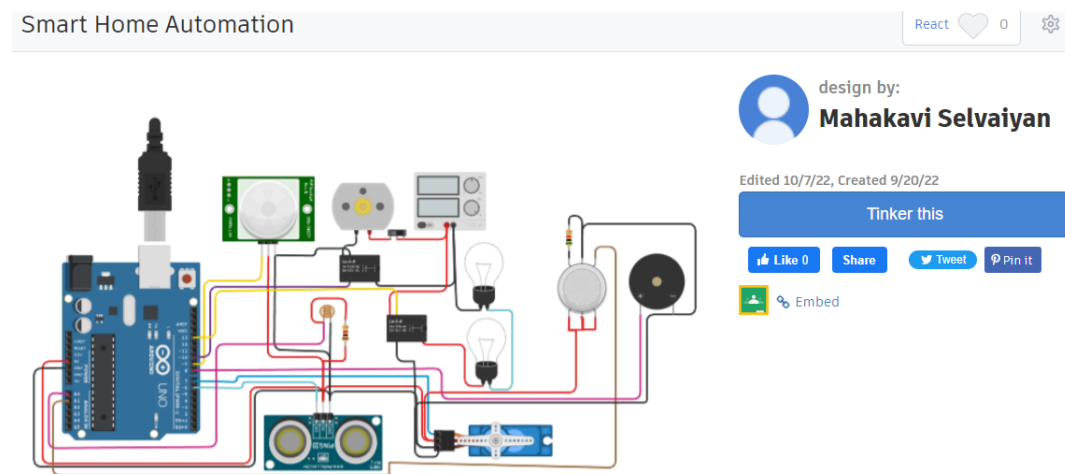
MAHAKAVI S

412719104017

**Make a home automation with tinkercad, add 2-3 sensors, LED, buzzer and make a common code and alarms should be given.**

Ticker Cad link: [ClickHere](#)

If does not works use this link : <https://www.tinkercad.com/things/h007KcqmCsD>



## 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
}
```