Assignment 1

GOPINATH S

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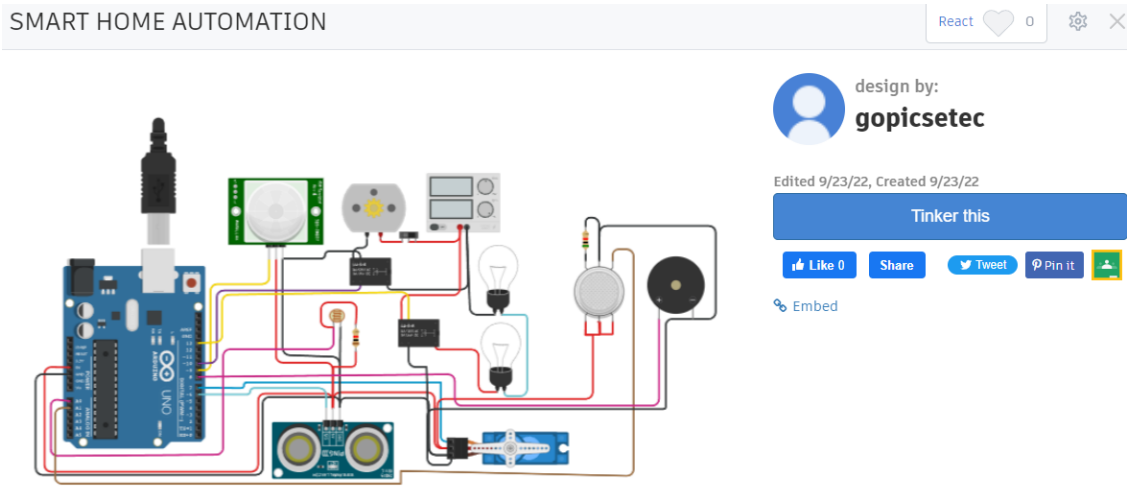
Make a home automation with tinkercad, add 2-3 sensors, LED, buzzer and make a common code and alarms should be given.

Ticker Cad link: ClickHere

If does not works use this link : https://www.tinkercad.com/things/cYjD7gxt9Gv



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
}
```