Assignment 1

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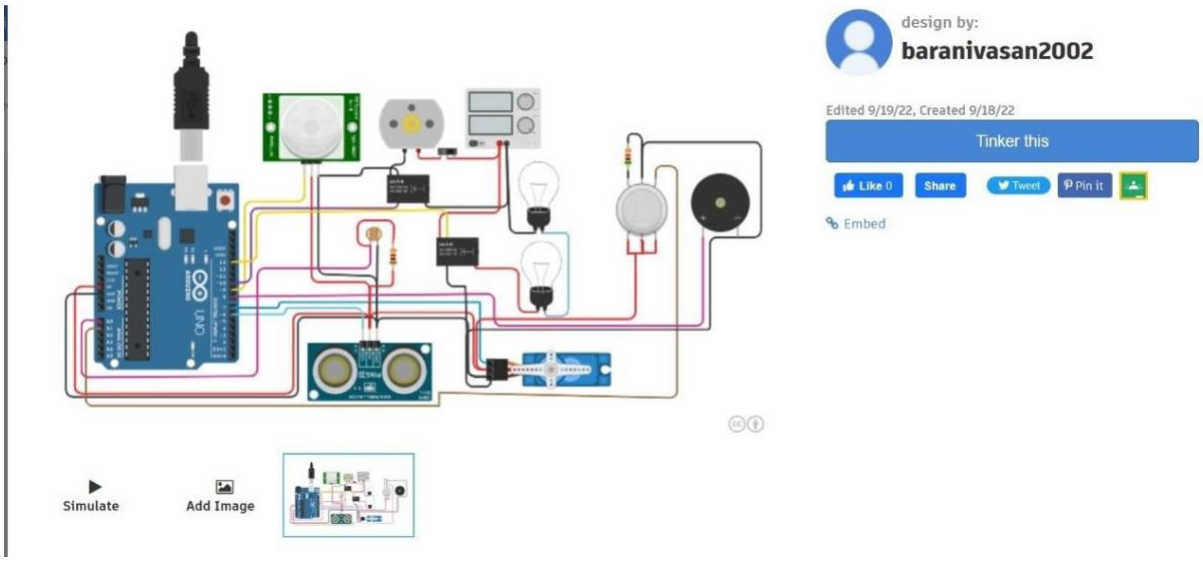
Make a home automation with tinkercad, add 2-3 sensors, LED, buzzer and make a common code and alarms should be given.

Ticker Cad link: Click Here

If does not works use this link: https://www.tinkercad.com/things/fJzz3SCkT1N



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("      || NOMotionDetected        ");
        }

  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 }