Assignment -1

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Objective:

Build a smart home in Tinkercard with 2 sensors, an Led and buzzer .

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);
  pinMode(A0, INPUT);
  pinMode(A1,INPUT);
  pinMode(13, OUTPUT);
  servo_7.attach(7, 500, 2500);

  pinMode(8,OUTPUT);
  pinMode(9, INPUT);
  pinMode(10, OUTPUT);
  pinMode(4, OUTPUT);
  pinMode(3, OUTPUT);

}

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);
   digitalWrite(4, HIGH);
   digitalWrite(3, LOW);
   Serial.print("     || NO Motion Detected    " );
   }

 if (sen2Value == 1)
   {
   digitalWrite(10, HIGH);
   delay(5000);
```

```
    digitalWrite(4, LOW);
    digitalWrite(3, HIGH);
    Serial.print("                || Motion Detected!      " );
    }


//-----------------------------------------------------------------
      // ------- Gas Sensor --------//
//-----------------------------------------------------------------
int val = analogRead(gas_sensor);
  Serial.print("|| Gas Sensor Value = ");
  Serial.print(val);
//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);
}
```