

Assignment 1

Smart Waste Management System

Build a smart home in tinkercad use atleast 2 sensors,led,buzzar in a circuit simulate in a single code.

Apparatus Required:

S.no	Components	Quantity
1	Ardino	1
2	Ultrasonic Distance Sensor	1
3	Microservo	1
4	Photo Resistor	1
5	PIR Sensor	1
6	DC Motor	1
7	Relay	2
8	Power Supply	1
9	Buzzer	1
10	Photo Sensor	1
11	Resistor	2
12	Bulb	2
13	Gas Switch	1
14	Slide Switch	1

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 = ");

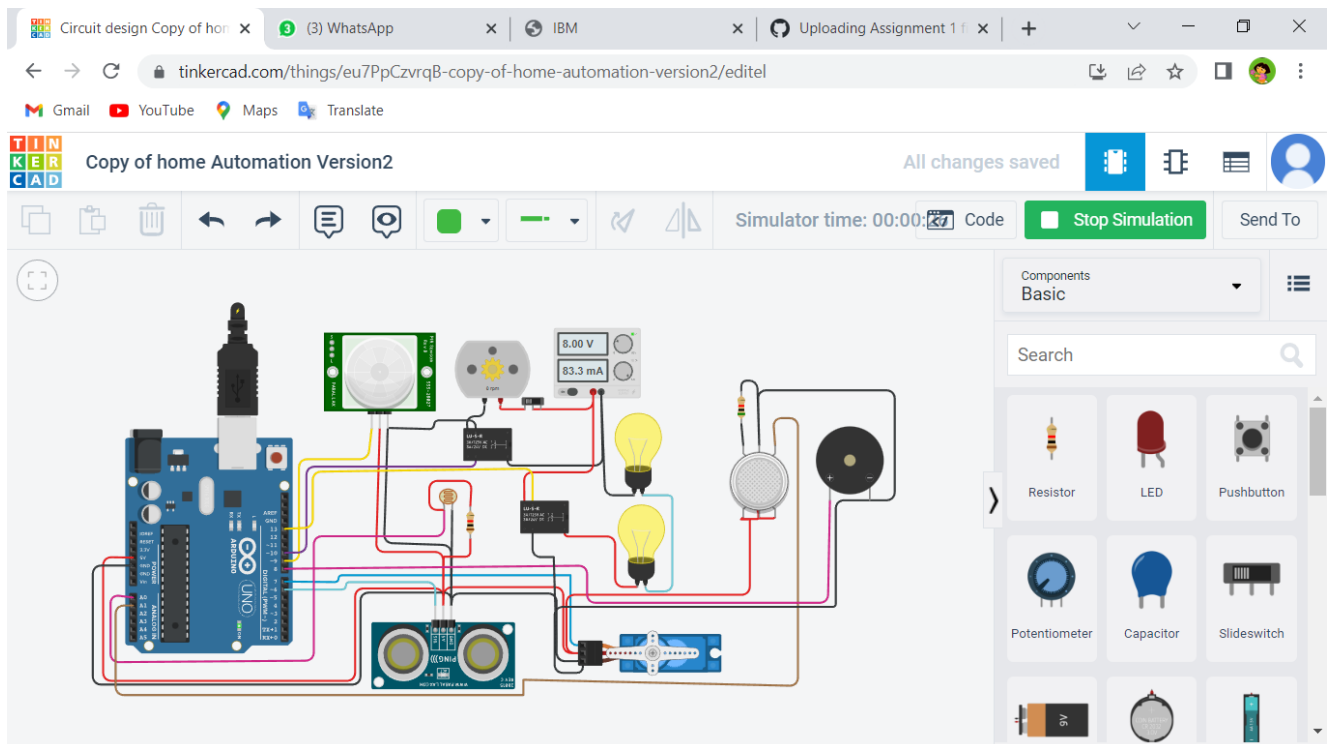
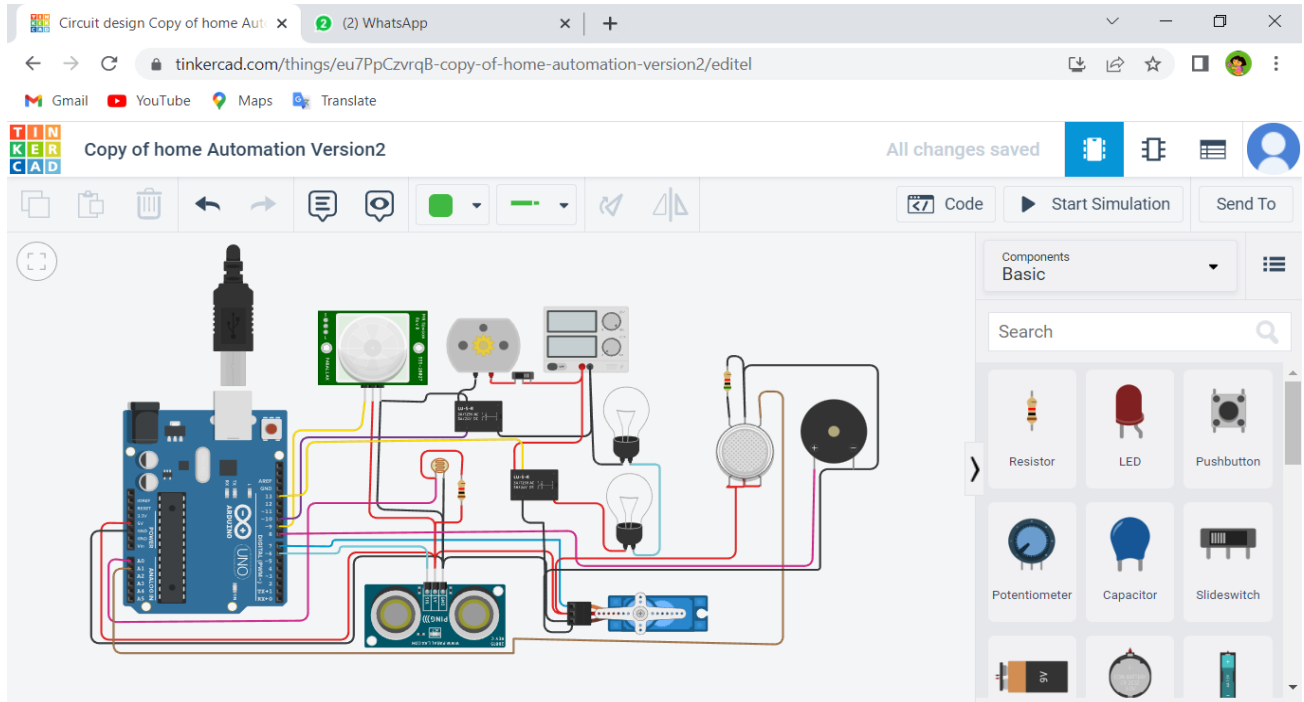
        Serial.print(sen1Value);

        Serial.print("\n");
    }

    delay(10); // Delay a little bit to improve simulation performance
}

```

Output:



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Gmail YouTube Maps Translate

TINKERCAD Copy of home Automation Version2 All changes saved

Simulator time: 00:00:27 Code Stop Simulation Send To

Gas Sensor
Name 1

Components Basic

Search

Resistor LED Pushbutton

Potentiometer Capacitor Slideswitch

Battery