

ASSIGNMENT

C PROGRAMMING

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Maximum Mark	2 Mark

Question

Make a smart Home in Tinker cad using 2+Sensor,led ,Buzzer in Single code and Circuit.

Solution:

```
#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(3000);

digitalWrite(4, LOW); // RED LED OFF

digitalWrite(3, HIGH);//GREEN LED ON , indicating motion detected Serial.print("    ||
Motion Detected!    ");

}

delay(300);

//.....

// ----- 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);

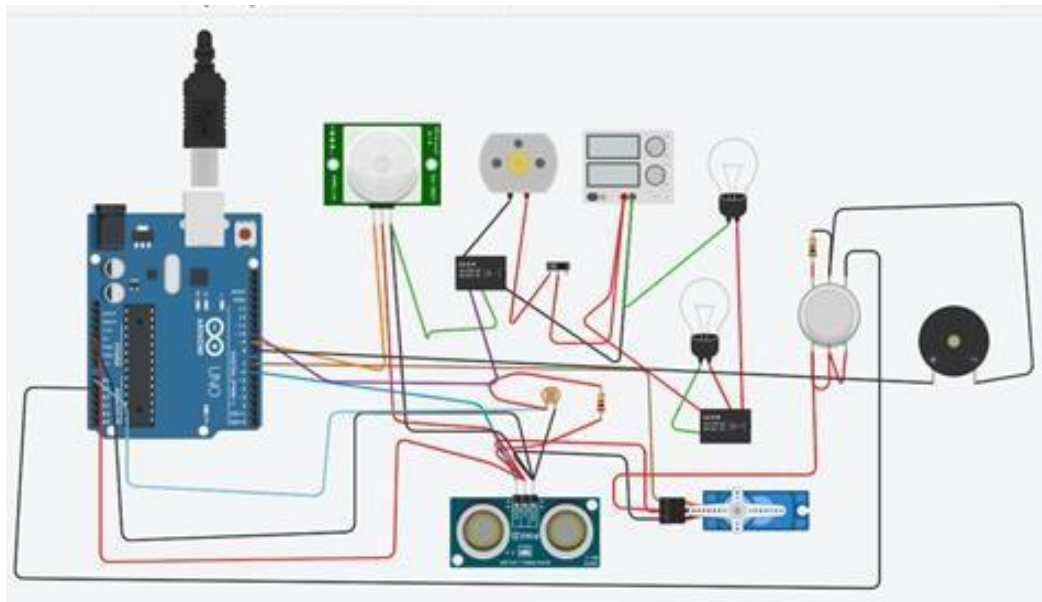
```

```

Serial.print(" || Door Closed! ; Distance = "); Serial.print(sen1Value);
Serial.print("\n");
}
delay(10); // Delay a little bit to improve simulation performance
}

```

BEFORE SIMULATION:



AFTER SIMULATION:

