ASSIGNMENT 1

CPROGRAMMING

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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,
```

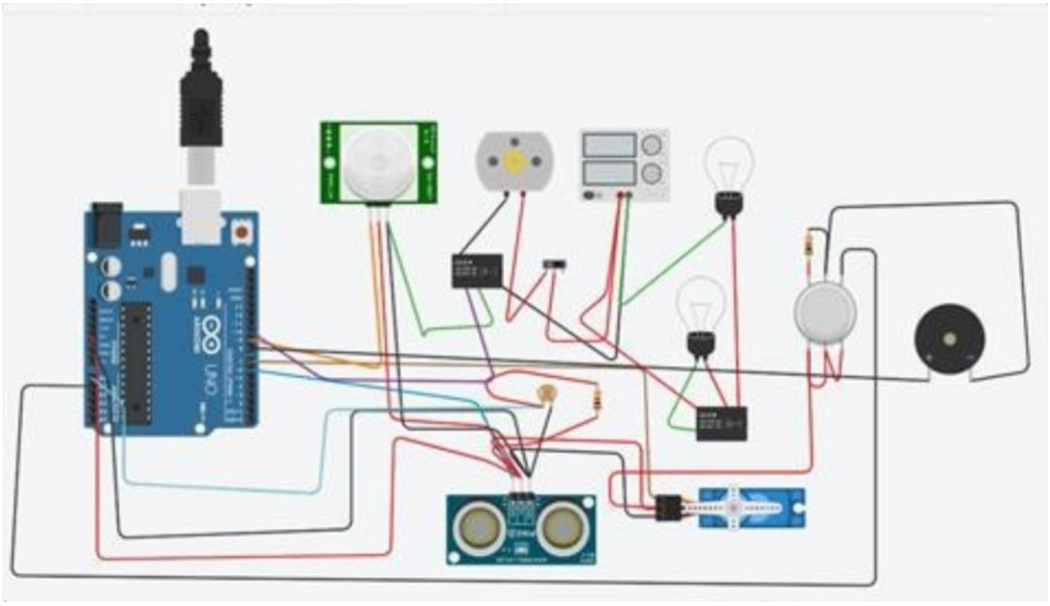
```
500, 2500); //servo motor pinMode(8,OUTPUT); //signal to piezo buzzer pinMode(9, INPUT); //signal to PIR pinMode(10, OUTPUT); //signal to npn as switch pinMode(4, OUTPUT); //Red LED pinMode(3, OUTPUT); //Green LED
}         void
loop()
{
// ---- light intensity control //
//
  ------------------------------------------------------------------------
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.w
rite(0
);
Serial.print(" ||
Door Closed! ;
Distance = ");
Serial.print(sen1
Value);

Serial.print("\n");
} delay(10); // Delay a little bit to improve simulation
performance }
```

BEFORESIMULATION:



AFTER SIMULATION: