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:

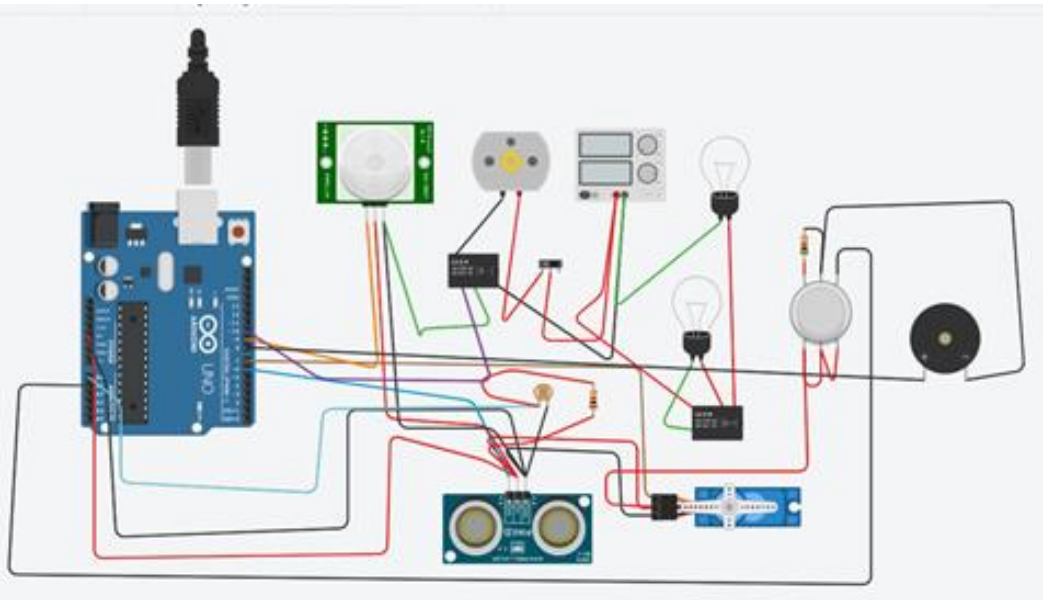
```
#include <Servo.h>

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: