ASSIGNMENT

HOME AUTOMATION 1:

CODE:

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
int distanceThreshold = 0;
int cm = 0;
int inches = 0;
int releNO = 13;
int inputPir = 8;
int val = 0;
int resuldoSensorLDR;
int sensorLDR = A0;
int const PINO_SGAS = A1;
long readUltrasonicDistance(int triggerPin, int echoPin)
{
  pinMode(triggerPin, OUTPUT);
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  return pulseIn(echoPin, HIGH);
}
void setup() {
  lcd.begin(16, 2)
  pinMode(releNO, OUTPUT);
  pinMode(inputPir, INPUT);
  pinMode(sensorLDR, INPUT);
  Serial.begin(9600);
```

```cpp
}
void loop() {
 distanceThreshold = 350;
 cm = 0.01723 * readUltrasonicDistance(7, 6);
 inches = (cm / 2.54);
 lcd.setCursor(0,0);
 lcd.print("D:");
 lcd.print(cm);
 lcd.print("cm");
 delay(10);
 val = digitalRead(inputPir);
 resuldoSensorLDR = analogRead(sensorLDR);
 if(resuldoSensorLDR<600)
 {
  if(val == HIGH)
  {
    digitalWrite(releNO, HIGH);
    lcd.setCursor(0,1);
 lcd.print("L: On ");
    delay(5000);
 }
   else{
    digitalWrite(releNO, LOW);lcd.setCursor(0,1);
 lcd.print("L: Off");
    delay(300);
 }
}
 else{ digitalWrite (releNO, LOW);
 Serial.println(resuldoSensorLDR);
 delay(500);
 }


 int color = analogRead(PINO_SGAS);
```
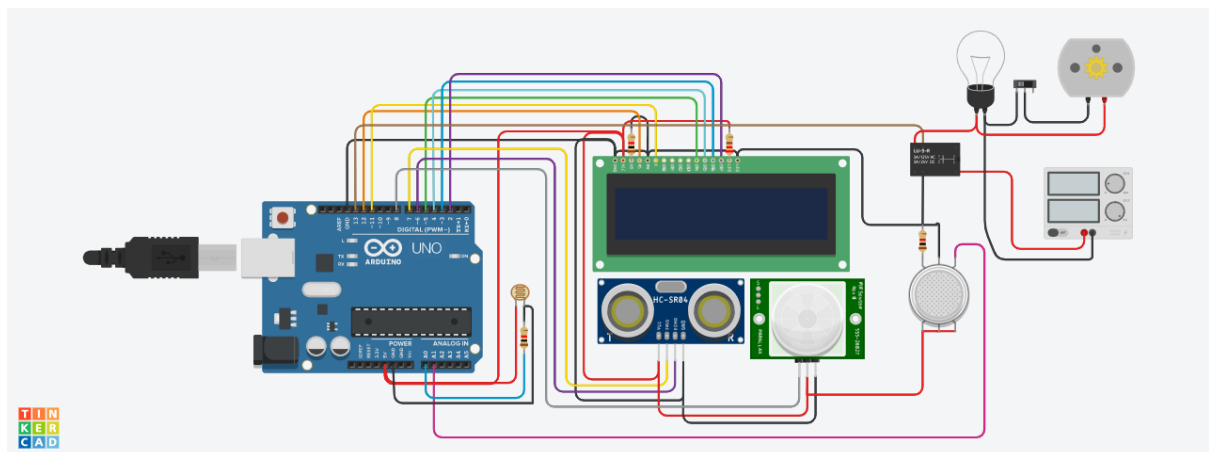
```
    lcd.setCursor(8,0);
    //lcd.print("");
    if(color <= 85){
      lcd.print("G:Low ");
    } else if(color <= 120){
      lcd.print("G:Med ");
    } else if(color <= 200){
      lcd.print("G:High");
    } else if(color <= 300){
      lcd.print("G:Ext ");
    {
    delay(250);
}
```

DESIGN:

HOME AUTOMATION 2:

CODE:

```
#include <Servo.h>
int output1Value = 0;
int sen1Value = 0;
int sen2Value = 0;
int const gas_sensor = A1;
int const LDR = A0;
```

```arduino
int limit = 400;
long readUltrasonicDistance(int triggerPin, int echoPin)
{
  pinMode(triggerPin, OUTPUT);
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  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()
{
  int val1 = analogRead(LDR);
  if (val1 > 500)
        {
        digitalWrite(13, LOW);
```

```arduino
    Serial.print("Bulb ON = ");
    Serial.print(val1);
        }
   else
        {
        digitalWrite(13, HIGH);
    Serial.print("Bulb OFF = ");
    Serial.print(val1);
        }
   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!      " );
        }
 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);
    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

}
```

DESIGN: