

```

// include the library code:
#include <LiquidCrystal.h>

// initialize the library with the numbers of the interface pins
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

//For ultrasound sensor
int distanceThreshold = 0;
int cm = 0;
int inches = 0;

//for Relay Control
int releNO = 13;
int inputPir = 8;
int val = 0;
int resuldoSensorLDR;
int sensorLDR = A0;

//For Gas sensor
int const PINO_SGAS = A1;

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);
}

void setup() {
    // set up the LCD's number of columns and rows:
    lcd.begin(16, 2);

    pinMode(releNO, OUTPUT);
    pinMode(inputPir, INPUT);
    pinMode(sensorLDR, INPUT);
    Serial.begin(9600);
}

void loop() {
    // set threshold distance to activate LEDs
    distanceThreshold = 350;

    // measure the ping time in cm
    cm = 0.01723 * readUltrasonicDistance(7, 6);
    // convert to inches by dividing by 2.54
    inches = (cm / 2.54);

    lcd.setCursor(0,0); // Sets the location at which subsequent text written to the LCD will be
    displayed
    lcd.print("D:"); // Prints string "Distance" on the LCD
    lcd.print(cm); // Prints the distance value from the sensor
    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);

```

```

}

```

