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**Code for Smart Home**

```
// 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);
}
```