SMART HOME AUTOMATIONS USING SENSORS

```
//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;
```

```arduino
//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 i
  return pulseIn(echoPin, HIGH);
}

void setup() {
  // set up the LCD's number of columns and rows:
```

```arduino
  lcd.begin(16, 2);

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

void loop() {
  // set thershold 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
  lcd.print("D:"); // Prints string "Distance" on the LCD
  lcd.print(cm); // Prints the distance value from the sensor
  lcd.print("cm");
```

```arduino
  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(500);
}
  else{
    digitalWrite(releNO, LOW);lcd.setCursor(0,1);
  lcd.print("L: off");
    delay(300);
  }
}
  else{ digitalWrite (releNO, LOW);
```

```arduino
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);
```

}