Assignment - 1

Write a python code for smart home application

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// 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
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 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);
}
```

OUTPUT