

# KSR College Of Engineering , Tiruchengode

Department of Information Technology

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IOT ASSIGNMENT – 01

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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);
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// 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);
}

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    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){

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    lcd.print("G:High");
} else if(color <= 300){
    lcd.print("G:Ext ");
}
delay(250);
}

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