

NAME: YUVAN SHANKAR N S
REGISTER NUMBER: 714019106136
ASSIGNMENT-1

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);
```

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    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);

```

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    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);
}

```