

ASSIGNMENT NO:1
IBM(NALAIYA THIRAN)
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TOPIC: SMART HOME

CIRCUIT:

CODE:

```
// 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 and Buzzer
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)
{
tone(releNO,10);
digitalWrite(releNO, HIGH);
lcd.setCursor(0,1);
lcd.print("L: On ");
delay(5000);
}
else{
digitalWrite(releNO, LOW);lcd.setCursor(0,1);
noTone(releNO);
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);  
}
```