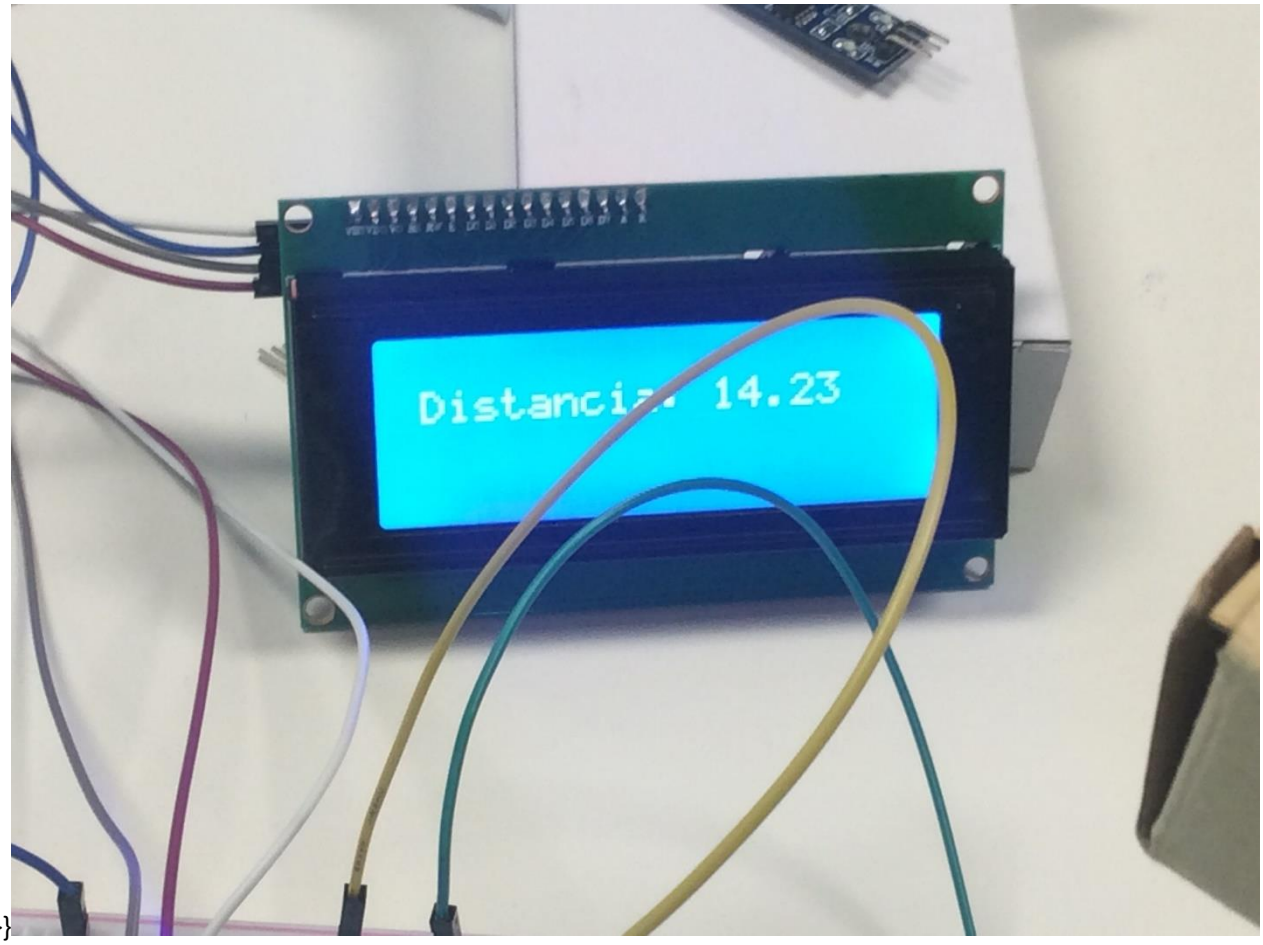
SENSORES – ACTIVIDAD 1

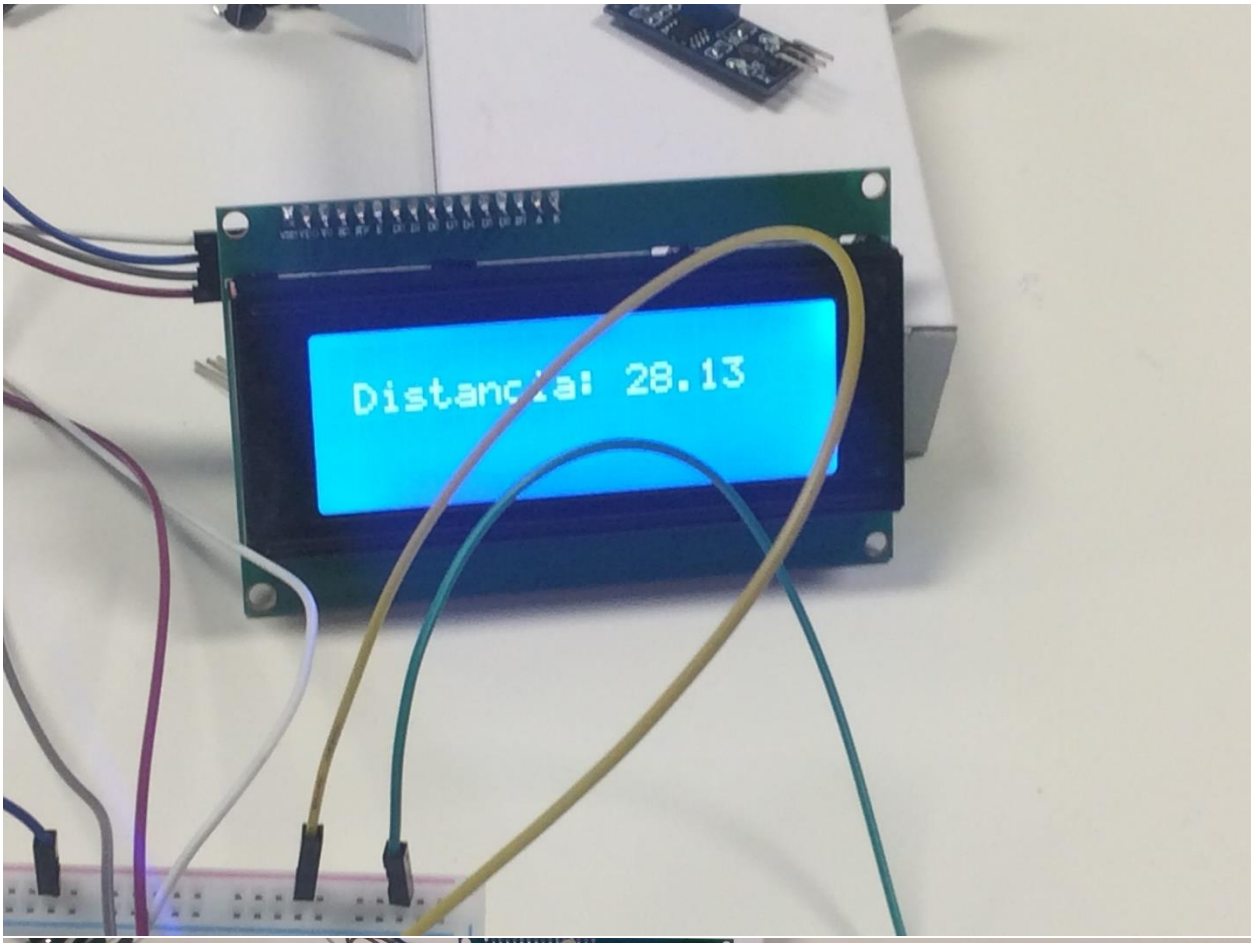
César Augusto García Pérez – A01153737

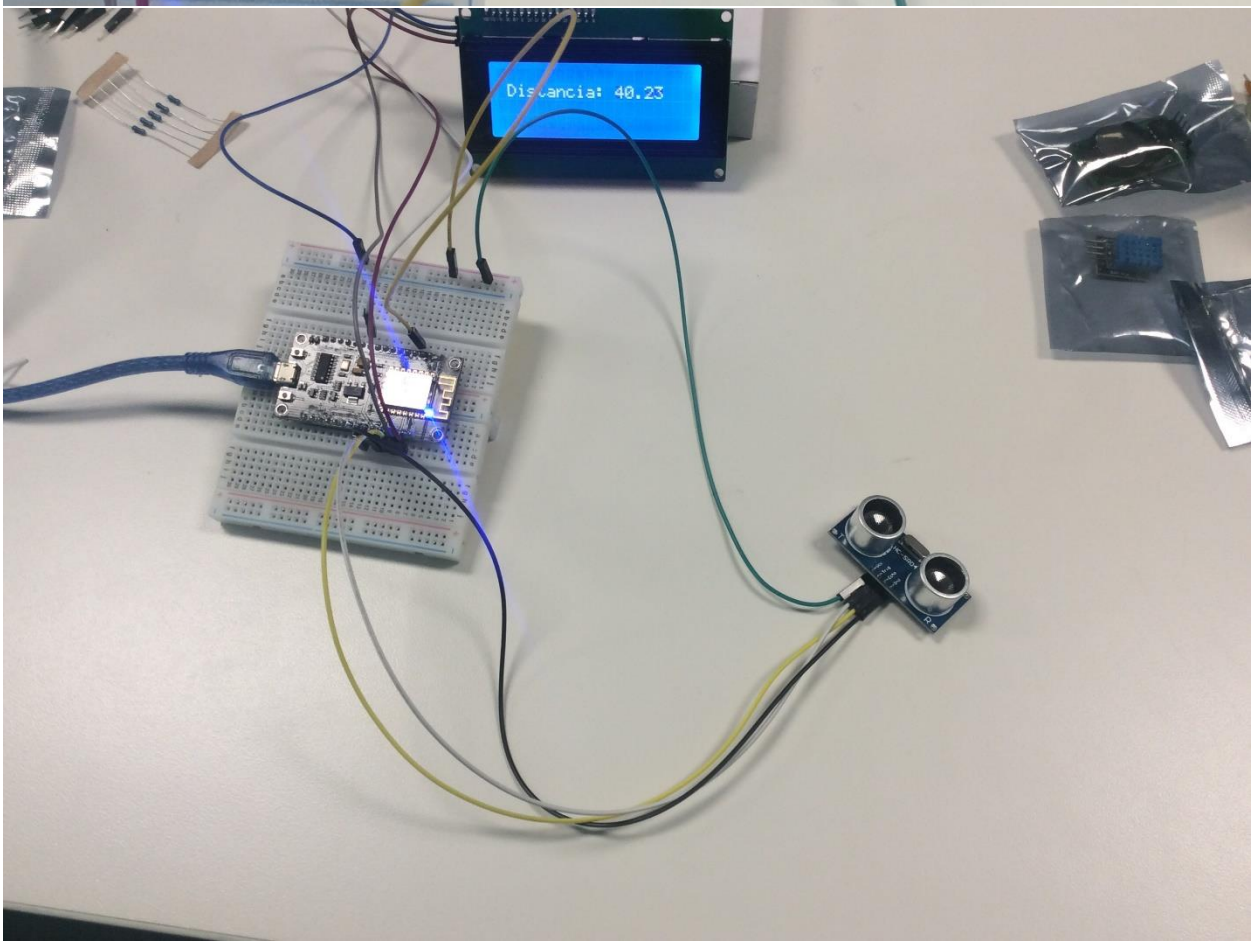
Jean Carlo Alvarez - A01635182

Sensor de distancia

```
#include <LiquidCrystal_I2C.h>
#include <Wire.h>
LiquidCrystal_I2C lcd(0x3F,20,4);
int disparador = 2;
int entrada=0;
void setup() {
  // put your setup code here, to run once:
Serial.begin(9600);
Wire.begin(D2,D1);
lcd.begin();
lcd.backlight();
lcd.clear();
lcd.home();
pinMode(disparador, OUTPUT);
pinMode(entrada, INPUT);
}
void loop() {
  lcd.clear();
  long tiempo;
  float distancia;
  digitalWrite(disparador, HIGH);
  delayMicroseconds(10);
  digitalWrite(disparador, LOW);
  tiempo = (pulseIn(entrada,HIGH)/2);
  distancia = float(tiempo*0.0343);
  lcd.setCursor(1,1);
  lcd.print("Distancia: ");
  lcd.print(distancia);
  delay(500);
}
```

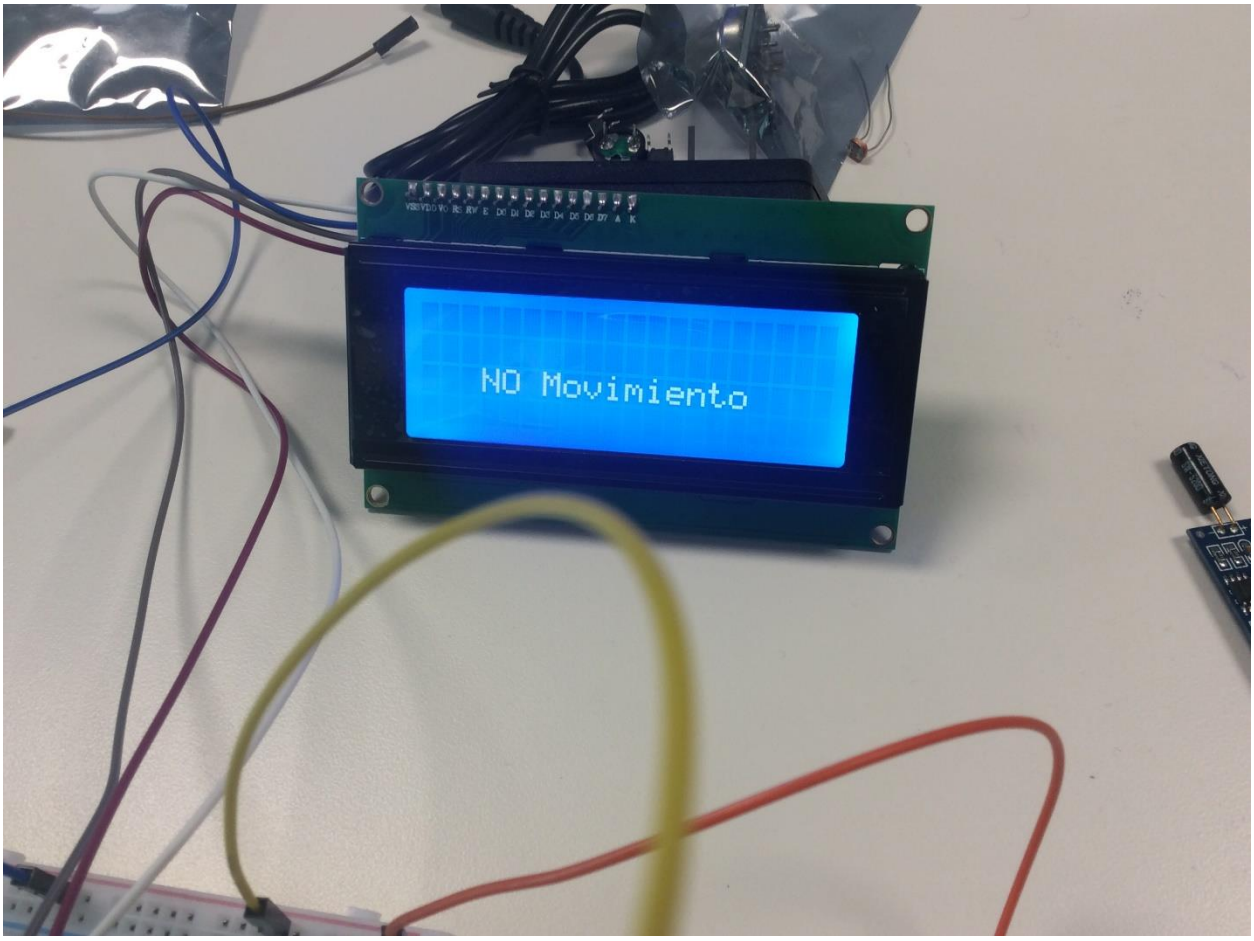

Distancia: 14.23
}}

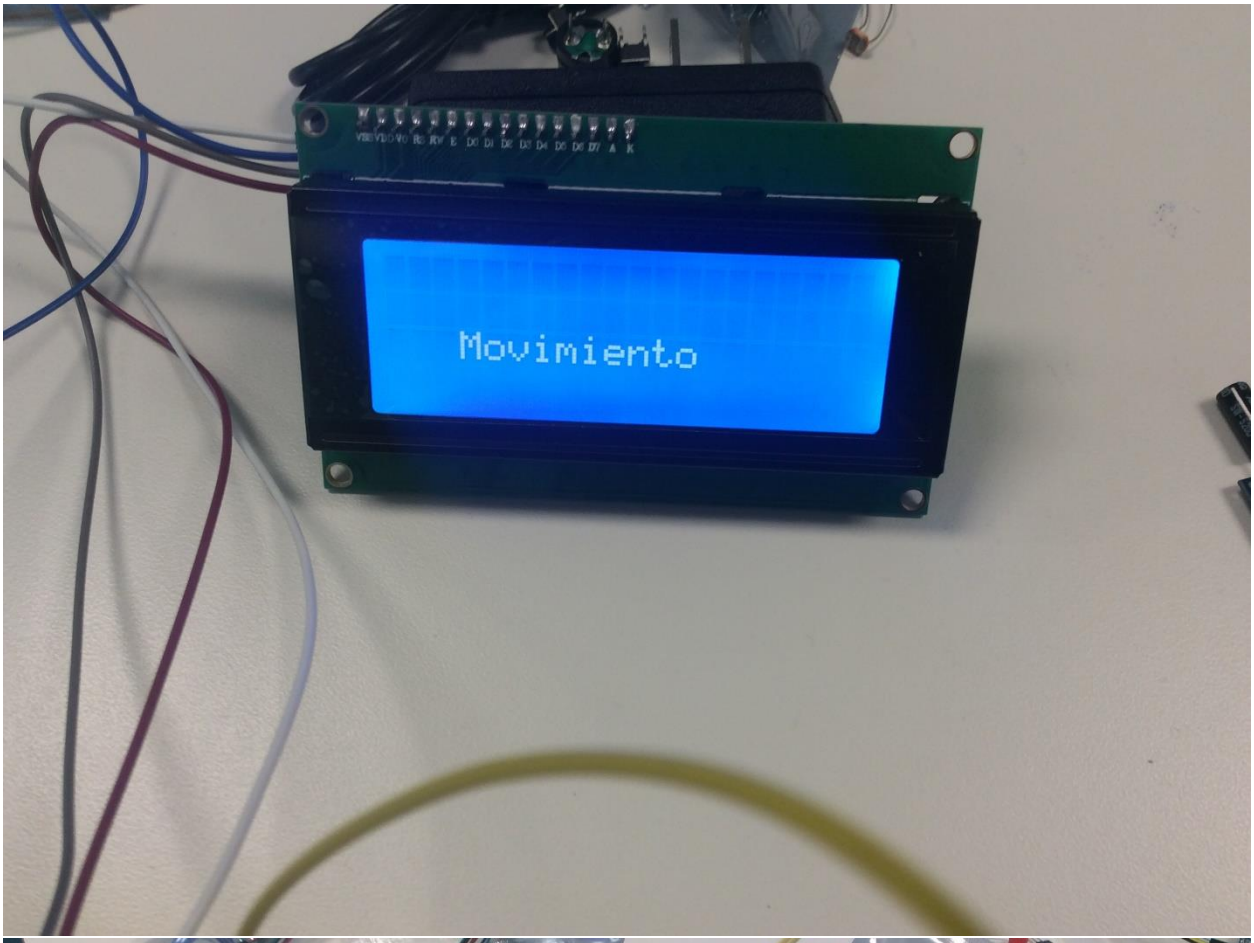

Distancia: 28.13

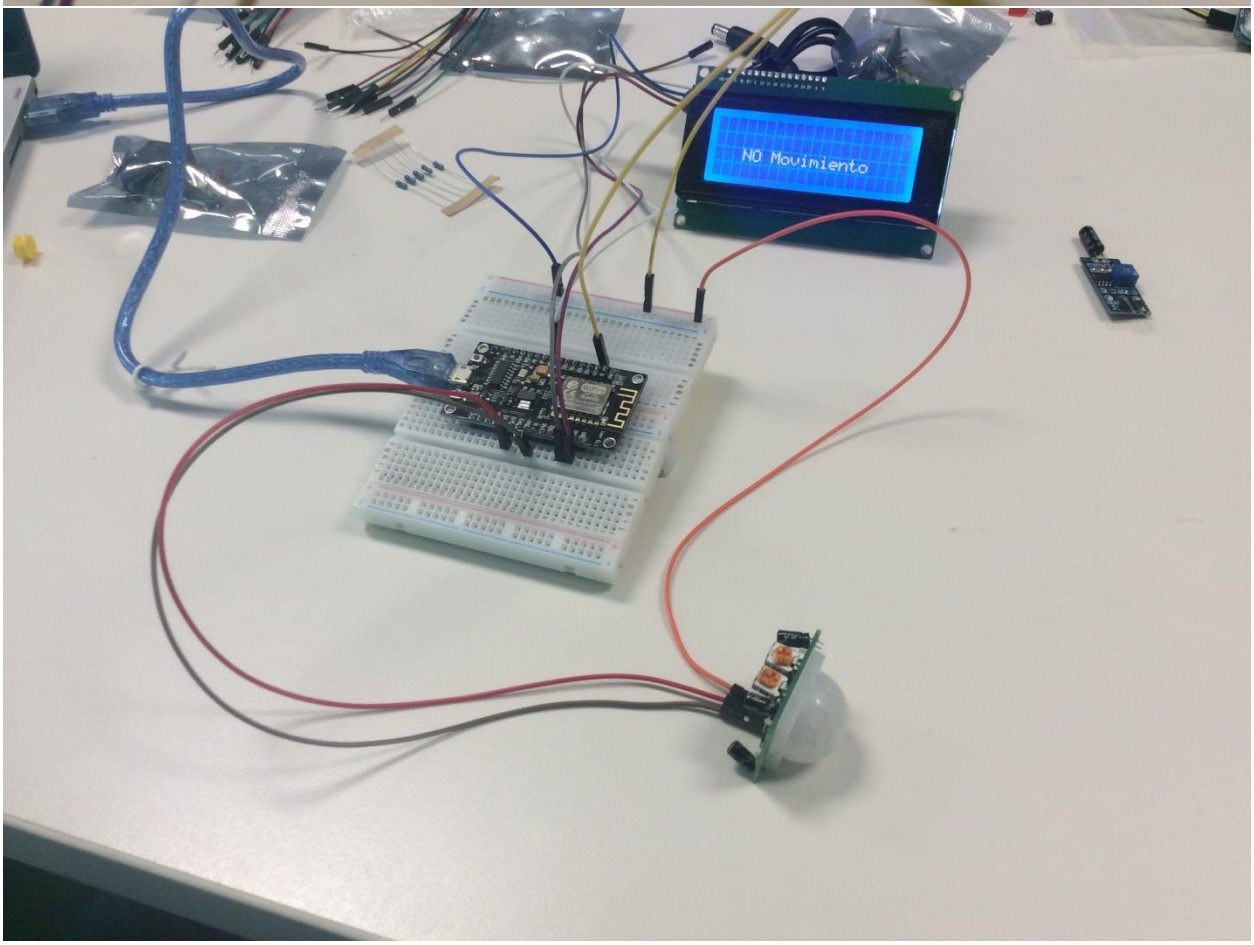

Distancia: 40.23

Sensor de movimiento

```
#include <LiquidCrystal_I2C.h>
#include <Wire.h>
LiquidCrystal_I2C lcd(0x3F,20,4);
int led = 12;
int sensor = 13;
void setup() {
	Serial.begin(9600);
	Wire.begin(D2,D1);
	lcd.begin();
	lcd.backlight();
	lcd.clear();
	lcd.home();
	pinMode(sensor, INPUT);
	pinMode(led, OUTPUT);
}
void loop() {
	lcd.clear();
	lcd.setCursor(3,2);
	long state = digitalRead(sensor);
	delay(100);
	if (state == HIGH){
		digitalWrite(led, HIGH);
		lcd.print("Movimiento");
	} else {
		digitalWrite(led, LOW);
		lcd.print("NO Movimiento");
	}
	delay(500);
}
```

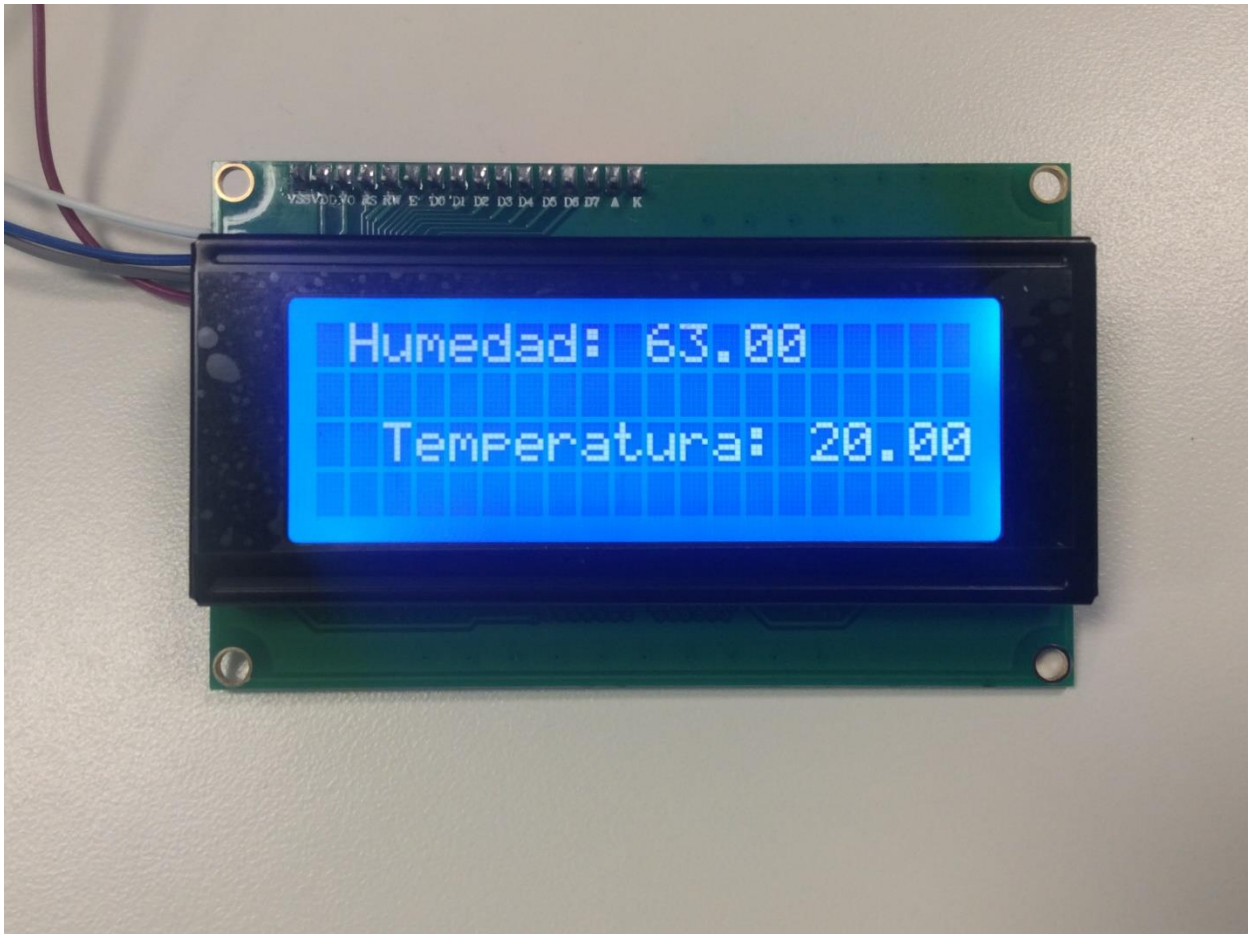

NO Movimiento


Movimiento


NO Movimiento

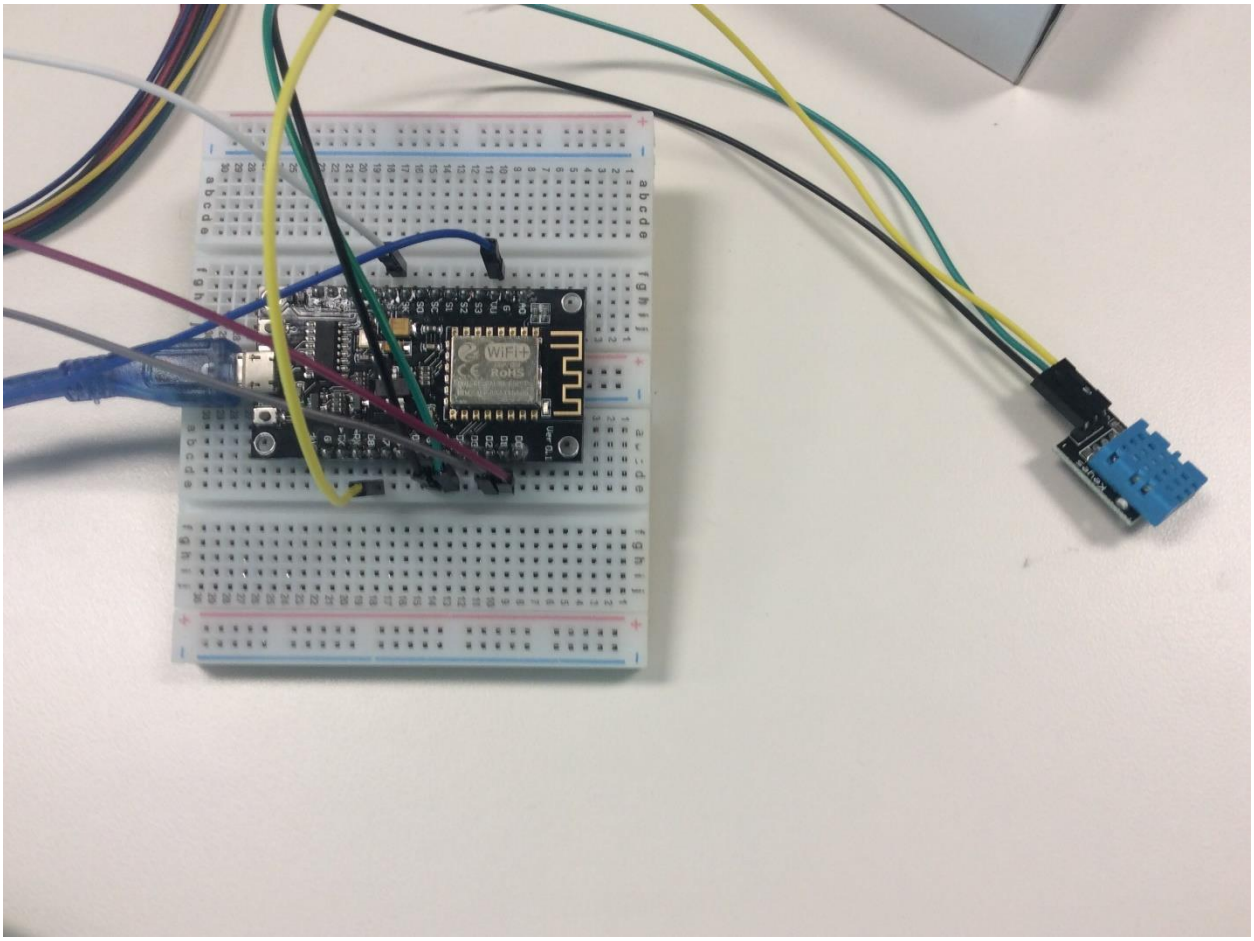
Sensor de temperatura/humedad

```
#include "DHT_U.h"
#include "DHT.h"
#define dht_dpin 15
#define DHTTYPE DHT11
#include <LiquidCrystal_I2C.h>
#include <Wire.h>
LiquidCrystal_I2C lcd(0x3F,20,4);
DHT dht(dht_dpin, DHTTYPE);
void setup() {
dht.begin();
Serial.begin(9600);
Wire.begin(D2,D1);
lcd.begin();
lcd.backlight();
lcd.clear();
lcd.home();
}
void loop() {
  // put your main code here, to run repeatedly:
  lcd.clear();
  float h= dht.readHumidity();
  float t= dht.readTemperature();
  lcd.setCursor(1,0);
  lcd.print("Humedad: ");
  lcd.print(h);
  lcd.setCursor(1,2);
  lcd.print("Temperatura: ");
  lcd.print(t);
  delay(1000);
}
```


Humedad: 63.00
Temperatura: 20.00


Humedad: 67.00
Temperatura: 21.00

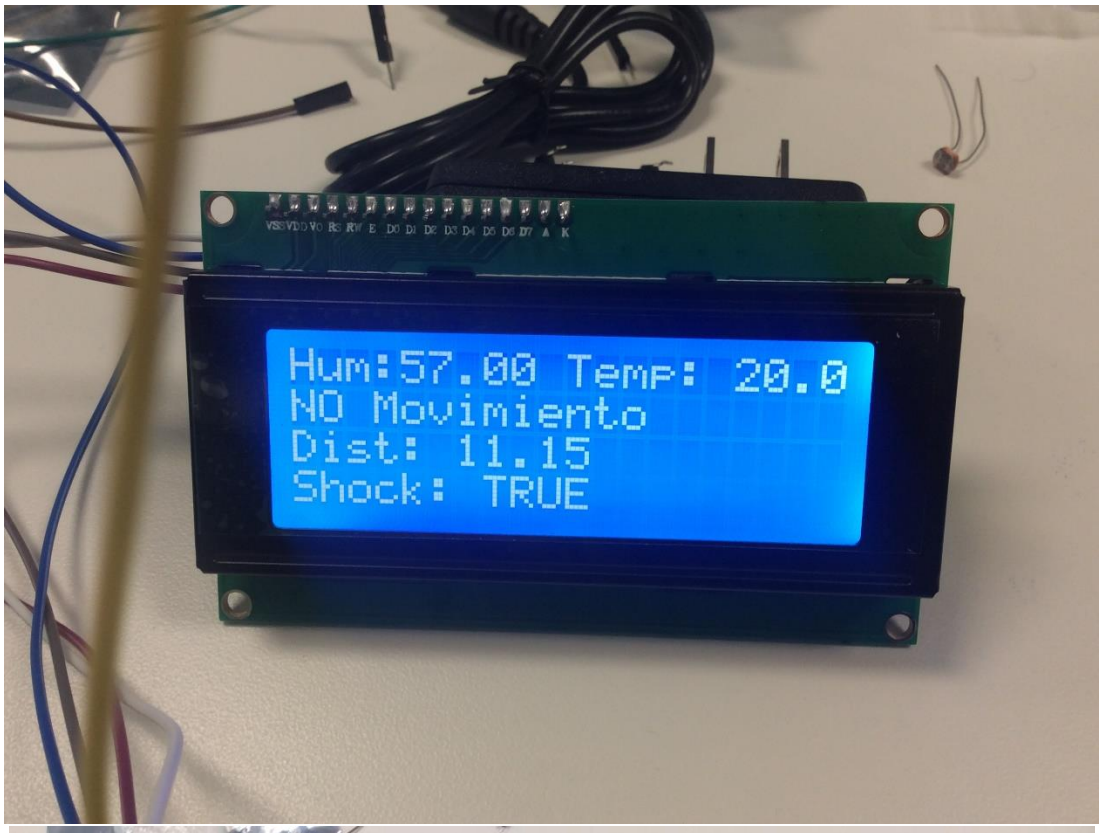
/



Sensor de vibración

*No tenemos fotos del puro sensor de vibración pero tenemos una de todos funcionando donde aparece el sensor de vibración al final de la pantalla.

```
#include <LiquidCrystal_I2C.h>

#include <Wire.h>

int sensor=14;

LiquidCrystal_I2C lcd(0x3F,20,4);

void setup() {

  // put your setup code here, to run once:

Serial.begin(9600);

pinMode(sensor,INPUT);

lcd.begin();

lcd.backlight();

lcd.clear();

lcd.home();

}

void loop() {

  // put your main code here, to run repeatedly:

  lcd.clear();

  int shock=(digitalRead(sensor));

  if(shock==1){

    lcd.setCursor(0,1);

    lcd.print("SHOCK: TRUE");

  }

  else{

    lcd.setCursor(0,1);

    lcd.print("SHOCK: FALSE");

  }
```


Hum:57.00 Temp: 20.0
NO Movimiento
Dist: 11.15
Shock: TRUE