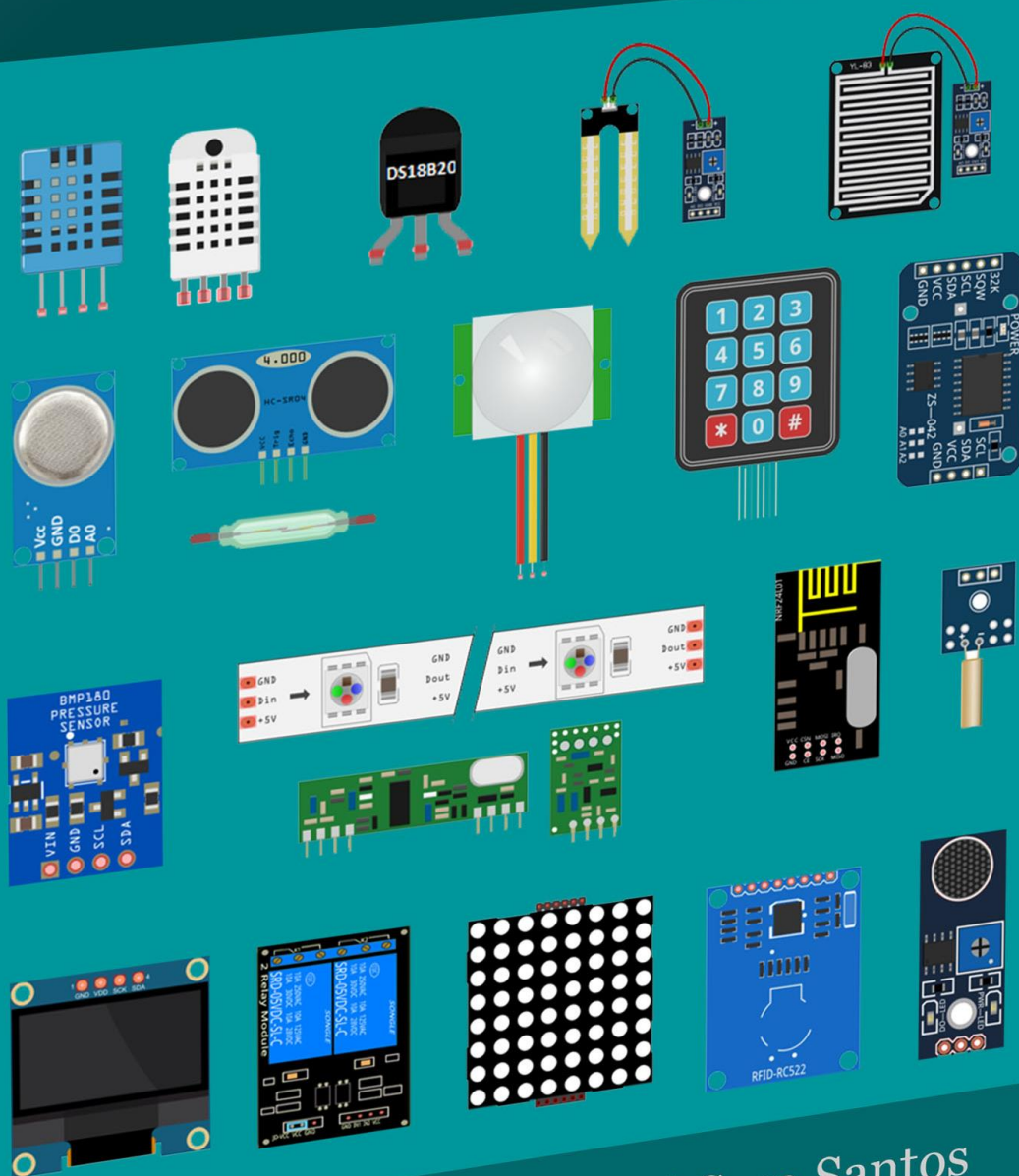


ULTIMATE GUIDE FOR ARDUINO SENSORS/MODULES



Written By Rui Santos and Sara Santos

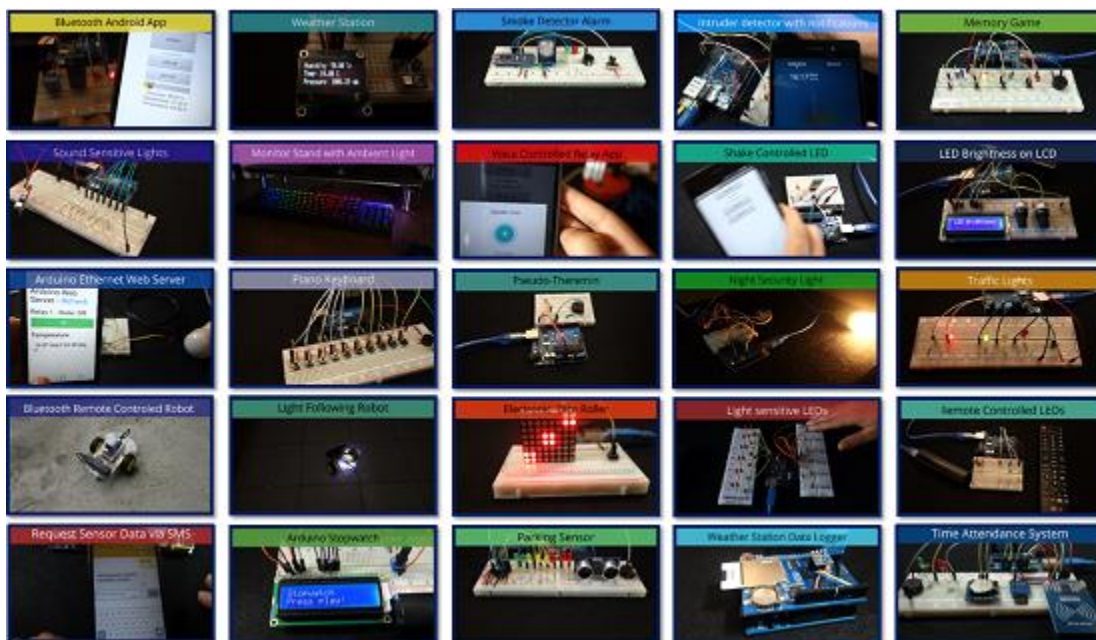
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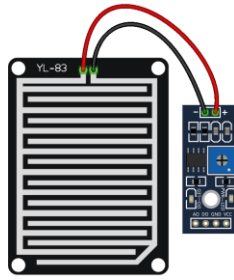
Hi there! Thank you for reading the “Ultimate Guide for Arduino Sensors and Modules”.



“I’m Rui Santos, I have a master’s degree in Electrical and Computer Engineering. I have more than four years of experience teaching electronics and programming with the [Random Nerd Tutorials](#) blog. I’m also founder of [RNTLab.com](#) and author of [BeagleBone For Dummies](#) and [20 Easy Raspberry Pi Projects](#) book. My projects and tutorials are related with Arduino, Home Automation, ESP8266, ESP32, and Raspberry Pi.”

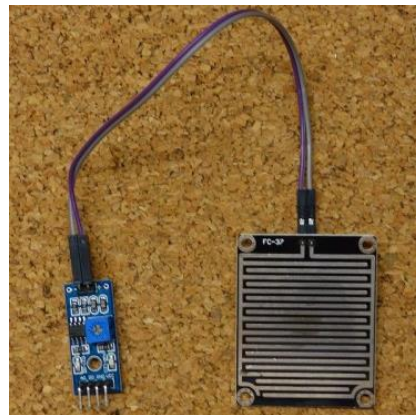


“I’m Sara Santos, I have a master’s degree in Bioengineering and I’ve been working with Rui at Random Nerd Tutorials since 2015 as a content editor. I’m the co-author of the [20 Easy Raspberry Pi Projects](#) book and I also write and build courses with Rui.”

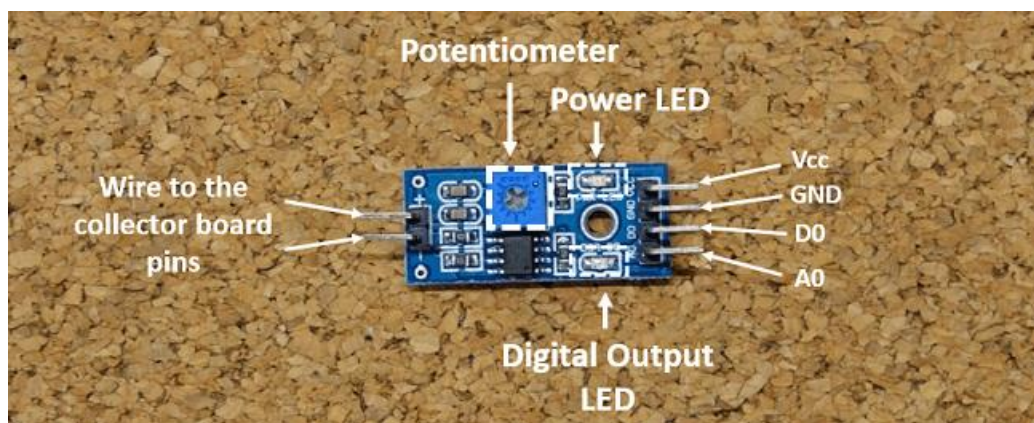


FC-37 or YL-83 Rain Sensor

The rain sensor is used to detect water and it can detect beyond what a humidity sensor can. The FC-37 rain sensor (or other versions like YL-83) is set up by two pieces: the electronic board (at the left) and the collector board (at the right) that collects the water drops, as you can see in the following figure:



The rain sensor has a built-in potentiometer for sensitivity adjustment of the digital output (D0). It also has a power LED that lights up when the sensor is turned on and a digital output LED.

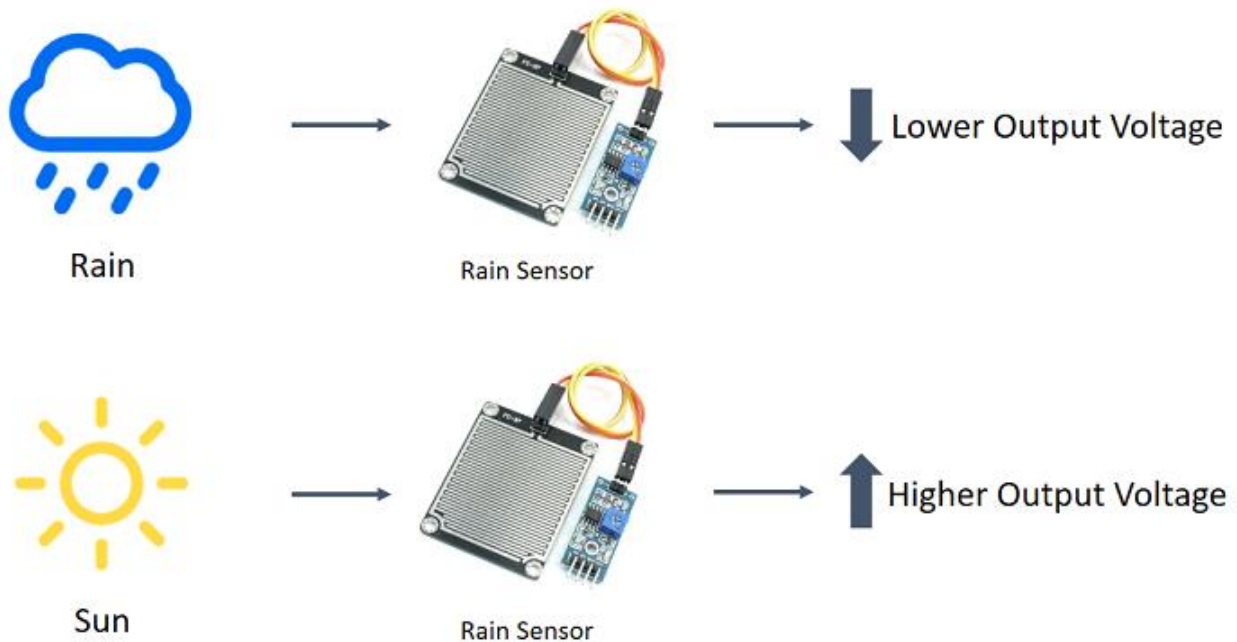


How does it work?

In simple terms, the resistance of the collector board varies accordingly to the amount of water on its surface.

When the board is:

- **Wet:** the resistance increases, and the output voltage decreases
- **Dry:** the resistance is lower, and the output voltage is higher



Where to buy?

Click the link below to compare the sensor at different stores and find the best price:

- [YL-83 rain sensor](#)

Example: Rain Sensor with Arduino

This is a simple example to show you how you can use the rain sensor in your projects with Arduino. You will read the analog sensor values and print them in the Arduino IDE serial monitor.

For this example, you'll need the following parts:

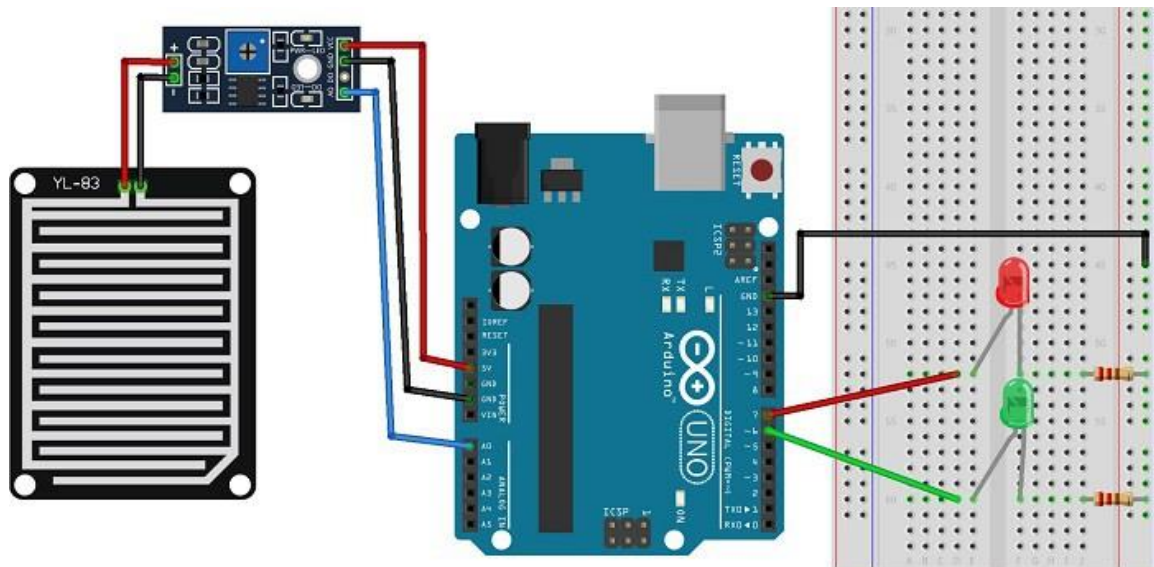
Figure	Name	Check Price
	Arduino UNO	Find best price on Maker Advisor
	YL-83 Rain Sensor	Find best price on Maker Advisor
	Breadboard	Find best price on Maker Advisor
	2× 220Ω resistor	Find best price on Maker Advisor
	2× LEDs	Find best price on Maker Advisor
	Jumper Wires	Find best price on Maker Advisor

Pin Wiring

Sensor Pin	Wiring to Arduino Uno
A0	Any analog pin (A5 in this example)
D0	Digital pins
GND	GND
VCC	5V

Schematic

Follow the next schematic diagram to complete the project:



Code

Upload the following sketch to your Arduino board (feel free to adjust the variable `thresholdValue` with a different threshold value):

```
/*  
  
All the resources for this project:  
http://randomnerdtutorials.com/  
  
*/  
  
int rainPin = A0;  
int greenLED = 6;  
int redLED = 7;  
// you can adjust the threshold value  
int thresholdValue = 500;  
  
void setup() {  
  pinMode(rainPin, INPUT);  
  pinMode(greenLED, OUTPUT);  
  pinMode(redLED, OUTPUT);  
  digitalWrite(greenLED, LOW);  
  digitalWrite(redLED, LOW);  
  Serial.begin(9600);  
}  
  
void loop() {  
  // read the input on analog pin 0:  
  int sensorValue = analogRead(rainPin);  
  Serial.print(sensorValue);  
  if(sensorValue < thresholdValue){  
    Serial.println(" - It's wet");  
    digitalWrite(greenLED, LOW);  
    digitalWrite(redLED, HIGH);  
  }  
  else {  
    Serial.println(" - It's dry");  
  }  
}
```

```
digitalWrite(greenLED, HIGH);  
digitalWrite(redLED, LOW);  
}  
delay(500);  
}
```

{;} SOURCE CODE

https://github.com/RuiSantosdotme/Random-Nerd-Tutorials/blob/master/Projects/rain_sensor_arduino.ino

Open the Arduino IDE serial monitor to see the results. Then, add drops of water to the collector board and see how that changes the readings. When the value goes below a certain threshold, a red LED will light up, and when the value goes above a certain threshold, a green LED will light up.

Wrapping up

If you want to know when it's raining, you need to set up your rain sensor with the Arduino outside. Be aware that you should protect your Arduino and your circuit from water. A waterproof project box can be handy in this situation.