Smart Textiles Workshop

Week 5: Sensors

Tonight's Code

Tonight's code can be found on the class Github repository.

Check the class site for a link.

Circuit Diagrams

Connecting an accelerometer (ADXL335).

Connecting a Ping sensor (HC-SR04)

Sensors

Sensors are electronic circuits which are used to extend the input capabilities of the Arduino.

Tonight we'll look at two sensors which allow us to measure the tilt and distance.

Sensors are typically much more sophisticated than our humble components, so we'll rely on two libraries to interface with them.

Libraries

Libraries are collections of code which are intended to make difficult tasks easier.

Download the libraries

Accelerometer:

http://goo.gl/GkbqkQ

Ping:

http://goo.gl/7iEK6H

Installing libraries

Add the unzipped folders to your Arduino's sketchbook.

On a Mac, this is Documents/Arduino/libraries. On a PC, this is My Documents/Arduino/libraries

If the libraries folder is missing, create it.

Restart the Arduino software and make sure that SimpleADXL335 and SimpleHCSR04 libraries are available to add to your sketch.

Using libraries

To work with the Ping sensor, we will be using a library called SimpleHCSR04.

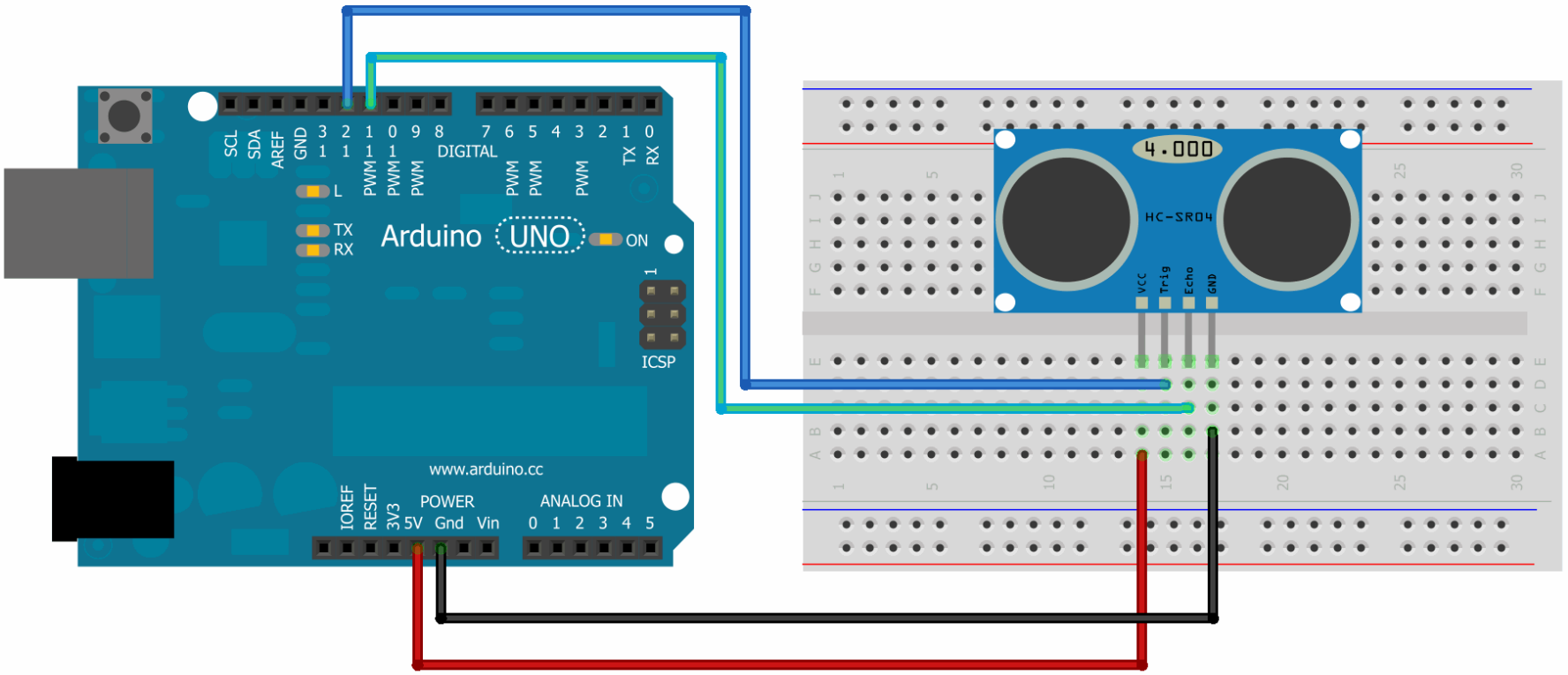
To add the library to your sketch, use:

Sketch > Import Library… > SimpleHCSR04

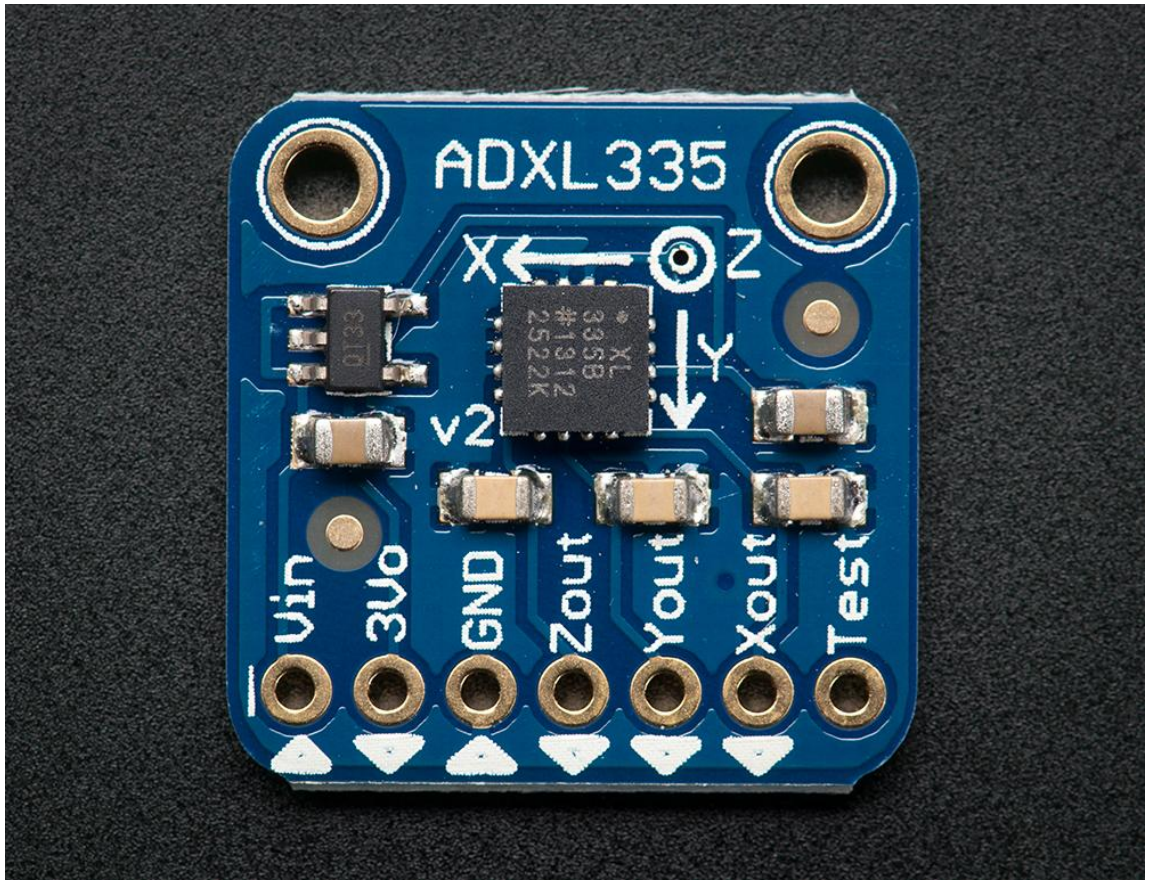
Ping (ultrasonic sensor)

The HC-SR04 ultrasonic distance sensor

Connecting the Ping sensor

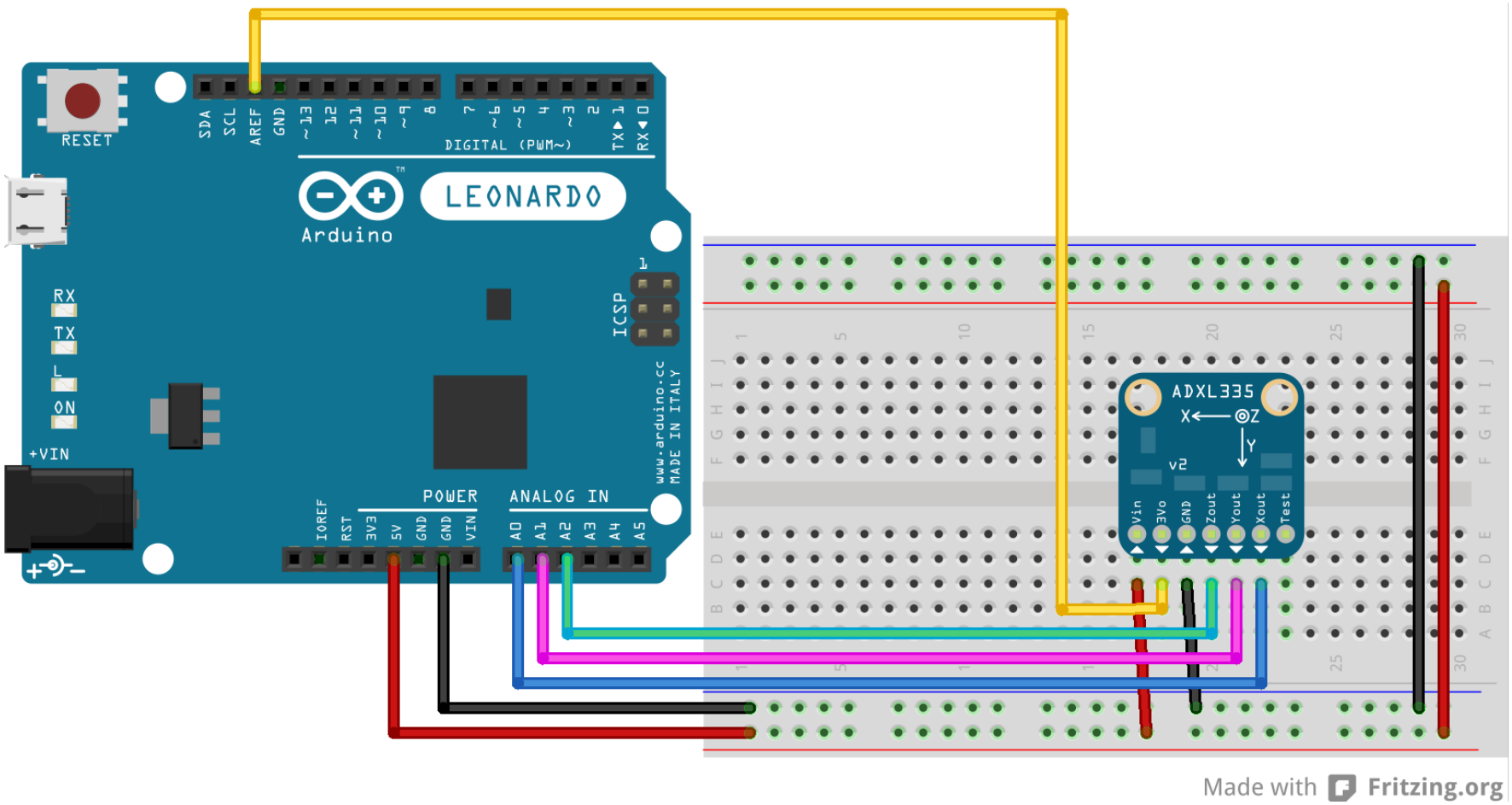


Accelerometer



The ADXL335 triple-axis accelerometer.

Connecting an accelerometer



Alternative connection