

PH Sensor Build

1 PH Sensor

What could we measure with a PH Sensor and an Arduino as a data log?

1.1 Installation

Built board up with a Nokia 5110 LCD, and an Uno on a piece of plywood. On the Nokia, be careful what guide you follow on this. As usual, the internet is a piece of shit, and official arduino website posts <https://create.arduino.cc/projecthub/muhammad-aqib/interfacing-nokia-5110-lcd-with-arduino-7bfcdd>¹ are wrong. It doesn't help that this post has been syndicated by at least one other website: <https://electronics hobbyists.com/interfacing-nokia-5110-lcd-with-arduino-nokia-5110-arduino-tutorial/> And this one: <https://www.hackster.io/muhammad-aqib/interfacing-nokia-5110-lcd-with-arduino-7bfcdd>

This particular doc gives you a guide that specifies certain pins. However the library (if you read the source at github) mentions different pins. Notably, the source that Sir Aqib includes, omits these pinouts.

This is easily verified with an oscilloscope, as the hub guide has you putting something that is obviously not clock on the CLK pin (this being SPI).

Instead, I found success by just following the adafruit code (which includes a pinout in its source). EDIT: adafruit requires you to include their splash screen, so instead use https://github.com/baghayi/Nokia_5110, which is also much easier to manage (though may omit graphic support)

Oddly enough, there is no requirement to include 5V to 3.3V level shifters to the Nokia. Instead, they recommend dropping some 10K resistors in there, and just using the 5V IO on the Uno. It does work, but not without some trepidation on the builder's end.

1.2 Build Plan

As this is intended to be a very quick prototype, the following is being done.

- The Nokia LCD is being used to Output PH value
- As the PH is 0-5V, the Uno will do math to translate, and output the math to the LCD

¹I'm not happy they deprecated the useful Arduino wiki, and brought in new docs that are incorrect... At least the wiki is read-only (and not disappeared... for now.)

- All items are mounted on a piece of wood with a 3D printer used to make some sort of protective cover.

What needs to be done:

- Build DB management into this (will be difficult, as you have to type in the name of each liquid you are testing). Probably need BBB or RPI. Means a keyboard might be required.