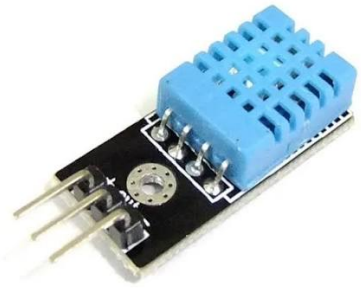
Humidity sensing

Available for checkout from the ITLL are three main types of humidity sensors, and this week I decided to test them against each other.

HIH-4030 (code available on my Github)

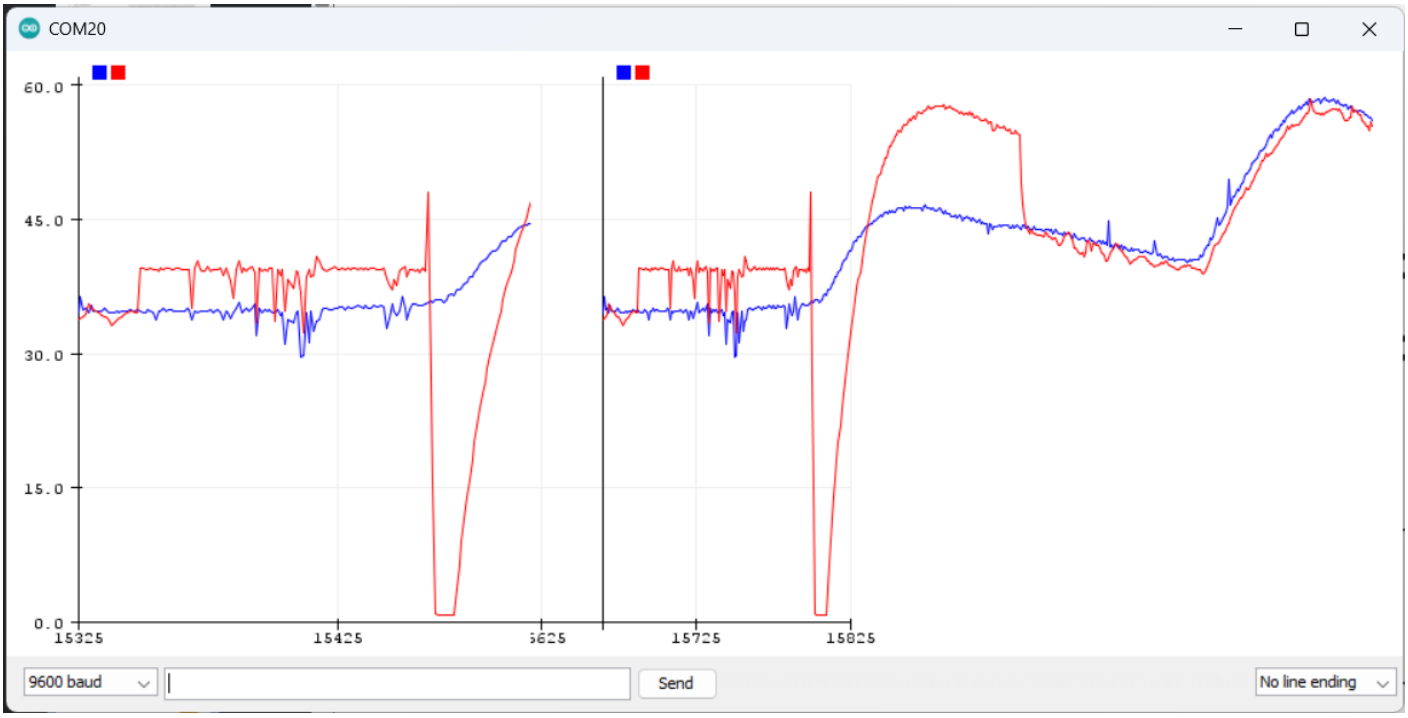


DHT-11 (code available on my Github)



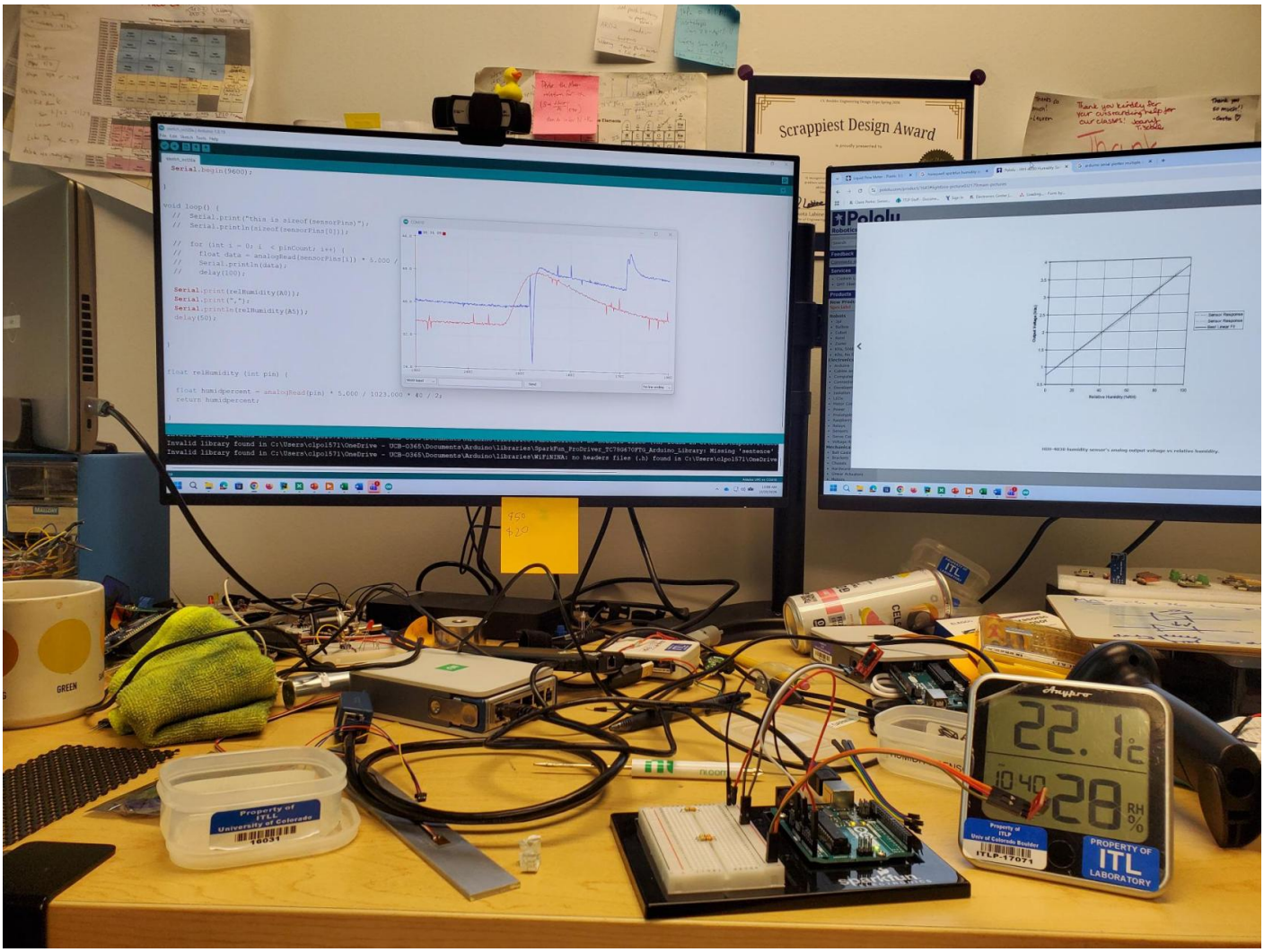
Indoor 2-in-1 Humidity/Temp monitor





Humidity data comparing two identical HIH-4030 sensors - the red data corresponds to a broken sensor. When I generate humid air near the sensors, readout plummets to zero (red data) on the broken sensor.

The HIH-4030 and the DHT-11 both use a capacitive element to detect changes in humidity. They have a stated accuracy of 5%. I found that two identical HIH-4030 sensors gave output that varied by ~4%, which is within the claimed accuracy. However, one of them appears to be broken because when I placed the sensors next to each other and generated humid air near the sensors, the RH% signal increased on one sensor (as expected, blue data above/red data below), but the other sensor's output plummeted to zero before rising.



I know the y-axis is impossible to read in image above; room RH% is ~40% on top (blue) trace, and ~36% on bottom (red) trace. Blue data plummets to zero when exposed to humid air source, suggesting sensor failure. I retired sensor from our inventory. The linear plot on left I pulled from the datasheet for the HIH sensors and used this plot to write code to convert Arduino's analog signal to RH%.

Revision #1
Created 2026-10-21 14:38:18 MDT by Claire
Updated 2026-10-21 14:58:07 MDT by Claire