SenseBox calibration to turbidity (NTU)

Materials needed for calibration

- An expensive turbidity sensor (we used the Analite NEP-5000-Link from Observator)
- Soy milk - instead of Formazin (the standard calibration liquid since it is carcinogenic) and instead of cow's milk (we found that it wasn't as "stable" in NTU compared to soy milk)
- A large vase/glass to hold the soy sample
- Your sensor to calibrate
- A room that can be almost entirely dark once the lights are off

Procedure

1. Obtain your first NTU-bit datapoint as in Figure in the Excel file *Sensebox_calibration.xlsx*:
    a. Pour the soy milk into the large glass. Pour it in a way so there are almost no bubbles. Use enough milk so that you can fully submerge the expensive sensor. After a few minutes, record the NTU value read by the expensive sensor.
    b. Now remove the expensive sensor and place your senseBox-turbidity sensor into the same soy milk sample (without creating bubbles). Record the number of bits read by the ADC (the ADC is the Adafruit ADS1115).
    c. This NTU and bit is your first datapoint
2. Repeat the above procedure for different dilutions of the soy milk:
    a. For example, next dilute 3 parts soy milk to 1 part water (e.g. mix 30mL and 10mL water)
    b. You want to make sure you have enough data points to cover your entire expected measurement range. So if you have a clear river, you want to obtain datapoints around 0-50 NTU. If you have a very turbid river, you want to obtain datapoints up to 4000NTU.
3. Once you have enough datapoints, fit a curve to your data and obtain the curve's equation. Use this equation in your Arduino code (*turbidityCalibrated_sensebox.ino*) to convert the bits read by the ADC to NTU. (**Please do not use the equation currently in the *turbidityCalibrated_sensebox.ino* code because that is just a placeholder equation and won't work.**)