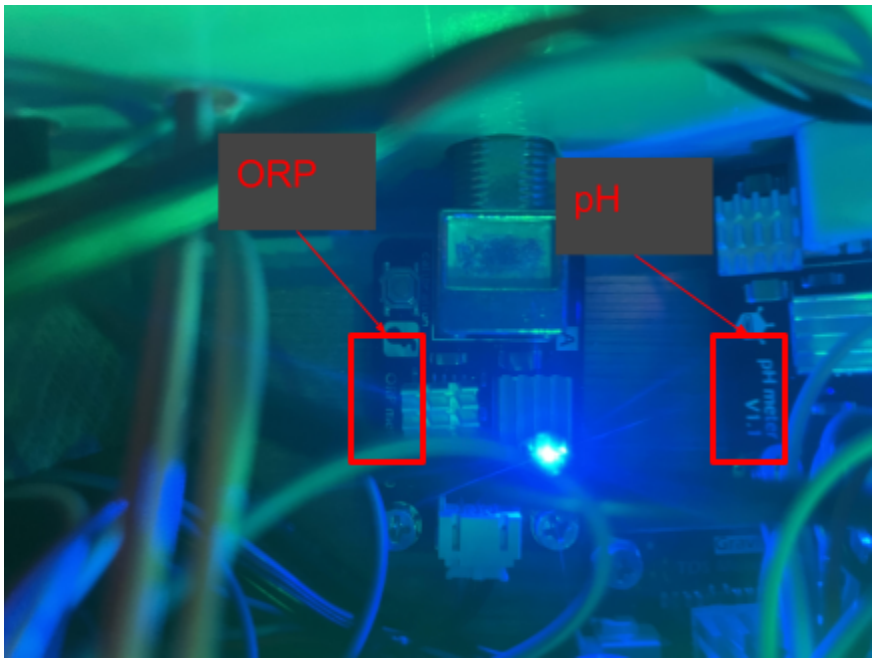
OPERATION & DEBUGGING MANUAL (please read before using**)

Setting Up

1) Before turning on, **ALWAYS** plug in the ORP and pH sensors into their respective boards The ORP sensor is the orange sensor, the pH sensor is the black sensor, and the boards will specify which sensor they are meant for if you look closely into the box. **You have to do this or else you risk damaging the boards in the image below.**



2) Drop all of the probes into the hydroponics system
3) Plug in the system and watch as it turns on and you should be good to go. **For the ORP and pH sensor make sure to twist off the caps before use and then twisting them back on after use (to prevent damage from occurring when not in use).**

Wi-Fi Details

1) An important note is that the IoT chip used only supports the 2.4 Ghz band. It will NOT work on 5Ghz band and will have inconsistent performance on a dual band.

Debugging

1) If the system halts/stops processing then unplug it, wait for 15 minutes to let it cool down (overheating could cause it to halt), and then plug it back in. That should reset it.

Storage

1) A thermally insulated lunchbox is provided to conveniently store the system.
2) To store it, first unplug the ORP and pH sensor from the system.
3) Then place them in the top larger compartment of the lunchbox

4) Then place the system in the bottom larger compartment of the lunchbox
5) For the power strip, you can either stuff it into the bottom larger compartment or if that doesn't fit, close the zipper around the wire and stuff the rest of the plug into the top smaller compartment and close the zipper around that.

IoT Database - **info removed for public GitHub repo**

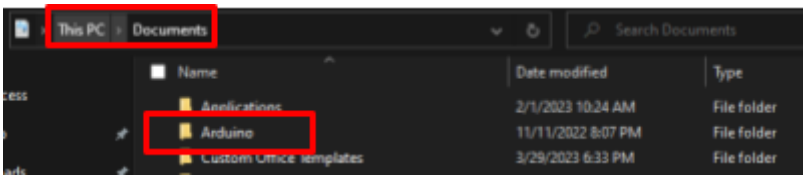
Changes

1) If any changes are to be made for the system to the hardware and software, keep all of the current pins and software as they are. **The pins and software logic were chosen for specific reasons and the orientation and logical flow needs to be kept.** If you add any code, just integrate it into the existing code and don't modify what is already there.

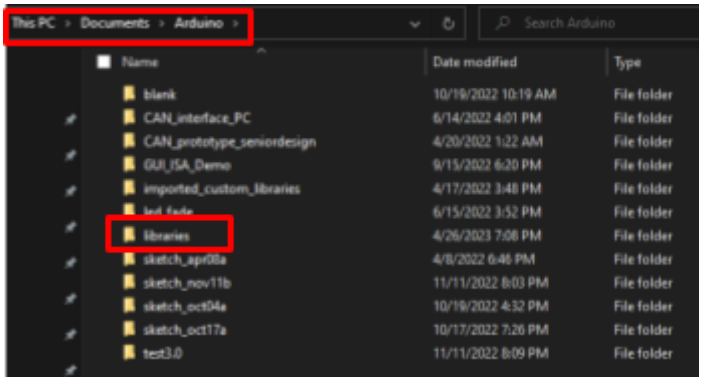
2) **Do NOT change the power supply. The power should always be supplied via the USB port or else the system can overheat and stall.**

3) To make any software changes, you need the right libraries and the Arduino IDE installed on your machine. The USB plug to hook to your computer is provided. Just unplug from the wall adapter and plug it into your computer to start the connection. **During programming, make sure all of the sensors are plugged in at ALL time.**

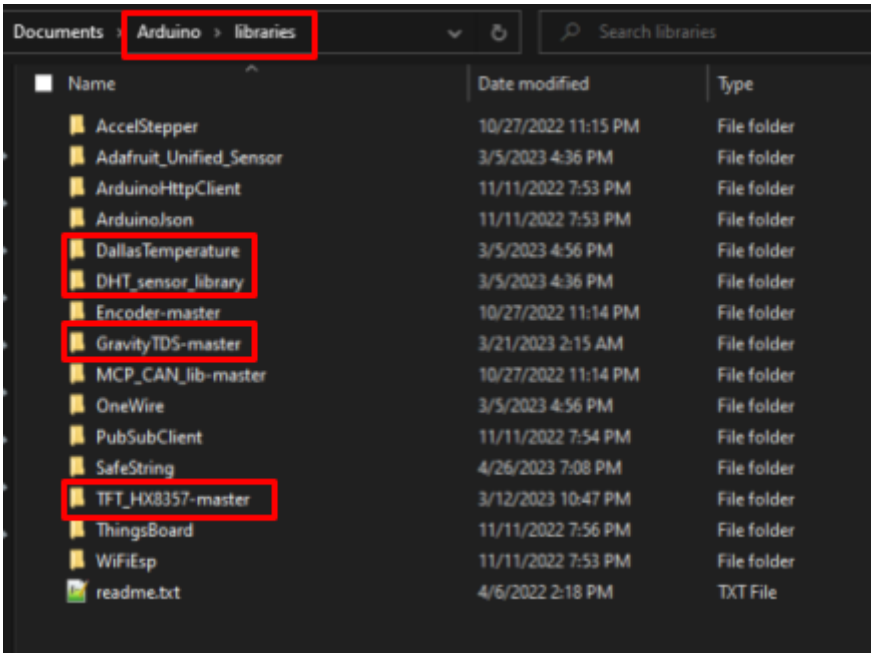
   a) After installing the Arduino IDE from this page → https://www.arduino.cc/en/software. Navigate to where you're 'Arduino' folder is located. For example, mine is located in my Documents folder.



   b) Open this folder up and navigate to the 'libraries' folder



c) Within the ‘libraries’ folder, make sure these libraries highlighted below are in there and exist. **Without these libraries, the code will not compile**. The libraries are provided in the folder shared with you so just move them over into here.



d) Once this is done, you should be good to go!