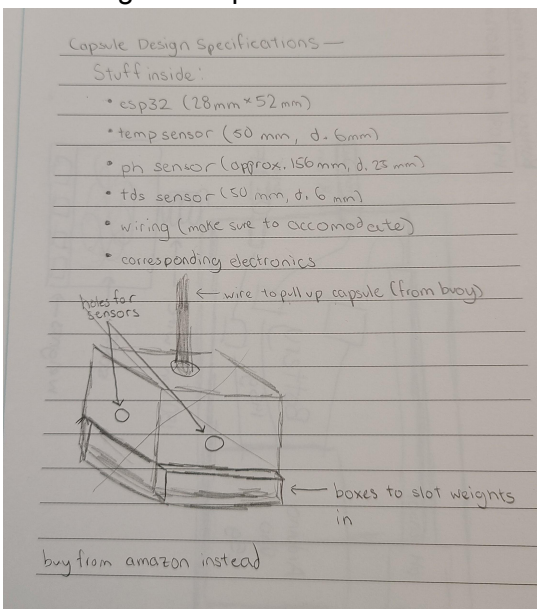
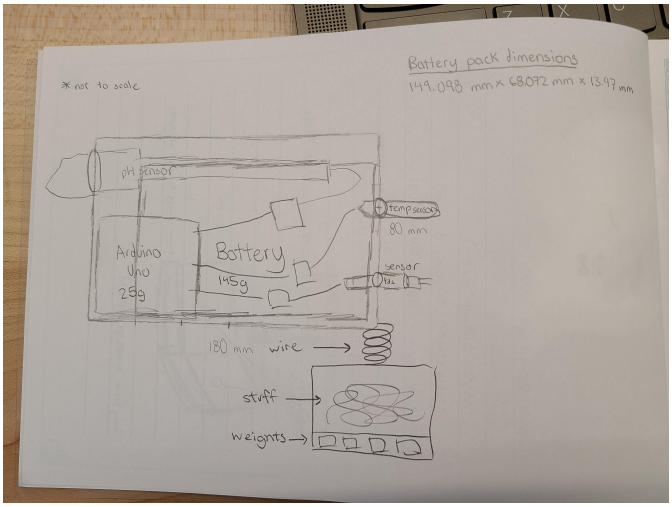
Timeline:

7/13 - Started learning more about project	
7/15 - Actually started working on project	We initially started out with two separate buoy groups, one of the groups worked on testing the sensors while the other group worked on buoy design
7/18 - Started working on new responsibilities assigned by Jack.	Today we merged our groups together and created two plans for the two buoys: one of them would collect data from the surface (just the buoy) and the other one would collect data from below the surface (capsule). Temperature Sensor holder cad TDS Sensor holder cad Ph sensor holder
7/19 Temporarily affixed the sensors to prepare for test day.	First design for capsule: 

7/20 - pool day	We added weights inside the buoy to simulate possible weight to test the boat's pulling power. We attached the buoy to the boat. We bent the TDS sensor pins so we had to replace it and design protection around the sensor to prevent this from happening again. In addition, we started 3D printing the spool and spool holder for the second buoy. Spool wheel Spool Holder 
7/21	We test fit the TDS sensor enclosure which worked so we temporarily attached it with hot glue. The spool system had two flaws which we discovered after 3D printing it. First, the plastic axle was extremely weak and wouldn't be sufficient to withstand the capsule's weight. Second, the spool holder's diameter was bigger than the cup holder we were fitting it into.
7/22 - pool day	We brought the buoys down to the pool with different weights to simulate possible loads for the boat team to test different propeller sizes. Because we recognized the spool system would require a lot of trial and error, we designed an interlocking piece that would fit into the cup holder. This would allow us to tightly fit on new spool designs as we designed them. Cup Holder Piece We also redesigned the spool wheel. In order to make a tight fit, we made it such that the diameter of the whole gradually decreased, allowing us to pop it in and keep it there. We had to do some trial

	and error with the widths because of a faulty amazon description but came to a good final design. Second Spool Wheel
7/25	 Refined design of capsule layout: For the next design of the capsule, we decided to put weights on the bottom of the capsule, and all the necessary electronics on top. A platform would separate the electronics from the weights, and we would print securements and use velcro in order to easily remove and replace the electronics inside. To allow the sensors to extrude from the capsule without leakage, we would use a combination of cable grommets and epoxy. We designed and printed the final spool holder design. We had two slots for the digital rotary encoder and the motor itself. Unfortunately, we had to increase the gap slightly after the initial print in order to create a better fit for the spool. Spool Holder Final
	Assembling the capsule 

	We designed and printed out a wire holder that when combined with hot glue makes how we run cables out of the buoy watertight.TDS and PH wire holder Temperature wire holder. We also attached the sensors using epoxy so they would not fall off.
7/27 - pool day	The buoy flooded and we had to try to salvage the electronics. The buoy was also dropped, breaking the TDS sensor and the mounting of the PH sensor. We found out that the temperature sensor works properly but we need to replace the PH sensor due to water damage. We also had to replace the TDS sensor due to the pins being bent. Due to some of the sensors falling off of the buoy we redesigned the models to cover more surface area to create a better attachment point. We also had to reprint the sensor wire holders as we had to rerun the wires
7/28	Capsule Layout CAD We received the new calibrated sensors from the data acquisition group. We then printed our newly designed sensor holders that maximized contact with the buoy. We then attached it to the buoy using epoxy to create a strong bond to the buoy that would not fail. Replaced rotary encoders with hall effect sensors. Coded up all the hardware. Wired together all the components of the capsule buoy. Wired up all the components of the regular buoy which was water damaged.
7/29 - lake day	