

EE/CprE/SE 491 WEEKLY REPORT 4

Report Details:

Timeframe: week 6-8

Group number: 21 (*sdmay26-21*)

Project Title: A Smart Aquatic Ecosystem

Client &/Advisor: Md Maruf Ahamed

Team Members/Role:

Griffin Urban — Frontend Developer

Daniel Pender — Hardware

Aden Koziol — AI Population Tracking

Ryan Holden — Backend/Frontend Developer

Marina Mannan — Embedded Systems Engineer

Carson Irving — Backend/Frontend/AI

Max Purvis — Hardware

Weekly Summary

This week, the team took several steps to help increase the longevity of the tank. We started by analyzing the tank for possible failure points, and addressing areas in which we can improve. Then the team identified possible accessibility solutions for the frontend. In addition to that, we worked more on improving the AI model detection, and improving the feeder design.

Past Week Accomplishments

Aden: Started working with background subtraction techniques.

Marina: I started working on a holder to place the turbidity sensor (and potentially the other sensors) on top of the tank. I also designed a more sturdy, stable camera mount that will be finalized once I receive the new lens's adjustment data.

Carson: Cleaned fish tank and exchanged water, set up sensors with max to run over spring break, installed new camera lens on camera, and decorated tank.

Max: Updated the pH sensor calibration parameters to include the offset caused by the dissolved oxygen sensor. Set up the pH, dissolved oxygen, and temperature sensors to run in the tank over break.

Danny: Made several modifications to the feeder system. Still need to test approximate food dispensing from the current model and adjust to something more adequate.

Ryan: Created the settings page for the user dashboard.

Griffin: Worked more on the account page and began developing the history page and brainstorming solutions for how to do so.

Pending Issues

- N/A

Individual Contributions

<u>NAME</u>	<u>Individual Contributions</u> (Quick list of contributions. This should be short.)	<u>Hours this week</u>	<u>HOURS cumulative</u>
Aden	• Worked with background subtraction techniques	6	31
Marina	• Initial sensor holder design • Camera mount iteration	6	30
Carson	• Cleaned fish tank and exchanged water • set up sensors with max to run over spring break • installed new camera lens on camera • decorated tank.	6	32
Max	• Got pH and DO sensors to work together • Set up sensors in tank	6	26
Danny	• Modifications to Feeder CAD • Set up testing	7	30
Ryan	• User Interface Settings Page	6	24
Griffin	• Worked on account page. • Worked on history page implementation, brainstormed ideas for how to implement.	6	25

Comments and Extended Discussion

- N/A

Plans for Upcoming Week

- **Aden:** Work to find a better camera solution for the tank. Also help out on the frontend and backend a little while we wait for parts and mount.
- **Marina:** Finish and print the sensor holder and the camera mount.
- **Carson:** Calibrate Camera Lens and Optimize Sending Larger Images over Http with arduino

ram constraints.

- **Max:** Start setting up the entire circuit in the enclosure to make it look less messy. I ordered some PCB spacers to mount the Arduino and each sensor's breakout board on so they are stable in the enclosure, I will get those set up as well. I will also probably need to work with the pH sensor a little more to get the values more stable and accurate.
- **Danny:** Test some current workings of the feeder. Iterate the CAD a bit more based on findings. Hopefully have completed the feeder next time and then move on to building and setting up the servo mount on the tank. Integration testing with the rest of the system and Arduino functionality.
- **Ryan:** Start working on the mobile user interface.
- **Griffin:** assist Ryan in developing the mobile friendly interface

Summary of Weekly Advisor Meeting

The team was unable to meet this week with our advisor, however we met in the previous week to discuss team progress so far. Our advisor assisted us in several accessibility features to implement, as well as guide us on future additions to the project heading into April.