

Report Details:

Timeframe: week 11 - 12

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 we made improvements to the frontend in the profile and settings pages. For the AI computer vision model, we created a tool to test higher resolution images locally and started working on motion subtraction techniques. We printed the temperature sensor holder for the lid. On the backend we refactored the microcontroller code and added error checking, email notifications, and group sharing functionality.

Past Week Accomplishments

- **Aden:** I developed a tool to test higher resolution images on my laptop locally. I also started looking into motion subtraction techniques.
- **Marina:** This week, I printed the temperature sensor holder prototype and gave it to Danny for testing. I also started working on the final multi-sensor holder design; I expect to finish the design and print it by next week, along with Danny's servo mount.
- **Carson:** Refactored all micro controller code and added error checking/ notifications, implemented email notifications, and implemented most of group and sharing functionality with tanks.
- Cleaned fishtank and exchanged water
- **Max:** I set up the dissolved oxygen, turbidity, pH, and temperature sensors for another extended test, mainly to check consistency in the pH data.
- **Danny:** Ran some testing with the first prototype of the feeder to get some initial data. I used that to update the current iteration on Fusion. Built the servo motor mount in Fusion.
- **Ryan:** Worked on updating backend tests and trying to improve code coverage.
- **Griffin:** This week, I worked on the frontend by merging many features I have been working on. This includes improving aesthetics on the profile and settings page, adding fields to the profile page, adding tank deletion and renaming functionality to the settings page, and displaying multiple tanks.

Pending Issues

- N/A

Individual Contributions

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Aden	• Developed higher resolution local tool • Researched motion subtraction techniques	6	43
Marina	• Printed the temperature sensor holder prototype and gave it to Danny for testing • Started the final multi-sensor holder model/design • Discussed plans for incorporating the servo mount into the current design • Error notifications	7	43
Carson	• Refactored all micro controller code • Implemented email notifications • Implemented most of group and sharing functionality with tanks • Cleaned fishtank and exchanged water	4	42
Max	• Tested sensors	6	38
Danny	• Tested prototype • Update iteration • Built servo mount	8	43
Ryan	• Backend testing	6	36
Griffin	• Implemented profile page • Improved Settings page aesthetics • Added tank removal and renaming to the Settings page	7	38

Comments and Extended Discussion

- N/A

Plans for Upcoming Week

- **Aden:** I plan to implement motion subtraction techniques into one of my tools to start testing accuracy. Also, I will find the final spot for the camera to be mounted.
- **Marina:** I plan to finish the final multi-sensor holder design, print it to validate the fit, and help Danny print and integrate the servo mount.
- **Carson:** Finish implementing group and sharing functionality and help with camera setup
- **Max:** I hope to get the circuit set up in the enclosure and the sensors mounted in the tank, so we can leave them running indefinitely.
- **Danny:** Work with Marina to print the new parts, do some more isolated testing, and, if that goes well, try to get to integration testing.
- **Ryan:** Continue testing for both the frontend and the backend.
- **Griffin:** I plan on working on the history page to see changes made in the app over time, as well as historical data from the tank. In addition, I plan to merge accessibility changes into the main branch and work on mobile support.

Summary of Weekly Advisor Meeting

We met with our advisor last week and had an insightful conversation about wrapping up the semester and our final deliverables. In addition, we discussed the ethics of fish loss and decided that the best course of action would be to collect time-of-death data in the tank and alert the user if a fish stops moving on camera after a set time period.