Web Application for Aqualab Sensor Monitoring and Analysis - Milestone 5

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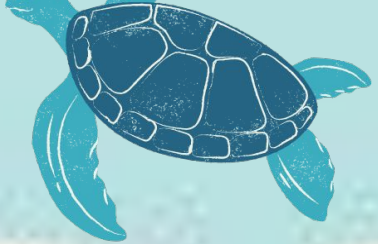
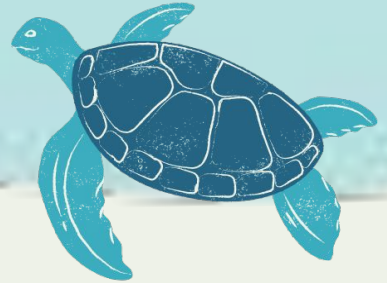
Milestone 5 Overview:



- Implement, test, and demo **all sensor implementations**
  - Sensors simulated using an arduino and virtual serial com port tools.
- Implement, test, and demo **program recovery after shutdown**
  - The system utilizes saved user settings, sensor configuration, previous sensor readings, etc… from the database when started.
- Implement, test, and demo **backing up data/disk space management**
  - This is doable with operating system and database tools, however the process is difficult and requires substantial refinement.
- Implement, test, and demo **user notifications**
  - The system sends emails to known users when detected values are out of range. The details to be discussed with clients.

Milestone 5 Overview:

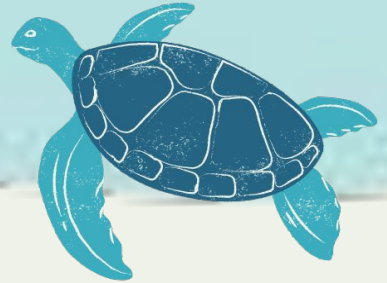


- Implement, test, and demo **user roles and permissions**
  - A user role and permission framework implemented to allow certain features and displays to be restricted from certain roles.
- Additions and Updates to **Home and Analysis Page**
  - Several user interface features were added and tweaked: CSV file downloading, calendar time filtering, clear out of range data points…
- **Conduct evaluation and analyze results**
  - We are looking through the documentation and the features we have completed. We are making plans to update documentation to correctly describe the features of the current system and informing the client about what functionalities will have to be completed in the next project iteration.
- **Create poster for Senior Design Showcase**
  - Poster has been made, waiting for photos of tanks and sensors to add.

Milestone 5 Progress Matrix:

Task	Completion	Greg	Haley	Ruth	To do
Implement, test, and demo **All sensor implementations**	40%	0%	100%	0%	Needs to be completed with real sensor or arduino simulation
Implement, test, and demo **Program recovery after shutdown**	90%	80%	20%	0%	Needs Testing
Implement, test, and demo **Backing up data/disk space management**	60%	60%	40%	0%	Needs to be much easier and more intuitive
Implement, test, and demo **User notifications**	100%	80%	20%	0%	N/A
Implement, test, and demo **User roles and permissions**	50%	0%	0%	100%	Needs concrete implementation and testing, including error handling when a user doesn't have access
Home and analysis page additions and updates	90%	0%	90%	10%	Some final additions left to make in the final GUI.
Conduct evaluation and analyze results	50%	33%	33%	33%	Continue analysis into M6
Create poster for Senior Design Showcase	80%	0%	10%	90%	Need pictures of tank setup and sensors (if they ever come in)

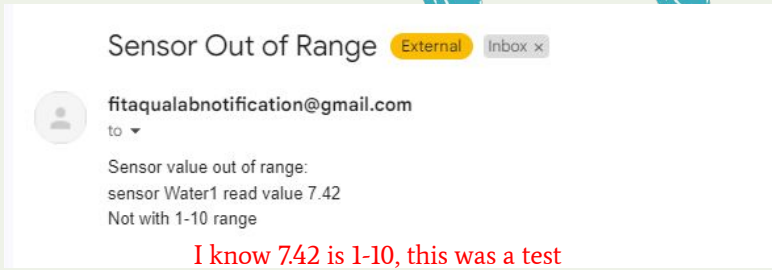
Program recovery after shutdown



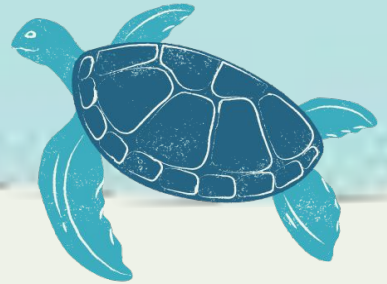
- The program is capable of recovering after shutdown.
  - No data is lost
  - All sensor configurations and user roles are kept
- Needs polish and testing
  - Many edge cases can cause shutdowns
  - Need more testing for various fail cases

Notifications:

- System sends emails
  - Every received value is checked to confirm it is in the acceptable range.
  - Emails are sent to users when value is out of range.
  - Email includes details such as the reading and which sensor.
- Cooldown
  - There is a configurable cooldown to limit how often emails can be sent.



All Sensors:



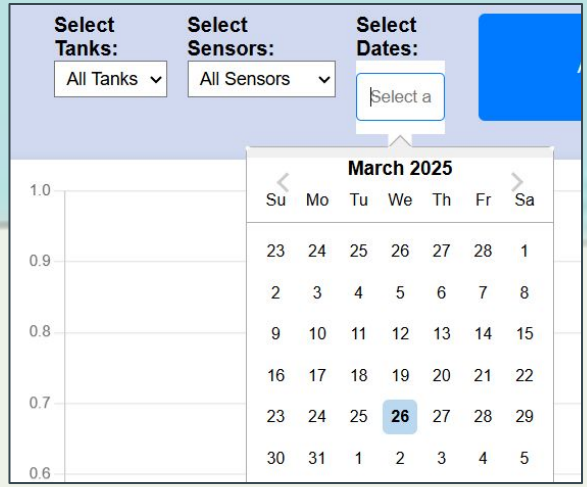
Current Progress: No major updates unfortunately

- Sensors are not in (shocker)
- We are simulating data from with an arduino and test sensor class to makeshift data

Looking Forward:

- Creating full product demo using arduino and virtual serial port tools

Home and Analysis Page



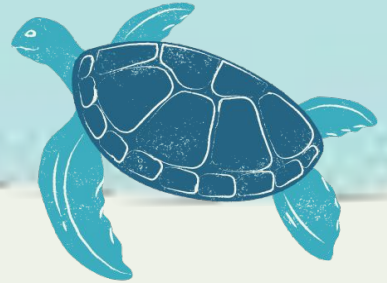
Current Progress: Made most of the touch ups needed

- Data can be downloaded into a CSV
- Time can be filtered by selected dates via a calendar
- Data read frequency can be updated in the settings page
- Home/Tank tabs display the name of the sensor and sensor value
- Tank Tabs display out of range data points in a clear red
- Added configure sensor page to start run - full communication with backend

Additions Left:

- Calculated relationships and formatted CSV in the works - discussing specifics with client
- Need to add sensor clear out of range data points to home page

UI Improvements and Poster:



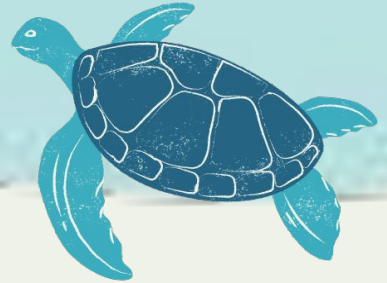
UI:

- Added user roles and permissions:
  - Still a work in progress but will be good by M6
  - Admin, operator, observer
- Minor fixes still need to me implemented
  - Waiting on final commits to fix the issues.

Poster:

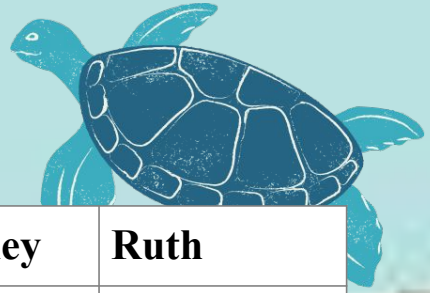
- Waiting for the lab team to get everything set up
  - For picture reasons
- Half-way done

Demo Time

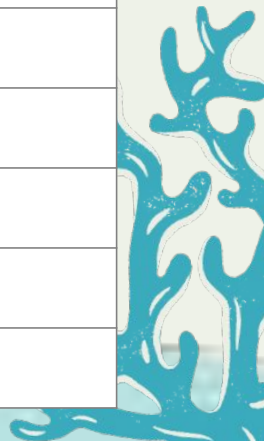


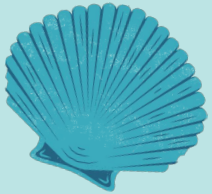
One Moment Please
(grabbing flash drive)

Milestone 6:



Task	Greg	Haley	Ruth
Implement, test, and demo **final UI additions/styling**	0%	20%	80%
Implement, test, and demo **user roles and permissions**	0%	10%	90%
Final system integration and error handling	60%	40%	0%
Implement, test, and demo **of the entire system**	30%	50%	20%
Conduct evaluation and analyze results	33%	33%	33%
Create user/developer manual	80%	20%	20%
Create demo video	0%	20%	80%
Make app more accessible remotely	33%	33%	33%
Create a User Logging Feature	10%	10%	80%





Questions?