



# Tank Controller Manager

Open Acidification Project  
Evan Taylor



## ABSTRACT

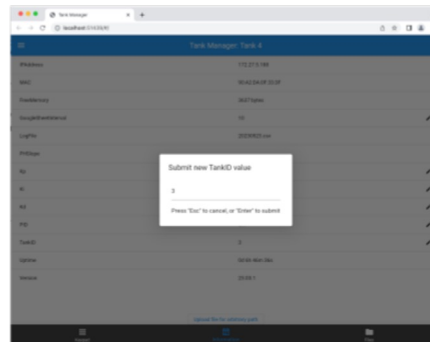
This project aimed to increase the ease of use of the Tank Controller Manager Web Application by adding new functions. Written using the Dart language and Flutter application framework, project tools such as Github, automated testing, and improved documentation were added. Application functions such as authenticating valid IP addresses and shortcuts to edit tank controller settings were also developed. These additions will increase the ability of future developers to make additional changes to the project, and give users of the tank controller web application a more streamlined experience.

## INTRODUCTION

The Tank Controller Manager (TCM) is a web application that simulates a physical tank controller interface by displaying a replica of the controller's keypad and LCD on a webpage. This is a project in progress for the use of Dr. Kirt Onthank of Walla Walla University's Biology department. This project, the Open Acidification Project, works to create an affordable set of tools and instruments to research the acidification of the ocean. The webpage can be used to directly connect to and interface with Dr. Onthank's tank controllers by entering their IP address, and then using the keypad and display on the main tab to enter commands and receive output in the same manner as the physical controller.

## IMPLEMENTATION

The first tab of the TCM is designed to mimic the physical tank controller as closely as possible, with the keypad of the controller being the default method of interaction. These buttons act identically to those on the physical controllers. This method can take some time to get used to, and to change values stored in the controller. With the implementation of editable fields on the information tab of the web app, this process is now as easy as clicking on the value you want to change, and entering a new value.



In addition to this shortcut method, various improvements to the function of the web app have been made, such as implementing a check to see if the tank controller IP address you are connecting to is valid. The ability to upload .txt and .csv files of a limited size to the tank controller.

## TESTING AND DOCUMENTATION

Improvements to the coding process of the project were also made. Automated testing in the code repository and a code linter were added through Github, setup to run every time a new version of code is pushed. New documentation establishing the steps and tools necessary to install the project locally for development were also added to the project for the benefit of future contributors. Extra information was also added to the project website to promote the TCM project.

## CONCLUSION

While this project added more functionality to the web app and improved the process of setting it up for new developers, there still remains more work to be done. The most requested feature of the TCM is a new graphs tab that will display the data recorded by the tank controller in a processed format. This project gave me the opportunity to experience the process of working on an existing project

## REFERENCES

Code Repository:  
<https://github.com/Open-Acidification/TankController>  
Project website: <https://open-acidification.github.io/>  
Mentor: James Foster

May 23, 2023, WWU Computer Science Department