

App to Control the Water Level at the Hinsdale Wave Research Lab

By: Trevor Byko, Alexander Kolstad, and Tobias Bird

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Hinsdale Wave Research Lab

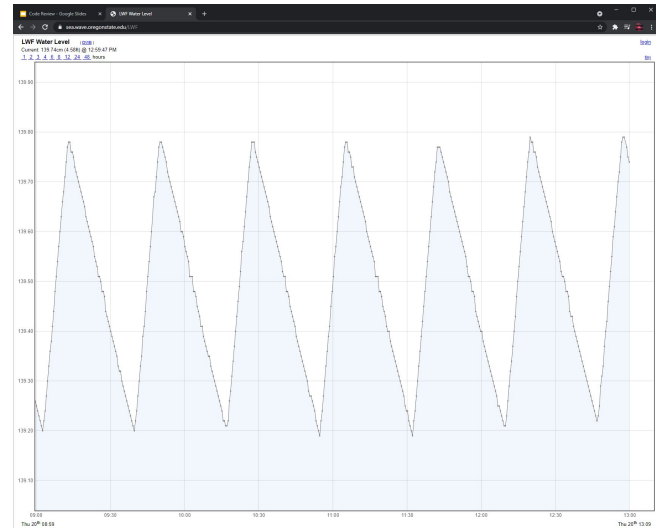
Consists of a directional wave basin and large wave flume

Used for education, research, and testing in coastal, ocean and related areas

Website allows manual control of water fill valves

What does the Hinsdale Wave Lab want?

- An automated means of setting a desired depth, and having the valves automatically open until that depth is achieved
- Currently, users can view depths and open/close valves, but it is not an automatic process and requires visiting a few websites



Parties Involved

Project Members

Trevor Byko

- Hardware interaction
- Testing

Alexander Kolstad

- Website
- Database

Tobias Bird

- Android application
- Testing

Project Partner

Pedro Lomonaco

Project Objectives

Objectives

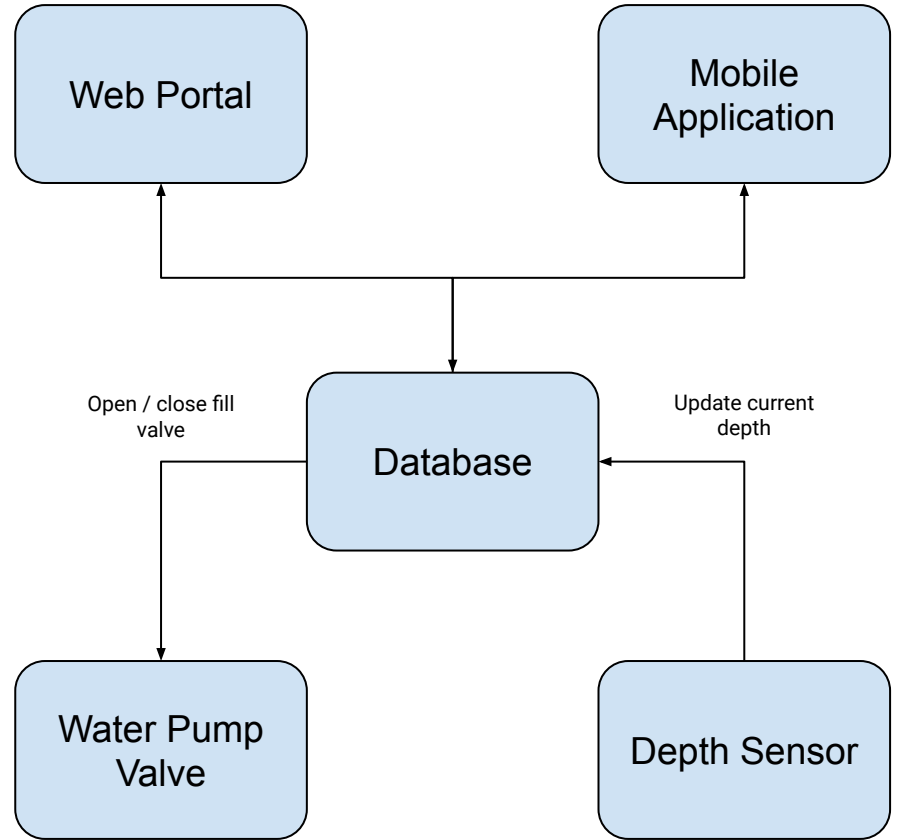
Design a mobile application

Add ability to set a target fill level

Automatic closing of the filling valves

Crisp usability and visually appealing

Project Architecture



System Overview

Application

- Retrieves user data for sign in
- Display current depth and current depth request
- Can create and add depth requests to database



Valve Interface

- Retrieves current flume depth and depth target from database
- Opens the valve until the current dept reaches the depth target



Database

- User login data
- Depth data
- Depth requests



Depth Receiver

- Gets data from depth sensors and puts it in database



User Stories

- i. As a customer or flume technician, I need to see a live graph of the current and previous water levels so that I can view how the process of filling the flumes is going and have a general history of tests that took place.
- ii. As a customer or flume technician, I need a notification when the set water level has been reached and the valves have closed so that I can relax knowing that the wave lab hasn't overflowed with water, and I know when the wave lab is ready for testing.
- iii. As a flume technician, I need to provide a time offset to begin filling, so I can have the fill start when everyone leaves for the day.
- iv. As a flume technician, I need to have a proper authentication procedure to access the wave flume filling schedule / change the current fill level target
- v. As a flume technician, I need to set a water level so that I don't have to worry about manually closing the water valve because the valve will automatically close by itself.
- vi. As a flume technician, I need to set a maximum water level as a safety measure so that I can be confident the water level will not overflow if current water level readings become inaccurate.

Demos

