Orca Sound - GSOC 2020

An UX/UI proposal

Abstract

Orcasound features live whale listening and allow users to log their listening to a Google spreadsheet. This project aims to simplify the logging process, allow users to annotate audio data in real-time efficiently and also gamify the logging process to encourage users to verify data that wasn't validated by the AI or any user. Live-streamed data and recorded data will be treated separately to maximize crowdsourcing and reduce labeling time.

Technical Details

Technologies required:

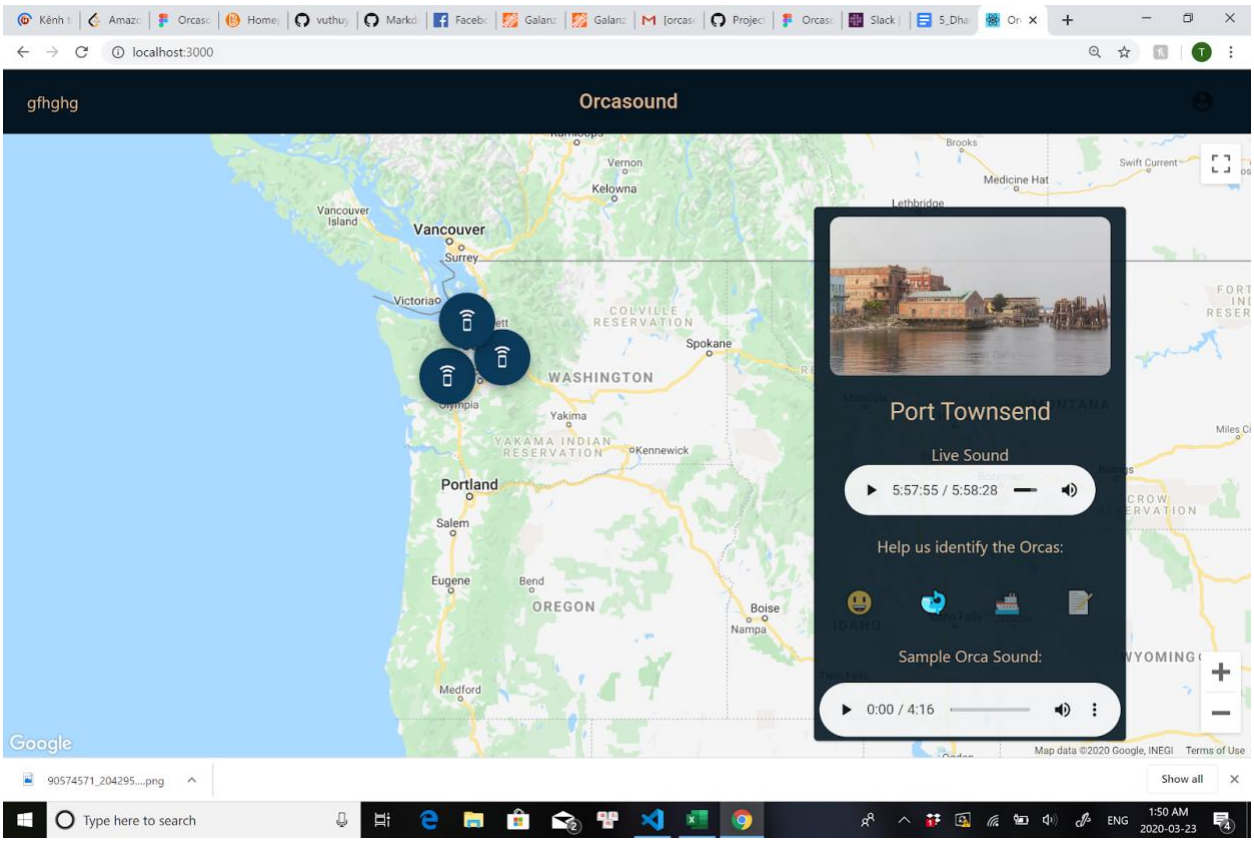
- React
- Elixir
- JavaScript
- Figma

Implementation plan:

1. Facilitating real-time data labeling :

- Adding icons for data labeling on human detection UI: when users click on the icon, a log will be captured from the current session and sent to the back end. Users can also do a manual text log by clicking on the comment icon.
    - A card will be added on the UI interface while they listen to the hydrophone. This card will contain 4 buttons for human annotation: whales, ships, other sound and comment (text log).
    - Each time the user clicks on the button, a log will be captured from the current session which includes: time, location, username, data label. This will be sent directly to the backend to be stored in the database.
    - A message or icon will pop up to let the user know their log was successful.
- Gamify the logging process; give the users badges for their contribution and record the time users spend on live listening.
    - Each time a user detects a whale they will receive a whale badge as a recognition for their contribution.

- Time spent on the feature will also be recorded and displayed as a recognition for their contribution. The time can also be stored for further analysis.



2. Verifying data that wasn't validated by the AI or any user:

There are 2 possible solutions:

- Adding samples of 4-second recordings to the logging page and have the users to verify it when they are logging into their account. This is similar to CAPTCHA and RECAPTCHA.
- A small built-in flash game where users listen to recording, verify them to receive badges and rewards.

The link below is GitHub repository for the mock-up. Please use your personal Google Map Key:
https://github.com/vuthuytrang93/GSOC2020-OrcaSound-UI/tree/master

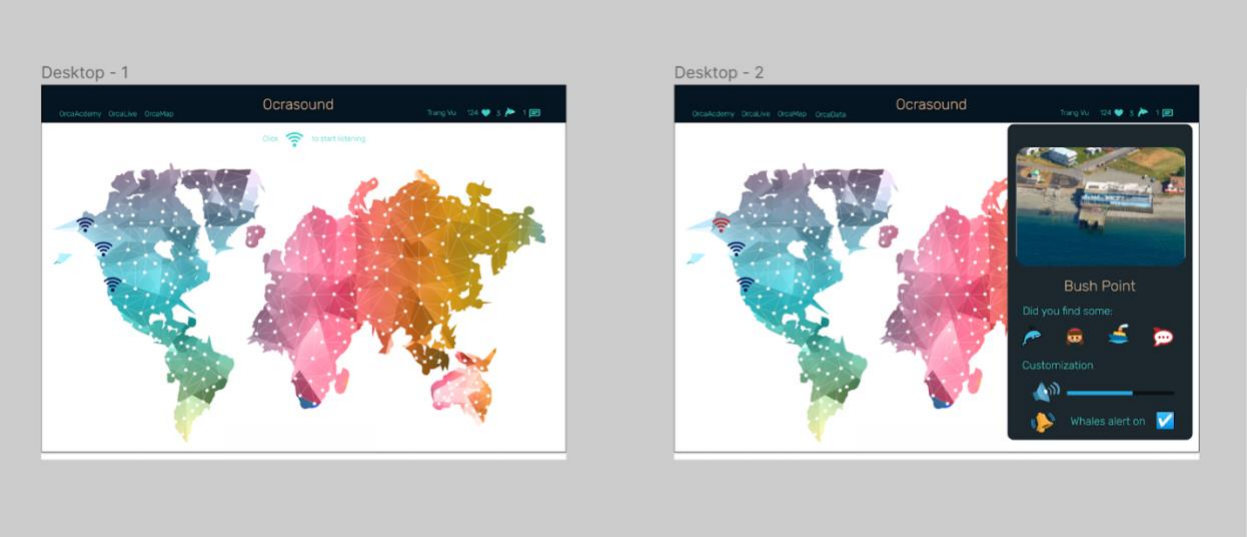
Contribution So Far:

I'm getting myself familiar with Javascript and front-end coding. In the meantime, I have proposed a design for V3-user interface using Javascript, ReAct and Figma.
With this UI we can allow the users to:

- Visualize precise locations of the hydrophones
- Switch between the location easily

Subscribe to different locations to receive an alert when whales are detected (changing the color icon on the map/beeping sound notification...)

    - Thus, allow passive listening. Users can turn on the app for background sound and only pay attention when whales are detected (I use OrcaSound to isolate myself when coding, it's incredibly relaxing)
- Labeling data with simple click action while listening to live signal, user can also leave a text log by clicking the comment icon
- Customize their listening
- Reuse components between OrcaMap and Orca Live Listening
- Based on the works on Trello, I also recommend we rename the tabs to: OrcaAcademy, OrcaLive, OrcaMap, OrcaData/ OrcaNews to help developers and users navigate in the app better.



Schedule of Deliverables

Phase	Time	Tasks
Community Bonding	April 28 - May 18	• Get to know mentors, students, and teammates

		• Discuss the timeline, project goals, means of communication • Set up working environment
Phase 1	May 18- June 19	• Adding icons for data labeling on human detection UI for live stream data • Set-up pipeline for direct logs
First Evaluation	June 15 - 19	• Reflection on phase 1
Phase 2	June 19 - July 13	• Develop labeling method for recording • Adding icons for data labeling human detection UI for recordings
Second Evaluation	July 13-17	• Reflection on phase 2
Phase 3	July 17- Aug 3	• Deploy UI changes
	Aug 3 - 10	• A buffer week for unforeseen circumstances
Final Evaluation	Aug 10 -17	• Documentation • Suggestion and Limitation • Reflection on the project

Development Experience

I am familiar with version control and development tools such as Flask, PyCharm, Jenkins, Box, Git. I have been using GitHub since 2018. I'm doing my internship at IBM, we use GitLab, a similar platform to GitHub, for our projects on a daily basis. During my internship, I built internal tools, pipelines to support other software engineers. I also build some simple UI for the tools that help reduce the time on daily tasks by 20%. I also received training and using Figma, which is a useful tool for UI development.
In light of the virus outbreak, we have shifted to working from home and applying the SCRUM process. This also helps me to adapt to work remotely on Webex, Zoom, Slack and Dropbox.

Other Experiences

In 2018-2019, I worked as a technical assistant in the Institute of Biomedical Engineering, New Brunswick, Canada. During this time, I worked on a database for prosthesis surveying.
In 2019, my team won the best MVP product in the city hackathon. The theme was “Smart City” and we developed a website collecting data from sensors, displaying a real-time data dashboard to support urban design and daily business decisions.