

Status Report 4

EE / CprE / SE 492 - sdmay25-06

Iowa Adventure Cyclists Course Creator

Week 7 Report

August 2024 - May 2025

Client & Faculty Advisor: Julie Rursch

Team Members

Kayley Clark - Technical Lead

Tanner Smith - Algorithm Architect

Nayma Garcia - UI/UX lead

Grant Pierce - Client Relation Manager

Nick Thoms - Testing

Eli Newland - Task Manager

Wan Elisa Wan Sarif - Component Design

Summary

This week, the team made significant progress across multiple areas of the project. On the frontend, work continued with UI refinements and color scheme adjustments to ensure design cohesiveness. The backend team focused on reorganizing endpoint structures and improving route planning capabilities with preferences. Database work included restructuring and ongoing research into road data integration. As well as putting in test data to the database from the DOT API so that the route planning algorithm can be tested. Security considerations for using a Google API usage were investigated, this would be a major switch from using the DOT data instead. The team is making this a main priority to figure out

due to the recent discovery that the DOT road segments are inaccurate and do not distinctly have coordinates for each stop sign or turn. Testing efforts included creating test graph data for route planning validation, and development began on GPX exporting functionality. GPX data can be exported now with the assumption the backend provides coordinate points with each stop and turn variation. The team maintained consistent engagement and communication has greatly improved this week.

Past Week Accomplishments

Made good progress in reorganizing the backend structure to support a larger codebase. mainly separating endpoints from the index.js file to separate files to improve maintainability and organization of communication between front and backend. We have also gotten the main portions of the UI (including main pages and features) 90% completed. Preference round trip was completed this week and we are making great headway on the database model with DOT data.

Pending Issues

The current pending issue is that, though we have made great headway on research other road databases that could be used in conjunction with the DOT data to accurately create a road graph, no definitive solution has been found to map the data from other sources, such as road intersections and road segments, to the corresponding DOT data.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Kayley Clark	Worked with tanner to redesign the endpoint structure in the backend, focusing on front end integration. Additionally worked on the backend and frontend for parameters.	7	82
Tanner Smith	Reorganized backend endpoints file structure to support more endpoints. Continued working on updating the	7	88

	route planning with preferences. Reworked a few database tables to contain more useful fields.		
Nayma Garcia	Began working on GPX exporting functionality. Did research on various exporting options.	7	80
Grant Pierce	Looked into security for DOT API data and google maps API as well as restrictions to use.	6	82
Nick Thoms	Created test graph data to test route planning with preferences.	6	79
Eli Newland	restructured database and continued looking into how to get road data that can be integrated with the route planning feature of the application.	7	86
Wan Elisa Wan Sarif	adjusting color schemes on frontend to be cohesive with component design.	6	79

Plans for Coming Week

This upcoming week is spring break and so our team is taking this time to regroup and make more headway. We will focus on doing complete round trips between front end and backend for various features including routeplanning. The backend team will keep improving the route planning algorithm, optimizing data storage, and making sure our API communication works as well as updating the route planner graph to take user profile preferences into consideration when generating weights. Along with that, we will begin creating more endpoints for data communication between front and backend. We'll also work on fixing remaining security issues.

We also want to expand our testing to catch bugs and make sure everything's stable as well as create more test data on routes and preferences to test route planning. Lastly, once we get our front and backend talking we will want to start working on:

- Getting the routes to visualize on the map

- Saving routes to profiles
- Round trip for routeplanning