



CS486C – Senior Capstone Design in Computer Science

Project Description

Project Title: NAU Shuttle Services Scheduling Web App design	
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Project Overview:

Northern Arizona University's Flagstaff Campus is home to nearly 20 thousand students, faculty and staff. Every day NAU transit services helps to safely and effectively move those students around campus. In 2023 we provided over 1.3 million unique rides across campus and northern Arizona with our campus shuttle system. Over the years our department has utilized multiple solutions and vendors to help schedule and efficiently run our fleet and department. However, our current systems operate independently of one another, and when it comes to scheduling/ fleet management, it becomes incredibly fractured and time consuming to manually move data and information from software to software. We would like to ultimately replace our current employee scheduling software and build a more user-friendly display/ dashboard showing our asset allocation at-a-glance. We can also explore the possibilities of using data from our other existing management solutions and helping to organize those in a centralized solution.

The scope of this project can range from simplistic shell (or module) for organizing and displaying our daily schedule in a more user-friendly way, all the way up to a smart scheduling platform that can use AI to use recorded and archived data to "anticipate" our scheduling needs and create it, only needing minor adjustments as issues arise.

Help make your community and campus home more organized, efficient while gaining valuable experience working on an institutional system. Use as a resume builder in the field of transportation, logistics, and public service.

Knowledge, skills, and expertise required for this project:

- Research skills to explore current system, what data is collected currently.
- Working knowledge of how to utilize current web tools to organize, display and interpret data.
- Knowledge of how to integrate a web based central app to a user/ employee facing app for scheduling.
- Research and brainstorming how to further integrate product to assist in organizing, archiving, and reporting on existing software partnerships.

Equipment Requirements:

- No outside hardware or equipment is required for the initial scope of this project.
- We currently utilize an online platform for scheduling called Shiftboard. We believe we will have open API access through our contract with them.

Software and other Deliverables:

- A Gantt chart style display of assigned and taken shifts by our student and full-time employees.
- Creating a program to use exported shift data to build a more user-friendly scheduling “board” that will display via a main/shared document (view).
- A web-based scheduling solution where admins create a template for needed coverage, and employees can search, see, take and trade shifts throughout the semester.
- Employee facing app that shows their schedule, and available shifts throughout the week/ semester.
- Enabled messaging capability from the admin side to communicate changes, or reminders directly to crews.
- Present a post-implementation plan for support and troubleshooting in the future.