EE/CprE/SE 491 WEEKLY REPORT 07

10/25/2024 - 10/31/2024

sdmay25-21

Distributing a Fleet of Drones over an Area with No-Fly Zones

Trajcevski, Goce - Advisor

Nicholas Kokott - Team Organizer

Melani Hodge - Algorithm Design/Implementation

Cole Stuedeman - Testing

Everett Duffy - Component/Module Design

Ken Schueman - Advisor Communication

Samuel Russett - Research Discovery and Testing

Weekly Summary:

This week marked a significant milestone as we received information about the algorithm needed for our project. This allowed us to begin backend initialization and pipeline development that will integrate with our frontend. We've also finalized our front-end design, enabling us to move forward with implementation. The team continues to work with our chosen frameworks, with PostgreSQL and Python managing our server and application state data. During our previous meeting with the advisor, we focused on questions about dataset handling and demonstrating our partitioning algorithm. We've successfully identified user needs and defined project requirements while completing the design document and lightning talk slides.

Past Week's Accomplishments:

This past week brought several key developments. With the algorithm information now available, we can begin implementing the backend infrastructure and establishing a working pipeline that connects with our frontend. The team has agreed on a frontend design, clearing the path for implementation. Everyone remains equipped with and actively using the necessary frameworks, experimenting to optimize the user-facing UI implementation. We've maintained productive discussions about workload distribution between front and back end components. Our ongoing dialogue with our advisor has helped address project questions. The user needs and requirements documentation is complete, along with the introduction section of our design document. These achievements will enhance our upcoming discussions with the class, advisor, and PhD students.

- **Sam**: Spent 4 hours researching newer full-stack frameworks and assessing their compatibility. Additional time was dedicated to reviewing and researching KD and BAR trees. **Cumulative**: 16 hours
- **Cole**: Spent 3 hours investigating more efficient data transfer methods than those previously identified. **Cumulative**: 12 hours
- **Nick**: Spent 4 hours figuring out how the frontend communicates with the backend. **Cumulative**: 17 hours
- **Everett**: Spent 3 hours exploring the frontend to better understand its functionality. **Cumulative**: 14 hours
- **Melani**: Spent 3 hours identifying our server service (PostgreSQL) and evaluating its compatibility. **Cumulative**: 15 hours
- **Ken**: Spent 16 hours continuing development on the frontend and backend **Cumulative**: 16 hours

Past Week's Challenges:

This week's primary challenge was resolved as we received the flight path algorithm information. However, we still need to clarify which additional algorithms will be provided that

the PhD student didn't write but plans to incorporate. We're also working through decisions regarding data structure for our implementation.

**Plans for the Upcoming Week*:*
- Keep experimenting with the front-end design to enhance the user experience.
- Investigate how to integrate PostgreSQL into the project.
- Determine how to implement and utilize the PhD student's algorithms in our backend system.
- Rework frontend

Advisor Meeting:
In this week's meeting, we discussed several topics
- Keep experimenting with the front-end design to enhance the user experience.
- Investigate how to integrate PostgreSQL into the project.
- Determine how to implement and utilize the PhD student's algorithms in our backend system.
- Create a way to plot no-fly zones