EE/CprE/SE 491 WEEKLY REPORT 05

10/11/2024 - 10/17/2024

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 we have been playing around with our frontend of choice and learning some of the ins and outs of using that. For our backend we have also decided that we want to utilize PostgreSQL with Python in order to host our server as well as maintain our applications state data for us. We asked more specific questions for our advisor in this week's meeting, asking about how to take in data sets as well as how to show our partitioning algorithm. We also figured out our users' needs and the requirements that we need to ensure for our project. On top of this we discovered some IEEE standards that we would like to implement within our project as well.

Past Week's Accomplishments:

This past week we continued to make progress on our project. We all have the frameworks set up and working, and have been messing around with them a bit to learn how to best implement the front facing UI for our users. We also had in depth discussions on how we wanted to break up the workload between frontend and backend. We discussed future questions to ask about the project with our advisor as well. On top of this we outlined the user needs and requirements that need to be specified for the design document and created the introduction part of the design document as well. All of this will greatly benefit our upcoming talks with the class, our advisor, and PhD student.

- Sam: 4 hours spent finding newer full-stack frameworks and seeing compatibility. Additional review and research done and KD and BAR trees.
  Cumulative: 16
- Cole: 3 hours spent finding new data transfer methods that could be more efficient than what has been found. Cumulative: 12
- Nick: 4 hours spent figuring out how the frontend is able to talk with the backend. Cumulative: 17
- Everett: 3 hours spent playing with the frontend to learn more about how it works. Cumulative: 14
- Melani: 3 hours spent finding our server service (which ended up being PostgreSQL) and seeing compatibility. Cumulative: 15
- Ken: 4 hours spent setting up and developing more of the frontend application. Also initialized the backend part of the project. Cumulative: 16

Past Week's Challenges:

One of the challenges we faced this week was still waiting on the flight path algorithm, which is currently being developed by the advisor's PhD student. Additionally, we need to figure out what algorithms will be given to us that the PhD student didn't write but wants to incorporate as well. We also have been struggling with the data structure we want to utilize for our partitioning, there are two options that both seem to work and that our advisor has discussed. There does not seem to be any clarity whether we need both or just one however.

Plans for the Upcoming Week:

- Continue to play with the frontend and see how nicely we can make things look for our users.
- Figure out how to integrate PostgreSQL into the project
- Figure out how the PhD student's algorithms can be implemented and called upon in our backend.

Advisor Meeting:

In this week's meeting, we discussed several topics

- Discussed the users needs, requirements, as well as IEEE standards that can be put in place
- Discussed meeting with the PhD student next week to better understand his implementation of the flight path algorithm.
- Discussed several methods for implementation as well as data structures that will be used
- Discussed how we want to let users give us data (number of drones, a region, and a dataset of no fly regions)