EE/CprE/SE 491 WEEKLY REPORT 04

10/4/2024 - 10/10/2024

sdmay25-21

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

Trajcevski, Goce

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:

We explored various frameworks for the project and successfully initialized our GitLab repository by setting up SSH and cloning it to our machines. During our discussions, we identified key questions for our upcoming client/advisor meeting, such as whether we'll need a database, multiple user accounts, or a server to support the system. Additionally, we mapped out use cases, detailing how each user type—such as search and rescue, delivery, and maintenance operators—will interact with the product to achieve their goals efficiently.

Past Week's Accomplishments:

This past week, we made progress on the project. We finalized our framework choices for the frontend and successfully initialized our GitLab repository by setting up SSH and cloning it on our machines. We also had in-depth discussions around key project components, such as whether we will require a database, multiple user accounts, and server infrastructure. Additionally, we outlined the primary use cases for different users, such as search and rescue, delivery, and maintenance operators, detailing how they will interact with the system. These discussions helped us refine our understanding of the system's requirements and prepare for our upcoming client/advisor meeting.

- Sam: 2 hours spent finding newer full-stack frameworks and seeing compatibility.
- Cole: 1 hours spent finding new data transfer methods that could be more efficient than what has been found.
- Nick: 3 hours spent figuring out backend compatibility alongside Everett
- Everett: 2 hours spent revising and checking which back-end frameworks would work best
- Melani: 2 hours spent revising and checking which front-end frameworks would be best and updated the team website
- Ken: 4 hours spent finding and discovering new C++ and Python libraries that could be utilized for the computational geometry needed to be performed

Past Week's Challenges:

One of the challenges we faced this week was waiting for the flight path algorithm, which is currently being developed by the advisor's PhD student. Additionally, once we receive the algorithm, understanding its structure and how it integrates into our project is another hurdle. This algorithm is crucial for determining optimal drone paths while accounting for no-fly zones, so its application will be key to the success of our

system. These challenges will require close collaboration with the advisor and student to ensure smooth integration and implementation.

Plans for the Upcoming Week*:*

- Research the best framework to use for the backend that best fits our use cases and needs.
- Decide on what framework to use for the backend of our project.
- Initialize the backend in our git repository.

Advisor Meeting:

In this week's meeting, we discussed several topics

- Discussed use cases of our product and how each user will use our product.
- Discussed meeting with the PhD student next week to better understand his implementation of the flight path algorithm.
- Discussed several methods for implementation