EE/CprE/SE 4920 WEEKLY REPORT 06

April 4 - April 17

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

Trajcevski, Goce Advisor

Nicholas Kokott - Team Organizer and Backend Lead
Melani Hodge - Algorithm Design/Implementation
Cole Stuedeman - Testing
Everett Duffy - Component/Module Design
Ken Schueman - Frontend Lead
Samuel Russett - Research Discovery and Testing

Weekly Summary

Frontend Development

The team has successfully completed all pages click-through integration with the exception of the Operate page. Home, Discover, Plan and About are all fully integrated and tested. Other than a few errors regarding data handling on the backend all elements of the pages are in their final rounds of development.

Backend Development

Most if not all of the basic API functionality is complete for the backend now that real time drone movement is completed as an asynchronous API call. If the frontend needs changes, we will address them immediately. Other than this deep testing is underway and progressing at a good rate. There may be other small changes and security improvements made if seen to be fit.

Past week accomplishments

Nick Kokott: I was able to get the real time drone movement completed. This took a lot of effort as I had to come up with a new pathfinding system, not like anything we have used previously like Dijkstras or Bellman-Ford. This had to be done without graphs and involved drawing a straight line to the event, and routing around any obstacles that were in the way. This sounds simple in concept but in code it is much more tedious. | This weeks: 12 hours | Total: 106 hours

Kenneth Schueman: I put the finishing touches on the Discover and Plan pages and did some basic testing to make sure all elements and components of the page worked as intended. This included making multiple API requests to the backend to send/ receive the necessary data to display over the MapBox element. This week: 11 hours | Total: 94 Hours

Everett Duffy: This week was heavy editing and addition to the design document. We need to come to a final draft in the next week so everyone is working hard on their sections. I also helped Cole by creating a new test case for the drone pathfinding that Nick implemented this week. (6 hours) | Total: 55 hours

Cole Stuedeman: This past week, I have been constructing tests heavily focused on regression testing and acceptance testing. These tests have targeted API calls, partitioning, maps, models, and drones. These tests have covered single and partial relationships between them.
This week: (8 hours) | Total: 50 hours

Sam Russett: Made progress on frontend sections of the design document; since the final draft of this is due soon, getting this done well before dead week is one of our top priorities. Also communicated with the frontend team to see what final changes should be made to site before we are done with our final product.
This week: 5 hours | Total: 48 hours

Melani Hodge: I worked on creating multiple different iterations of the poster and adding information to the final design document for the frontend sections. This week: 6 hours | Total: 55 hours

Pending issues ***(If applicable: Were there any unexpected complications? Please elaborate.)***

1. Plan page redirection to Operate once it receives the correct data
2. Displaying Drones and Partition zones on the Operate page

Comments and extended discussion ***(Optional)***

None

Plans for the upcoming week

Nick Kokott: Now that the drones are moving on the map, I will be focusing lots of effort on testing the code for different possibilities to ensure that algorithms are performing the way that they are expected to. As well as this I will be assisting Cole and Everett in their endeavors.

Kenneth Schueman: Fix the bugs on the Plan Page and create the Partition and Drone elements to display on the Operate page, finally calling the backend API to get a stream of points to move the drone along.

Everett Duffy: Continue working on the design document and other final deliverables. Our presentation is a short 3 weeks away so we are working diligently to polish everything up.

Cole Stuedeman: Explore more testing targeting user and system tests. Detail more on what each test segment does. Integrate what I have learned from constructing and running the tests into the final design doc.

Sam Russett: Update sections 4 and 6 of the design document, and between the entire frontend team complete most remaining action items for development.

Melani Hodge: For this week, my goal is to fully complete the CI/CD pipeline for the frontend and to make progress on the final design of the poster in Canva.

Summary of weekly advisor meeting (*If applicable/optional)*

This meeting we discussed starting to look back at the design document to make changes based on the things we have implemented in the project thus far. As well as this Goce gave some better insight on how to move the drones across the map. He believes we are making great progress thus far and are almost at a point with a fully functional demo version of the product.