EE/CprE/SE 4920 WEEKLY REPORT 05

March 24- April 3

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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 the integration of visualization components with the backend systems. Real-time drone movement visualization is now functional, with the ability to display partitioned areas and drone paths. User interface improvements have been implemented based on initial testing feedback.

Backend Development

Algorithm code has been completely integrated with the API calls, and some complexity of it has been reduced to help reduce wait time for our users. The websocket is set up with messages that come through from the API calls to tell the user in real time what is happening. A few bugs have been squashed as well, and testing is underway to ensure full functionality of our systems.

Past week accomplishments

Nick Kokott: I was made aware of a rather large issue with the points being generated for the maps where everything was stuck at a 0 to 100 scale regardless of if the user on the frontend specified points to be in their own latitude and longitude. I went into the given algorithm code and found that even if we passed in values to change this, it was hard coded to be in this scale for some reason. So I had to come up with a translation algorithm for our points to work with the frontend and the algorithm code. I also came up with the base for the drone routing, still working on some of the inner details. | This weeks: 21 hours | Total: 94 hours

Kenneth Schueman: Completed the data visualization components and successfully integrated them with the backend. Implemented advanced features including real-time drone position updates and path visualization. Created interactive map controls for better user experience. This week: 11 hours | Total: 83 Hours

Everett Duffy: This week: Created a new API call for receiving user created no fly zones from the front end and creating a corresponding map in the database. It still needs some work at its current stage. I have also begun working with Nick and Sam to update our design document and lay out final deliverables. (10 hours) | Total: 49 hours

Cole Stuedeman: I have been working on testing the geoJSON parser with the multiple geoJSON files we are using. I have also been working with more tests on mapping and running more experiment testing with Django. This week: (7 hours) | Total: 42 hours

Sam Russett: I worked on preparing the documentation and reports for our final deliverables for the end of the semester. This will include our final design document, electronic poster, and any relevant materials for upcoming instructor reviews. I also continued working with the frontend team to divide and plan out any remaining functionality that needs to be implemented.
This week: 5 hours | Total: 43 hours

Melani Hodge: I worked on setting up the server for the frontend in AWS on an EC2. I originally was going to try and set up the server on a remote host which ran into some security issues while trying to get it run. This is why I chose to run the server on an EC2. My goal is to get the backend up and running on another server so that our app can fully function (after setting up APIs). This week: 8 hours | Total: 41 hours

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

1. Continued need for algorithm code refactoring
2. Ongoing implementation of comprehensive error handling
3. Finalizing server deployment security configurations
4. Ensuring smooth frontend-backend integration

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

None

Plans for the upcoming week

Nick Kokott: Now that the drones are on the map, I can finish out the API call to move them and pass back the exact points that the drone followed on its path. As well as this implement a few tests to ensure full functionality.

Kenneth Schueman: Enhance the user interface based on testing feedback; add additional user guidance elements.

Everett Duffy: Complete what is looking like our final API call once drone movement is complete. We will begin rigorously testing our functionalities and finish the design document to reflect this.

Cole Stuedeman: This week's goal is to expand coverage on mapping and API testing. I will be doing more research on how to run different functionality tests with Django.

Sam Russett: Make progress towards completing at least one action item for frontend development, and make significant progress on frontend development sections of the final design document.

Melani Hodge: For this week, my goal is to fully setup the backend on another server and show communication between the backend and the frontend in the application. This will allow us to show the app fully functioning hopefully by the end of spring break.

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 he 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.