Product Research

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Project Overview

Goals:

- To be able to give a UI to users that displays their drones interacting with their points of interest for whatever reason they have given.
- Have drones fly in a shortest path to certain events while ensuring that they get around no-fly zones.

Scope:

- We have until beginning of May (potentially a couple weeks sooner) to deliver a web application that users can interact with to visualize their drones movement given a certain area with no-fly regions and events that may be able to occur.
- A backend as well as frontend will need to be developed with a channel that communicates securely both ways to ensure that the drones move in patterns according to our algorithms.

Problem Statement

Our problem is relatively simple: there really is no product out there that can give you a visualization of drones that are moving in a 3d plane and responding to particular events. This is rather important as if a farmer wanted to irrigate his crops in a more efficient way using drones they have no way to see that it's getting done. Or if a city manager needed to have drones go and check on electrical equipment in a city there is no way to plot that out and automate that for them. We will be using the algorithms that our advisors grad students are working on and implementing them in a way that allows for visualization of drones moving through a given map to solve problems that our users are having.

Related Products

FlytNow Hub

- This product is used to simply show users no-fly zones and planned drone paths that a user has to specify. You are also able to schedule automated drone missions as well, but again you need to plot the routes yourself.

DroneDeploy

- This product is an app that allows users to capture a photograph from an angle that will allow them to capture data for mapping and modeling of a given location. You can also request airspace authorization from the app.

Drone light shows

- Uses a predefined route for a fleet of drones to coordinate a cool looking effect.

Geo Zone Map

- Just depicts no-fly zones all over the world to be used for manual travel of drones.

Market Gap

- From our previous list of products it was evident that there was no automated way to have the drones fly on their own. Every single application had user input for where the drones would go
- Our objective with this project is to find a way for the user to just need to put in location data as well as a given number of drones and our application will do the rest.
- This could be revolutionary for people that don’t have the time to plot out drone routes and need events investigated on the fly without having to program the routes themselves.
- If there were fires or things like that a sensor could go off and a drone could respond instantaneously without someone even knowing. This would not only save time but man power as well.

New Ideas Generated

1. We may be able to call in data from the Geo Zone map in order to depict zones for people and not have them insert the location data themselves.
2. It may be a good idea to have users be able to generate LAANC airspace authorization from the application itself and not have it outsourced to another application.
3. Potentially have a way for the user to map out routes they would rather have drones take than automated ones that our algorithm would come up with.

Conclusions

In contrast to existing solutions, our solution is the only one that will have automated routes and control of the drones. All of the other applications utilize human control of the drones rather than having an algorithm control the routes of the drones. This will revolutionize the drone marketplace and allow for our clients to be able to automate more tasks that would otherwise take far longer time as well as more manpower.

As well as this we also have an interactive interface that many others do not get to see, this will ensure for our clients that routes are being handled correctly, and gives them confidence that our algorithms work properly in real time.