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P6 Status and Summary update

Work Done:

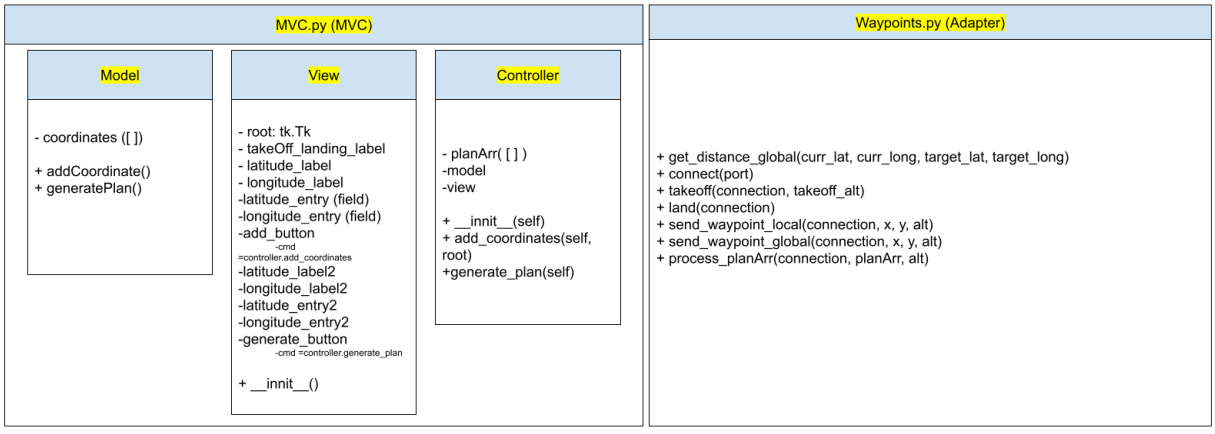
For this sprint we accomplished creating a simple UI that allows a user to enter in a sequence of coordinates, then communicate with a copter using MAVlink communication protocol. This took the form of a Python mvc for the functionality of the UI, and a python script that uses the pymavlink package to communicate with a copter. Additionally, we set up a simulation environment using Gazebo and ArduPilot SITL to simulate the Spot On drone in a virtual world model.

Changes or Issues:

We had lots of issues even getting this project off the ground. Originally, we were going to use C#, and potentially adapt into an AutoCAD plugin, but after learning there are no docs from the manufacturer on mavgen for C#, we shifted to java very briefly, due to the familiarity of use and ease in implementing OO patterns. At this point we learned that the existing MavLink development kits for Java were out of maintenance. Finally, we decided to pivot to the pymavlink package for python, which has extensive documentation and resources.

Pattern Use:

So far, we have only implemented the MVC pattern. Originally, we intended to use a factory for generating the plan files for the drone, but in the process of writing it we turned it into an adaptor pattern, due to the way it takes arrays of points and turns them into instructions for the drone to execute. We plan to add an observer and one other pattern in the future.



Next Iteration:

In the next iteration, we plan to polish the app and implement missing patterns. Polishing in this context means finalizing the Gui and error checking within the adapter script. For the gui, we plan to add a panel that will allow you to choose points in a picture to send to the drone, as well as a live list so you can view

and edit points to be added. We need to implement 2 more patterns. One of which will be an observer pattern for the visual array, and one more to round out the requirements.

Our next steps:

1. Research methods for adding an image to the GUI window, so that a user can click on a point to add a coordinate to the UI.
2. Re-evaluate the layout of the UI to include the new elements.
3.