

The backyard flyer was able to make a box based on preprogramed waypoints. The controls project was to take a goal location and tell the program to find the best way to get to that location depending on obstacles. The initial started code for this project was designed to make a diagonal path but without the ability to move in a diagonal direction it was limited to making lots of zigs-zags. After the implementation of the code it gained a new ability to get to the goal faster since it now had a new form of movement that of a diagonal motion.

This was accomplished by loading in the colliders .csv file so that the program knew where any buildings or other obstacles were. Then the code was modified to add in NW, SW, NE, SE into the movement abilities. This was then checked to make sure that the values did not go off the map area.

Based on the class notes I used collinearity to test and prune the waypoints to eliminate any that were not need if creating a straight line. This way my waypoints would be reduced to a straight line as we all know that is the fastest way to any location.

In order to tell where the drone was in relation I accessed is system to get its global position using `self._longitude`, `self._latitude`, and `self._altitude` as a tuple then converted this into a local using the `global_to_local` function().

I modified the location of the goal by giving a different default and this way I could show it would work with other locations and would also adapt to give goal locations.

I used many resources to complete this project including the class notes, github examples, student forum and even the slack channel. There are pieces of code modified based on these resources.