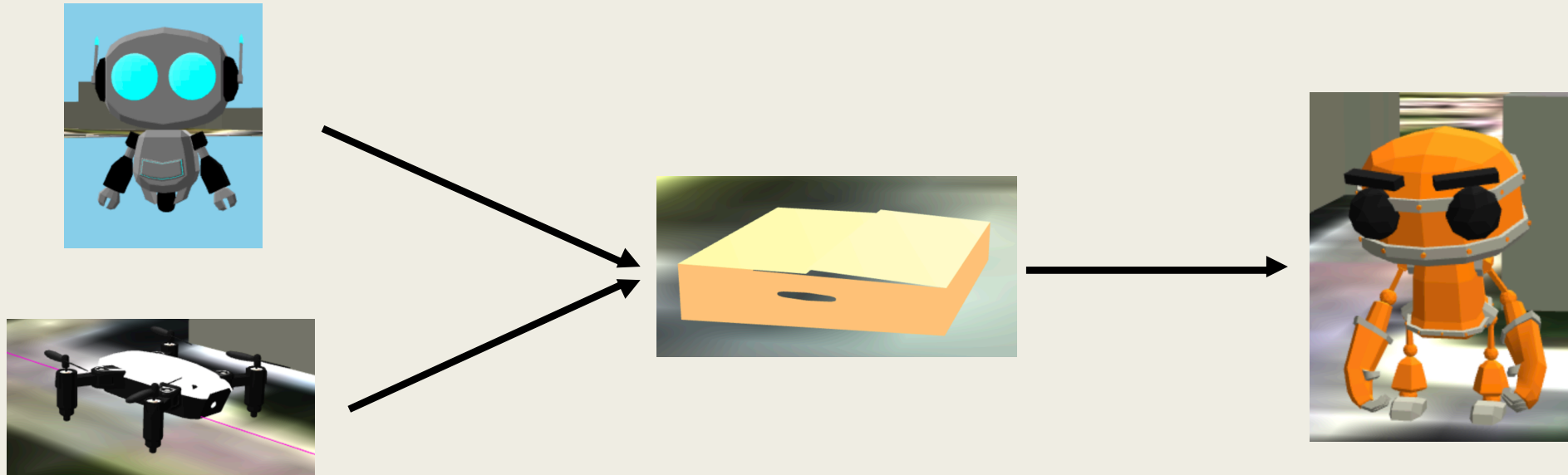


Introduction

The purpose of this project is to build a simulation models that simulate drone or robot picking up a package from a designated location and deliver to the scheduled customer in the University of Minnesota campus.



The simulation provides users with functionalities to modified the scheduled customer position, delivery package position, speed of the drone/robot and so on.

Iteration 1

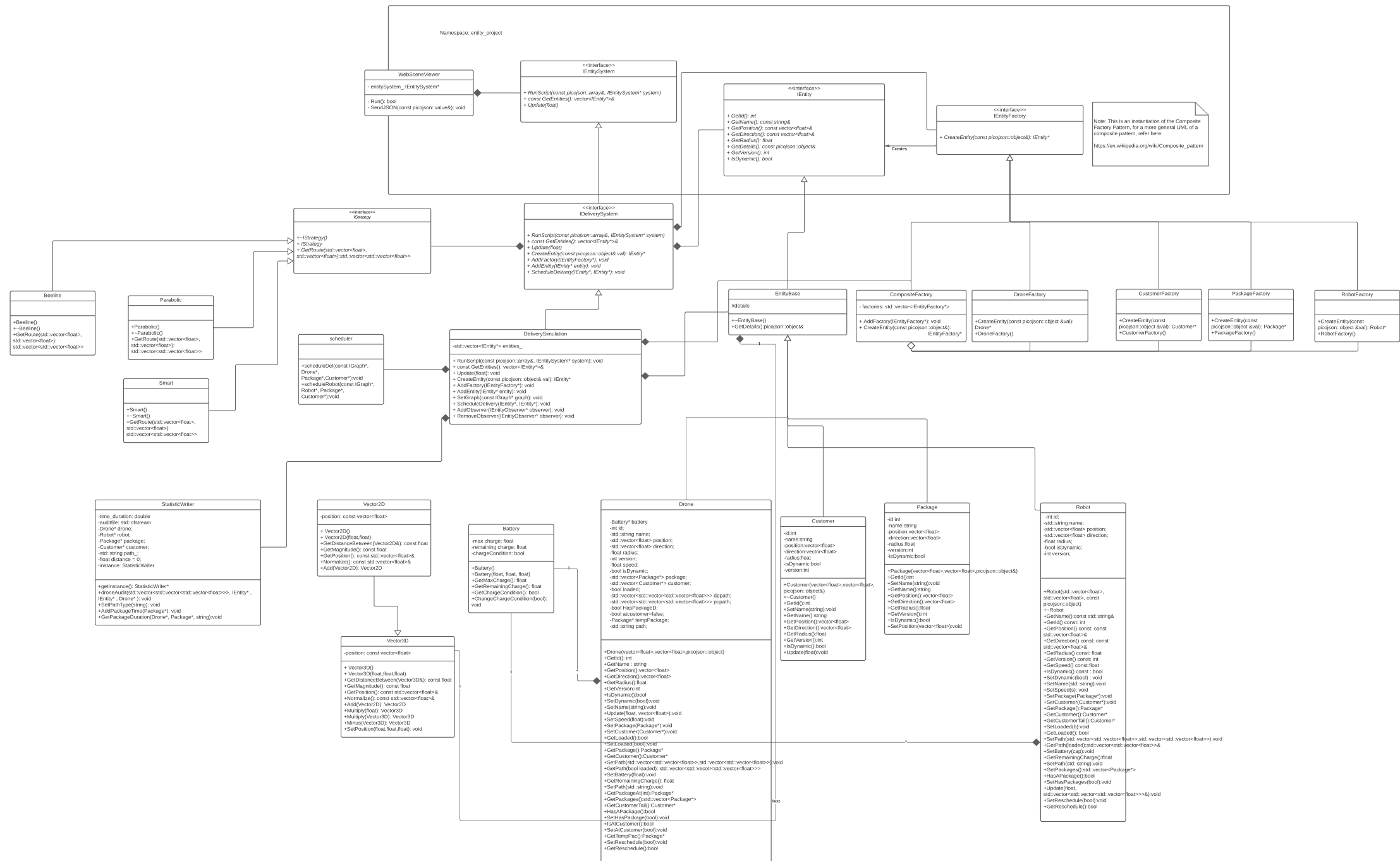
- Allowed a single drone to pick up a single package and deliver to the customer.
- Implemented the **Composite Pattern & Factory Pattern**

Iteration 2

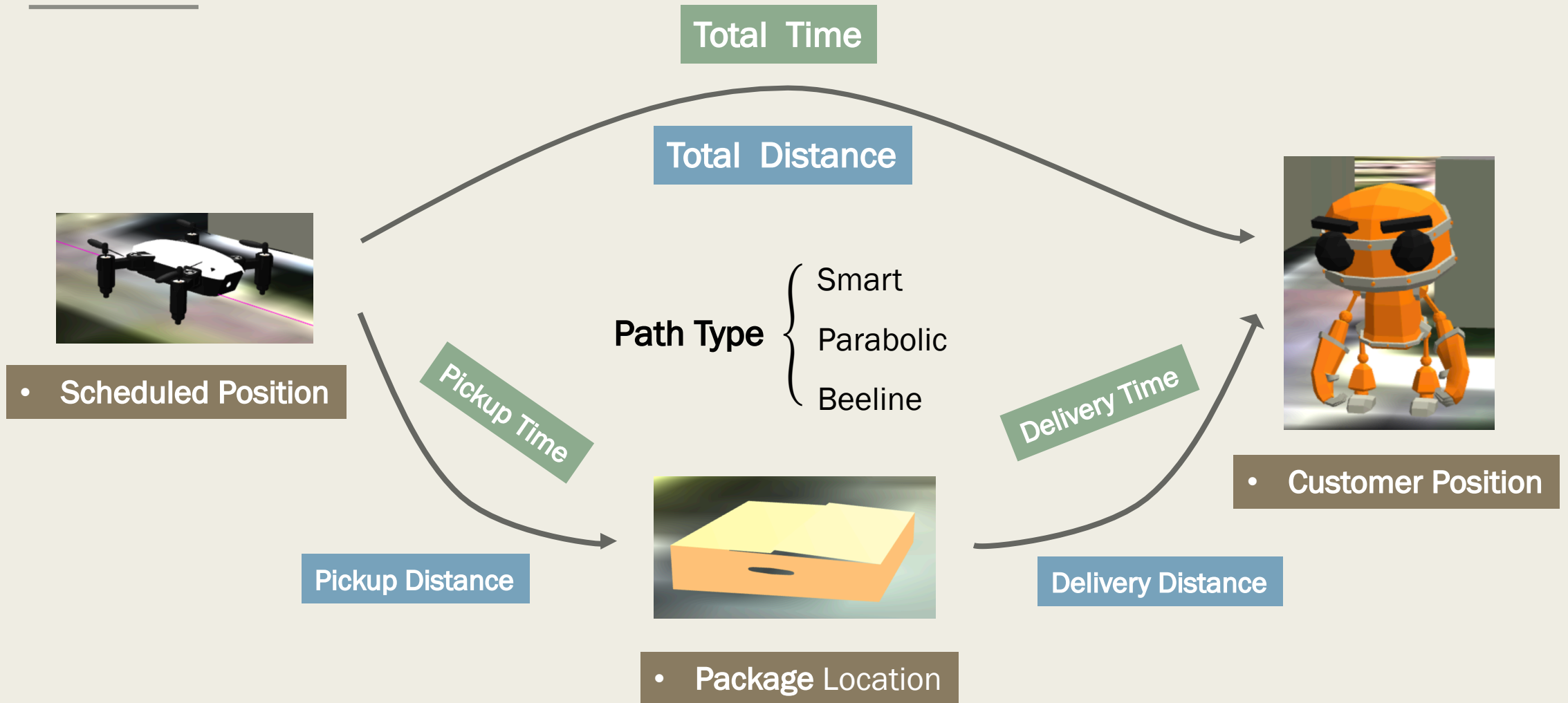
- Add Robot entity.
- Allowed multiple drones and robots to deliver multiple packages
- Implemented the **Observer Pattern & Strategy Pattern**
- Allow different drone route options

Iteration 3

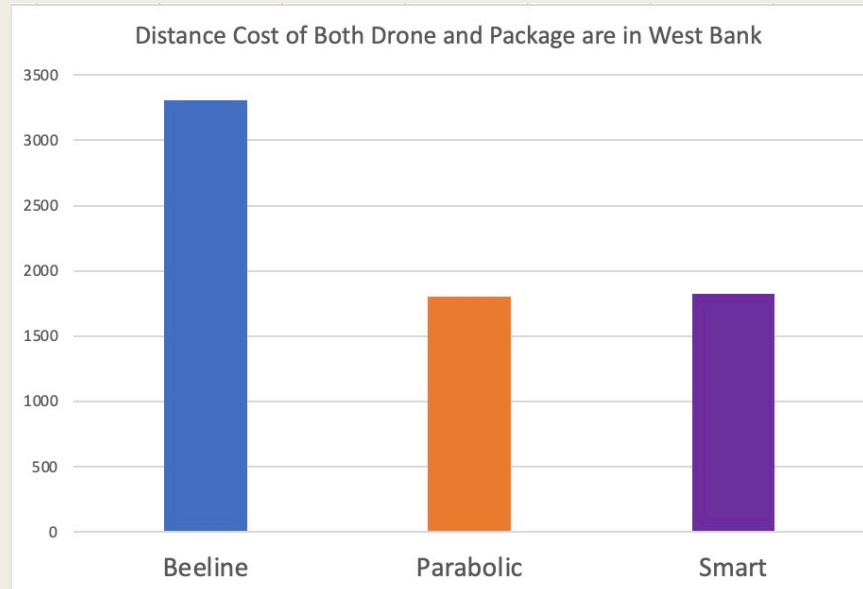
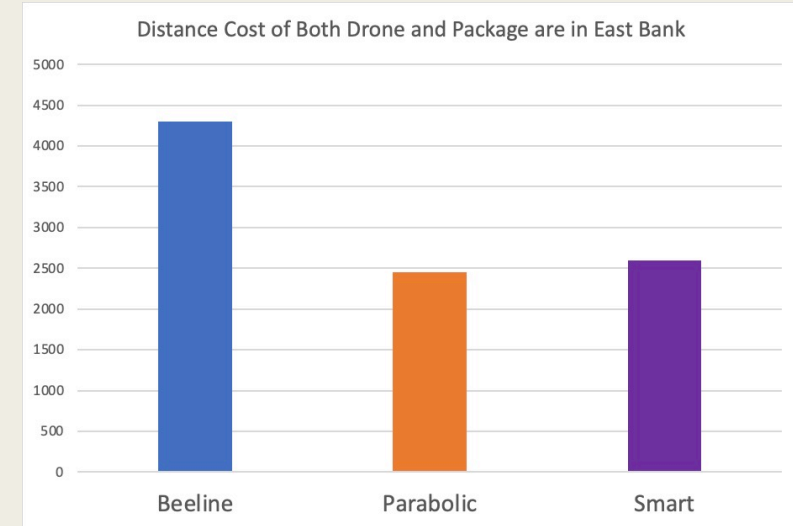
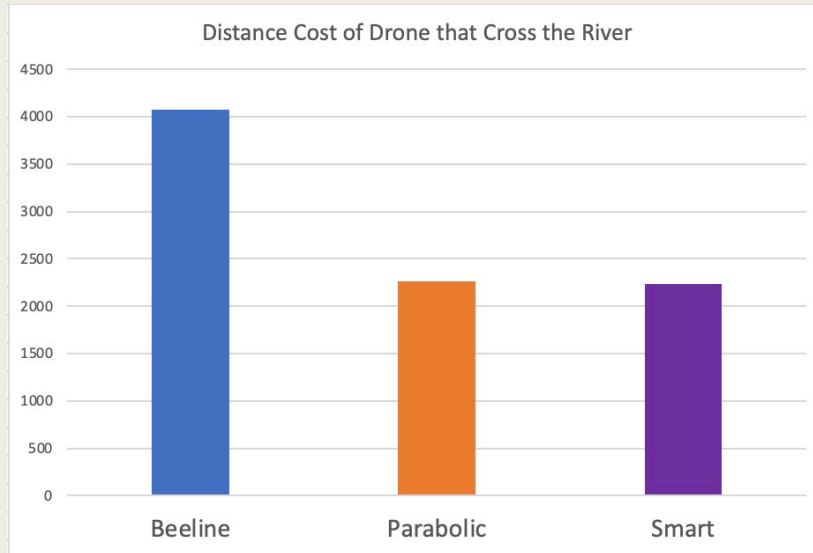
- Implemented the **Singleton Pattern**
- Implement the Drone Statistics feature



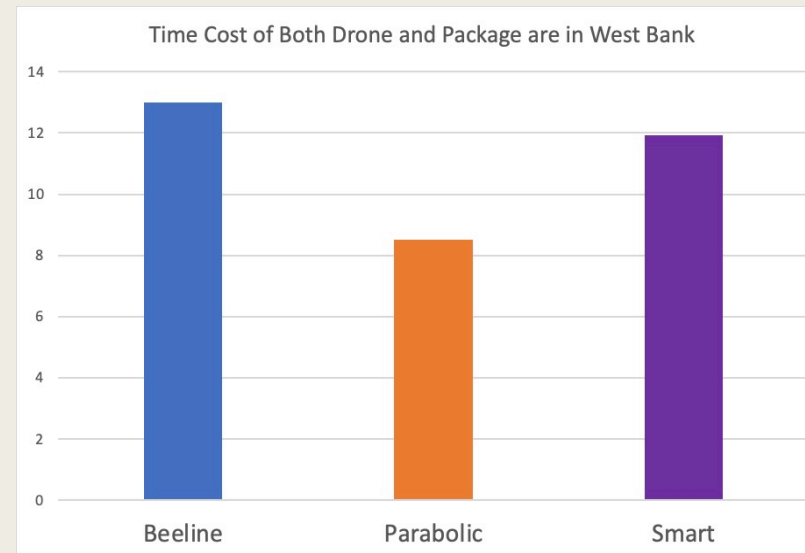
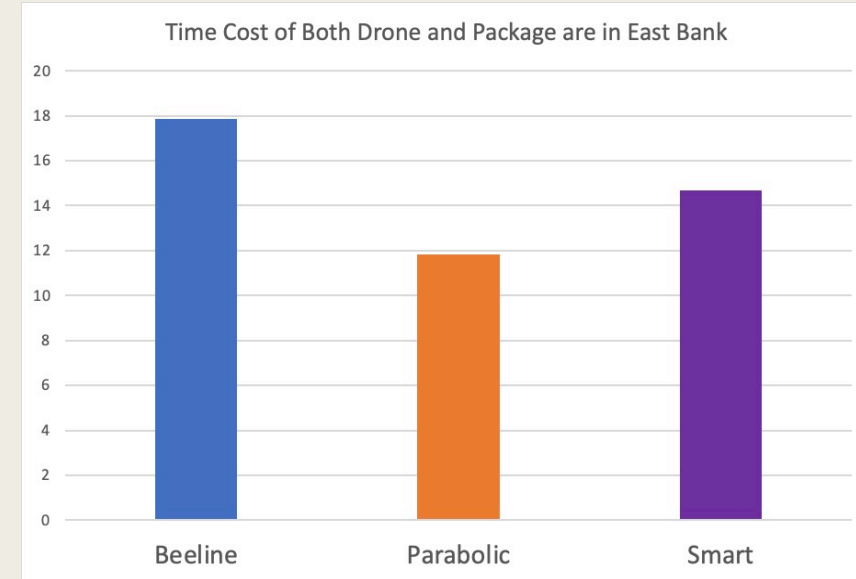
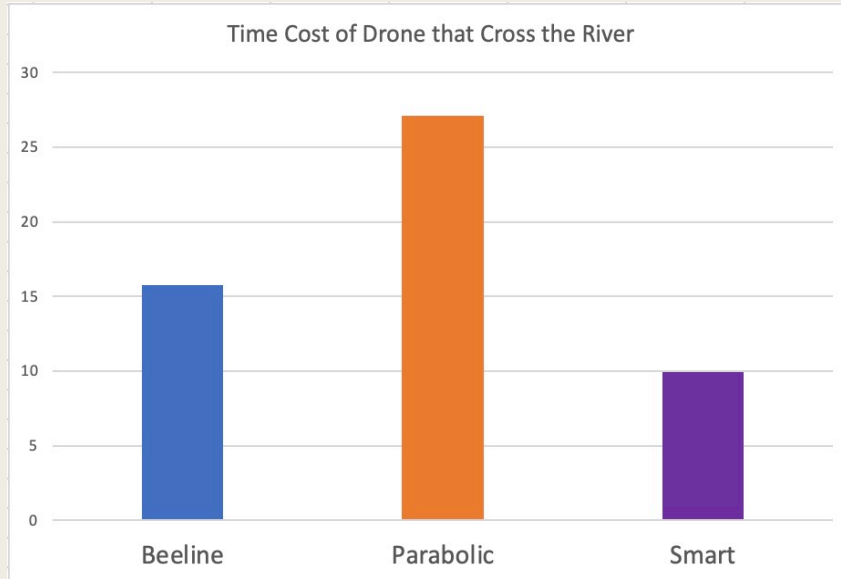
Data



Distance Cost



Time Cost



Future Work

Mix the Beeline/Parabolic/Smart route, so the route type can be auto switched based on the nearby environment.

Example:

- Auto detect the max height of the building around the route, so the height of the Parabolic and Beeline route can be changed based on the building height .
- Auto detect if the delivery pass the river. So, route type can be switched from Smart to Parabolic/Beeline for higher efficiency.

THANKS FOR
WATCHING



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