Optimal Path Algorithm Design

# Description

Problem: find an optimal path from drone to its destination and consider multiple factors at the same time

Known factors:

1. Drone batteries
2. Charging Stations
3. Weather
4. Other drones/Obstacles

# Algorithm

Dijkstra’s algorithm recall: finding the shortest path between nodes.

Possible reduction from drone optimal path to Dijkstra:

* Weather -> more battery usage -> path cost
* Starting point(source), Destination(sink), Charging Stations(nodes)
* Connections -> paths
* Battery -> used to calculate reachable nodes
* Obstacles -> bypass -> extra path cost
* 3D consideration:
  + Descends -> lower battery cost
  + Aesends -> higher battery cost

Detailed paths explanation:

* Source -> sink
* Source -> nodes
* Nodes -> sink
* Nodes -> nodes

Possible path constraints:

* Paths that are longer than the maximum range of drone should be removed
* The source -> nodes paths that exceeds the remaining battery should be removed

Construct a graph using the specified reduction above

Known factors (has been taken into design)

# Phase one