1.2 Level of Requirements

System level:

- Be a REST-based Service running in a docker container
- Get the URL for the ILP REST service from an environment variable
- All tasks should complete within 30 seconds
- Listen on the expected port
- Code should be well-structured, readable and understandable by future developers
- Code should be robust and not crash due to invalid input or runtime errors
- Valid HTTP response should always be returned
- Return results as JSON
- Exceptions should be handled gracefully

Integration level:

- Receive dynamic data from the ILP REST service (integrates our system with the external REST service)
- Compute 2D flight paths using longitude and latitude coordinates and an appropriate drone(s) (integrates drone selection and drone movement units)

Unit level:

- Validate orders against drone capabilities (cooling/heating, capacity, maxCost)
- Assign available drone from service points
- Ensure flight paths start and end at the same service point
- Ensure drones only move in 16 directions (0°, 22.5°, 45°, 67.5°, 90°, 112.5°, 135°, 157.5°, 180°, 202.5°, 225°, 247.5°, 270°, 292.5°, 315°, 337.5°) where 0° is East
- Ensure each movement step is 0.00015 degrees
- Ensure drones avoid no fly-zones, including corner cutting
- Destination should be considered reached if within 0.00015 degrees
- Total cost should be calculated as costInitial + (moves × costPerMove) + costFinal