Requirement List

- **Functional Requirements:**
  - Safety

    Goal: Drone can complete the delivery without cause any damages
    1. The drone must avoid crushes to buildings during route planning.
    2. The attachments between delivery box and the drone must be strong.
    3. The drone must not enter the no-fly zone.
    4. The drone must carry between 1 and 4 pizzas in a single delivery.
    5. The drone must not take any deliveries if the remaining battery is not enough to complete it.

  - Correctness

    Goal: Drone can complete the delivery without cause any errors.
    1. Once the drone enters the central area, it must not leave until it delivers current order, to avoid cause any false deliveries.
    2. The drone must not fly in arbitrary direction, it has to be one of the 16 compass directions.
    3. The drone must hover for one move once when it reaches its current destination, i.e., target restaurant and drop point on Appleton Tower.
    4. The drone must be launched and return to the top of Appleton Tower every day.
    5. The drone must have an angle of null when hovering.
    6. The drone must have every move when flying is a straight line of length 0.00015 degrees.
    7. The drone must be able to navigate and find path to its target destination.
    8. The drone must use order number - "no-order" when the drone is making the flight back to the top of the Appleton Tower when all of the day's orders have been delivered.
    9. The drone has at most 2000 moves before it runs out of battery.
    10. The system must have a fixed delivery cost – £1 apply to every order.
    11. The system must be able to filter any invalid orders.
    12. The delivered order must have order outcome stated "delivered".

- **Measurable Quality Attributes**:
  - Resilience
    1. The system should close under extreme weather.
    2. The drone should be able to perform well under the general environment and handle extreme weather for a safe landing.

  - Performance
    1. Response Time: The system should have a response time of 60 seconds or less for plan and plot drone daily flightpath.
    2. Memory usage: The amount of memory the system uses to generate daily files should keep low.

- Reliability
    1. Mean time between failures (MTBF): average time between system failures should be recorded and used for future analyse.
    2. Availability: The percentage of time that the system is available for delivery.

- Cost Effectiveness
    1. Repair: The drone should try to avoid most event to prevent damages.

- **Qualitative Requirements:**
    - Accessibility
        1. The system shall able to use by everyone, including students with disabilities.

    - Maintainability
        1. The system shall be well-structured, so is maintainable for future.

    - Usability
        1. The system shall be easy to use.

    - Efficiency
        1. The system shall find optimal delivery path to maximize efficiency to satisfy most consumers' needs.