

FLY UC

PROTOTYPE 1

SYSTEM DESIGN REVIEW

Version 1.0

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Authors:

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1. Introduction

1.1 Purpose and Scope

Prototype 1, hereafter referred to as P1, shall be developed by the FlyUC team with the purpose, scope, objectives, success criteria, and safety/ legal considerations and limitations as defined by the Mission Concept Review of Prototype 1.

1.2 Document Overview

This document shall serve to define the technical requirements and limitations; as well as their priority in the P1 system.

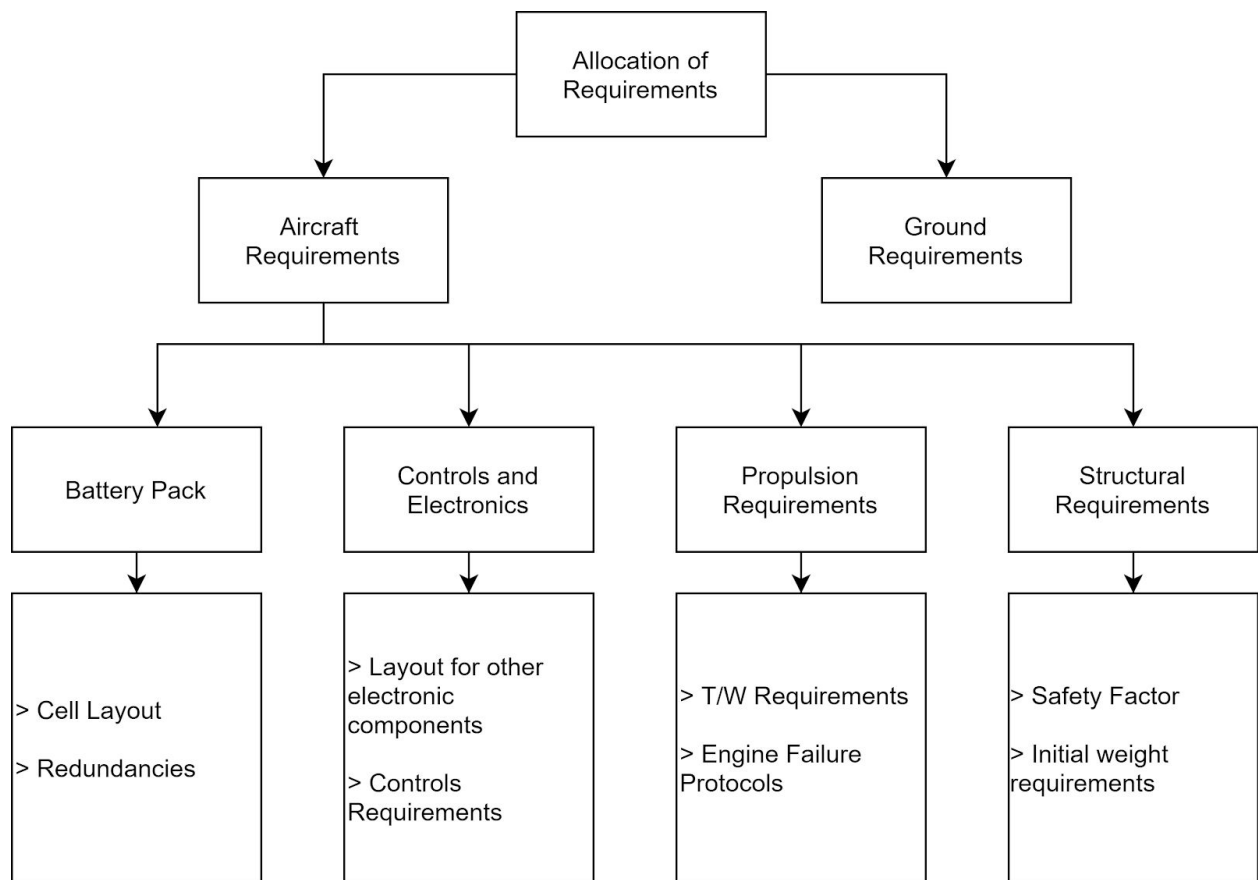
1.3 Responsibility and Change Authority

The responsibility for the development of this document lies with the President(s) and the Lead of Operations. All changes shall be submitted to and agreed upon by the President(s) and the Lead of Operations; as well as the respective Sub-Team Leads for changes to specific subsystems.

2. Referenced Documents



3. Allocation of Requirements



Propulsion

1. Radial separation numbers
2. max thrust from u7s in coax
3. separation ratio

Structures

- 1.

Electronics

1. master list of components with quantities
2. battery layout
3. foam and other materials
- 4.

Requirements

- ❖ Ground Requirements:
 - Radio Controller (xbox style)
 - Charging stuff
 - antenna?
 - GCS
- ❖ Battery pack
 - Each module will consist of:
 - Thermistor - to monitor temp of each cell; which will be connected to the BMS
 - Fuse - to prevent excess current from overloading the battery (protection)
 - Batteries = flat cells
 - Passive cooling system = foaming
 - Isolation relay on + and - signs of pack
 - BMS for each pack
- ❖ Controls
 - Pixhawk
- ❖ Electronics
 - Onboard computing = Arduino for connecting sensors and other hardware
- ❖ Propulsion
 - Radial Separation
 - Engine failure protocols
 - use u7s
- ❖ structures
 - safety factor: 1.5
 - manufacturability at 1819
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5. Notes

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