Baseline Review

DSE All Plastic UAV

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Contents

Chapter 1

Introduction (1 page)

This is the Baseline Review

Chapter 2

Functions and Requirements of the system (5 pages, 2 text, 3 diagrams)

In this chapter the the requirements for the whole system are investigated. The requirements are found using a Requirement Discovery Tree (RDT), as is explained in section 2.3. Also the functions to meet this requirements are organized. The organization of the functions is done using two separate tools, the Functional Flow Diagram (FFD) and the Functional Breakdown (FB). The FB is discussed in more detail in section 2.2, whereas the FFD is clarified in section 2.1.

2.1 Functional Breakdown

The Functional Breakdown is a diagram used to find all functions the product should be able to perform. These functions are performed by a combination of minor functions. By putting all minor function under the corresponding major functions, which lead to the main function to be performed by the observation platform. The FB can be seen in figure **??**.

2.2 Functional Flow Diagram

To find the required functions for different mission elements the Functional Flow Diagram is used. The FFD shows in which order different mission segments are performed, as well as what happens per segment. The flow diagram for the mission is shown in figure **??**

2.3 Requirement Discovery Tree

/Figures/FBD/FBD.png

Figure 2.1: FBD for the all plastic high altitude observation platform

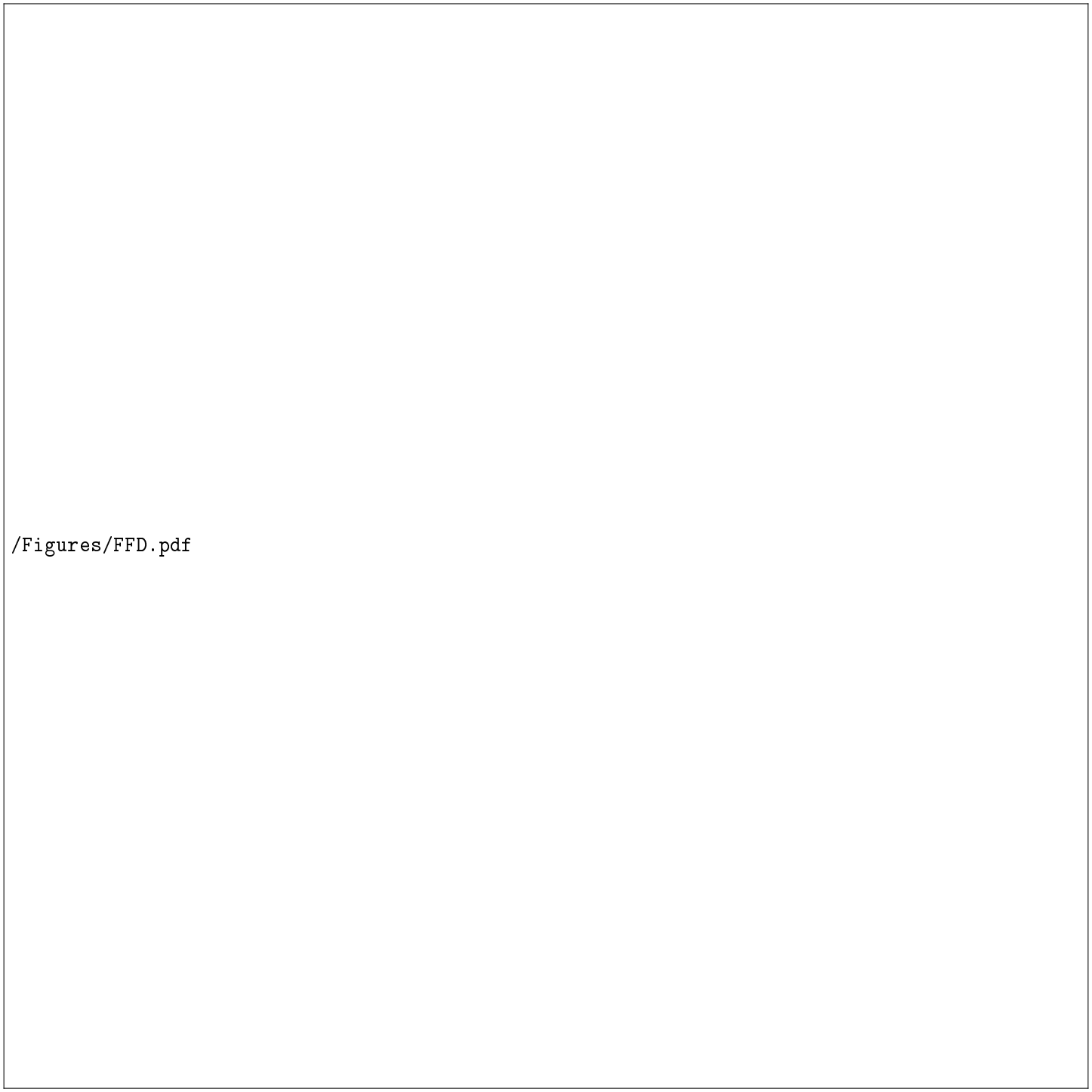

Figure 2.2: FFD for the all plastic high altitude observation platform

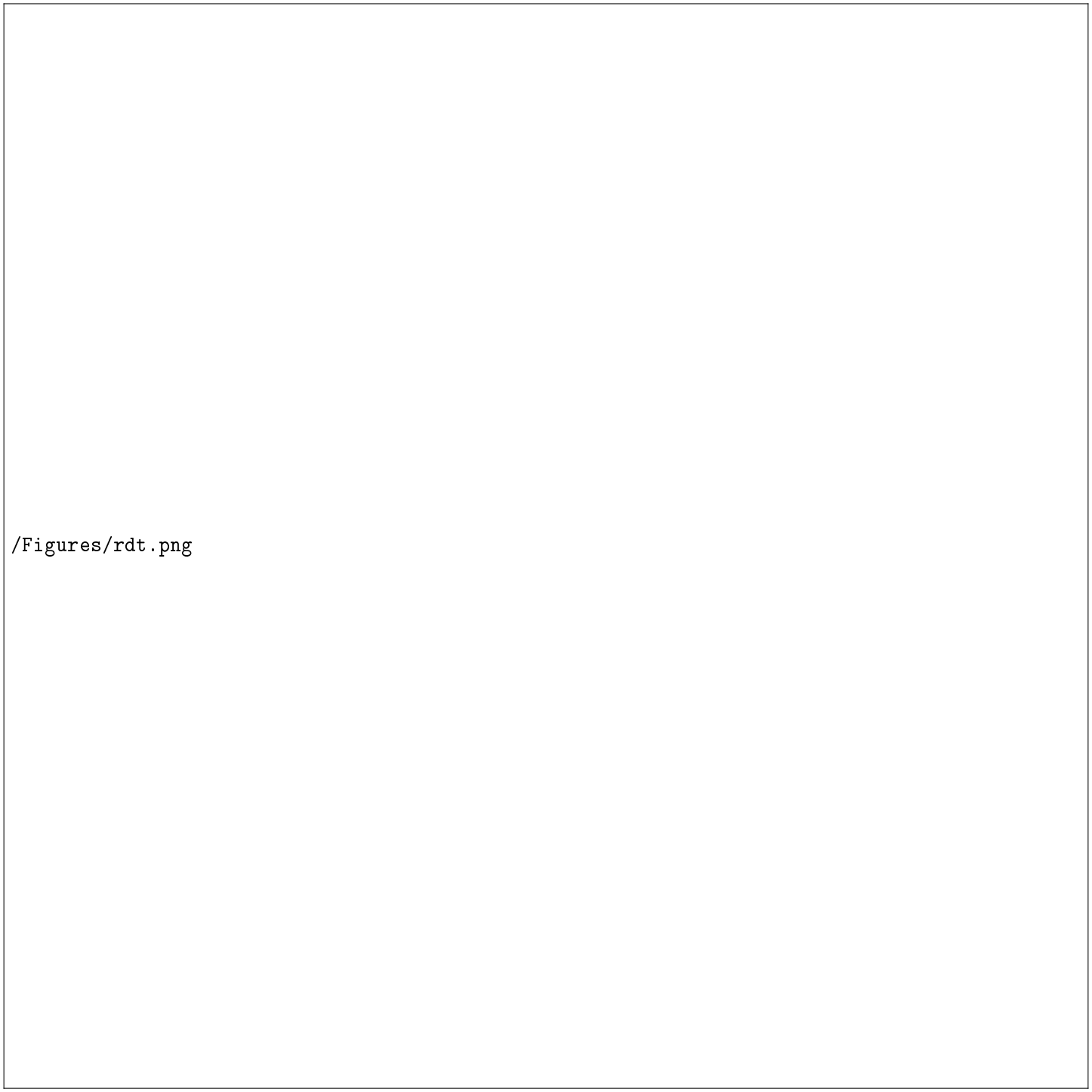

Figure 2.3: RDT for the all plastic high altitude observation platform

Chapter 3

Design Options (6 pages excl. DOT, is in appendix

Before even coming up with several concepts or a design, it is useful to expand all potential design options.

Chapter 4

Resource Allocation and Budget Breakdown (3 pages)

In this chapter the technical resources for the system are defined and allocated to the different necessary subsystems of the vehicle. Since the concept of the vehicle is still unknown, different general concepts will be discussed. The technical budgets that are important for this mission are the mass budget, the power budget and the link budget computing power budget. The mass budget assigns estimated percentages of the overall weight to the different parts of the vehicle. It will be a preliminary estimation to get limits on the weight of components to make sure the total weight stays within a margin of the estimated total weight. The power budgets allocates the power that is generated and can be used to the systems that require power. The computing resources budget allocates the available computing power necessary for the mission to the subsystems that require computing power. Other budgets are the height budget, the endurance budget and the dimensions budget. These depend on the concept and are first estimates on the possible heights, maximum endurance and maximum dimensions.

Zeppelin

Blimp

Chapter 5

Market analysis (4 pages)

Chapter 6

Sustainable development (1 page)