Delft University of Technology

Laser Swarm

Project Plan

Design Synthesis Excersise

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Abstract

The project plan provides an overview of the project management of group N13. This document contains the work flow, work breakdown and HR (Human Resource) management structures as well as the time planning involved in assessing the feasibility of using a swarm of satellites for laser altimetry.

Contents

Chapter 1

General Summary

1.1 Introduction

The goal of this Design Synthesis Exercise is to design a constellation of satellites, consisting of one low-power LiDAR emitter and several photon counting receivers. Existing system mainly consist of single platforms, which are too large and too expensive, and require very precise and powerful instruments to acquire any form of useful data. The purpose of this project is to asses the possibility of reducing operational and manufacturing costs of satellite laser altimetry as well as increasing the accuracy of the processed data.

As part of the DSE, the primary goal of the project planning document is to describe the tasks and allocation of resources of the project group in the proper context. Through the use of appropriate System Engineering and Project Management concepts, a detailed plan is established.

The rest of this chapter will describe the project in general and specify the requirements of the system. The following chapter contains the Project Management information such as the Work Flow Diagrams, Work Breakdown Structure, human resource information and time allocation breakdown.

1.2 Mission Need Statement

Demonstrate that a satellite constellation, consisting of a single emitter and several receivers, would perform better (in terms of cost, lifetime and results) than existing systems.

1.3 Project Objective Statement

To design a satellite constellation of a single LiDAR emitter and a swarm of receivers, with a team of 10 people. Verify the results using an advanced simulation.

1.4 Requirements

The requirements go here

1.5 System Description

The requirements go here

Chapter 2

Technical Design Development

2.1 Work Flow Diagram

The work flow diagrams

2.2 Work Breakdown Structure

The work breakdown

2.3 Project Approach Description

The project approach description goes here

2.4 Organizational Breakdown Structure

The org breakdown

2.5 Timeline

The timeline and Gantt

Chapter 3

Approach with respect to sustainable development