1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) document outlines the requirements for a web-based spacecraft simulator designed to imitate the approach to, landing on, and mining of the asteroid Psyche. The simulator aims to facilitate mission planning for scientists and engineers while providing educational resources for a broader audience.

1.2 Scope

The simulator will allow users to visualize spacecraft dynamics, landing strategies, and mining operations on Psyche. It will cater to various user groups, including NASA personnel and the general public, to enhance understanding and support future sample mining mission planning.

1.3 Definitions, Acronyms, and Abbreviations

- **SRS:** Software Requirements Specification

- **NASA:** National Aeronautics and Space Administration

- **UI:** User Interface

- **API:** Application Programming Interface

1.4 References

- NASA's Psyche mission documentation

- Academic papers on asteroid mining and spacecraft dynamics

- Web Content Accessibility Guidelines (WCAG) for usability standards

1.5 Overview

The remaining sections of this document detail the overall product description, specific requirements (functional and non-functional), use cases, and other necessary details to guide the development and implementation of the spacecraft simulator.

1.6 Elicitation Identifiers

The following identifiers signify which elicitation methods were used to determine requirements and will follow the requirement in parentheses:

- B   – Brainstorming
- CS – Card Sorting
- I   – Introspection
- P   – Profiles
- SC – Scenarios
- TA – Task Analysis

1.7 Feature priority

Each requirement will have one of the following priority levels. The priority reflects the feature's implementation need. The priority level will follow the elicitation techniques after each requirement in square brackets.

- Critical – It is vital the feature be implemented for application functionality.
- High – The feature implementation may be delayed, but must be functional prior to first release build.
- Normal – This feature may be delayed for a future release build.
- Low – The feature is not necessary for full functionality, but is a requested feature for a future release.