JPL - Moon Augmented Reality
Software Requirement Specifications

Group 2

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Contents

Version History

Date	Description	Version
12/04/2025	Updated for snapshot 1	1.0
12/06/2025	Updated for snapshot 2	2.0
12/08/2025	Updated for snapshot 3	3.0
12/10/2025	Updated for snapshot 4	4.0

1 Introduction

1.1 Purpose

The purpose of this Software Requirement Specification (SRS) is to define the functional and non-functional requirements of the Moon Augmented Reality system. It ensures that all stakeholders have a clear understanding of the system's objectives, capabilities, and constraints before development begins.

1.2 Intended Audience

This document is intended for project stakeholders including software developers, project advisors, testers, and Jet Propulsion Laboratory (JPL) collaborators. It may also be useful for future teams who will maintain or extend the system.

1.3 Overview of the Software

The Moon Augmented Reality system allows users to upload telescope images of the Moon and receive augmented overlays highlighting lunar features such as craters, maria, and landing sites. It integrates JPL's MoonTrek datasets with user-provided images to generate interactive visualizations. The system also aims to improve image registration accuracy, support telescope-computer communication, and generate 3D models of the Moon, Earth, and Sun. These models will annotate the location and time of image capture.

2 External Interface Requirements

2.1 User Interface

The system provides a web-based interface built with Vue.js. Users can upload lunar images, view augmented overlays of lunar features, and interact with a 3D model of the Moon generated from JPL datasets. The interface is responsive and accessible across desktop and mobile devices.

2.2 Software Interfaces

The system communicates with NASA's MoonTrek API for lunar datasets, internal databases for storing user-uploaded images and metadata, and RESTful APIs to handle

client-server communication. It also uses Express.js for backend operations and MySQL for data storage.

3 Legal and Ethical Considerations

3.1 Data Storage and Privacy Considerations

User-uploaded images are stored securely with encryption. Metadata such as upload time and telescope type may be collected, but no personal identifiers are stored. Users retain ownership of their images. The system complies with data protection standards and ensures secure access to stored content.

3.2 Legal and Ethical Issues

The system complies with NASA's data-sharing policies and ensures user consent for uploaded images. Ethical considerations include protecting user privacy, preventing misuse of lunar data, and ensuring transparency in how data is processed. The system avoids collecting sensitive personal data and provides clear terms of use.

Glossary

Acronym	**Long Version**
SRS	Software Requirement Specification
UI	User Interface
API	Application Programming Interface
DB	Database
AR	Augmented Reality
JPL	Jet Propulsion Laboratory
MT	Moon Trek

References

Reference Name	**Source**
Software Requirement Specification Template	CSULA
MoonTrek API	https://trek.nasa.gov/tiles/apidoc/trekAPI.html?bod
Vue.js Documentation	https://vuejs.org/guide/introduction.html
Express.js Documentation	https://expressjs.com/en/starter/installing.html
MySQL Workbench	https://dev.mysql.com/doc/workbench/en/