First Deliverable

**Specification Feasibility**

Specification feasibility assesses whether the project can meet its technical and performance specifications based on available resources and technologies. The key factors include in case of remote sensing debris-covered glaciers is;

**Data Sources, Spatial and Temporal Resolution, Hardware and Software, Budget Constraints and Data Transmission.**

# Specification

* Evaluate the availability of relevant remote sensing data sources
* The type of debris to be detected and mapped
* The spatial resolution and accuracy required
* The temporal resolution required
* The cost and logistical constraints

**Information Feasibility**

Information feasibility refers to the availability of the data and resources needed to meet the requirements of a system or project. Information feasibility focuses on whether the remote sensing project can provide meaningful, accurate, and actionable information. For mapping debris-covered glaciers, the following aspects are consider;

**Data Quality, Relevance to Objectives, Data Fusion and Integration, Data Fusion and Integration, Data Accessibility, Environmental Factors and Data Updating.**

## Information

* Remote sensing data of the study area
* Software for processing and analyzing remote sensing data
* Trained personnel to interpret the remote sensing data

**Vision Document**

Project: Remote Sensing of Debris-Covered Glacier

**1. Vision**

Our vision is to develop a remote sensing system for detecting and mapping debris-covered glaciers. This system will provide valuable information for disaster risk management, water resource management, and climate change adaptation.

**2. Success criteria**

The success of this project will be determined by:

* The accuracy and reliability of glacier mapping and change detection.
* User satisfaction with the accessibility and usability of the information.
* The project's impact on research, policy decisions, and public awareness regarding debris-covered glaciers and climate change.

**3. Benefits**

Our system will provide a number of benefits, including:

* Improved disaster risk management: Our system will help to identify and assess the risks posed by debris-covered glaciers. This information can be used to develop early warning systems and evacuation plans.
* Improved water resource management: Our system will help to monitor the volume and distribution of debris-covered glaciers. This information can be used to manage water resources more effectively.
* Improved climate change adaptation: Our system will help to track the impact of climate change on debris-covered glaciers. This information can be used to develop adaptation strategies to reduce the risks posed by debris-covered glaciers.

**4. Scope**

* Remote sensing data acquisition and processing.
* Machine learning algorithms for image analysis and classification.
* Web and mobile application development for data visualization.
* Data storage, management, and accessibility.
* Ground validation and accuracy assessment.

**5. Target Audience**

* Climate scientists and researchers.
* Government agencies responsible for disaster management.
* Environmental and conservation organizations.
* Educators, students, and the public interested in climate change.

**Risk List**

**Technical risks:**

* The remote sensing data may not be of sufficient quality to accurately detect and map debris-covered glaciers.
* The software for processing and analyzing the remote sensing data may not be reliable or accurate.
* The trained personnel may not have the necessary skills and experience to interpret the remote sensing data accurately.

**Schedule risks:**

* The project may not be completed on time due to unforeseen technical challenges or delays in acquiring the necessary data and resources.

**Budget risks:**

* The project may exceed its budget due to unexpected costs or changes in the scope of work.

**Machine Learning Performance Risk**:

* Machine learning models not meeting performance expectations or overfitting the data.

**Stakeholder risks:**

* The stakeholders may not be satisfied with the results of the project if they do not meet their expectations.
* The stakeholders may not be willing to provide the necessary resources or support for the project.

**Environmental risks:**

* The project may have a negative impact on the environment, such as if it requires the collection of field data in sensitive areas.