# Data Integrity and Abuse Prevention for Environmental Rescue

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# **Problem Statement**

- Citizen science is a growing tool to help scientists gather data without physically being there themselves.
- This data is not often of good enough quality to be used for analysis.
- The data also is not checked for tampering and integrity.
- Citizen science is not very common in small communities globally, where most biodiversity exists.
- Facilitating the way citizen science is done helps conservation and biodiversity
- Currently, scientists are calling for 30% of the earth to be protected by 2030.
- 17% of earth is currently conserved.



# Solution Overview

- Android application
- Direct Users to GEDI satellite locations
- Offline routing
- Simple and Basic UI
- Lightweight data transfer
- Collaboration with Forest Frames (Group 2)



# **Key Requirements**

Functional Requirements

- The system will allow the user to login to an account
- ► The system will display a map of GEDI satellite footprints
- The system shows a route to a GEDI footprint
- ► The system confirms the user is within a GEDI footprint
  - ▶ The system identifies the user's starting location.
  - ► The system "listens" for movement from the user.
  - ▶ The system actively calculates user's new location.
  - The system alerts user when the user location is within the acceptable GEDI footprint range.

# **Risk and Feasibility**



- Poor connection quality when uploading Data
  - Taxing on data usage
  - Repeated Upload
- Inaccurate sensors on a device
  - Unable to accurately track a user offline
  - Unable to correctly verify the location of a user
- Setting routes through unknown areas
  - Safety of users
  - Ability to make it to destination

#### Schedule

- Tentative schedule
- Details still need to be worked on with our partner group

Task Name	Duration	Start	Est. End	2nd Half January	1st Feb	2nd Feb	1st Mar	2nd Mar	1st Apr	2nd Apr	1st May
Functional Map with GEDI Data	21 Days	1/13/2025	2/3/2025								
Location Verification	14 Days	2/3/2025	2/17/2025				_				
Data Collection	14 Days	2/17/2025	3/3/2025								
Offline Data Collection	28 Days	3/3/2025	3/31/2025								
Data Verification	14 Days	3/31/2025	4/14/2025								
Data Encryption	14 Days	4/14/2025	4/28/2025								
Upload Data	11 Days	4/28/2025	5/9/2025								
Upload Data	14 Days 11 Days	4/14/2025	5/9/2025								

# Closing

Mobile Application in collaboration with Forest Frames

Offline tracking and data verification

Promotion of Conservation and Biodiversity

#### Next Steps:

- Finishing up our Client Demo
- Refining our schedule to have a better layout of next semester
- Defining application specific roles between our group and Forest Frames