MapONE

One System for All Planetary Maps

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Ricardo McCrary, and Jake Stuck

Meet the Team

Samantha Milligan

Team Leader, Customer Coordinator, Coder

Ricardo McCrary

Customer Coordinator, Coder

Jake Stuck

Architect, Coder

Michael Nelson

Recorder, Release Manager, Coder

Meet the Sponsors & Mentor

Dr. Sarah Black

USGS, Research Physical Scientist

Marc Hunter

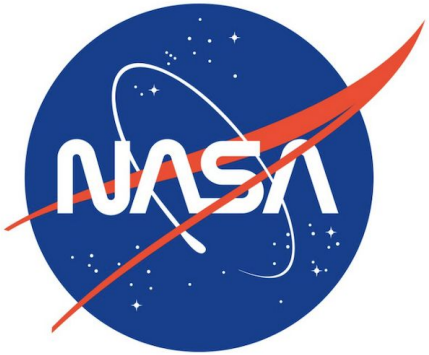
USGS, IT Specialist

Melissa Rose

Mentor, PhD Student

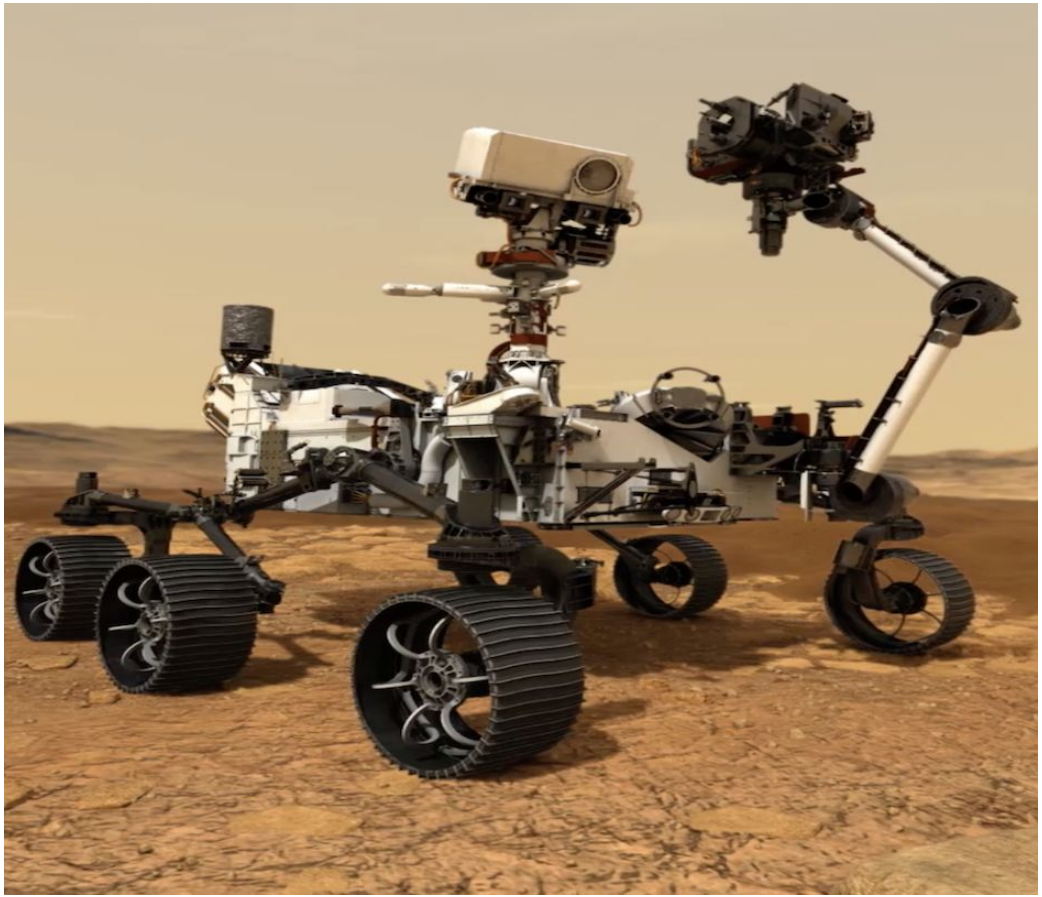
Client Overview

- **United States Geological Survey (USGS)** Planetary Geologic Mapping (PGM) Program
- Develops planetary maps
- Assists NASA space missions



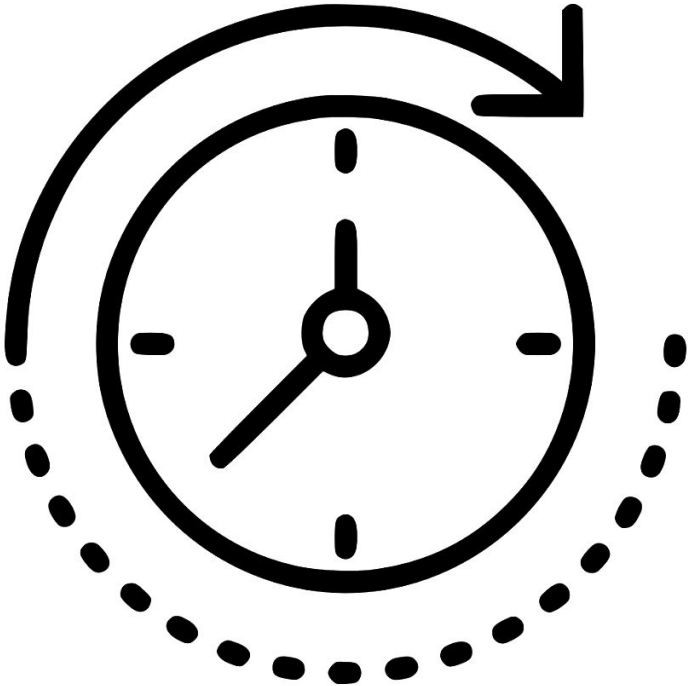
Planetary Maps

- Essential to space exploration & **landing sites**
- **Mars Rover** 2020 Perseverance

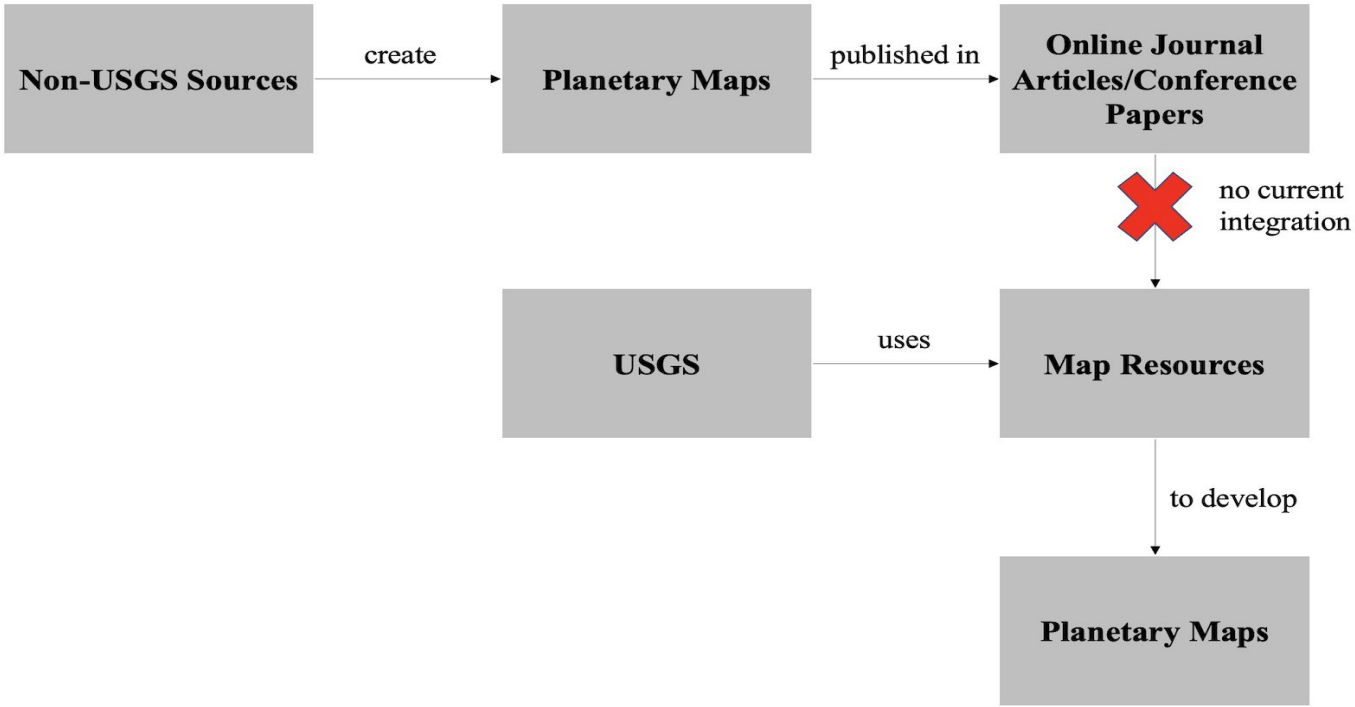


Problem Statement

- **Time-consuming** to locate map products
- Possible **citation bias**
- Lack of **automation** for resource collection

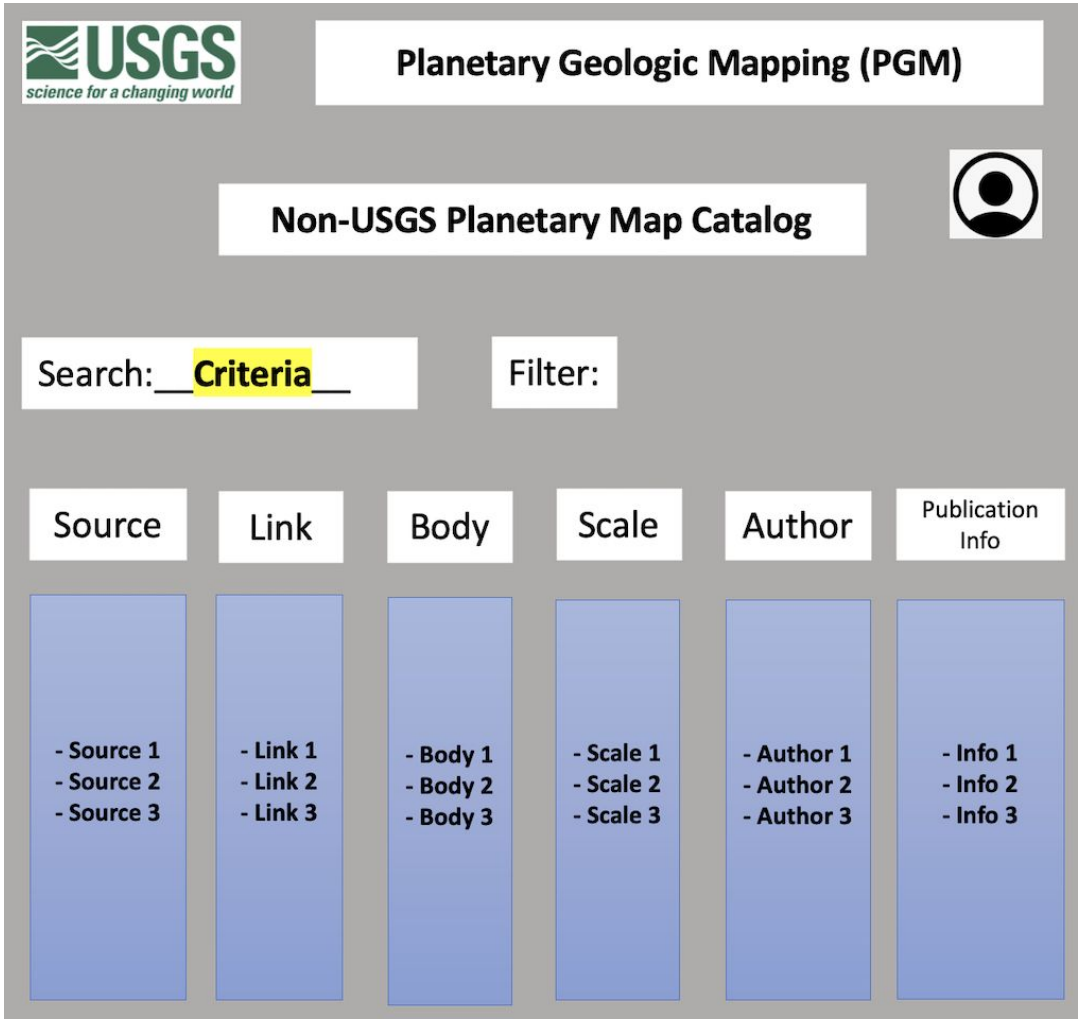


Problem Statement



Final Product

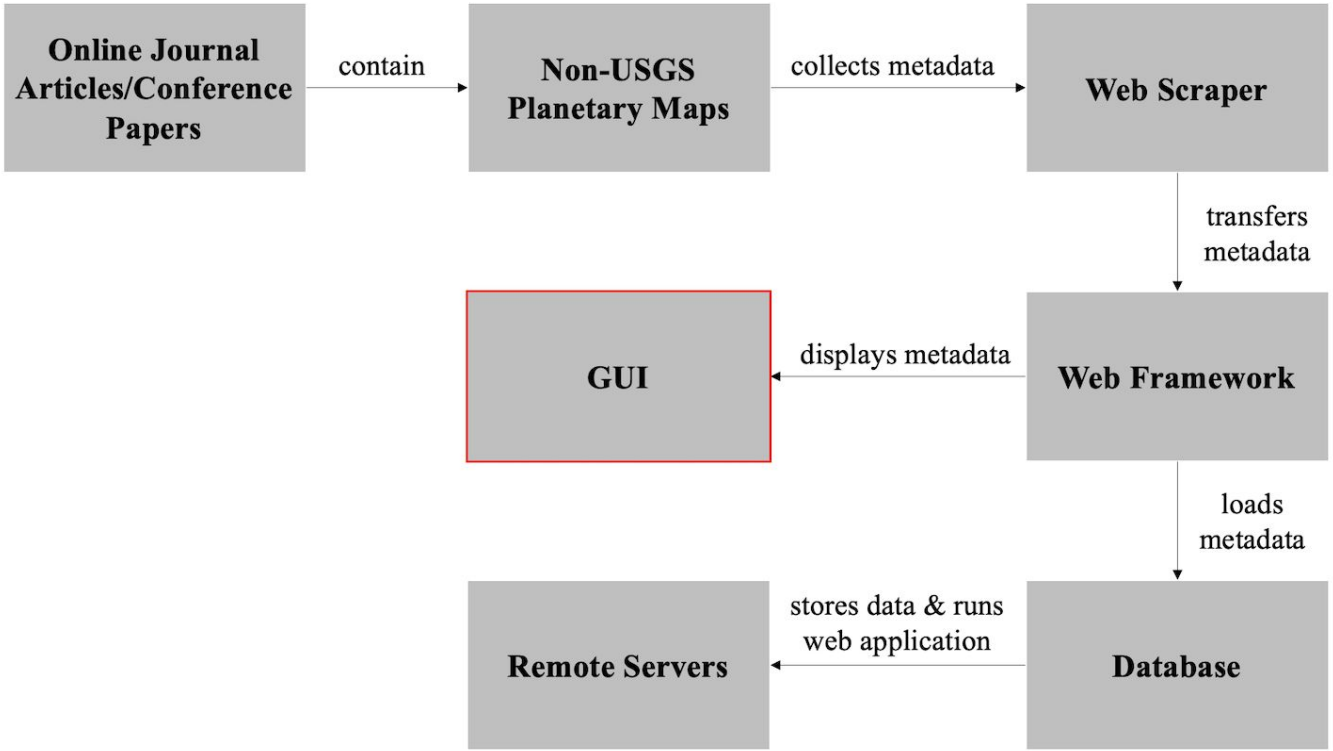
- Simple web application
- Displays planetary map metadata



Solution Key Features

- **GUI**: easy view, time-efficient
- **Web Scraper**: automated data extraction
- **Web Framework**: transfers/formats data
- **Database**: one location for non-USGS sources
- **Remote Servers**: hosts web application

Solution Overview



Domain Requirements

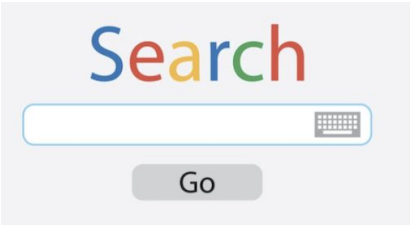
Process: Client Meetings, Presentations, & Project Description:

1. Login into an **account**
2. **View/filter** metadata
3. Download publication entries
4. View/save **search history** results
5. Automate searches
6. Receive **notifications** on new publications

Functional Requirements

User Account System

Archive



Search Engine

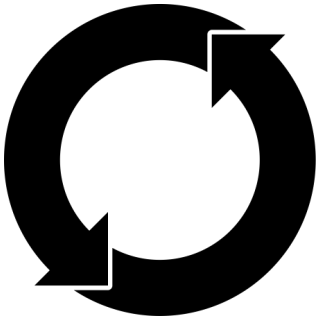
Notification System

User Account System

- **Authentication**
- Valid username & password
- **Error messages**
- User accounts **NOT** required

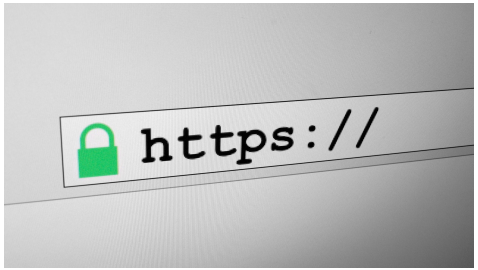
Performance Requirements

- **Minimal training** required
- Researchers can **easily navigate** website
- Web scraping should be ran **monthly**



Environmental Requirements

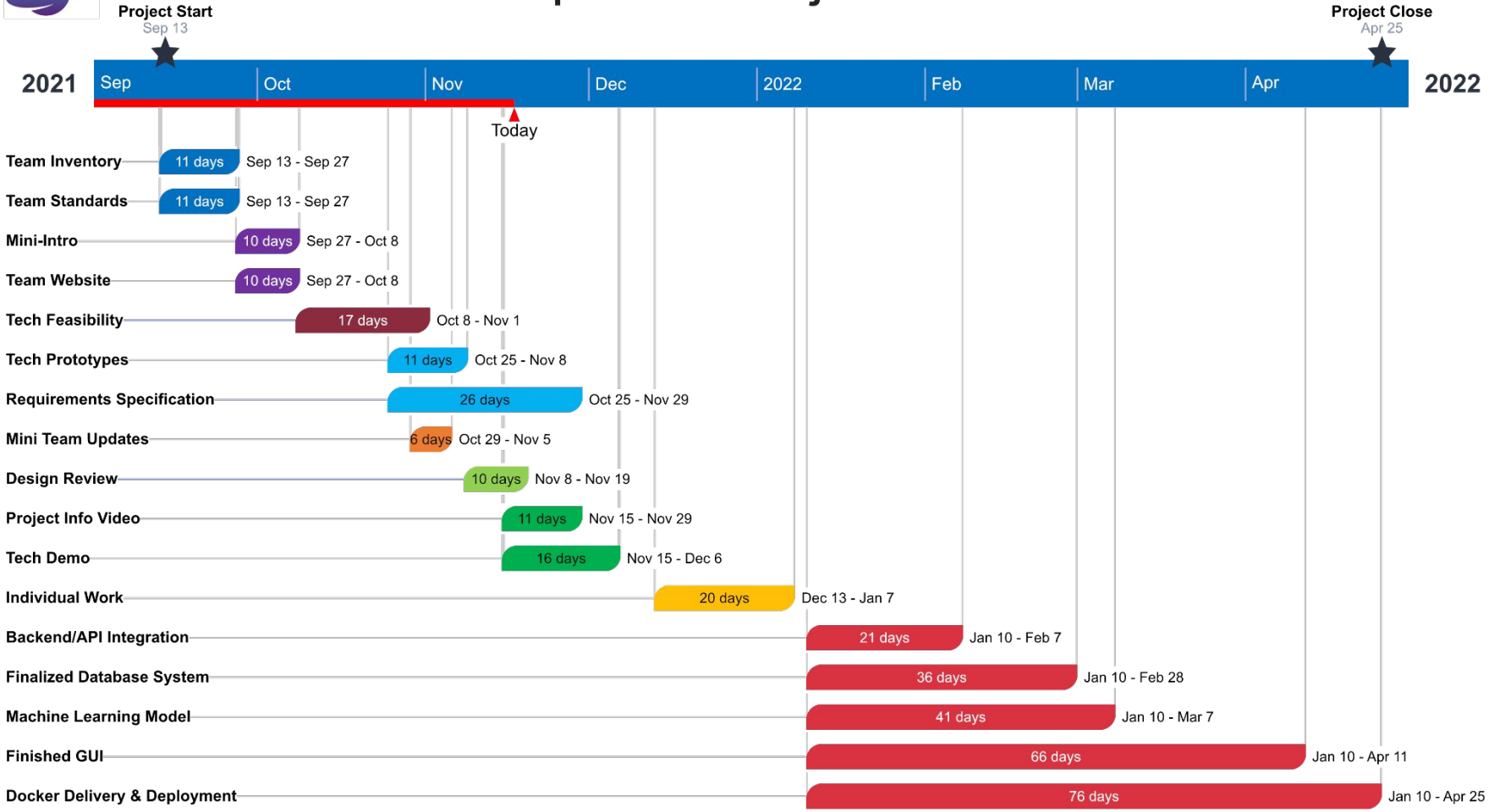
- Transfer metadata to database for storage
- Transfer stored info from database to web-based GUI
- Display **source link** to site with referenced map material



Risks & Feasibility

- Duplicate data/map products
- **Data loss** due to system failure or server crashes
- SQL injection attacks

MapONE Project Plan



Conclusion

- Team **MapONE**
- **Client**: USGS
- **Problem**: No centralized system for non-USGS planetary maps
- **Solution**: web application (GUI, web scraper, & database)
- **Requirements**: user accounts, automated searches, & monthly data pulls
- **Upcoming**: prototype demo, signed requirements

Questions?