



MapONE

One System for All Planetary Maps

By: Samantha Milligan, Michael Nelson,
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**

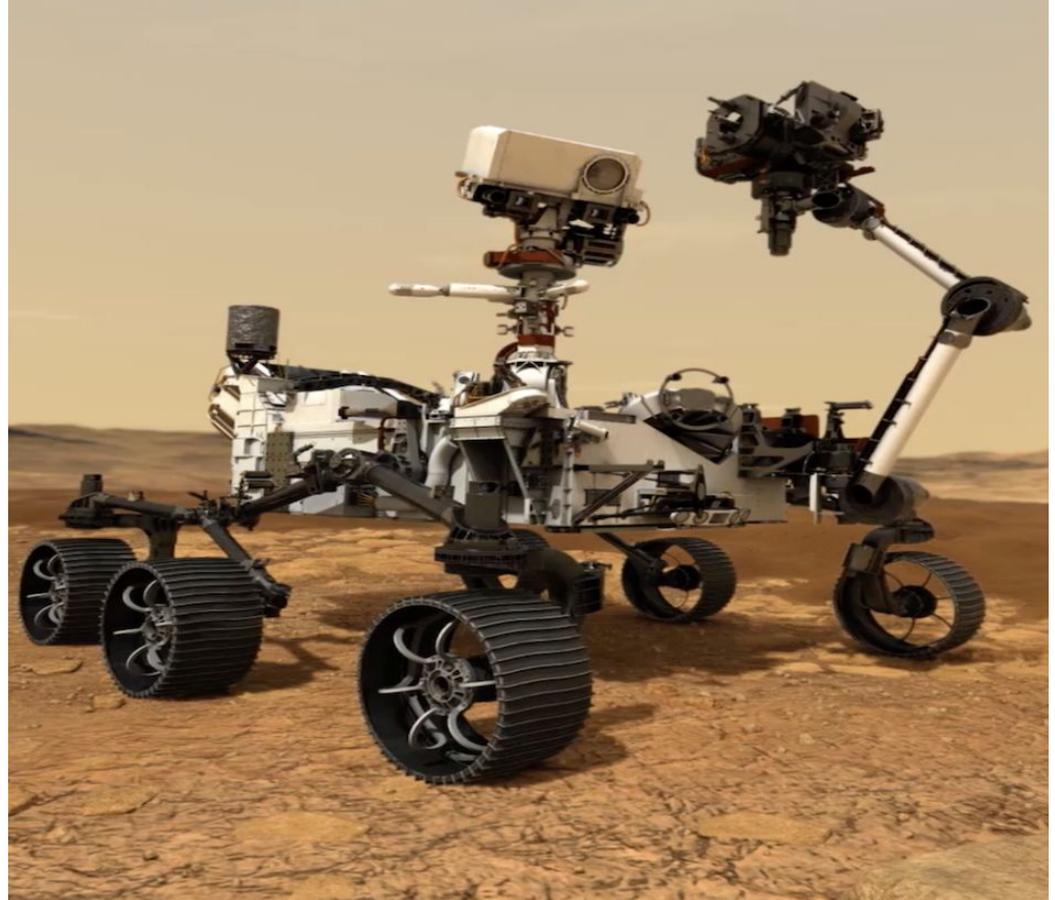
Client Overview

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



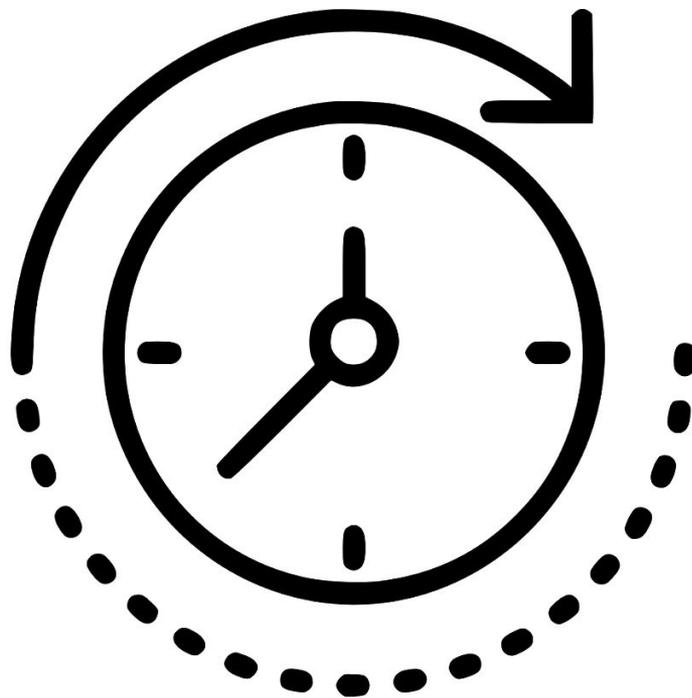
Planetary Maps

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

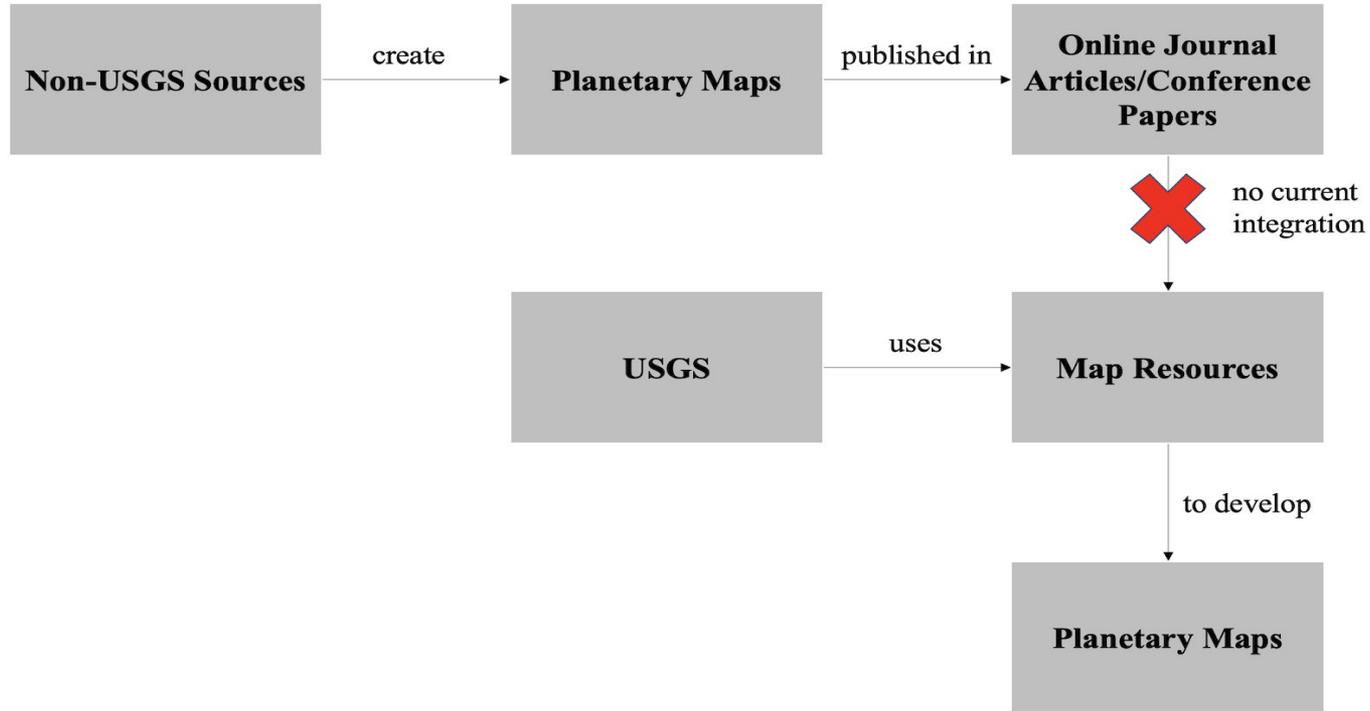


Problem Statement

- **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

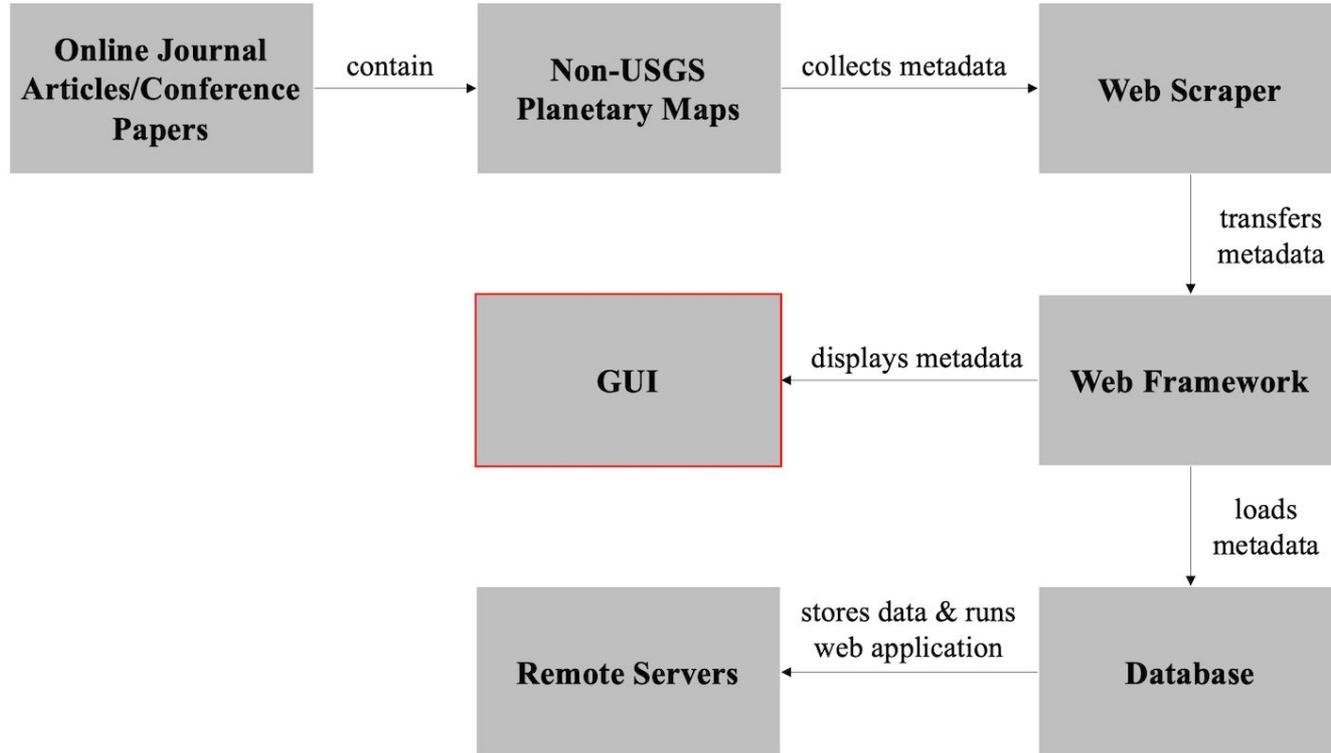
The screenshot displays the Planetary Geologic Mapping (PGM) Non-USGS Planetary Map Catalog web application. At the top left is the USGS logo with the tagline "science for a changing world". The main title "Planetary Geologic Mapping (PGM)" is centered at the top. Below it, the subtitle "Non-USGS Planetary Map Catalog" is displayed next to a user profile icon. A search bar contains the text "Search: **Criteria**" and a "Filter:" button. The main content area is organized into six columns: Source, Link, Body, Scale, Author, and Publication Info. Each column contains a list of three items, such as "Source 1", "Link 1", "Body 1", "Scale 1", "Author 1", and "Info 1".

Source	Link	Body	Scale	Author	Publication Info
- Source 1	- Link 1	- Body 1	- Scale 1	- Author 1	- Info 1
- Source 2	- Link 2	- Body 2	- Scale 2	- Author 2	- Info 2
- Source 3	- Link 3	- Body 3	- Scale 3	- Author 3	- Info 3

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

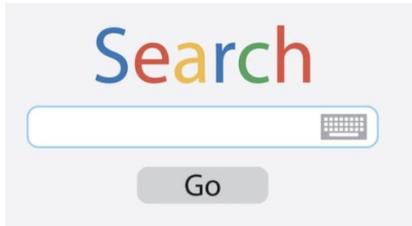
Functional Requirements



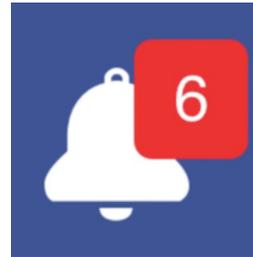
User Account System



Archive



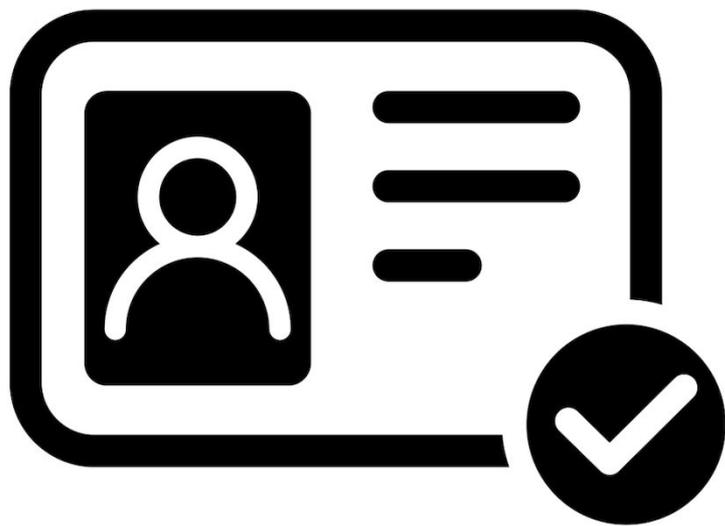
Search Engine



Notification System

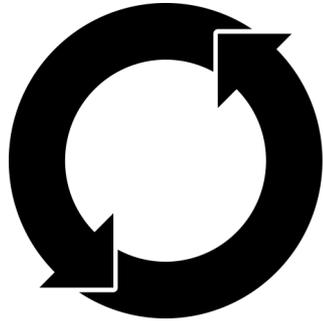
User Account System

- **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

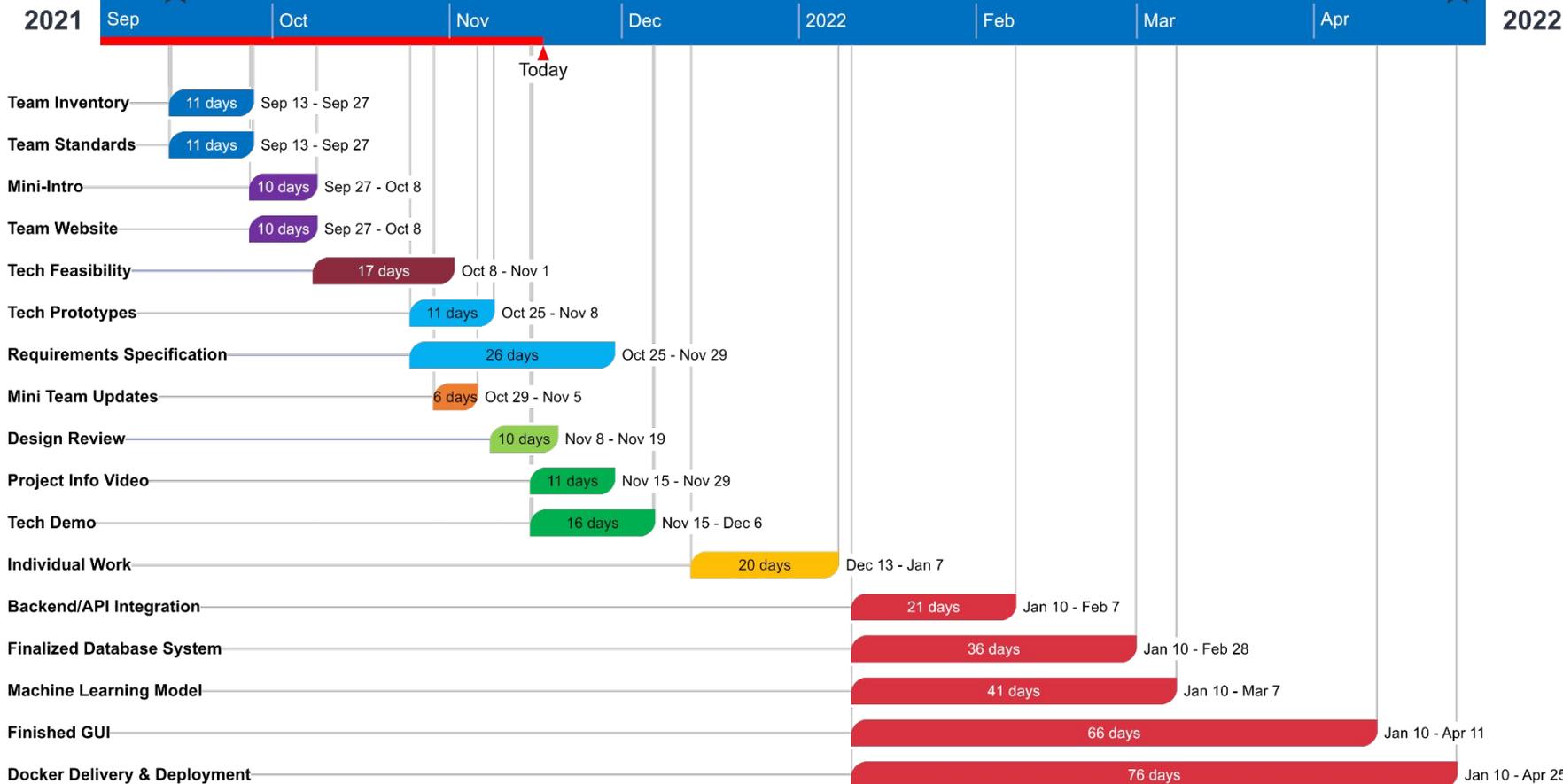




MapONE Project Plan

Project Start
Sep 13

Project Close
Apr 25



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?