Ecoflow Tracker Project

Utilizing satellite imagery and machine learning to analyze hydrological changes in the Masuria region.

Team Work :

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Goal

Analyze hydrological changes in Masuria using satellite imagery and ML.

Project Overview

Key Objectives

Analyze Patterns

Identify and understand patterns of water body changes over time.

Assess Impact

Evaluate the environmental consequences of these hydrological shifts.

Tools & Technologies

Data Collection & Processing

Data Collection

- Google Earth Engine (GEE) for satellite imagery.
- Sentinel Hub for data access and preprocessing.

Libraries

- Python: SentinellHub, NumPy, Pandas for data manipulation.
- Deep Learning Frameworks: PyTorch or TensorFlow for model training.

These tools ensure robust data handling and powerful analytical capabilities.

Project Phases

From Data to Insights

01

Data Collection

Gather satellite data via Google Earth Engine and Sentinel Hub.

02

Data Preprocessing

Clean satellite images and detect water surface changes using Python libraries.

03

Modeling

Train a machine learning model using PyTorch or TensorFlow.

04

Evaluation & Reporting

Assess environmental impact with Matplotlib and generate comprehensive reports.

AI Implementation

Machine Learning Core

ML Model Training

Train a model using satellite data to predict water quality changes over time.

Framework Choice

TensorFlow will be the primary deep learning framework.

This forms the analytical backbone of the Ecoow Tracker project.

AI Implementation

Prototype & Findings

Key Findings

Insights on the environmental impact of water body changes.

Working Prototype

A website showcasing the findings will be the final deliverable.

Final Deliverables

Tangible Outcomes

1

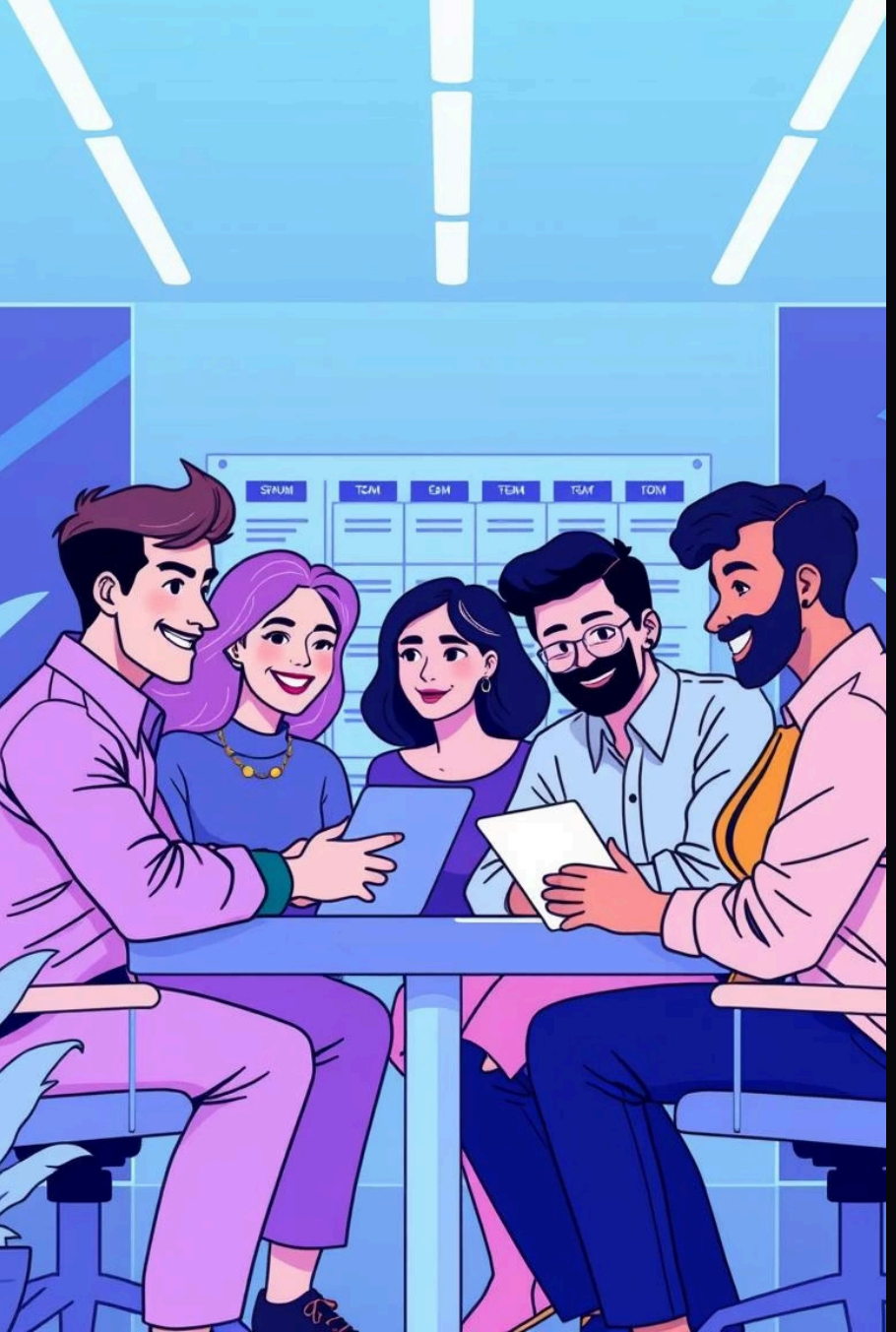
Working Prototype

A website visualizing water quality assessments and environmental impact predictions.

2

Comprehensive Report

Detailed analysis of water surface changes, supported by Matplotlib visuals.



Requirements

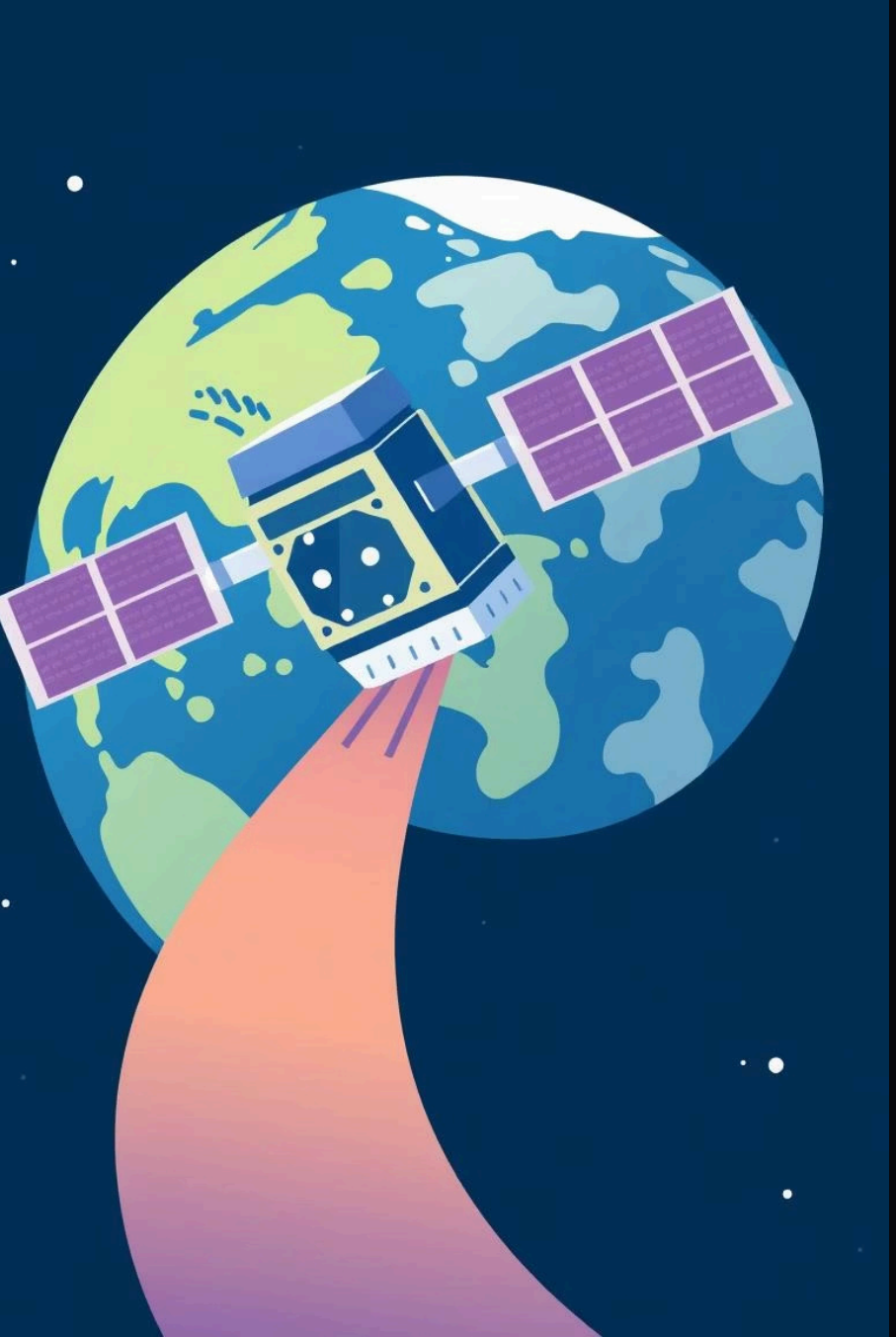
Team & Management

Team Size

5 dedicated members.

Project Management

Scrum methodology will be utilized for efficient workflow.



Conclusion

Empowering Environmental Management

By combining machine learning and satellite data, the Ecoow Tracker project will monitor water body health, assisting crucial environmental management efforts in the Masuria region.