Design Review III

By Empyrean

Team Introduction

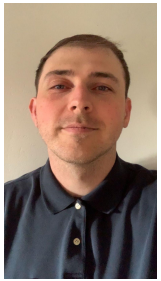
Empyrean

Henry Fye
Recorder

Nhat Nguyen
Developer

Jakob Pirkl
Architect

Kadan Seward
Release Manager



Jacob Penney
Team Lead

Team Mentor: Rudhira Talla

Problem Statement

Introduction to Spectrographs

- Spectroscopy
- Chemical Composition
- Main Sequence Classification

Lowell Observatory

Dr. Joe Llama
Astronomer

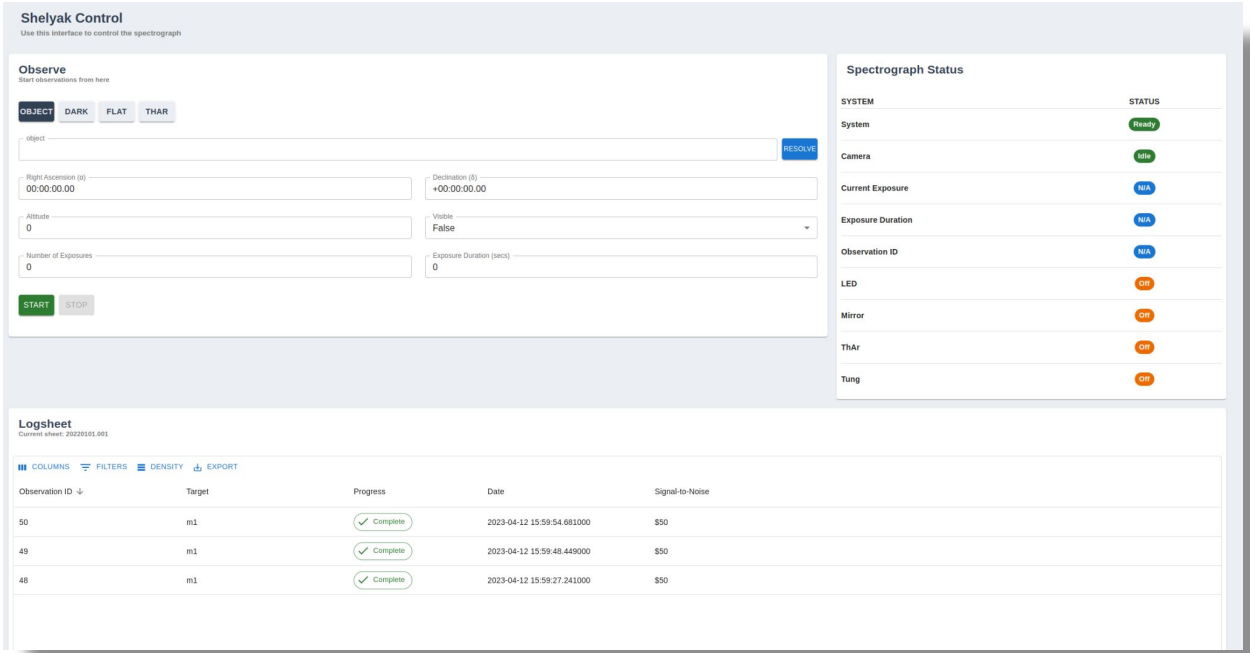
Dr. Gerard van Belle
Astronomer

The Problem

- Not remote
- Issues with software
  - Errors with data collection
  - Issues with rotation of spectrograph, can get stuck and not continue functioning
- Overly complex
  - Takes lots of time to set up mundane aspects of the software, such as specifying where data is saved even though it never changes

Solution

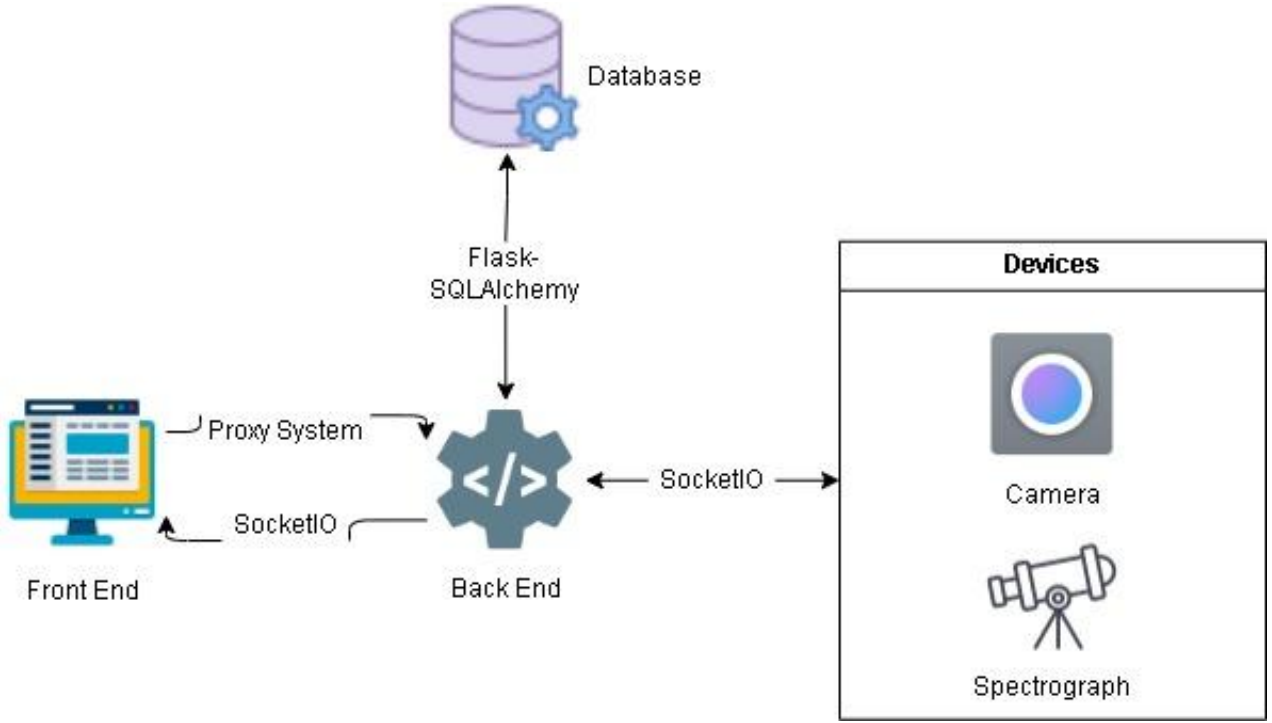
- Free, open-source web application
- Modern, secure and spectrograph-like UI
- Constantly updated spectrograph status
- Easy log sheet manipulation feature



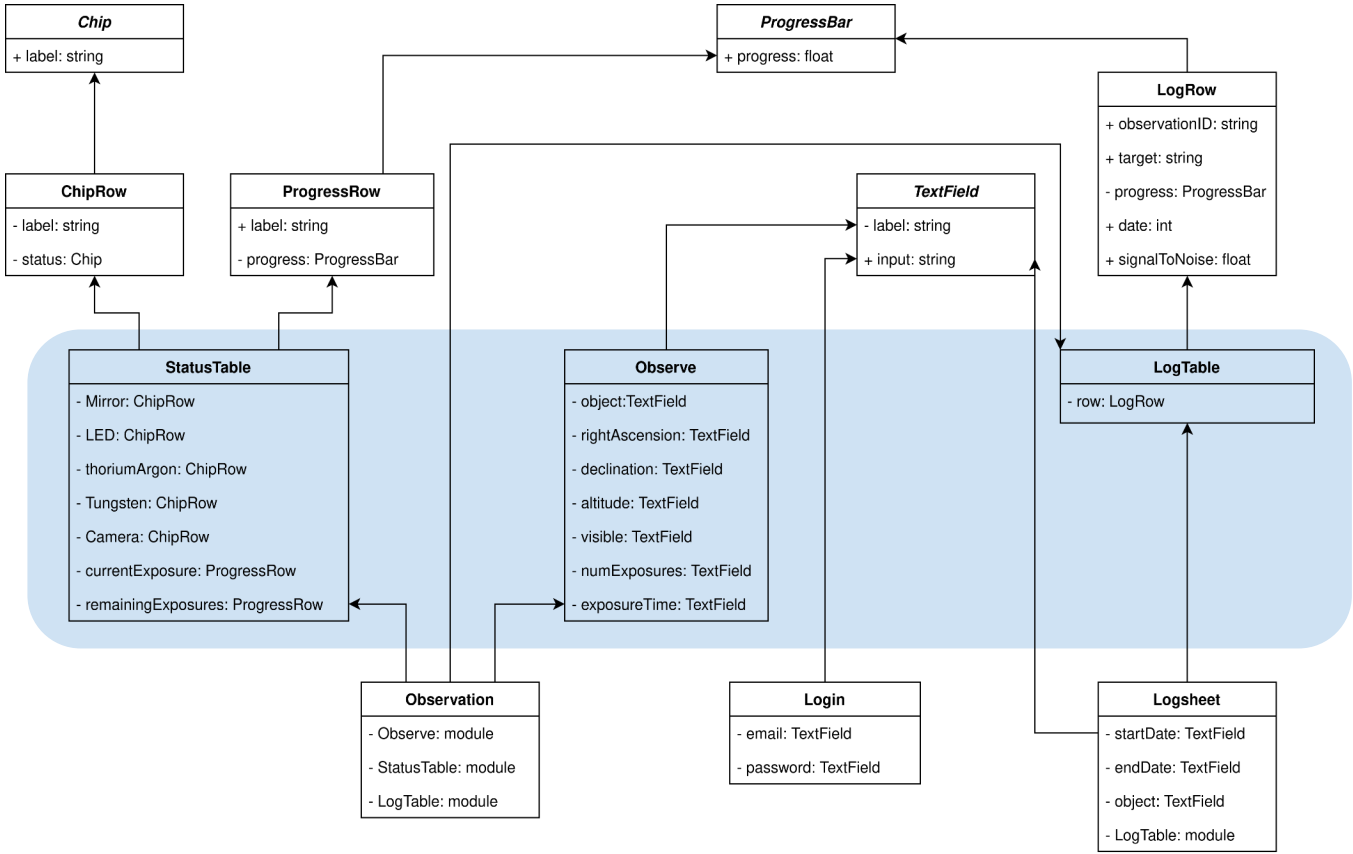
Overview

Main Technologies:

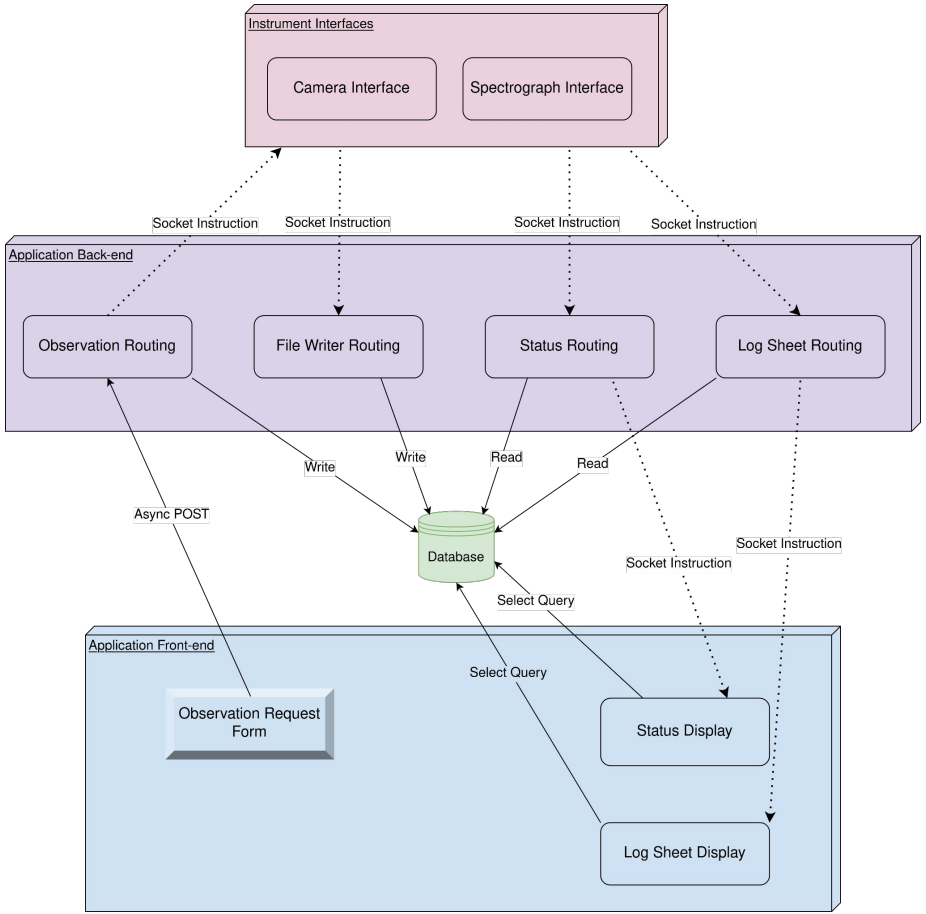
- ReactJS
- Flask
- PostgreSQL



Implementation Details: Front-end Architecture



Implementation Details: Front-end to Back-end Workflow



Prototype Demo:

- https://www.youtube.com/watch?v=3k3aqaI5TYE

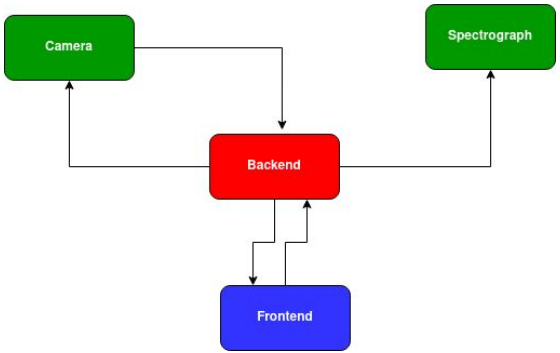
Challenges and Resolutions

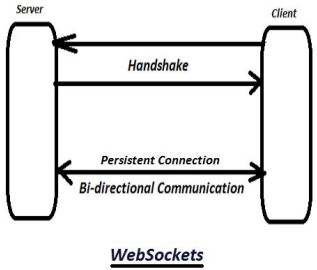
Challenge 1: Real time updates on the status of the spectrograph

Solution: Websockets to allow server to push information

Challenge 2: Communication between subsystems

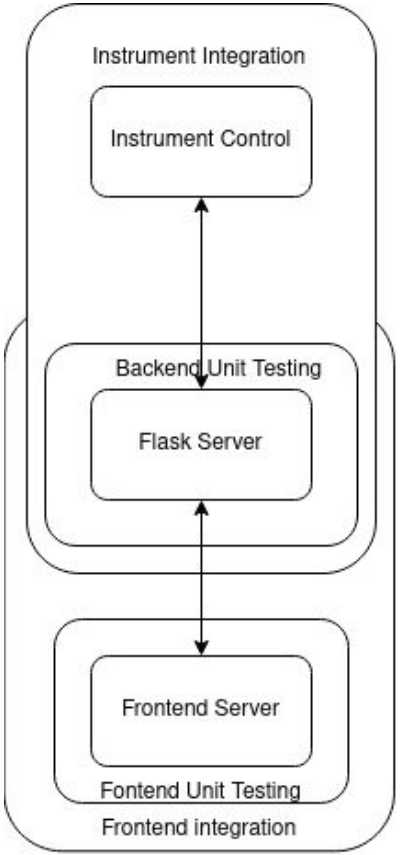
Solution: Communication between team members to coordinate related parts





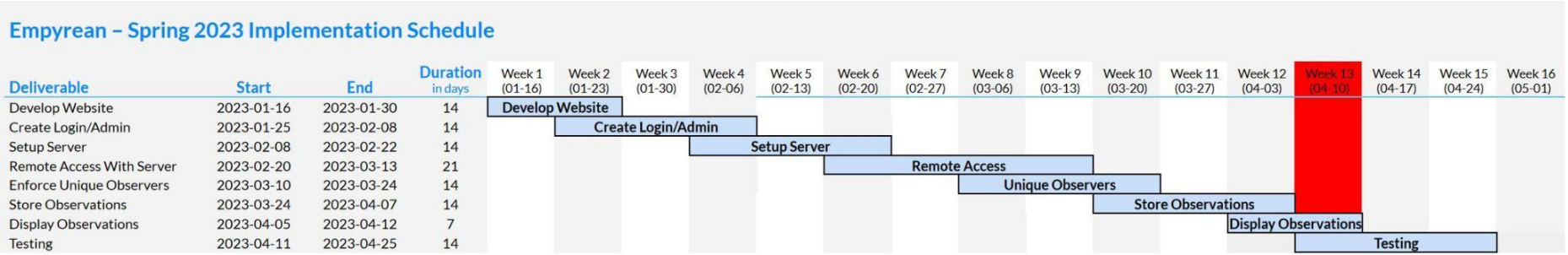
Testing Plan

- Python Testing
- Javascript Testing
- Usability Testing



Schedule

- Release build including MVP and additional modules running at Lowell
- Semi-Weekly meetings with clients



Conclusion

Thank you!