MoonTrek Telescope Application

Year 1

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Agenda

1. Introduction and Overview
2. Project Requirements
3. Challenges
4. Summary
What is the MoonTrek Telescope Application?

- The MoonTrek Telescope Application is an application that would allow amateur astronomers to connect the JPL’s MoonTrek database while looking at the moon in their telescopes to learn more about a section of the moon. Such information provided would include but not be limited to the element composition or the temperature of the section of the moon that they are currently viewing.

- An application that would allow amateur astronomers to connect to JPL’s MoonTrek database
Project Technologies

- Frontend Vue.js - Progressive javascript framework for building UI. Reactive, Prototype.
- ASCOM - Software for telescope applications.
Transfer of Knowledge

- Google Docs: Documentation
- Google Hangouts/Slack: Communication channels between group and Liaison.
MoonTrek Database

- **MoonTrek**
  - NASA web-based portal
  - Updates on NASA’s Lunar Mapping portal
  - A suite of interactive visualization and analysis tools
    - Access lunar data products from past and current lunar mission

- **WMTS (Web Map Tile Service)**
  - Serving pre-rendered or run-time computed
  - Georeferenced map tiles over the Internet.
Using WMTS Client Library

- WMTS client library
  - WMTS Endpoint and the full extent

- Esri Client Library
  - International supplier of geographic Information system software
  - Web GIS management applications.
Using Image Tiles

- Request image tiles from WMTS service
  - Tile resource represents a single cached tile
  - Export as image

- TileMatrix
  - To show the map split
  - According to a fixed scale

- Input
  - The Zoom level
Project Demo

Welcome to MoonTrek

Moon Image

Minimum Longitude

Max Longitude

Min Longitude

Welcome to MoonTrek

Moon Image

Minimum Longitude

Max Longitude

Min Longitude

Minimum Longitude

Max Longitude

Min Longitude

Armen M
Project Demo

- Flat Image of the Moon detailing surface temperatures.
- Our future plans
Project Requirements

- **Telescope** - Ability to collect coordinates of the stellar object that we are viewing
- **Moontrek Database** - Able to connect to Moontrek Database and provide a picture based on the data passed
Project Challenges

● Communication Issue
  ○ With Liaison
    ■ First time with real word application
  ○ With group member

● Technical Issue
  ○ Learning new language (Vue, python)
    ■ Eliminate (Django: confusing)
  ○ ASCOM platform
    ■ To bring vendor-independent and language-independent plug-and play compatibility between astronomy software and astronomical instruments

● Time Management
  ○ Host events
    ■ Observe The Moon Night
  ○ Schedule meeting times
    ■ Class
Conclusion

MOONTREK TIMELINE

- **9/19**: Project Introduction Day
- **11/19**: First running demo
- **11/2019**: Receive endpoints from JPL
- **2020**: Deploy website
- **10/19**: Observe the moon night
- **11/2019**: Rehearsal presentation
- **11/19**: Receive telescope
- **1/2020**: Integrate telescope
- **5/2020**: Final presentation
Thank You