



Team Skyward



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FROST Monitor: Diagnostic and data access GUI for the Flagstaff Robotic Survey Telescope

Sponsors: Drs. Michael Mommert and David Trilling

CS Faculty mentor: Dr. Otte

Department of Physics and Astronomy - Northern Arizona University

- The telescope is located on Lake Mary Road
 - ~ Research newly discovered near-Earth asteroids
 - Used for a collective research project to pick out Impactors

Photo credit Dan Avner



Current Problem

Although the software that controls the telescope already exists, a dynamic website that reflects the current status of the telescope as well as other useful information is needed.

- Need a way to make telescope data and other information publically available with a dynamic web application
- Telescope is vulnerable to bad weather
- Telescope is not yet operational
- Sponsors have a lack of experience developing or creating dynamic web applications

Solution Explanation

Team Skyward will create a dynamic web application that is able to solve the problems our sponsors are currently facing. The proposed web application to be designed and implemented will be able to:

- Create and maintain a database of all observations
- Display and change the order of a queue of objects that will be observed soon by the telescope
- Display a map of the night sky with an overlay showing objects that the telescope has/will observe
- Emergency shutdown of the telescope in case of storms

Development Plan

- Meet with team and sponsors weekly
 - Narrow down basic requirements and development framework
 - Discuss additional features
- Divide requirements into smaller features
 - Create modules to display various pieces of data
- Display prototype to sponsor for approval and feedback
 - Prototype features and proof of concepts
 - Refine requirements based on sponsor feedback
- Push prototypes until complete

Technical Investigation

- Web2.0
 - Javascript (D3.js, JQuery), HTML, CSS
- Database Backend
 - SQL, Django and Python for final product, PHP for prototype
- Skycam , Weather station
 - Hardware integration , data → web front end
- Data Set formatting
 - Scientific data from external and internal databases
- Server environment
 - Location
 - Admin rights

Review

- Project
 - Flagstaff Robotic Survey Telescope
 - Research NEA's
- Problem
 - Need a way to easily view the telescopes data
 - Not easily accessible
- Solution
 - Dynamic web application
 - Hooks into telescopes databases
- Plan
 - Discuss requirements and prototype features