JPL - MoonTrek Augmented Reality

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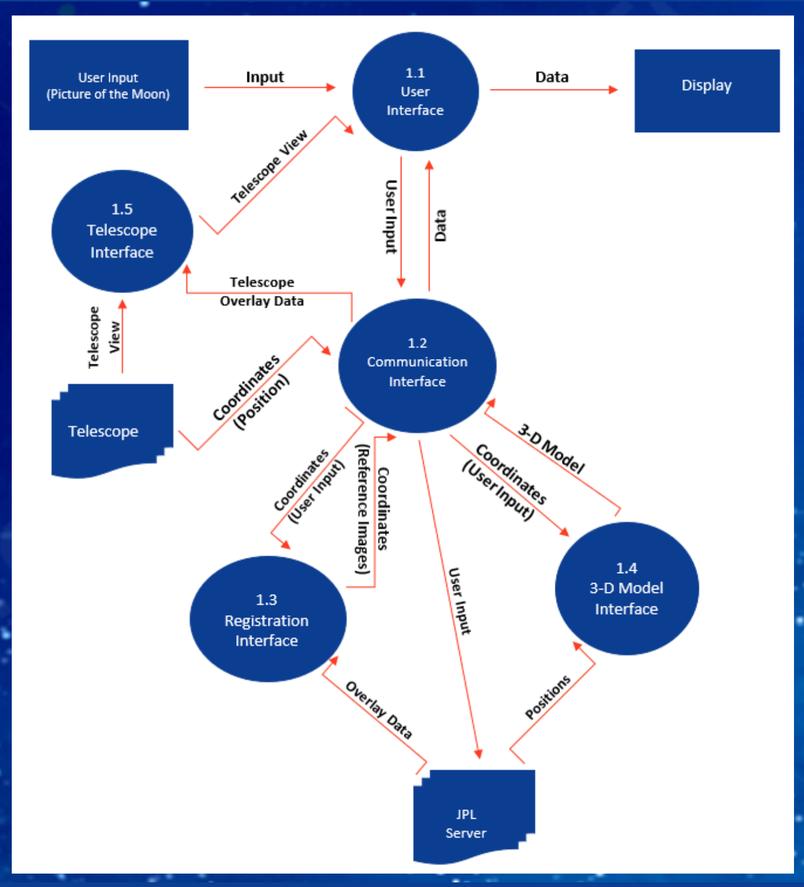
BACKGROUND

Jet Propulsion Laboratory is partnering with California State University - Los Angeles, College of Engineering, Computer Science, and Technology to build an interface between Moon Trek and telescopes amateur astronomers use to look at the Moon. When images from the telescope are routed to a laptop or a smartphone they will be annotated with names of lunar features and landmarks, local temperature, chemical makeup of the soil or any available information the astronomer chooses.

OBJECTIVE

Using the location on Earth and timestamp, via metadata, of the user's image we will create a 3D model the mimics the Earth, Moon, and Sun relationship. From the model we will create reference image with the correct positioning and lighting, which will then be used for context aware image registration. The generated transformation matrix will be used to correctly position the overlays onto the user's image. We will also build a database of images to test the accuracy of registration.

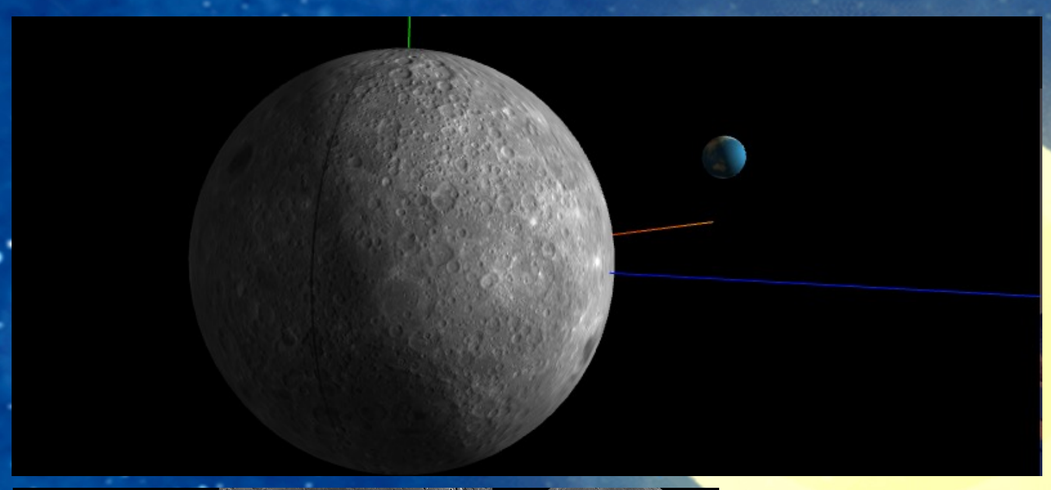
ARCHITECTURE



GOALS

- 3D model of the Earth, Moon, and Sun
- Context aware registration
- Correct overlay positioning
- Create database of images to test registration model

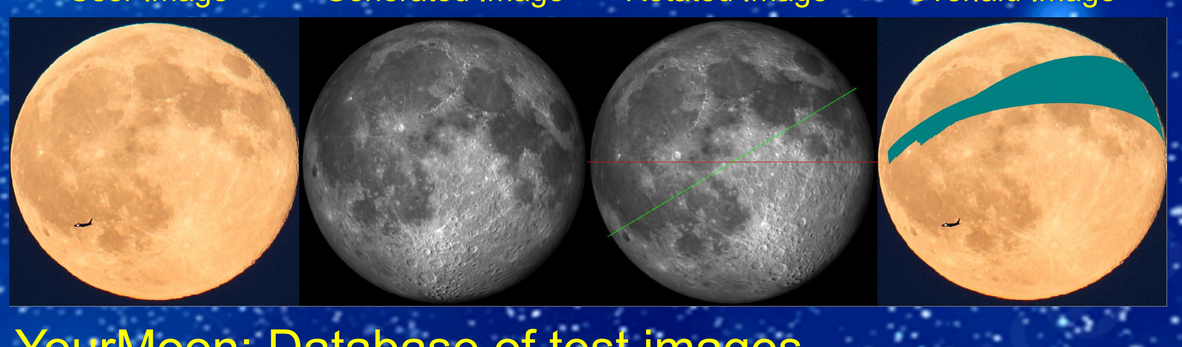
3D Model



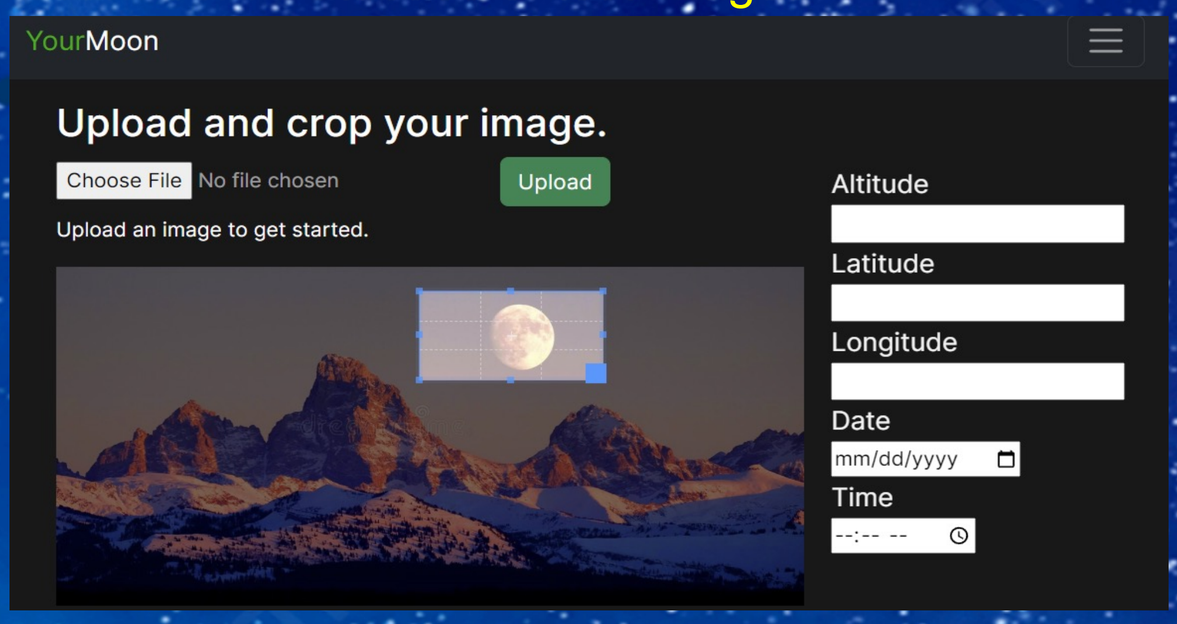


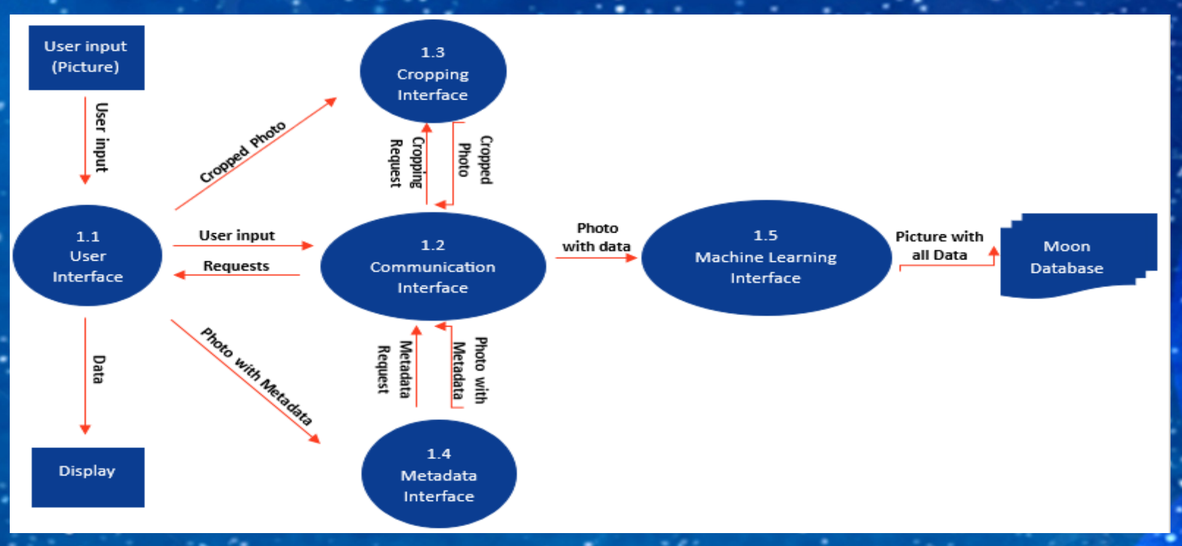
Without context

With context



YourMoon: Database of test images





TECHNOLOGIES

python™ · Vue.js · HTML CSS JS · WebGL · Express JS · MATH · node JS