

NASA Psyche Mission: Space Object Virtual Reality

Adam Spano, Chankanika Soam, Urgi Measo, Kidane Mussie, Raed Alghamdi, Erica Phomsavanh

Project Description

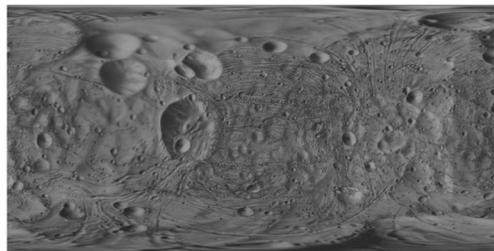
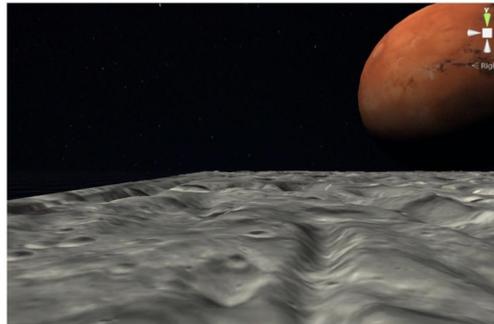
Space Object VR project that is intended to give users real world experience of what it's like to be on Mars' moon Phobos. Users are given the ability to move around the surface of Phobos as well as observe and interact with the environment.

Project Requirements

As the Psyche mission approaches its launch, our group's virtual reality has showcased actual data of a non-Earthly body closely matching the characteristics of Psyche. The overall aim of this project was to create the most visually accurate world and user interface.

Deliverables

- Fully functional Virtual Reality software.
- Realistic user world & experience based on most recent data provided by NASA.
- Users ability to “walk around” and explore terrain & sky
- Phobos orbiting Mars.
- Ability to spawn facts about Phobos allowing the user to interact within the world based on their movement



Design Description

The design of this project was developed to give users an interactive and accurate experience of Phobos. The virtual reality environment was designed to give users the feeling of being in space, as well as having the ability to freely explore the environment of Phobos. Careful attention to detail was given in the design and implementation of the terrain, Phobos' distance to Mars, as well as Mars' rotation.

Data & Software

Data was acquired as *PDS Shapemodels*. A *GDAL Python script* processed the data to *Alias Wavefront OBJ*. The 3D obj files were imported into *Unity*. *Blender* was used to graphically touch up shape models and then all was executed by the *Unity* game engine.

Future Work

Our group created a realistic simulation that will closely match the datasets returned from Psyche. In the future, other Capstone groups will be able to use our project along with data from Psyche to create a virtual reality of NASA arriving at Psyche.

Special thanks to: Dr. Cassie Bowman & ASU Psyche, Dr. Joseph Juarez, Dr. Ryan Meuth, Dr. Ming Zhao, Dr. Daniel Wenkert & Jon Hill and CIDSE Faculty