

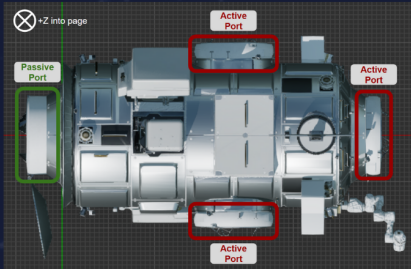
The Gateway Space Station is integral to NASA's Artemis missions, which aim to establish a long-term human presence on the Moon. Using publicly available data, we built an interactive Unreal Engine tool to help astronauts, engineers, and mission control visualize its operation in space.

Methodology

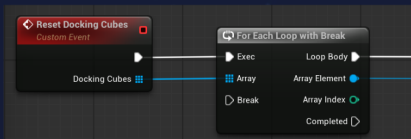
Dynamic environment includes the Earth, Sun, and Moon



Active and passive ports limited feasible docking configurations



Tool functionality built by Unreal's Blueprint visual scripting



Project files stored through GitHub via Large File Storage and Git



UI/UX

Rotation: 0



Move Modules

Moving:

Docking To:

Rotation: 0



Moving:

Docking To:

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Reset

Module Keybinds



F



H

Original

Right

Left

Top

Camera

Results

- A** Imported Gateway CAD to Unreal Engine
- B** Toggle Gateway modules visibility
- C** Display three unique Gateway configurations
- D** Rotates radiators and solar arrays
- E** View Gateway from 3 preset angles
- F** Space environment
- G** Resets modules and rotation to initial state
- H** Compatible with Desktop and VR

Future Goals Make tool more training focused by...

- Displaying distances between modules for docking simulation
- Enabling VR movement for EVA simulations
- Implement higher fidelity models and dynamic Gateway orbit

References/Acknowledgments

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