

Virtual Reality Museum Application for Space Exploration

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Objectives

Foster interest in STEM

- Demand for STEM professionals on the rise
- Spark interest in STEM by showing real-world applications

Foster interest in space

- Space exploration has provided numerous benefits
 - GPS
 - Satellite communication

2. Literature Review

Prior Applications

Common Approaches:

- Web and mobile applications [1-4]
 - *NASA at Home*, Exoplanet Excursions, Spacecraft AR, etc.
- VR using 360-degree video [5-6]
 - Space Explorers: The Infinite, Space Explorers

Our primary differences are:

- Greater breadth of information
- Explorable 3D environments

[1] "Nasa at home," <https://www.nasa.gov/specials/nasaathome/index.html>

[2] "Exoplanet travel bureau," <https://exoplanets.nasa.gov/alien-worlds/exoplanet-travel-bureau/>

[3] "Experience curiosity," <https://eyes.nasa.gov/curiosity/>

[4] "Nasa's eyes: Mobile apps," <https://eyes.nasa.gov/mobile-apps.html>

[5] "Space explorers: The infinite," <https://theinfiniteexperience.world/en/montreal>

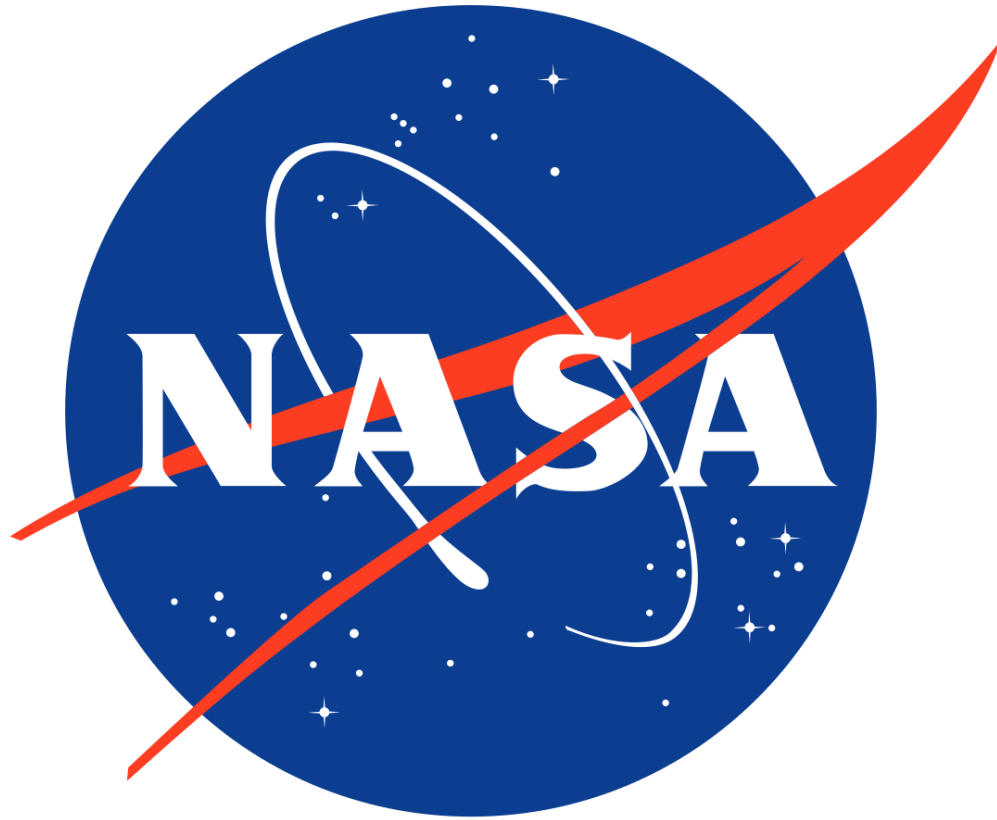
[6] "Space explorers," <https://www.oculus.com/experiences/quest/3006696236087408/>



Previous Research for VR Art Education

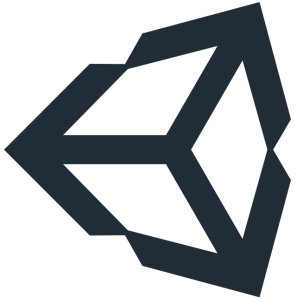
[7] Josh Maddy and Husnu Saner Narman: [Virtual Reality Museum Application for the Arts \(IEEE ISEC 2023\)](#)

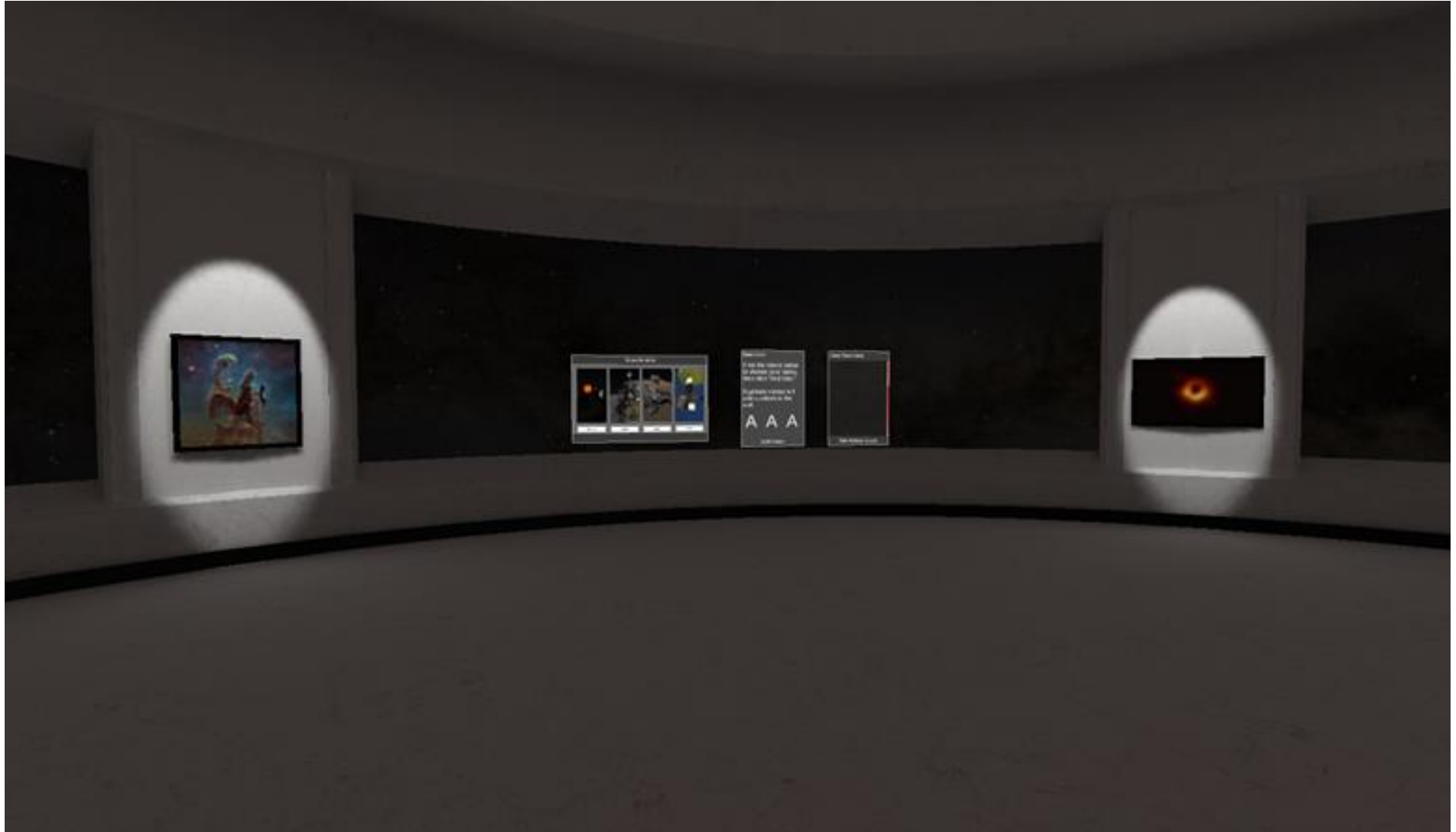
3. Media Sourcing



4. Methodology

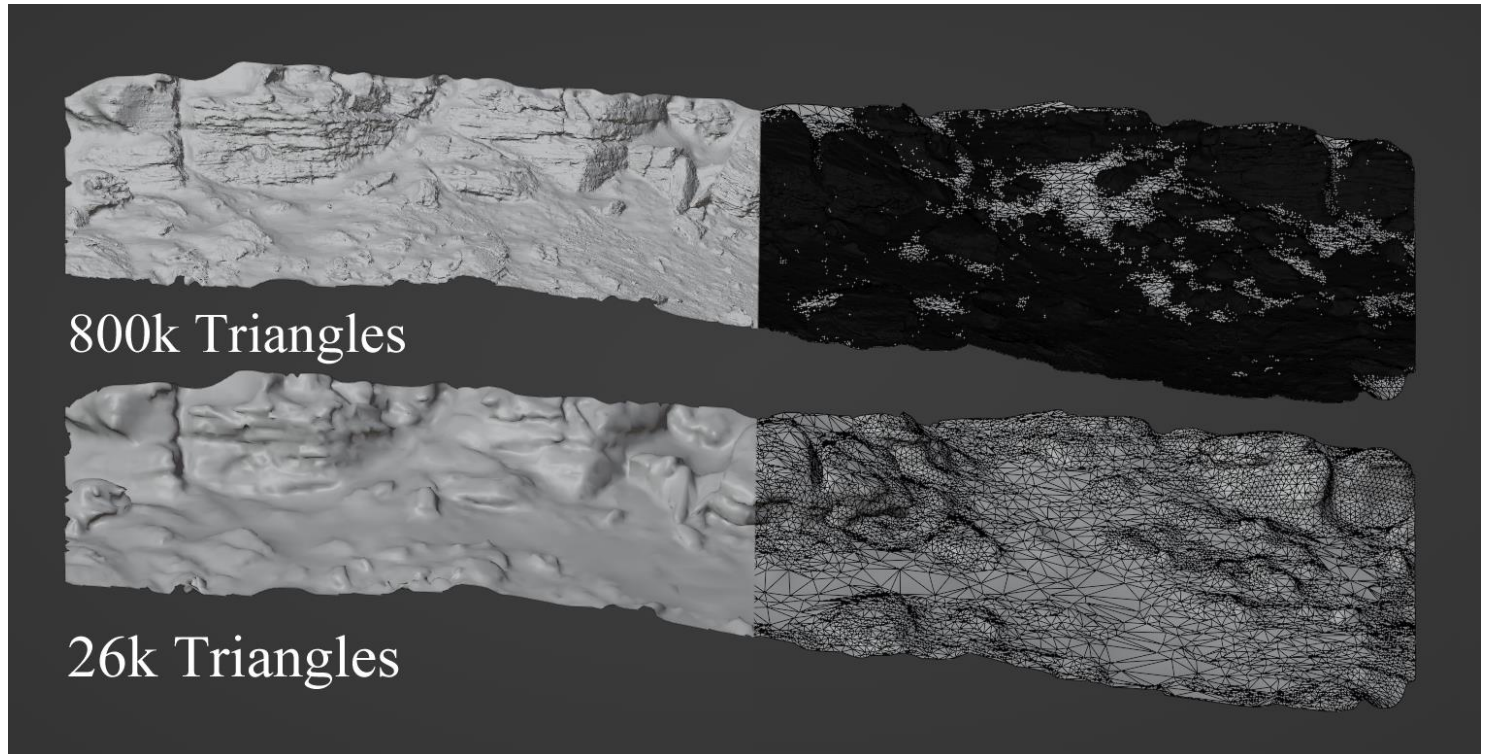


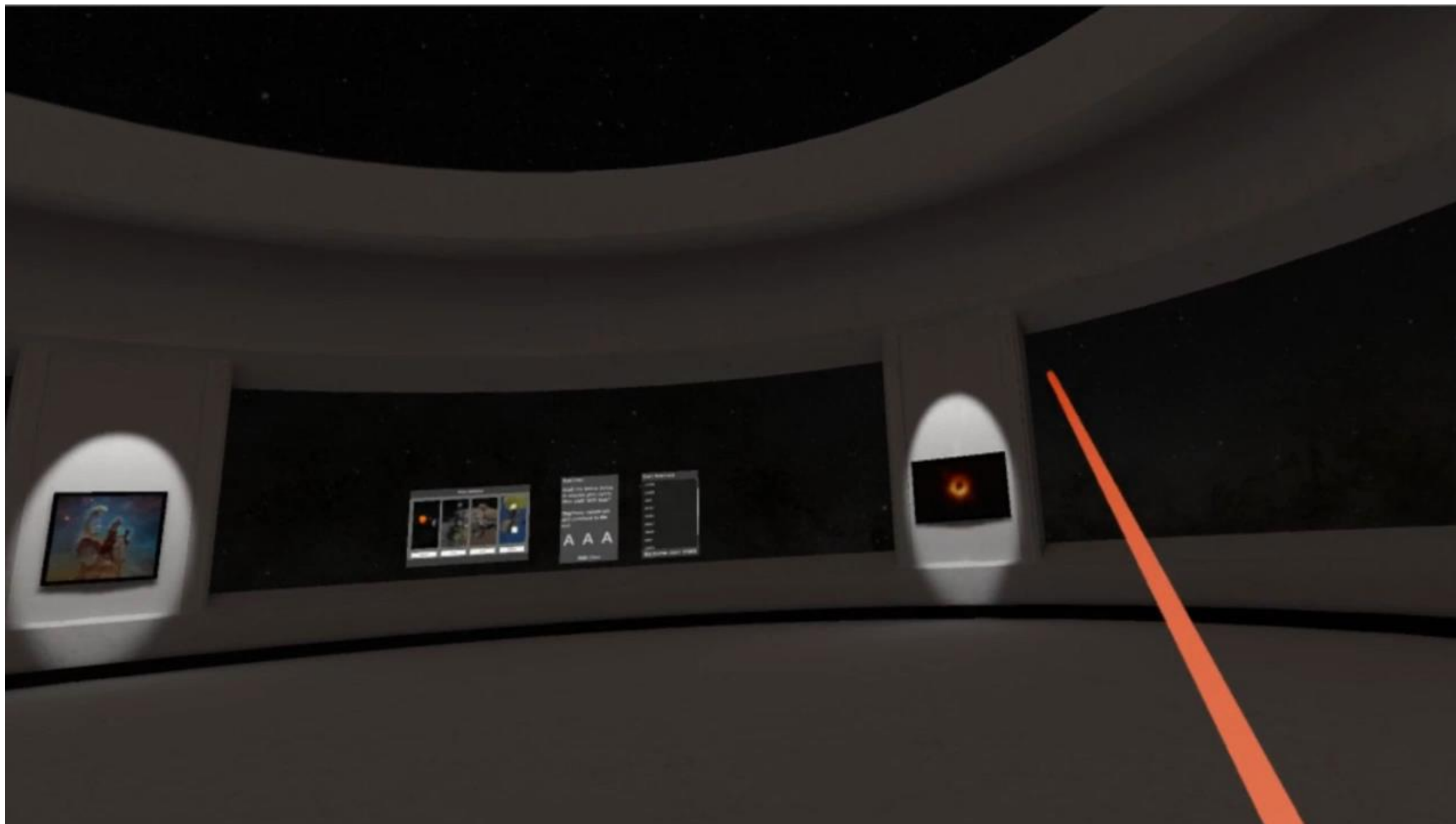




Development Challenges

- Runtime optimization
- Presenting information intuitively
- Creating a VR friendly interface





5. Future

Proposed Testing Methodology

- Technical Tests (Runtime efficiency)
- User Feedback (Surveys)

Surveys will be administered to K-12 level students after experiencing the application for five to ten plus minutes.

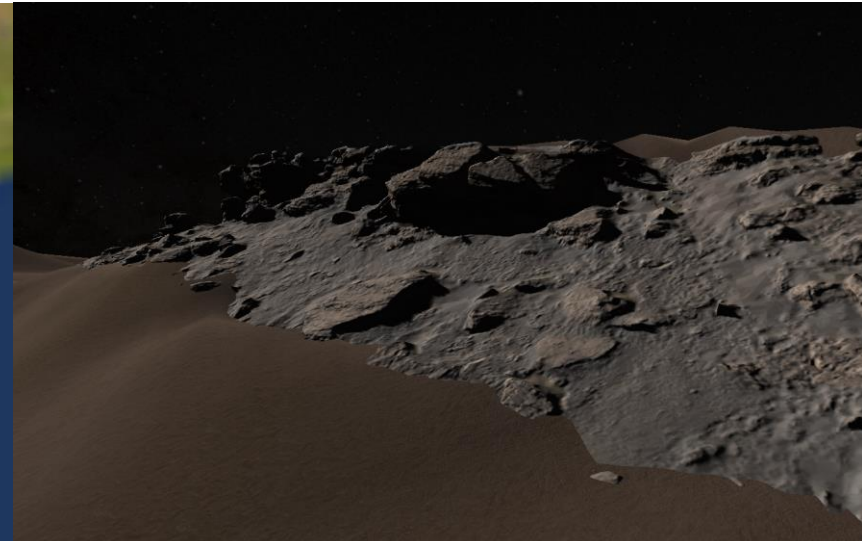
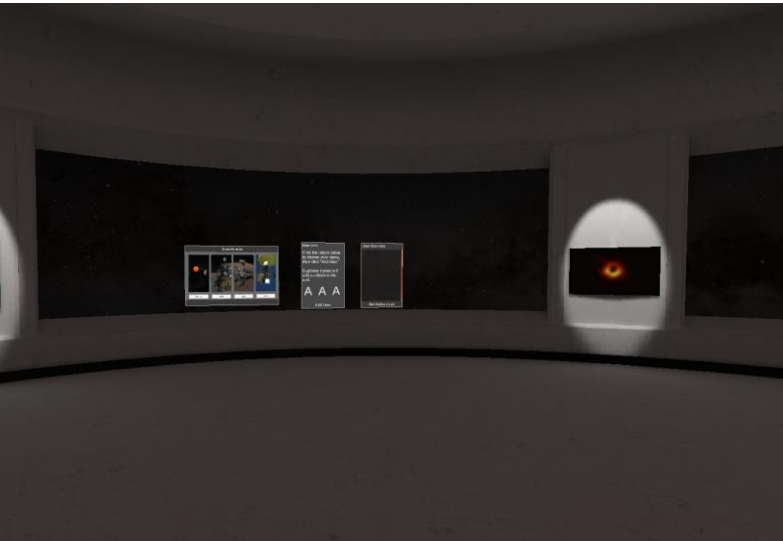
Surveys will assess:

- User Experience
- Retention of Information

6. Conclusion

Conclusion

- Based on existing research and previous education VR applications, we believe this application will be an impactful learning experience.
- We are working to set up classroom trials and gather feedback to improve both the education value and user experience.





Thank you!