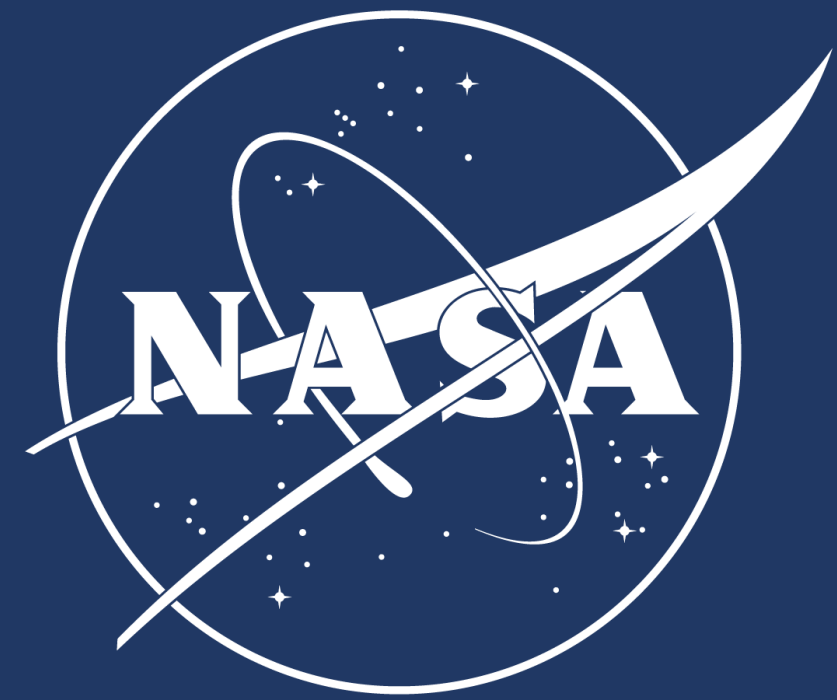


Mission Training Complex's Virtual Segment



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INTRODUCTION

Transitioning from the Laboratory Training Complex (LTC) to the Mission Training Complex (MTC) signifies our commitment to supporting multi-mission capabilities. The Virtual Segment represents a transformative expansion within the MTC by introducing virtual and augmented reality technologies to enhance the training environment. This segment will facilitate immersive, interactive training scenarios that closely simulate various mission environments. By using detailed simulations coupled with real-time data, the Virtual Segment offers a platform for hands-on learning, procedure refinement, and mission preparation.

Current Status of the Lab

- US Lab Replication
- Physical Hardware Integration
- Glass Rack Trainers
- Fit-Checks and Spatial Constraints
- Specialized Commanding Server
- Dedicated Practice Space



Figure 1. Current Image of the Lab

Multi-Mission Support

Versatile Training Environment: A redesigned lab will accommodate diverse training needs for various missions.

Two-Segment Strategy:

- **Physical Segment:** Preserves hands-on training with actual hardware for essential fit checks and interactive learning.
- **Virtual Segment:** Features interactive monitors and digital signage for an immersive training experience.

Enhanced Training Methodology: Combining physical and virtual segments enriches training, preparing personnel for a broader array of missions.

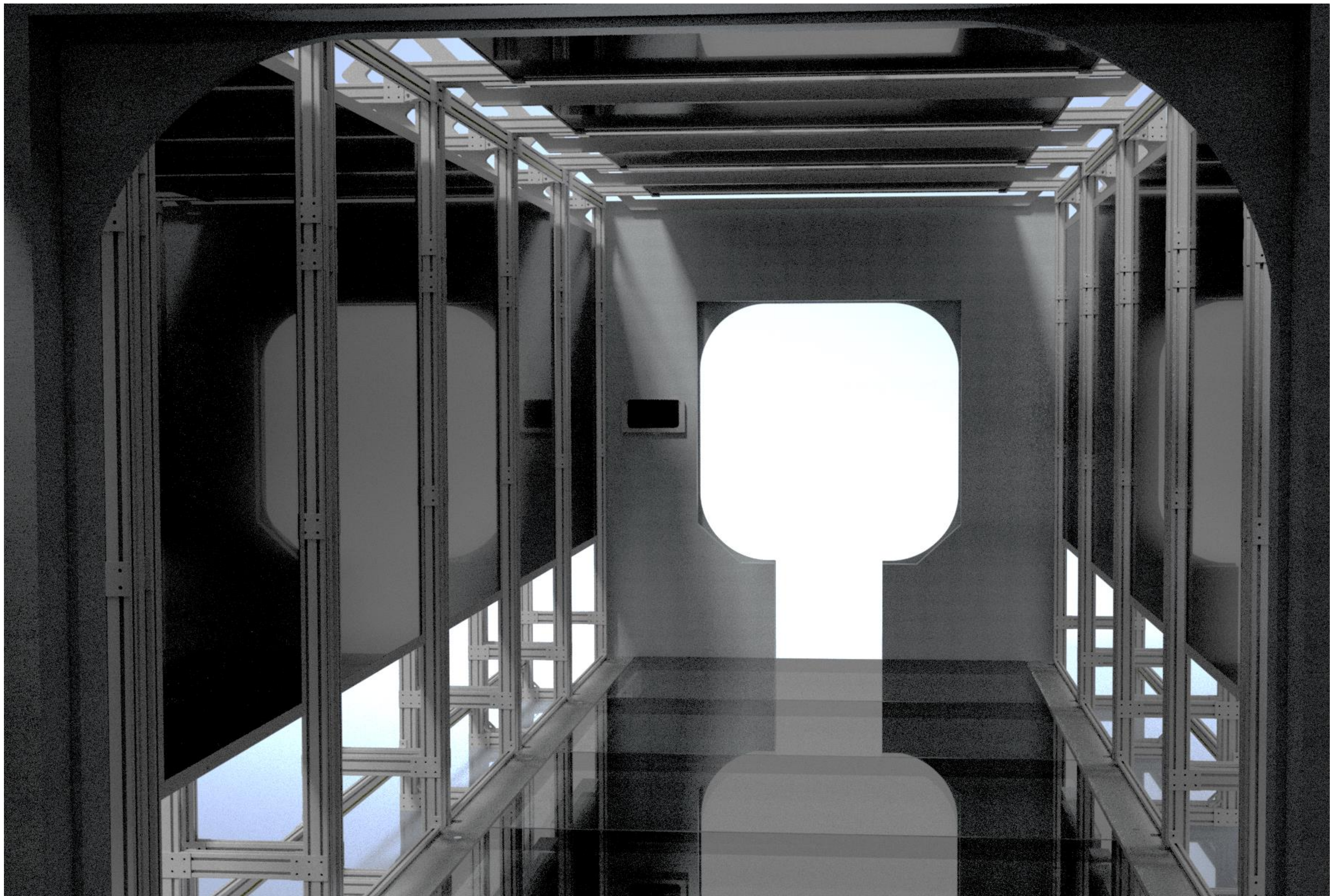


Figure 2. Render of the Virtual Segment

Technology Integration

Augmented Reality (AR): AR headsets allow for dynamic interaction with virtual elements overlaid on the physical environment

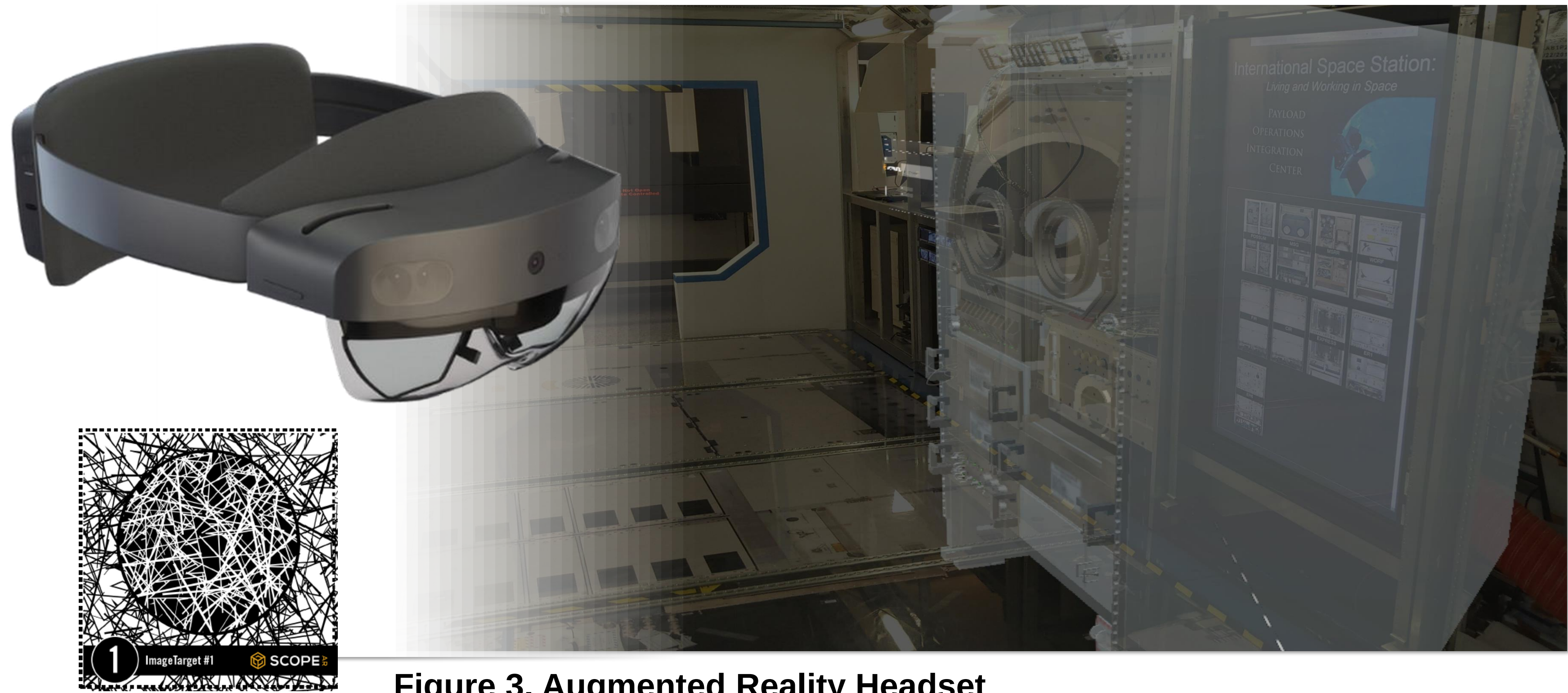


Figure 3. Augmented Reality Headset

Interactive Content Creation: Commercial off-the-shelf software utilized to develop the interactive screens' software.

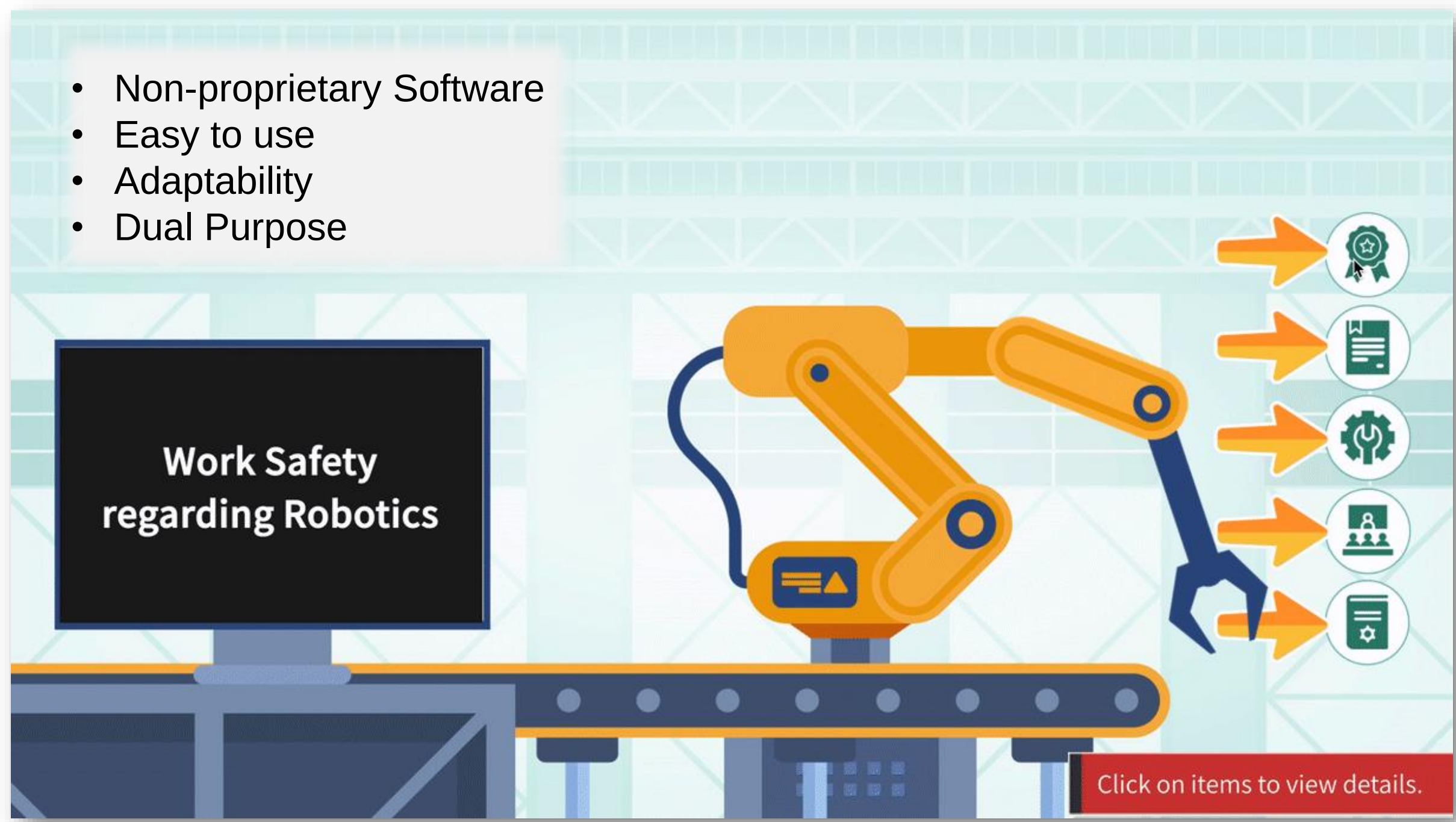


Figure 4. Commercial off-the-shelf software Example

Monitor Control System:

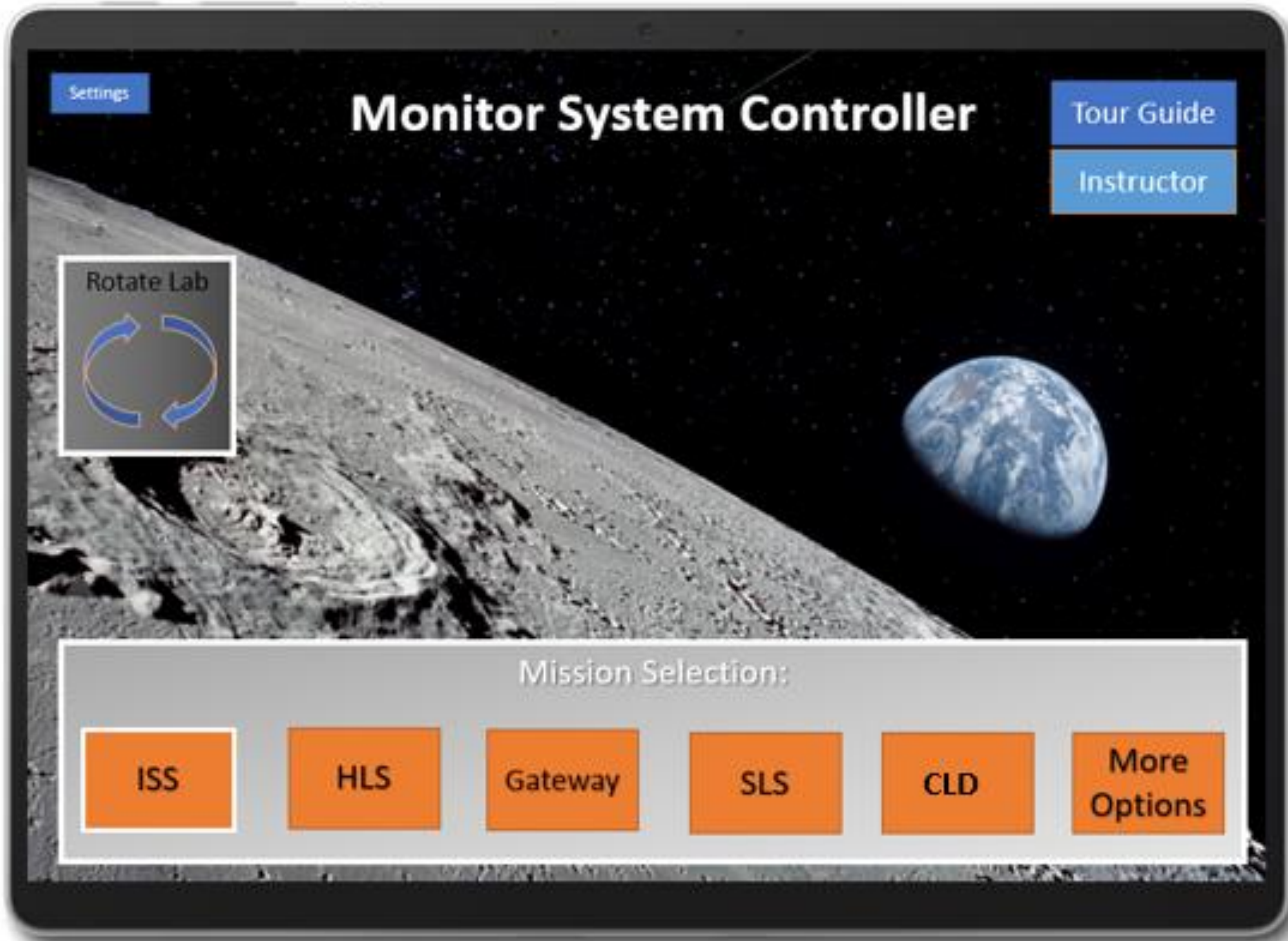


Figure 5. Monitor Control System Concept

CONCLUSION

The transition from the Laboratory Training Complex (LTC) to the Mission Training Complex (MTC) marks a significant evolution in our training capabilities. The introduction of the dual-segment approach, comprising both physical and virtual components represents a shift in how we prepare our teams for the complexities of our future missions. The MTC will retain the invaluable hands-on experience working with actual flight hardware but also will integrate advanced technologies to create a highly immersive and interactive training environment.