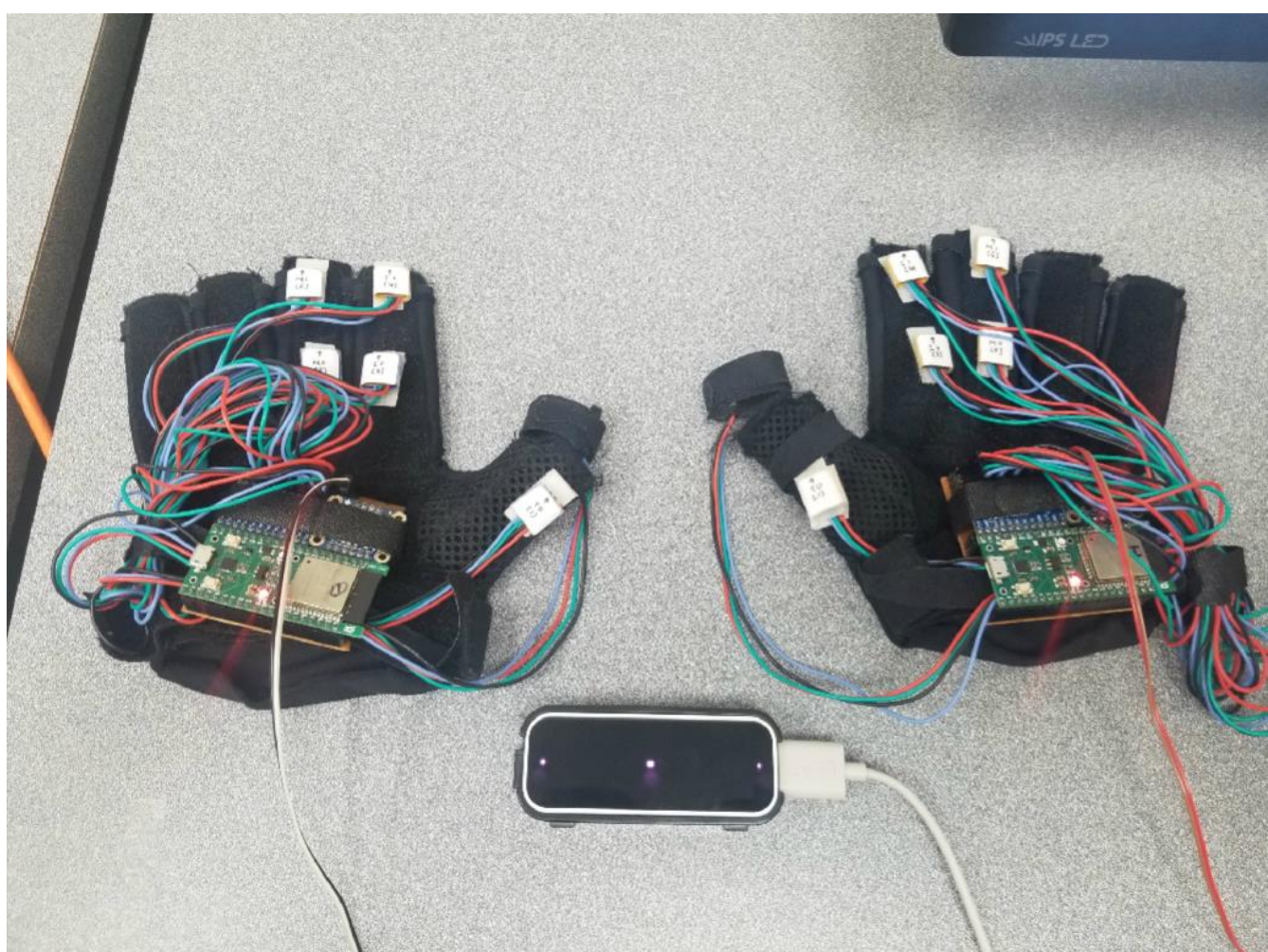


Hand Widget Project: Creating a Controllable Interface for Use with Motion Capture Gloves

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Introduction

The purpose of this project was to create an interface utilizing motion capture gloves, a “hand widget,” for use as a controller in a larger scale project by the Army Research Lab. The program was implemented in Unity, and Leap Motion technology was used alongside rotational sensors in the gloves to track the gloves’ movements.



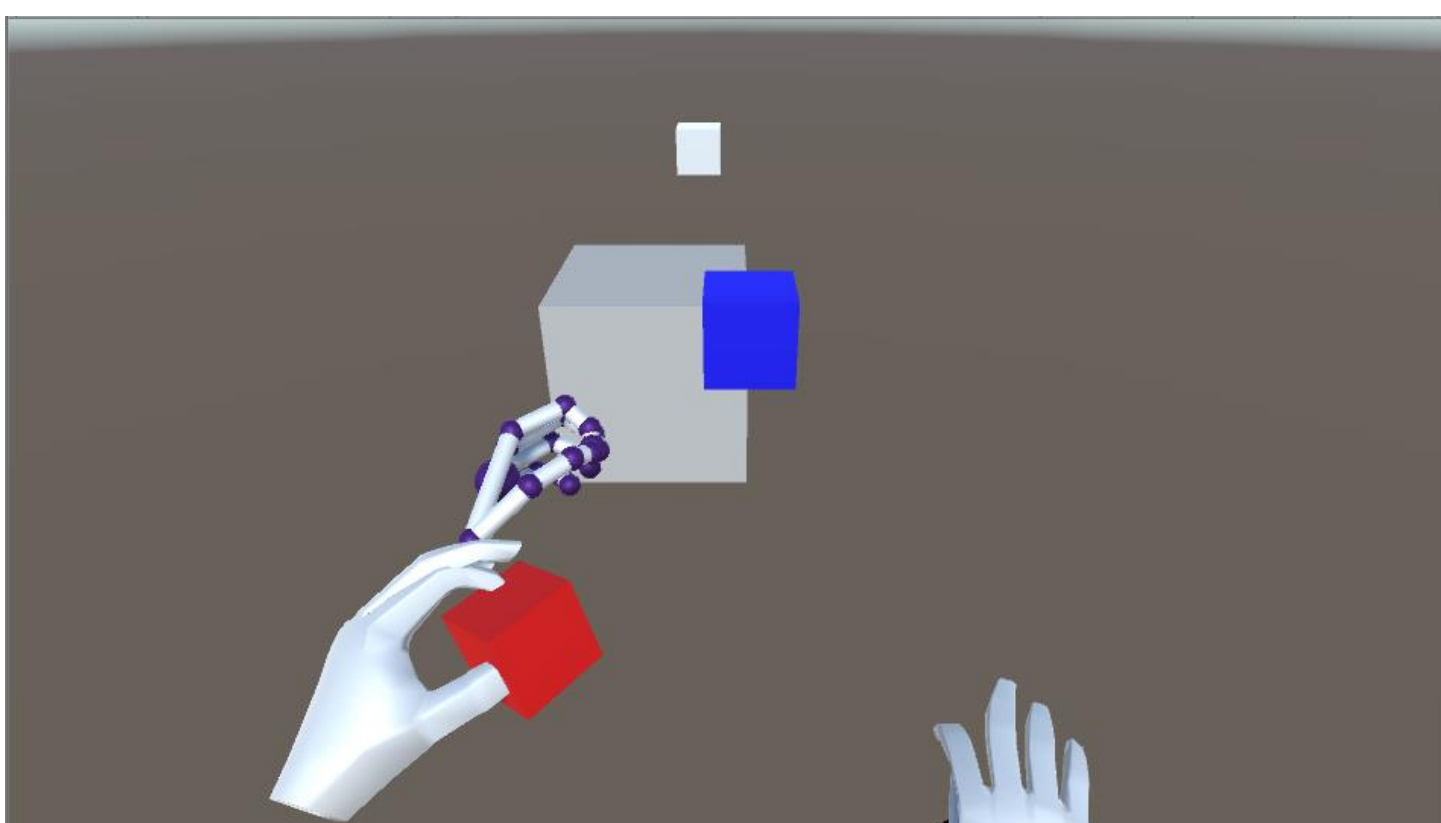
The Leap Motion camera (center) is used to track positional changes in the user’s hands, while the gloves tracked rotational changes.

Background

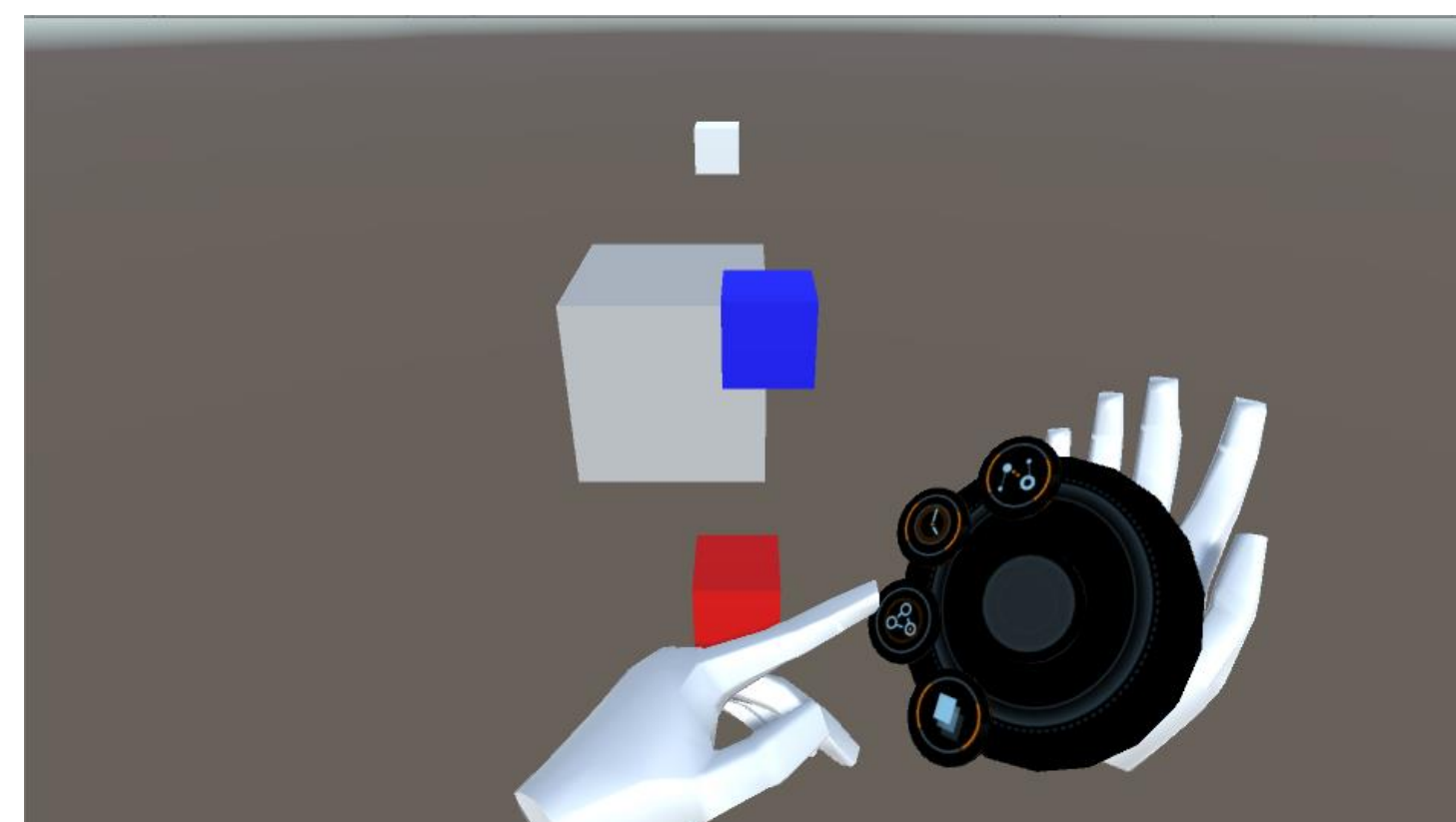
This project is part of the creation of a virtual reality program by the Army Research Lab to organize and present large quantities of images in an effective and intuitive manner. The completed project will utilize voice commands, eye tracking, a VR headset, and motion capture gloves.



Testing an earlier build of the program. The Unity workstation used to create the program is visible onscreen. The Leap Motion camera is obscured under the left arm.



Demonstrating the “pick up” functionality with the red cube. The blue cube is for testing the “slide” functionality and the white cubes for the “zoom” functionality.



Interacting with the hand widget using the left pointer finger. Buttons with orange brackets indicate an active sorting filter, which will filter images when integrated with the final product.

Functionality

The widget features four buttons that can be touched to activate or deactivate sorting filters. The program also features three other ways of interacting with objects: sliding them, picking them up, or zooming to increase or decrease the size.

Future Work

The next big step to be taken is integrating this work with the larger project, as it is currently isolated. The hand widget’s functionality can also be expanded, and more work could be put into improving the visual presentation.

Acknowledgements

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