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Expanse

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https://github.com/joshpaulchan/expanse

Overview

Expanse is a VR desktop application virtualization system. It renders the application windows from your host computer into a virtual scene where you can reposition, scale, and orient them in the 3-dimensional space around you, removing the physical constraints imposed by a monitor.

It uses the Google Cardboard and a phone as an HMD, the Kinect for hand-tracking, and a Windows PC to run the application.

Who & What

Expanse was created for the firm to aid in productivity applications.

There are many groups of people who would benefit greatly from Expanse. Among those, government associates can use Expanse for research and development, while improving productivity and reducing costs. Companies who have workstations for employees can also reduce costs and improve morale by allowing employees to be much more comfortable during work. Designers can use Expanse to model their designs 3D without having to find other 3D software. Schools can also benefit from Expanse by allowing students to immerse themselves in Expanse for field trips, labs, and design classes with only the cost of the product. Lastly, consumers of all types can benefit from minimizing their workspace and allowing freedom during their work time.

Usage Scenario

Expanse is a multi-component system with four major parts:

1. Window Capture
2. Server
3. Gesture Capture
4. Virtualization

A user will start the parent application, which will start the former 3 sub-systems.

The 4th occurs on the phone, where it renders a 3-dimensional space and populates it with windows.

Plan of Action

By the second demo, we plan:

+ To integrate all these parts into a cohesive application
+ To refactor our virtualization system to implement a ‘desk surface’ and the other specialized windows
+ To revise our window capture algorithms to compress our window images, leading to better performance

We plan to drop our cross-platform approach, and work solely on Windows for the remainder of the project. We’ll also be dropping the CAD integration.