Statement of Purpose

After seeing the beginnings of the 2nd wave of Virtual Reality in conferences and talking with industry partners there was an obvious need for group collaboration virtual reality. We surveyed the current commodity projectors and screens.

Research Goal

Motivation

The current software industry for VR is vast, fields such as medical, teaching, engineering, and gaming can all benefit. However, the current hardware industry is focused on developing headsets. Headsets are an easy platform to optimize cost and performance. Developers try to take advantage of this and apply HMDs to the entire problem space. However, while HMDs are great at single-user experiences, they tend to fail at delivering multi-user experiences

The CAVE Virtual Environment is a VR device that allows a group to experience a shared Virtual Environment. By utilizing projection technology, the users do not have to wear a full HMD, only 3D glasses.

However, as HMDs became cheaper and cheaper, CAVEs maintained a high price due to the infrastructure, software, projectors, and screens required for the installation.

Challenges

Reducing Costs

Ease of Setup

Ease of Development

Thesis Overview

Background Research

Brief History of Virtual Reality

CAVEs