

Final Project Report

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Abstract—VR Technology has been developing rapidly in the 21st century. Current solutions such as Unity attempt to use old programming languages and paradigms to implement VR environments and thus limit developers' abilities to create new and unique environments. With every cutting edge technology, new paradigms and design patterns must be invented. In this paper, we discuss a new modular, immediate mode, promise-based application design philosophy suitable for implementing large virtual reality applications. We present a library which implements this design philosophy and a few case studies of this library in use.

I. Introduction

A. Reasons for Exploring Alternative Application Design Philosophies

- Frame Rate
- 3D Environment

II. Failed Attempts Leading to Flight

A. Entity Component System

III. Flight

A. Language

B. Dependencies

C. Modular

D. Immediate Mode

E. Promise-Based

IV. Case Studies

A. Let's Get Physical and Snowflakes — Physics

B. Workbench — SOMETHING

C. VRsh — Global User Interface

V. Comparison to Alternative Libraries

A. A-Frame

VI. Conclusion