<VR Puzzle Game>

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UXCFXK-30-3

Digital Systems Project



# Abstract

**Your Abstract**

# Acknowledgements

**Just want to give credit to friends and my supervisor who helped me develop ideas.**

# Table of Contents

[Abstract 1](#_Toc83734960)

[Acknowledgements 2](#_Toc83734961)

[Table of Contents 3](#_Toc83734962)

[Table of Figures 4](#_Toc83734963)

[Introduction 5](#_Toc83734964)

[Literature Review 6](#_Toc83734965)

[Requirements 7](#_Toc83734966)

[Methodology 8](#_Toc83734967)

[Design 9](#_Toc83734968)

[Implementation 10](#_Toc83734969)

[Project Evaluation 11](#_Toc83734970)

[Further Work and Conclusions 12](#_Toc83734971)

[Glossary 13](#_Toc83734972)

[Table of Abbreviations 14](#_Toc83734973)

[References / Bibliography 15](#_Toc83734974)

[Appendix A: First Appendix 16](#_Toc83734975)

# Table of Figures

# Introduction

# Literature Review

# Each chapter should have an intro, what it contains

# Game engines

# VR

# Web tech, frontend and backend

# Why using Django rather than flask

# Oculus integrations vs XR

# Rest api Django has these capabilities

## Introduction to VR

There are four key elements of virtual reality experience (Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003):

It must have a virtual world “A virtual world is the content of a given medium” (Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003). In this case the case of this project this would refer to the game world. This will also tie into the writers next point regarding immersion. This is because the virtual world, if created correctly helps give a sense of immersion and improves the experience of the player.

It must have immersion, “Immersion into an alternate reality or point of view"(Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003). It must have both Physical and mental immersion, this can be split into two, “The state of being mentally immersed is often referred to as having “a sense of presence”” (Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003) and physical immersion “bodily entering into a medium” (Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003). Both of these points apply today, If the VR experience will be greatly affected if immersion is broken, so during development I must pay extra attention to this.

It must have Sensory feedback, “VR allows participants to select their vantage point by positioning their body and to affect events in the virtual world” (Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003). This refers to moving your arm for example in the VR worlds and have it match up with the real world. Technologies to make this more accurate already exist, with the rise of full body tracking for certain headsets. Sensors are placed on the body and tracked by the headset allowing for more accurate tracking of limbs creating the illusion of the player actually being in the virtual world.

The final key element according to the writer is, Interactivity. “For virtual reality to seem authentic, it should respond to user actions, namely, be interactive” (Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), 2003). In the case of current day VR this could be seen to be tied to the act of a user performing an action and getting a reaction. For example, a player pushes a box with there in game hand and the box moves back in response.

## Early Virtual reality headsets

### Sensorama

“Early sensory display experiences included the Sensorama”( [Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true),  [D. Will](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true), 2009). This piece of literature describes early vr technology. “The Sensorama was the brainchild of cinematographer and inventor Morton Heilig” ”( [Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true),  [D. Will](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true), 2009). As described by the writer of this literature the system “was lacking a major component of the modern virtual reality system: response based on user’s actions” ”( [Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true),  [D. Will](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true), 2009).

### Myron Krueger’s Videoplace

“Krueger’s artificial reality provided a second-person view of a virtual world in which participants could watch themselves within the world” ”( [Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true),  [D. Will](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true), 2009). [Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true) literature also talks about another early VR headset such as Myron Krueger’s Video place. This headset gave the user a “second-person point of view” of themselves. No games could be played on this headset and the user did not have “any mechanical devices or other sensors attached to their body” ”( [Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true),  [D. Will](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true), 2009) unlike some modern day VR headsets that use full body tracking that require sensors to be placed on the users body.

Sherman, [B.Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), W.S, A.C.. (2003) Understanding Virtual Reality: Interface, Application, and Design [online]. Location: Morgan Kaufmann. [Accessed 06 November 2021].

[Craig](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true), [R. Sherman](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true),  [D. Will](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true), [A.C](https://learning.oreilly.com/search/?query=author%3A%22Alan%20B.%20Craig%22&sort=relevance&highlight=true) , [W.S](https://learning.oreilly.com/search/?query=author%3A%22William%20R.%20Sherman%22&sort=relevance&highlight=true), [J.W](https://learning.oreilly.com/search/?query=author%3A%22Jeffrey%20D.%20Will%22&sort=relevance&highlight=true) (2009) Developing virtual reality applications : foundations of effective design [online]. Location: Elsevier Science & Technology. [Accessed 06 November 2021].

Summary the technology to be utilized for the project.

End of each chapter should be a summary of what was it in.

# Requirements

# Methodology

# Design

# Implementation

# Project Evaluation

# Further Work and Conclusions

# Glossary

# Table of Abbreviations

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# Appendix A: First Appendix