

Lighting and Rendering in the Unity Game Engine

Final Year Report

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# Abstract

Table of Contents

[Abstract 1](#_Toc129652959)

[Introduction 1](#_Toc129652960)

[Requirements and Design 2](#_Toc129652961)

[Requirements 2](#_Toc129652962)

[Requirement 1 - Player Movement and Interaction 2](#_Toc129652963)

[Chaining Moves 2](#_Toc129652964)

[Momentum 2](#_Toc129652965)

[Trajectories and Physics 2](#_Toc129652966)

[Environmental Integration 2](#_Toc129652967)

[Decision Making 2](#_Toc129652968)

[Requirement 2 2](#_Toc129652969)

[Requirement 3 2](#_Toc129652970)

[Requirement 4 2](#_Toc129652971)

[Requirement 5 2](#_Toc129652972)

[Requirement 6 3](#_Toc129652973)

[Requirement 7 3](#_Toc129652974)

[Design 3](#_Toc129652975)

[Class 3](#_Toc129652976)

[Summary 3](#_Toc129652977)

[Development and Implementation 3](#_Toc129652978)

[Testing and Analysis 3](#_Toc129652979)

[Critical Evaluation 3](#_Toc129652980)

[Conclusion 3](#_Toc129652981)

[References 3](#_Toc129652982)

# Introduction

# Requirements and Design

## Requirements

### Requirement 1 - Player Movement and Interaction

Character movement and interaction in games is a common thing and is usually overlooked by games, but designing a great character movement mechanics can make the gameplay more fun and enjoyable for the user (Run, 2019). If the character movements mechanics are very bad and cumbersome to use, this will annoy players and stop them from having fun in the game, or they may stop playing the game all together which could have a huge negative impact on the game development company.

Movement and interaction mechanics are the main way that allows a player to move around and interact and get immersed in the game world (1-up, 2021). This is very important for any game from the first Mario World game with its 2D side scroller gameplay to today’s huge 3D open world games such as Horizon: Forbidden West. These mechanics allow the player to walk, run and jump around the game world, also it allows them to interact with the world by jumping on objects to gain coins in Mario World, and to interact with other characters in the game in Horizon: Forbidden West.

#### Chaining Moves

#### Momentum

#### Trajectories and Physics

#### Environmental Integration

#### Decision Making

### Requirement 2 - Map Design

### Requirement 3 - Graphics

### Requirement 4 - Lighting Effects

### Requirement 5 - Shadows

### Requirement 6 - UI and UX

### Requirement 7 - Security Features

## Design

### Class

## Summary

# Development and Implementation

# Testing and Analysis

# Critical Evaluation

# Conclusion

# References

1-up. (2021, March 08). *Turning Movement into Gameplay*. Retrieved from Medium: https://medium.com/@1-UP/turning-movement-into-gameplay-video-game-systems-428791dac211#:~:text=Movement%20systems%20are%20the%20means,environmental%20obstacles%20in%20their%20way.

Run, J. a. (2019, July 01). *Run, Jump and Climb: Designing Fun Movement in Games*. Retrieved from Game Developer: https://www.gamedeveloper.com/audio/run-jump-and-climb-designing-fun-movement-in-games