Archery

Game Design Document

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Date: August 21, 2024

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1 Introduction

1.1 Objective

The objective of "Archery" is to create a VR archery game in Unity where the player can shoot arrows at targets to score points. The game is designed to be immersive, engaging, and functional on the Quest 3 VR headset.

1.2 Target Audience

This game targets VR enthusiasts and casual gamers who enjoy skill-based challenges and immersive experiences.

2 Game Overview

2.1 Game Concept

"Archery" is set in a training ground environment where players use a virtual bow and arrows to hit targets. The game includes four scenes: start, Level 1, Level 2, and end, with increasing difficulty and engaging gameplay.

2.2 Gameplay Summary

Players begin in the start scene, exploring a training ground but unable to interact with objects until Level 1. In Level 1, players grab a bow and 10 arrows to shoot targets and earn points. Targets ignite upon impact due to fire arrows, with sound effects enhancing the experience. After all arrows are used, players progress to Level 2, featuring moving targets and higher difficulty. The end scene displays the final combined score and offers options to restart or quit.

3 Game Mechanics

3.1 Player Controls

Players use VR controllers for interaction. The grip buttons on either controller allow players to grab the bow, while the string is drawn with the opposite hand. Shooting distance is influenced by the pull strength.

3.2 Scoring System

Points are awarded based on target distance and difficulty. Further targets yield higher points. Scores from both levels are combined and displayed at the end.

3.3 Arrow Mechanics

Players are limited to 10 arrows per level. Arrows are spawned on the bow when grabbed, and targets catch fire upon being hit, providing visual feedback.

4 Level Design

4.1 Environment

The game features four distinct scenes: start, Level 1, Level 2, and end. Level 2 introduces moving targets and higher-value targets placed further away to increase difficulty.

4.2 Target Placement

Targets are strategically placed at varying distances and positions. Level 2 challenges players with moving targets, requiring precise aiming.

4.3 Difficulty Progression

Level 1 introduces basic mechanics, while Level 2 demands more skill with moving targets and scoring based on distance.

5 User Interface (UI)

5.1 HUD Elements

The HUD displays the player's score and remaining arrows. A start menu allows players to choose between starting the game or quitting.

5.2 Menus

Players use ray interaction in the start scene to select play or quit. The end scene shows the final score and options to restart or quit.

6 Technical Details

6.1 Development Tools

The game is developed using Unity and C#. Models are sourced from the Unity Asset Store and external sources.

6.2 Platform Requirements

Designed for the Quest 3 VR headset, requiring compatible controllers and setup.

6.3 Code Structure

Scripts manage game mechanics, player interactions, and UI elements.

7 Art and Sound

7.1 Visual Style

Assets from Unity Asset Store and external sources contribute to a cohesive visual style.

7.2 Audio Design

Sound effects for drawing, shooting, and hitting targets enhance immersion.

8 Testing and Quality Assurance

8.1 Testing Procedures

The game is tested for functionality and performance on VR hardware to ensure a smooth experience.

8.2 Known Issues

List known bugs or limitations being addressed in development.

9 Future Enhancements

9.1 Planned Features

Potential updates include new levels, arrow types, and enhanced environmental effects like wind.

9.2 Feedback and Iteration

Player feedback will guide future improvements and updates.

10 Conclusion

"Archery" aims to deliver a satisfying and challenging VR experience, leveraging technology to create an immersive environment. Future enhancements will build on player feedback to refine gameplay and expand content.