Berchtesgaden

Version 1.0

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1. Game Overview

1.1 Game Concept

- Use 3D sounds to guide player throughout the puzzles.
- Introduce the story of Lohengrin and the opera Lohengrin to the player.

1.2 Feature Set

- Sound spatialization, attenuation.
- Well designed graphics

1.3 Genre

- Exploratory
- Puzzle

1.4 Game Flow Summary

A. Spawn
B. Look for the boat
C. Look for the song source
D. Get out of the cave
E. Find & Master the sword

1.5 Look and Feel

- Realistical
- Night (limited visual) to day (full visual)

1.6 Project Scope

- Locations: 4 (house and lake shore, lake, cave, sword land)
- Level: 1 (Berchtesgaden)
- Transportation: 3 (walk, boat, sword)

2. Gameplay and Mechanics

2.1 Gameplay

2.1.1 Game Progression

The player will start the journey from the house on the hill, then proceed to the lake side to find the boat and drive to the center of the lake, after solving the spatialized sound puzzles, the player will find a cave inside one of the mountain after a stone gate. Before the player touch the sword, he will be accidentally falling into a secret cave, and the information from the preview will be used to solve the puzzles and the player can escape the cave then find the church and magic sword.

2.1.2 Puzzle Structure

Most of the puzzles in this game will be based on the location of the 3d sound. The user need to find the boat using the sound of burning fire on the lamp, then find the three emblems from the excerpts from the three acts of Lohengrin. In the secret cave, two different sound will come out from different branches of the cave; then the player needs to choose the correct sound to follow and it will guide the player to the destination.

2.1.3 Game Objectives

The objective of the game is to complete the adventure. Player will follow puzzles within a linear route to complete the game.

2.2 Mechanics

2.2.1 Physics

The game use natural physics with gravity using builtin methods in Unreal Engine. No collision (impact) is needed in the game.

2.2.2 Movement

There are two types of character in this game: human being with a petroleum lamp and the boat. Since there is no very elegant way in UE4 to handle the boat pawn, the boat is actually a character.

2.2.3 Objects

There are three petroleum lamp in the game, one is in the house, one is on the lamp character's hand, and the other is on the boat. They are mainly meant for illumination. In the second cave puzzle, the torch is used for illumination instead.

One of the key item in this game is the magic sword of Lohengrin, it appears in the first secret cave and the end of the game. After the players clear the entire puzzles set, they will be able to fly with the sword and explore the open world.

2.2.4 Actions

Other than the usual movement actions, the lamp character is also able to throw the shiny stones. When the stones hit the ground of other hindrance, it will explode a lit up the environment for a short while.

2.3 Easter Eggs

The sound source in this game is mostly based on the opera by Wagner: Lohengrin. The background music at the beginning is the prelude, and the three piece in the first set of puzzles is from the three different acts in the opera. The emblem and the sound source in the secret cave is also from the story in the opera: swan and the sound of swan represent the swan knight from act 1, the warrior and sound of fighting represent the duel from act 2, and the rings and the wedding bell represent the wedding in act 3.

The map are build based on the landscape in Berchtesgaden National Park.

For the human character, the movement is controlled mainly by the stick from the controller or WASD from the keyboard, the players can adjust the forward direction by turning their head around if the VR headset is equipped. For the boat character, rotating the headset won't affect the forward direction of the boat, but allow the user to view the scene surrounding him.

3. Story Settings & Character

3.1 Story and Narrative

3.1.1 Background Story

The game extends the famous opera Lohengrin by Richard Wagner. The original story in the opera please refer to https://en.wikipedia.org/wiki/Lohengrin_(opera).

The scenario in the game happens a hundred years later after Lohengrin leaves. There was always a tale all these years suggesting that the swan knight had left his sword somewhere in the lake Königssee on his way back. Anyone who can find the sword will be able to master it and flying to whatever places in the world in a second. Königssee lies in a mysterious place Berchtesgaden, where there were always songs singing at the midnight. More and more people started to believe that these songs are the guide to Lohengrin's sword.

You, as one of sword pursuers, come to Berchtesgaden, wishing that you could find some clues in the songs.

3.1.2 Cut Scenes

Scene 1: You are spawn in a wooden house on the mountainside of Jenner, the mountain that stands right beside Königssee. You hear something on fire so you follow the sound and in the end, you find out that it is a lamp on a small boat. You get on the boat and suddenly, you hear the songs in the legends. You drive the boat and follow the sound. The sound leads you to a strange rock, on which a swan is carved. Right at this time, the song ends and a second song starts. You follow the new sound and find the second rock,

together with a carving or knight. Again, a new sound started and this time, when you reach the source, you discover a carving of a pair of wedding rings. You suddenly realized that these carvings are telling the story of Lohengrin, describing that the knight comes with a swan, fights for his beloved Elsa, marries but soon leaves her. At this time, the carving starts to shake and the rock collapse: a cave is shown. You drive the boat into the cave and find out a sword is stuck in a shiny stone. You think you have found the sword, you turn to be excited, but suddenly you falls down into the water, together with the boat at the place that only a few meters from the sword.

Scene 2: When you wake up, the boat has been gone. You find yourself in a strange cave that has no entrance. A music start to play somewhere and you stand up, luckily, the lamp is still with you. With the lamp, you can see a few steps ahead so you start walking, with no idea where's the end of the cave. After a while, there is a cross. Two different sounds are propagated from two different exits of the cross, one is the sound of a swan while the other is from a bird. You realized this may be related to the carvings you find on the rock before falling down, so you take the exit of the swan. In the next, you hear the sound of fighting and wedding and you are more and more confident that you took the correct choice. However, when the wedding sounds start to fade out, you find it is a dead end. Yet, just at the time you are about to give up, the rock at the end of the way start to shake, a flash comes in, a door has been opened and you find out: the night is passed.

Scene 3: You get out of the cave through the door, the wedding sound is away, and a much more exciting music to start to play somewhere on you right. When you turn around, you find out there's another sword, standing in the river, just in front of a waterfall that comes from the mountain behind. You approach the sword, it flies out and lies down beside you. You touch the sword, close your eyes unintentionally and feel that a force is lifting you up. When you open your eyes again, you have stepped on the sword. You have mastered it. (The game ends)
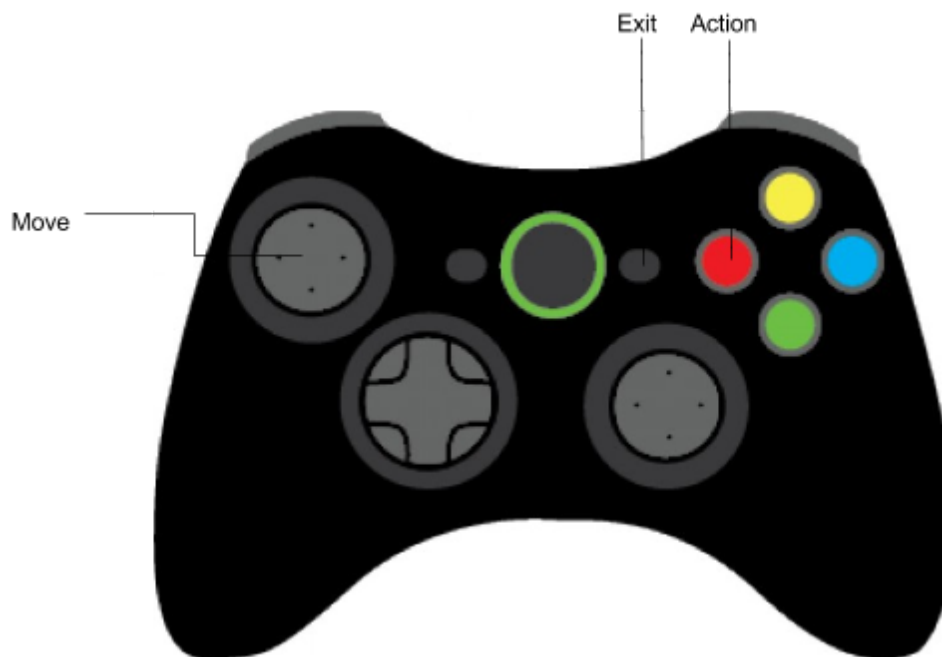
3.2 Game World

The game word is built based the real map of [Berchtesgaden and Königssee](#).

4. Interface

4.1 Control System

4.1.1 Game Controller

4.1.2 Keyboard & Mouse

- Move - WASD
- Action - X
- Exit - Esc
- Camera - Mouse

4.1.3 Head Mounted Device

The game support Head Mounted Device and is tested for Oculus DK2. The game use head mounted device to control the camera direction of the character.

4.2 Audio

4.2.1 Attenuation with spatialization

- Fire sound of the boat, which leads the player to the boat and start puzzle one.
- Checkpoint sounds in puzzle one, which leads the player to different carvings on the rock
- Waterfall sounds in the cave at the end of puzzle one.
- Checkpoint sounds in puzzle one, which indicates the correct way in the way.
- Sword sound in puzzle three, which indicates the location of the sword

4.2.2 Attenuation without spatialization

- Background melody when play is spawn
- Opera/Laughter sounds played in puzzle two to indicate the correct or wrong choices

4.2.3 No attenuation or spatialization

- Ambient sound for winds and waves

5. Technical

5.1 Target Hardware

The game is designed for and expected to be played with VR system.

The recommended hardware for oculus VR:

- NVIDIA GTX 970 / AMD 290 equivalent or greater
- Intel i5-6400 equivalent or greater
- 8GB+ RAM
- Compatible HDMI 1.3 video output
- sensor and 1x USB 2.0 port
- Windows 7 SP1 64 bit or newer, plus the DirectX platform update

5.2 Development Hardware and Software

The game is developed with PC in media lab (AS6-0426), Oculus DK2 and xbox one controller. The game is developed with Unreal Engine 4.12 and Wwise 2016.1.3 UE4.12.