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Design Document for:

Rivered

The Ultimate River Rafting Game

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Game Overview

Philosophy

Philosophical point #1

This game is entertaining for young children who need constant stimulation.

Philosophical point #2

Our game runs on PCs and Laptops due to the ease of movement using A and D keys or Up and Down arrow keys

Common Questions

What is the game?

Endless river rafting game.

Why create this game?

This game was created for children to learn and play at the same time.

Where does the game take place?

The game is set in a moving river. The background elements feature trees, plants, etc. In each of the lanes there are obstacles like logs, rocks and boulders.

The player's character's father was a boatsman who was lost at sea. The player is trying to become the best boatsman alive in order to find his father.

What do I control?

The player can move the raft left, and right.

How many characters do I control?

The player controls one character.

What is the main focus?

The goal of the user is to get a high score by navigating for as long as possible without crashing the raft.

What's different?

After a certain age, children require constant stimuli and feel cranky and understimulated otherwise, this game solves this issue by entertaining children with an endless model.

Feature Set

General Features

Huge world
3D
graphics
32-bit color

Gameplay

A simple game where the player is a rafter navigating (swipe left/right) through a river while avoiding obstacles. Their score increases according to the distance they cover. If the player hits an obstacle, the game ends.

The Game World and Layout

Camera

The camera will move forwards, following the character as they navigate down the river.

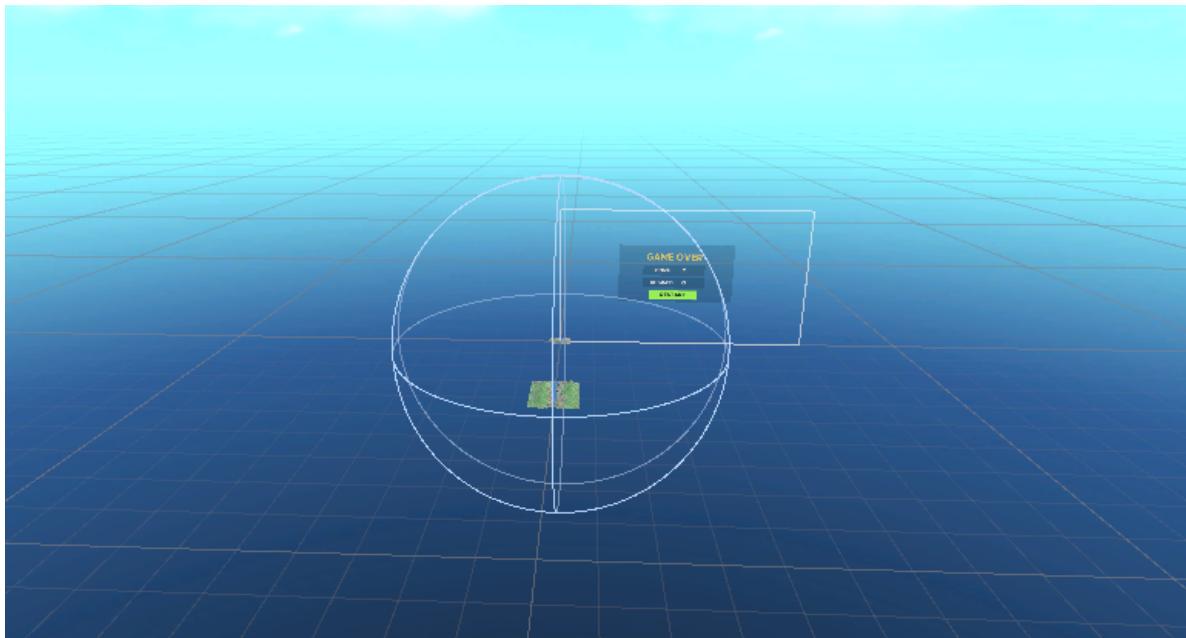
Game Engine

The game engine used is Unity. It keeps track of all the objects and takes care of collision detection.

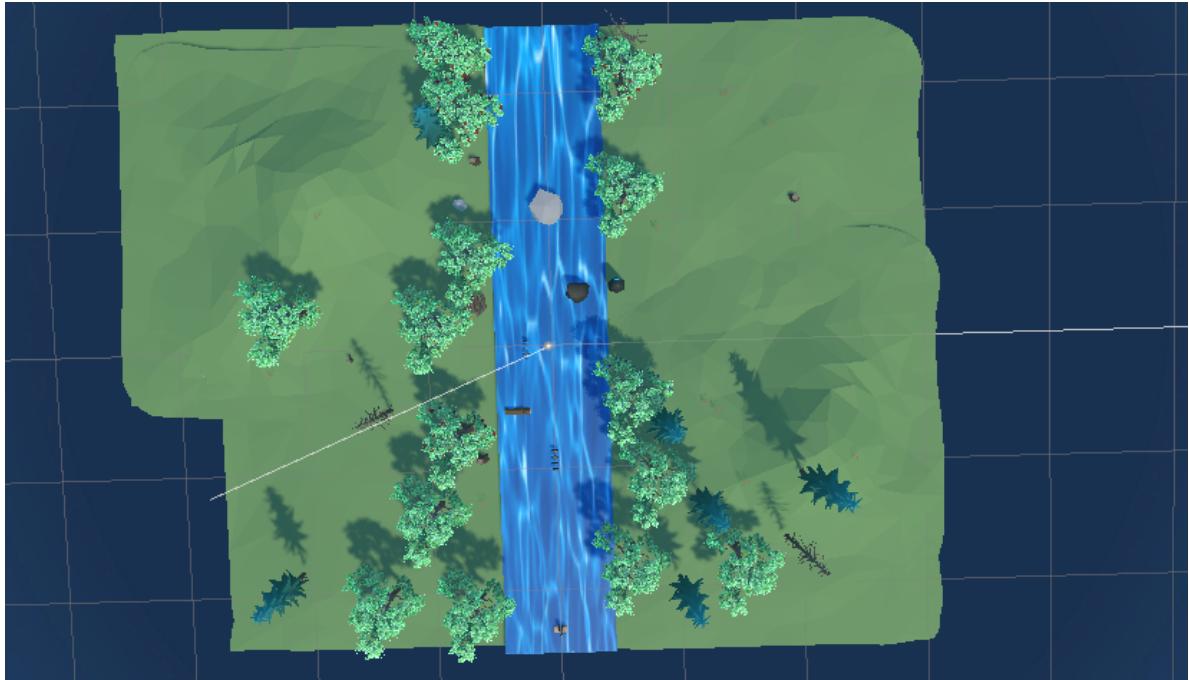
Lighting Models

The lighting models used are BlinnPhong and Lambert.

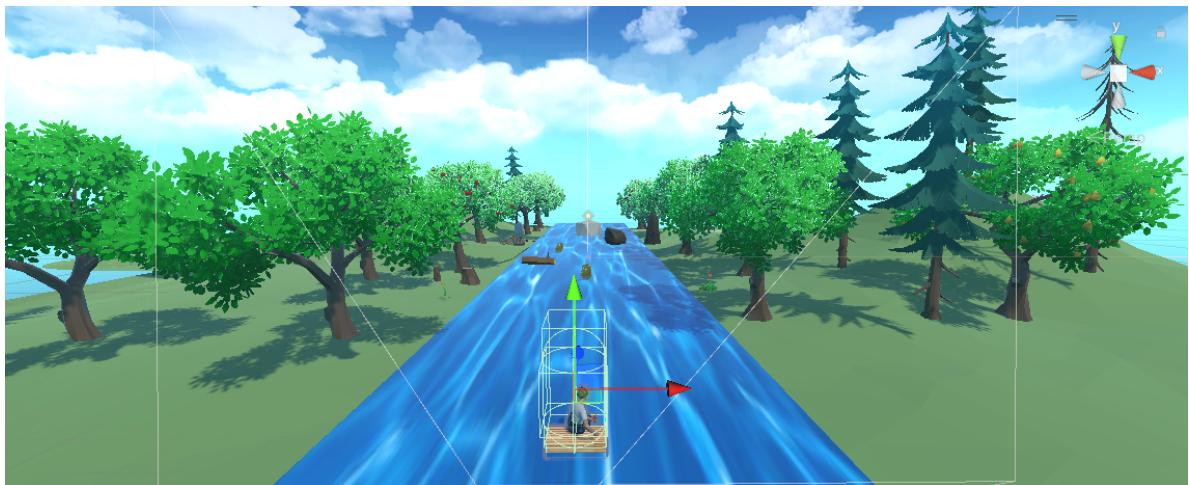
Layout



In fig. Game World



In fig. Game Layout



In fig. Game Layout from camera.

Game Characters

Overview

The player controls a female character, nicknamed Diana

Creating a Character

The character model was imported from the free resource site Mixamo,



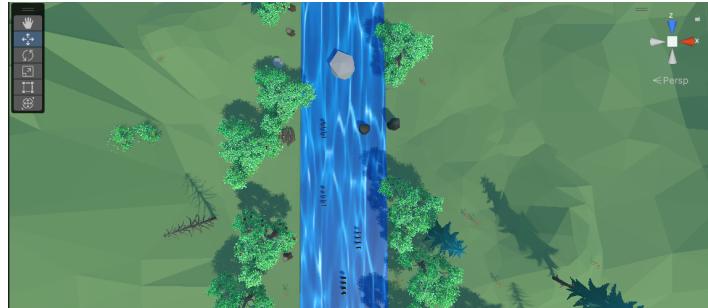
User Interface

Overview

The UI has a start button which starts the game. The player can move the character left and right using the A and D keys. Once gameplay is over, a restart button is displayed

User Interface Detail #1

The navigation game interface includes a river filled with obstacles and coins to collect



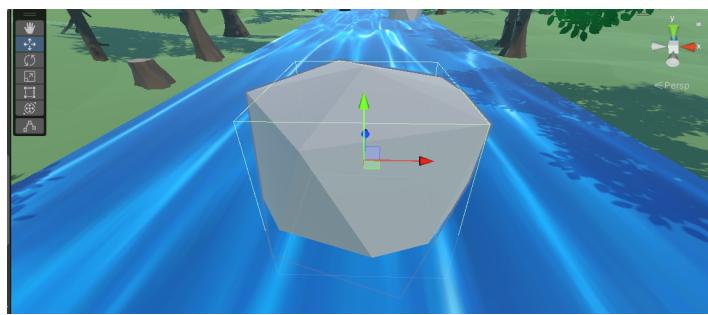
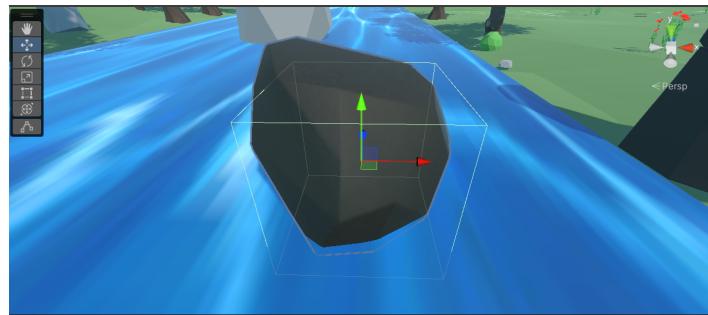
User Interface Detail #2

The sides of the river are filled with trees and hills



User Interface Detail #3

The river obstacles include rocks and logs which cause the character to fall off the raft if hit into and the game ends.





User Interface Detail #4

Once the game ends, the user's score is displayed along with the number of coins collected and they have an option to play again.



Single-Player Game

Overview

The player navigates through the river filled with obstacles and coins and tries to navigate as far as possible

Single Player Game Detail

The game is played from a third-person point of view where the player manipulates the character on a raft. The river has obstacles (logs and boulders) which the player must avoid in order to survive. The river also has collectable coins

Story

After the Main Character (MC)'s father passes away, MC inherits his boat and is now determined to carry on the family legacy and win at the Lamér tournament. The game follows MC's training for the tournament on the local river that is infested with sharks. The local river dam also broke a few years ago, making the MC's training even more difficult. The MC wishes to become the greatest rafter alive!

Hours of Gameplay

The game is an endless runner and does not have an end point. The gameplay duration depends on the player's skill.

Challenge

As time goes, the speed of gameplay is gradually increased which increases the difficulty for the player to navigate.

Victory Conditions

The goal of the game is to get the highest possible score.

The Game Programs

Scripts

The game uses a total of 11 scripts. They are:

- 1) LevelBoundary
- 2) LevelStart
- 3) PlayerMove
- 4) LevelDistance
- 5) CollectableControls
- 6) CollectCoins
- 7) RotateObjects
- 8) GenerateLevel
- 9) ObstacleCollision
- 10) CapsuleCollision
- 11) EndRunSequence

These have various functionalities and co-routines that enable the character and object interactions in the game world

Game AI

The game currently uses a random function to pick one out of 3 sections of terrain every 50 units of distance. The 3 sections have different orientations of obstacles. In further improvements of the game, Game AI like Genetic Algorithm can be used to dynamically generate the terrain

Contribution

Idea

The idea for the game was brainstormed in a meet by all the members

Graphics

The graphics were done together on online meets

Scripts

The scripts were split between the 3 members:

- | | | |
|-----|---------------------|-----------|
| 1. | LevelBoundary | Subhiksha |
| 2. | LevelStart | Subhiksha |
| 3. | PlayerMove | Subhiksha |
| 4. | LevelDistance | Subhiksha |
| 5. | CollectableControls | Avantika |
| 6. | CollectCoins | Avantika |
| 7. | RotateObjects | Avantika |
| 8. | GenerateLevel | Avantika |
| 9. | ObstacleCollision | Sweta |
| 10. | CapsuleCollision | Sweta |
| 11. | EndRunSequence | Sweta |