FEUP Fantasy Racer's manual

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1 Introduction

FEUP Fantasy Racer is a racing game based on the mechanics of the famous game Mario Kart but with Final Fantasy's VII themes.

2 Have the program running

To run the game, the user only needs to open the project's folder and open a live server from its**.html** file. If performance issues are making the game unplayable, it is recommended for the player to go to the project's folder, **controller** folder, **ScenarioModelsController.js** file and finally comment the lines where the models of the buildings are created.

3 User Instructions

3.1 Menus

When the user is running the program for the first time, they will be greeted by a starting menu. They only need to click on the **Start** button and they will move to an **Input Menu**. This will ask the player to input their name (6 chars max.). By confirming their input, the user will be able to select their character: either Cloud or Tifa, both with different attributes which will be shown in a card for each one. By clicking on the cars themselves, a card will pop up with detailed info about the character and their car. The user can then click on **Select** to block their character. Following this step, a similar process will occur to select the car of the adversary. The only difference is that instead of locking a character, the player can choose 1 out of 3 **levels of difficulty** for the adversary.

3.2 Player Controls

To move their character, the player can use the WASD keys to go **forward, to the left, backwards and to the right**, respectively. The player must complete 3 laps around the track before their adversary, therefore, winning the race. Around the circuit there are 2 kinds of **power ups** (increase speed and decrease time) and **obstacles**(decrease speed and increase time). During the race, there will also be displaced a billboard with some important info regarding the player: the number of laps done, the time, their speed, etc. Both the players and adversary's car wheels spin according to their current speed and turn according to their current angle of rotation. Whenever the player wants, they can press the ESC key on the keyboard to exit the game (reset and go back to the main menu). They can also press the space bar in order to fully pause the game.

3.3 World interactions

When the player collides with a power up, they will also pause the game, select an obstacle to put in the track, place it and only then the game resumes. When playing with their character, the user must also be careful with the limits of the track, since, when out of them, their speed decreases drastically. Regarding the rest of the components of the map, when it comes to the adversary car, its animation speed will change depending on the difficulty level chosen by the user and a different trajectory (made

out of 58 control points) depending on the chosen character. It's also worth noting that the adversary car has a **hitbox** too, being possible for the player to go against it. However, this autonomous car can't interact with either power-ups or obstacles. The player can't go out of bounds from the map, since some invisible walls are blocking them from trespassing certain limits.

4 Other aspects

- The obstacles used have all a pulsating effect obtained with shaders.
- The terrain has a 3D effect thanks to the shaders.
- When starting the race, a little countdown will be made on the screen, just like a real race.
- When finishing the race, the player will be greeted with fireworks with the display of some results such as the winner, the difficulty chosen, etc.
- There's a background looping music.
- Although it wasn't made with shaders, the terrain presents some elevations, obtained with THREE.js built-in method of displacement map.
- Some changes were made to the .xml scene file and its parsers.
- Models were used for both the cars and buildings.