Blue Gravity - Skateboard simulator task - Yuri Lacerda

The proposal should take into consideration the following:

- Character Movement;
- Jump with the skate;
- Propulson;
- Breaking;
- Level Design;
- Obstacles;
- Animation inside an Anim Blueprint.

1. Character Movement:

As a basis, I made use of the Third Person Character already provided by the Unreal Engine 5.3 templates (the version I chose to use for the task). With this, I was able to implement the basic character movement with my own modifications.

The significant change in the character's movement was the replacement of the A and D keys, which instead of applying lateral movement input, simply rotate the player to give the impression of making a turn.

The W key remains in its natural state, providing forward movement input, but now the input follows the direction of the character rather than the camera, allowing the player to look around the cenario.

2. Jump with the skate:

The jumping motion was defined as a variable to be used in the Anim Blueprints later, using only the Input Action as a function to activate the jump, combined with the SPACE key bind. For the skate to jump with the player, was only a matter of adding a socket to the player’s feet and binding it to the board.

3. Propulson:

To create the impression of acceleration, the SHIFT key is used to increase the max walk speed of the player. This speed value gradually decreases, creating a need for a new boost.

4. Breaking:

The braking option is combined with ground friction. If the S key is pressed, the player generates a greater amount of friction, causing the velocity value to decrease abruptly.

Braking can also occur when the player releases the W key, but resulting in a much less abrupt stop than using normal braking.

5. Level Design:

The concept for the level was inspired by a set of assets already provided by the company for the task (City Street Props - Epic Games Store) for the complete development of the level.

The constructed park was created to give a still under construction and development style, reflecting the idea of something being created and shaped, much like an initial project of an idea that is not yet finalized. This construction park features various interactive objects and evokes an industrial atmosphere with an element of "organized chaos."

6. Obstacles:

A basic model for the scenery was constructed using a Trigger box and a 3D display for the score. There are various obstacles in the level with different levels of difficulty, but all follow the principle of "jumping over" and earning a score value, which is added to the player's screen as a total. From that basic model, all of the multiple obstacles on the map are Child blueprints of the basic one.

7. Animation inside an Anim Blueprint:

All animations used in the project originated from Mixamo and were implemented within an Animation Blueprint. 1D Blends were used to animate the character according to the player's speed, and bone transforms were used to create the impression of a turn.

Thus, the character can be animated to: accelerate, jump, brake, skate, and lean to the sides according to the curve made.

Below is an estimate of the project timeline:

Player controller - 5 Hours

Skate movement - 2 Hours

Animation - 4 Hours

Obstacle - 2 Hours

Map creation - 5 Hours

Project cleaning - 2 Hours

Project Upload - 2 Hours

TOTAL - 22 Hours

Project link: https://github.com/Reithe745/YURI_BGS_TASK