Skyline Rush

ICG Project - Intermediate Delivery

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1 Resources

Resource	**URL**
Git Repository	https://github.com/rodrigograc4/Skyline-Rush
Project	https://rodrigograc4.github.io/Skyline-Rush

2 What's the Project

As my project, I want to develop a highway driving game.

Just like some old driving games, a endless highway road with some traffic and you control a car that needs to avoid the others and score the max points you can.

It can be a two-way road, but the game works the same as a single-way. There should be builds alongside the road, with sun and moon running because time of the day changes. And with that, shadows of buildings and cars, as well as reflections and lights are in constant change.

3 Image

Here is a screenshot of the current development state of the game:

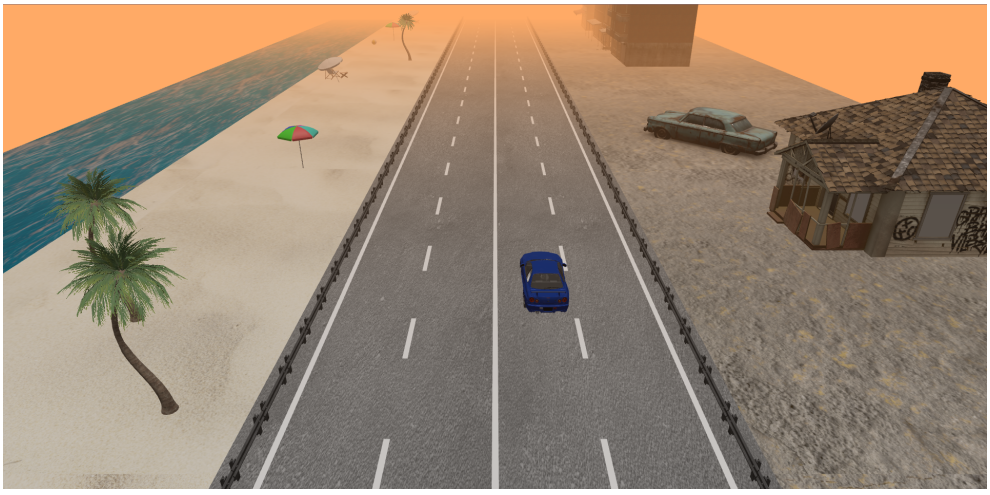

Figure 1: Skyline Rush

4 Objectives

The user should be able to move the car in 8 different directions, each with realistic mechanics in terms of direction, acceleration, and braking to create an immersive driving experience. All of this only inside the highway with the purpose to avoid the cars that are in their way.

Besides the car and the highway, the scene includes some buildings beside to make the environment be more realistic. As well as a beach on the other side. These items in the scene will be useful to demonstrate better the light animations, that should be like a sun and a moon.

Other than that, as long as the users car avoid the rest, there will be a score that will increase. The longer the user can avoid the other cars, the faster the environment looks and the difficult increases. The score will stop as soon as the users car collide with other.

5 What's Done

For what´s done, I had to do a lot of thinking of how I would implement this highway because it is supposed to be 'infinite' and with that it was very likely that no laptop could handle the game, at least not in the way we are doing it.

The solution I found and that I implemented was to create a Plane, with some 3d models of buildings, some textures for the road, etc. And since it was a finite plane, I made it long enough to cover the screen with the inclination of the camera that I chose, and with a animate function and a replica of the Plane, I was able to make it look like infinite. The way it works is, when the Plane is full behind the view of the camera, the function sets its X position to exactly where the other Plane finishes, becoming a perfect loop, looking like infinite highway.

In the implementation of the car, I got a 3d model of a car too, placed it in the highway for start position, and with an animation function I created similar physics to the ones we have. Like when the car turns with rotates a bit to that direction. And the when it stops turning it rotates back and becomes vertical again.

About the movement/acceleration of the car, in reality I didn't animate the car to move like its going forward by default. Just like I said above, because of the infinite highway I opted to make the Planes move instead of the car, so the acceleration feature actually comes from one animation in the Planes too.

6 What's Left

For next work, what I have planned is to implement the other cars and the collision feature. To make the game work, to actually be a game that is the priority as well as a score in the corner and a start button.

Other than that, for purposes of the course, its very important that I work with the lights, implementing the sun and moon, as well as the shadows the made in the highway and buildings. The car's headlights are a need too, because the light in the moon time will be almost 0.

Maybe if there's time left, I could extend the Plane, making it possible to had more different buildings and some light poles too in the border of highway. Also, in addiction to the scene cars just moving in the users direction, it would be good to make them turn left and right in the lanes too.