

Ocean Domination – Documentation

Ocean Domination is a 1-player, 3-D combat game, which takes place on the ocean in third person mode. The player controls a ship and must destroy the islands in order to win. The islands are fitted with canons and fire canon balls if the ship is within the attack radius of the island.

The ship is controlled by the user, using the keyboard and the mouse. The key map is as follows:

Left arrow key	-	Rotate left
Right arrow key	-	Rotate right
Up arrow key	-	Move forward
Down arrow key	-	Move backwards
Left mouse button	-	Fire ammunition
Right mouse button	-	Switch attack mode

The ship has three attack modes: normal missile mode, sniper mode and super missile mode (super power-up). The last of the attack modes is achieved when the player has destroyed 5 islands. There are three different sizes of islands in the game (small, medium and large). The player earns 5 points for destroying a small sized island, 10 points for destroying a medium sized island and 20 points for destroying a large island.

The player begins the game with 25 missiles and 5 sniper bullets. To destroy small and medium-sized islands, it needs to be hit 5 times by a missile and 10 times by a sniper bullet. However, to destroy a large island, it needs to be hit by the missile 10 times. The player gains 2 sniper bullets after destroying 3 islands and 2 super missiles after destroying 5 islands, regardless of their size.

Power ups such as health and extra missiles are randomly placed under the islands and can be picked up after the island has been destroyed. A health power up increases the health by 20 points and a missile power up increases the missile numbers by 4.

The advanced water dynamics are displayed using the vertex shader, which makes it seem wavy. There is a random wind factor, which increases the height of the waves and rocks the boat higher. The wake from the boat is also displayed using this vertex shader.

There are 2 particle effects that are displayed in the game. They appear when the missile hits the island. First there is an explosion effect, and then there is a smoke effect. The particle effects are displayed using textures and move randomly in the x and z directions.

When a shot is fired in sniper mode, a viewport appears, which follows the path of the bullet. There is a mini flare, which is displayed using a texture. The viewport is active only for the lifetime of the sniper bullet and disappears thereafter.

The random weather event is rain, which is displayed using particle effect, and appears only at random times in the game. This weather effect also reduces visibility, as the light gets darker.

The super power weapon is a super missile, which the player receives once they have destroyed at least 5 islands. The super missile destroys small and medium-sized islands with one shot and a large island with 2 shots. It has a large range and can be effective even outside the island defense radius.

If there was added time, I would have implemented shadows, reflection and dynamic clouds to make the game seem more realistic. I would have also added functionality for enemy boats, which fire at the player and try to destroy the ship.

In order to achieve the finished game, I have acquired ideas from Nehe Productions (<http://nehe.gamedev.net/>), Swiftless Tutorials (<http://www.swiftless.com/>) and Blendenzo tutorials (<http://www.blendenzo.com>). All the models in this game, i.e. the islands and the ship were created from scratch by me using Blender 3D.