Report Interactive Graphics

Our Sea

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Introduction

Every year 8 million of metric tons of plastic are thrown away in into the ocean.

Project

The main character is a small fish swimming in the ocean as we change the pollution of the ocean the fish become gradually sicker

Environment

- Three.js
- OrbitControls.js
- Math.js
- Stats.js
- Dat.GUI.js

Technical Aspects

HTML

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset=utf-8>
    <title>Our Sea</title>
    <link rel="icon" type="image/png" sizes="96x96" href="/favicon-96x96.png">
  </head>
  <body>
    <div id="world">
    </div>
    <div id="title">Our Sea
  <span class="subtitle">
    <br/>Change the pollution and your idea</span>
    <br/>
    <span class="todo">
      <a href="https://www.youtube.com/watch?v=HQTUWK7CM-Y"  target="blank">What can I do?</a>
      <br/>
    </span>
    <span class="credits">
       Work of
      <a href="https://github.com/fedebyes"  target="blank">@Fedebyes</a>
      <!--| Based on-->
    </span>




  </div>
    <link rel="stylesheet" type="text/css" href="css/style.css">

    <script src="lib/three.min.js"></script>

    <script src="lib/OrbitControls.js"></script>
    <script src="lib/math.min.js"></script>
    <script src="lib/stats.min.js"></script>
    <script src="lib/dat.gui.min.js"></script>

    <script src="js/loader.js"></script>
    <script src="js/logic.js"></script>
    <script src="js/main.js"></script>


  </body>
</html>
```

Technical Aspects

css

```
  background: rgb(47,47,48);
  background: linear-gradient(0deg, rgba(47,47,48,1) 0%, rgba
  width:100%;
  height:100%;
  overflow:hidden;

}
#title{
position:absolute;
  width:100%;
  bottom:0%;
  margin: auto;
  margin-bottom: 10px;
  font-family:'Open Sans', sans-serif;
  color:#0094ff;
  font-size:24px;
  text-transform: uppercase;
  text-align : center;
```

Technical Aspects

Javascript main.js

```
var flyingParticles = [];
    waitingParticles = [];
// maximum z position for a particle
    maxParticlesZ = 800;

// SPEED
var speed = {x:0, y:0};
var smoothing = 10;

// MISC
var mousePos = {x:0, y:0};
var stats;
var halfPI = Math.PI/2;
var minPollution=0;
var maxPollution=200;
var params={
  fishType: "nemo",
  refresh: false,
  debug: false,
  waterPollution: 20,
  polluted:false,
  plastic: false,
  chemical: false,
}

// depending if there is particles stored in the waintingParticles array, get one from the

init();
//if(params.debug){createStats();}
createStats();
createLight();


createFish();
createGUI();
createParticle();
loop();

setTimeout(flyParticle, params.waterPollution)
setTimeout(flyParticle, params.waterPollution)
//setTimeout(flyParticle, params.waterPollution)
//setInterval(flyParticle, 10); // launch a new particle every 70ms
```

Technical Aspects

Javascript load.js

```
//init everything for THREEJS
function init(){…}


//used for Stats.js
function createStats() {…}

// Lights
// I use 2 lights, an hemisphere to give a global ambient light
// And a harder light to add some shadows
function createLight() {…}

//FISH
//create the different fishes
function createFish() {…}
//Normal Fish
function createFishBasic(){…}
//Piranha Fish
function createFishPiranha(){…}
//Fish with a Texture of a Goldfish
function createFishTexture(){…}
//fedebyes Fish
function createFishNemo(){…}


//Create GUI from dat-GUI.js
function createGUI(){…}


// PARTICLES
function createParticle(){…}
```

Technical Aspects

Javascript logic.js

```
1 › function onWindowResize() {…}
14
15 › function handleMouseMove(event) {…}
19
20 › function handleTouchStart(event) {…}
27
28 › function handleTouchEnd(event) {…}
32
33 › function handleTouchMove(event) {…}
40
41 › function loop() {…}
145
146 › function getParticle(){…}
154
155 › function flyParticle(){…}
170
171 › function getRandomColor(){…}
176
177
178 › function hexToRgb(hex) {…}
186
187
188
189 › function updateSpeed(){…}
194
```

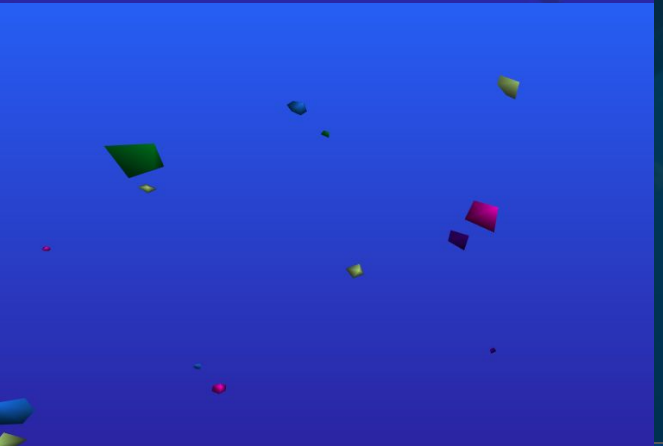
Components

Scene

Components

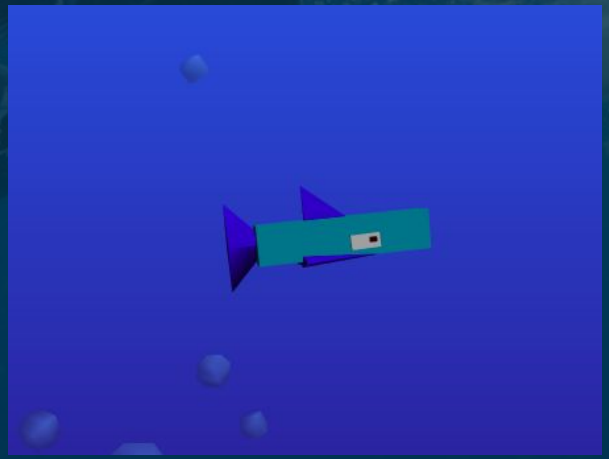
Particles

- Bubbles
- Dirt
- Plastic
- Chemicals



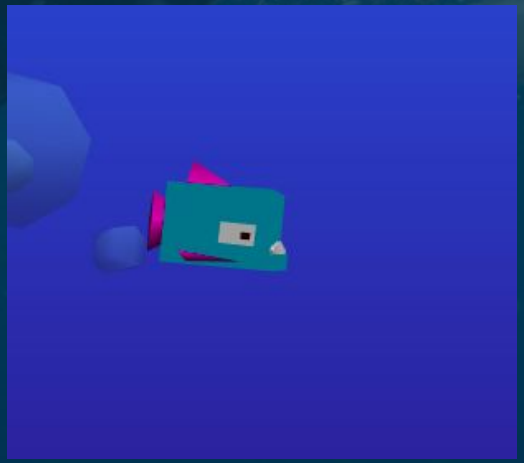
Components

Fish Normal



Components

Fish Piranha



Components

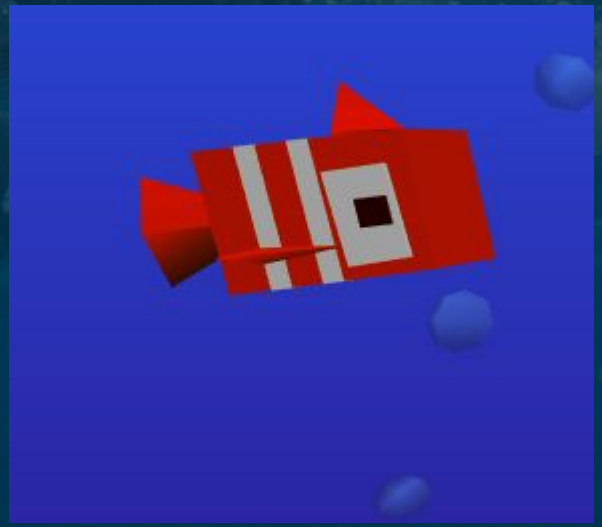
Fish Texture

Components

Fish Nemo

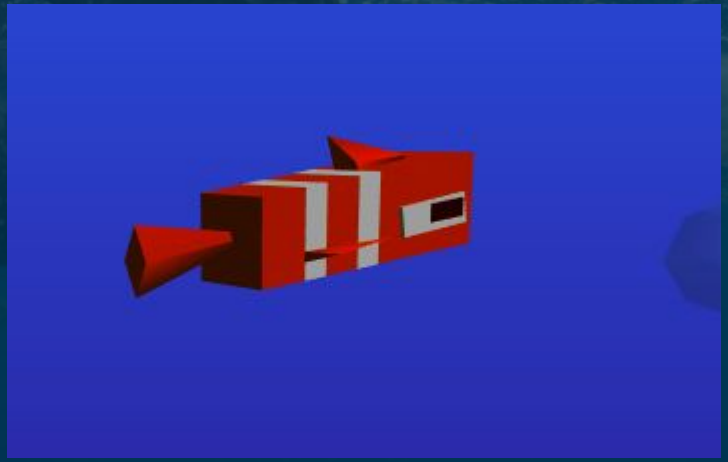
Interaction

Fish Calm



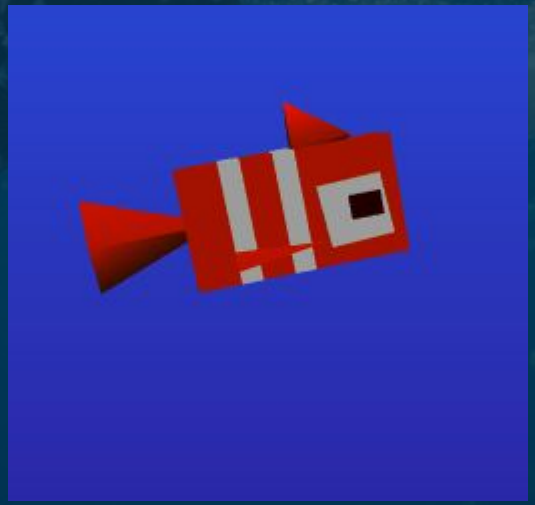
Interaction

Fish Swimming



Interaction

Fish Sane



Interaction

Fish Sick

Demo

fedebyes.github.io/our-sea

Conclusion

This project was aimed to understand and use in a real environment the WebGL technologies to create a Graphic that could be Interactive.

I think I have learned a lot on the technology creating a project that can be useful for something, the project is currently hosted on fedebyes.github.io/our-sea
I've decided to call this project Our Sea to make people aware of the impact of pollution on our sea.


We forget that water cycle and life cycle are one
Jaques Yves Cousteau

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