



SKYLINE RUSH

ICG - 2023/24 - FINAL PROJECT

WHAT IS MY PROJECT ?

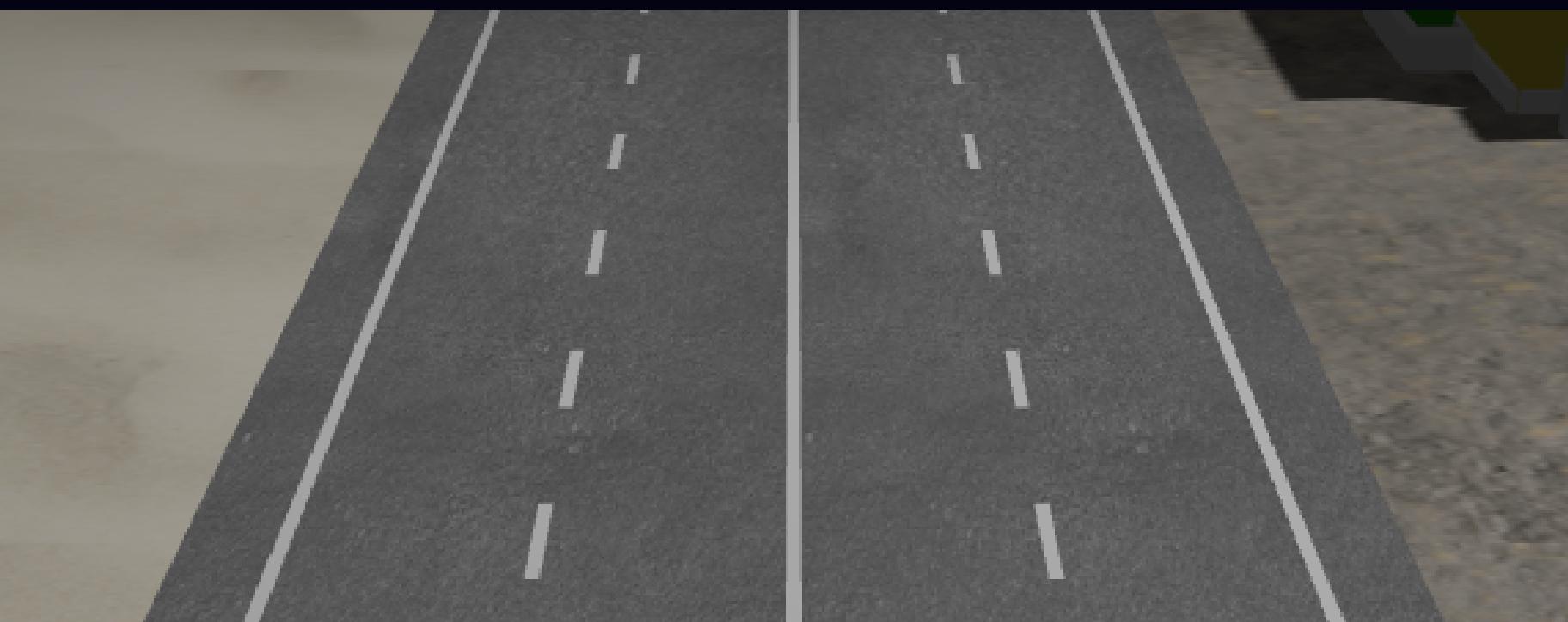
Highway Driving Game
“Infinite” Road

User can control a Car
And is supposed to avoid the other drivers

Three.js
GLTFLoader

[PLAY HERE](#)





MODELS AND SCENE

01

Models for Cars, Buildings, Trees and Beach Items
All Loaded with GLTFLoader

02

The Plane is made with Geometry and Textures
The Road Lines is a function with Geometry

03

Scene graph is organized in `scene.js` and the
builders - `createItems` and `LoadItems`

ANIMATION EFFECTS

Translate
Rotation
Collision

01

3 Planes movement towards camera
When Plane goes off-cam changes to end of other Planes

02

Main Car Realistic Movement and Mechanics
Collision with other cars

03

Day and Night effect
Done by rotation of Spotlights

04

Other Cars Movement
With different speeds depending on lane



ILLUMINATION AND SHADOWS

01

Ambient Light

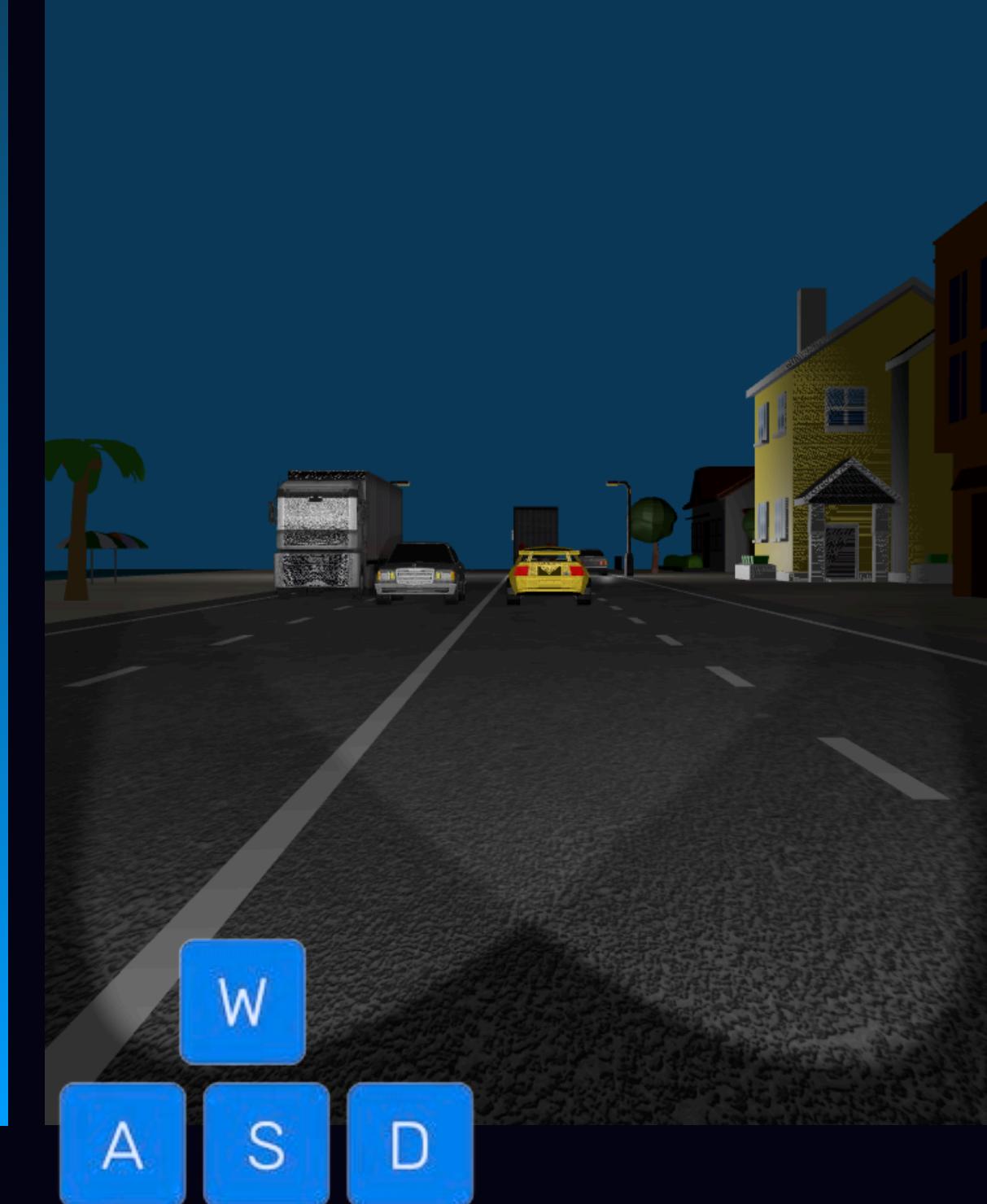
02

Spotlights (Sun, Moon, Headlights, Posts)

03

Cast and Receive Shadow





USER INTERACTION

01

Button
Start and Restart

02

AWSD Keys and Shift
Move Car and Turbo

03

Button
Change POV

04

See both user Score
and Highscore

DEVELOPMENT DETAILS

Organized in different JS files separated from the index.html

Builders

Folder for Models

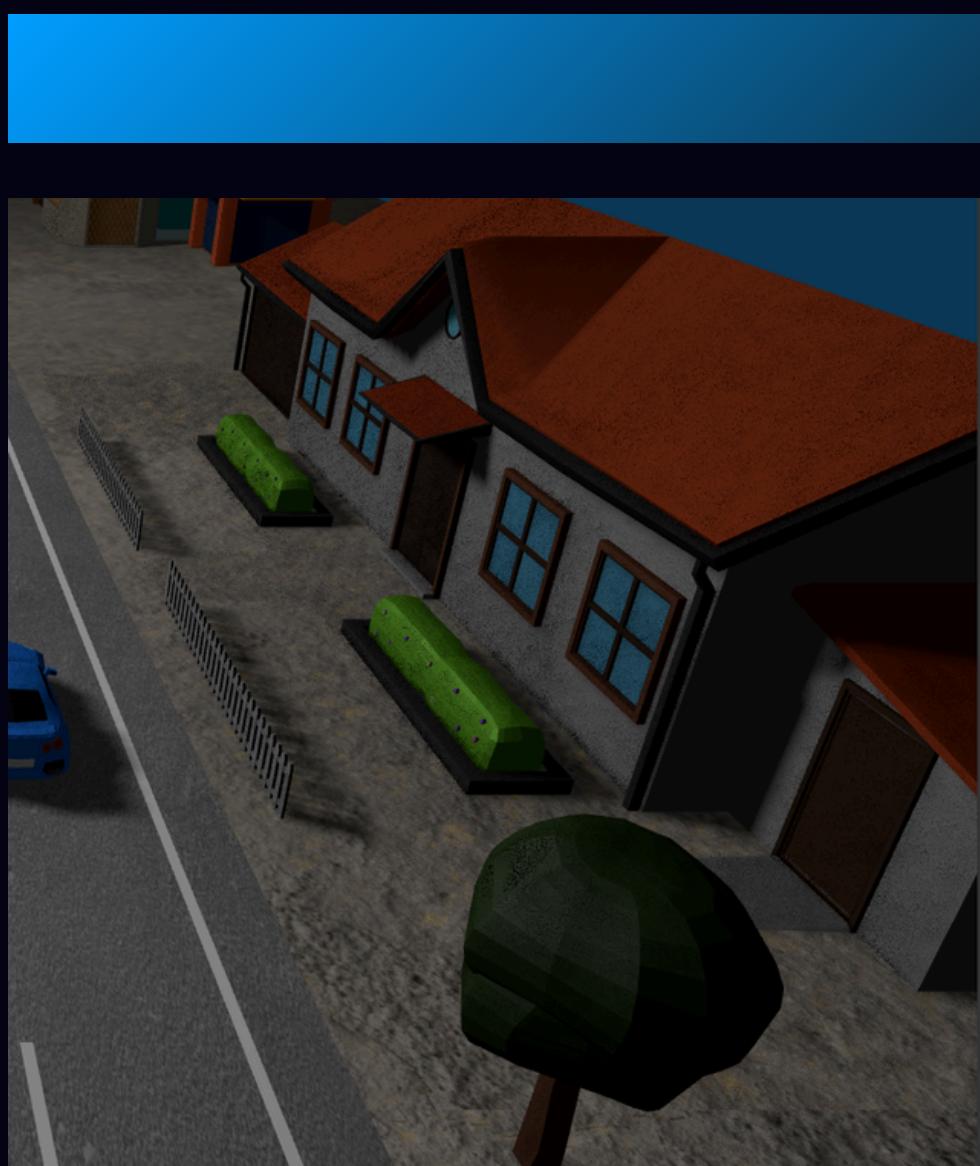
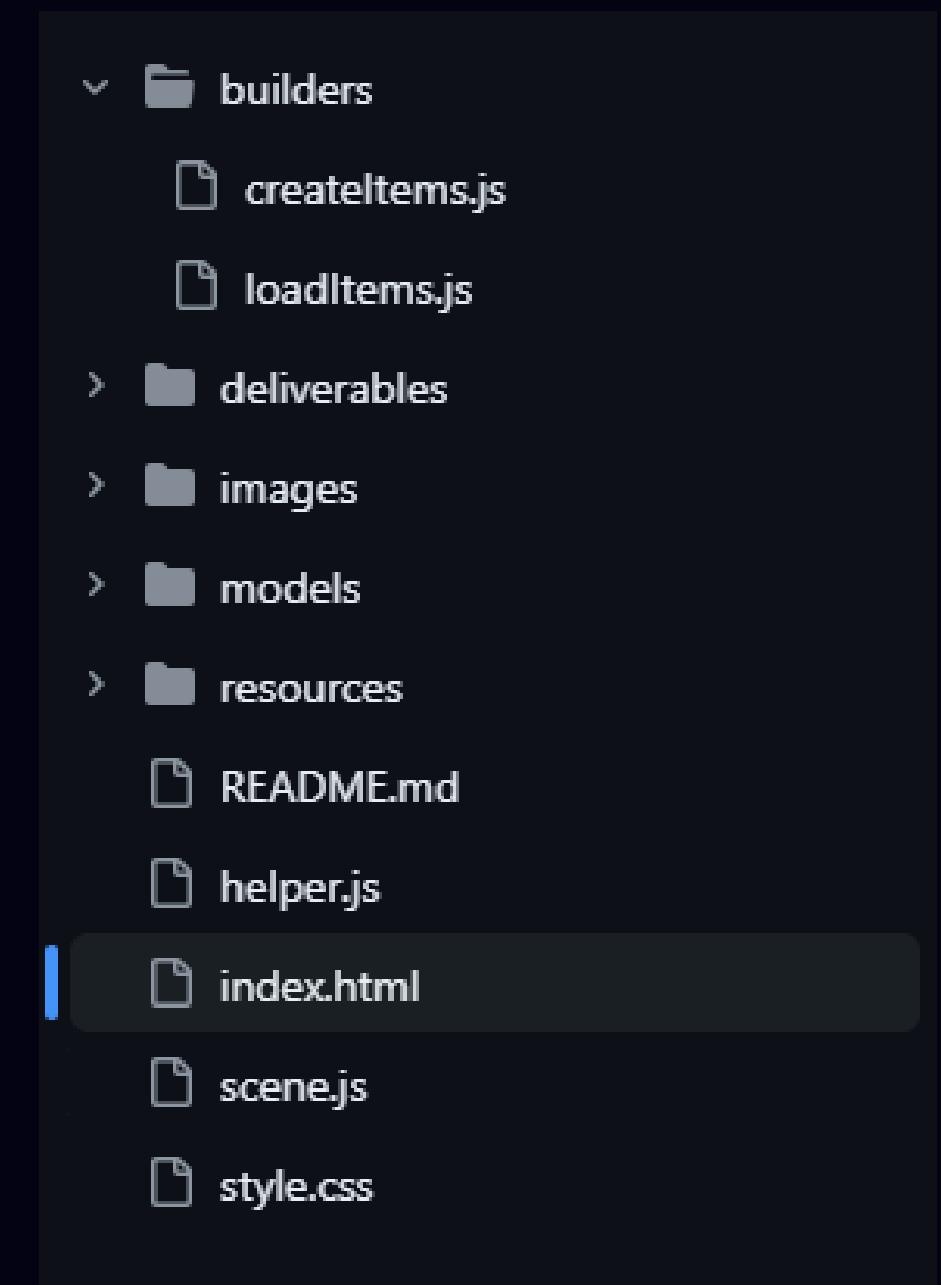
Folder for Resources (Textures)

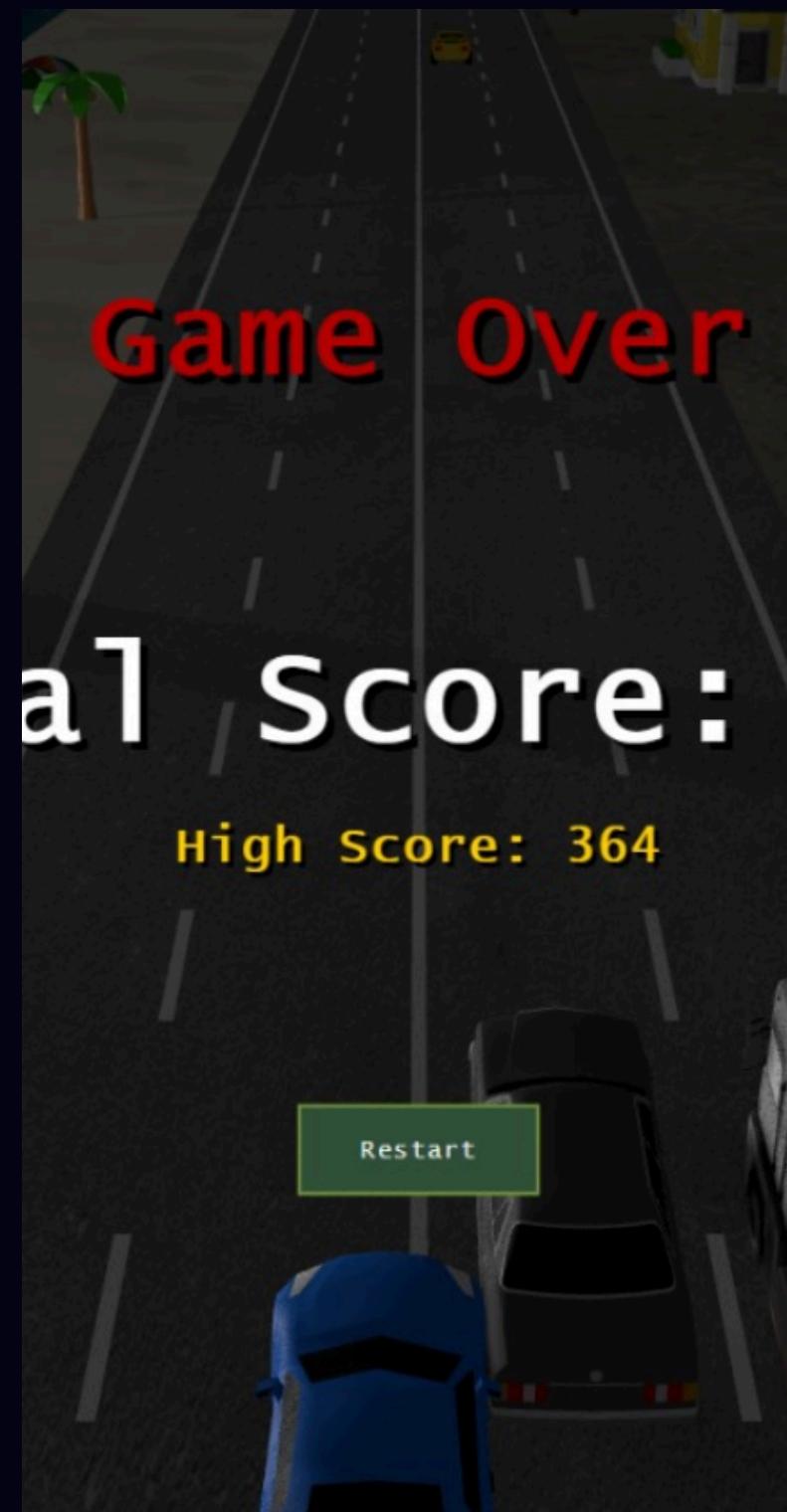
Helper.JS

Scene.JS

Made custom headlights with Spotlights for every car but game couldn't render

Minor Issue with Models Light Calculation and nothing I can do about it





CONCLUSION :)

Really Enjoyed making this project

Made a fun game that people actually like to play

REFERENCES AND URLs

Threejs.org

- For more aspects of Spotlight
- Learning to do collision (with THREE.Box3 and .intersectsBox)
- <https://threejs.org/docs/#api/en/math/Box3>

Models are all from SketchFab

- <https://sketchfab.com/3d-models/low-poly-nissan-skyline-869f53da945b4a6c9eef4919bebf7e30>
- Every model has its URL in license.txt

Box3

Represents an axis-aligned bounding box (AABB) in 3D space.

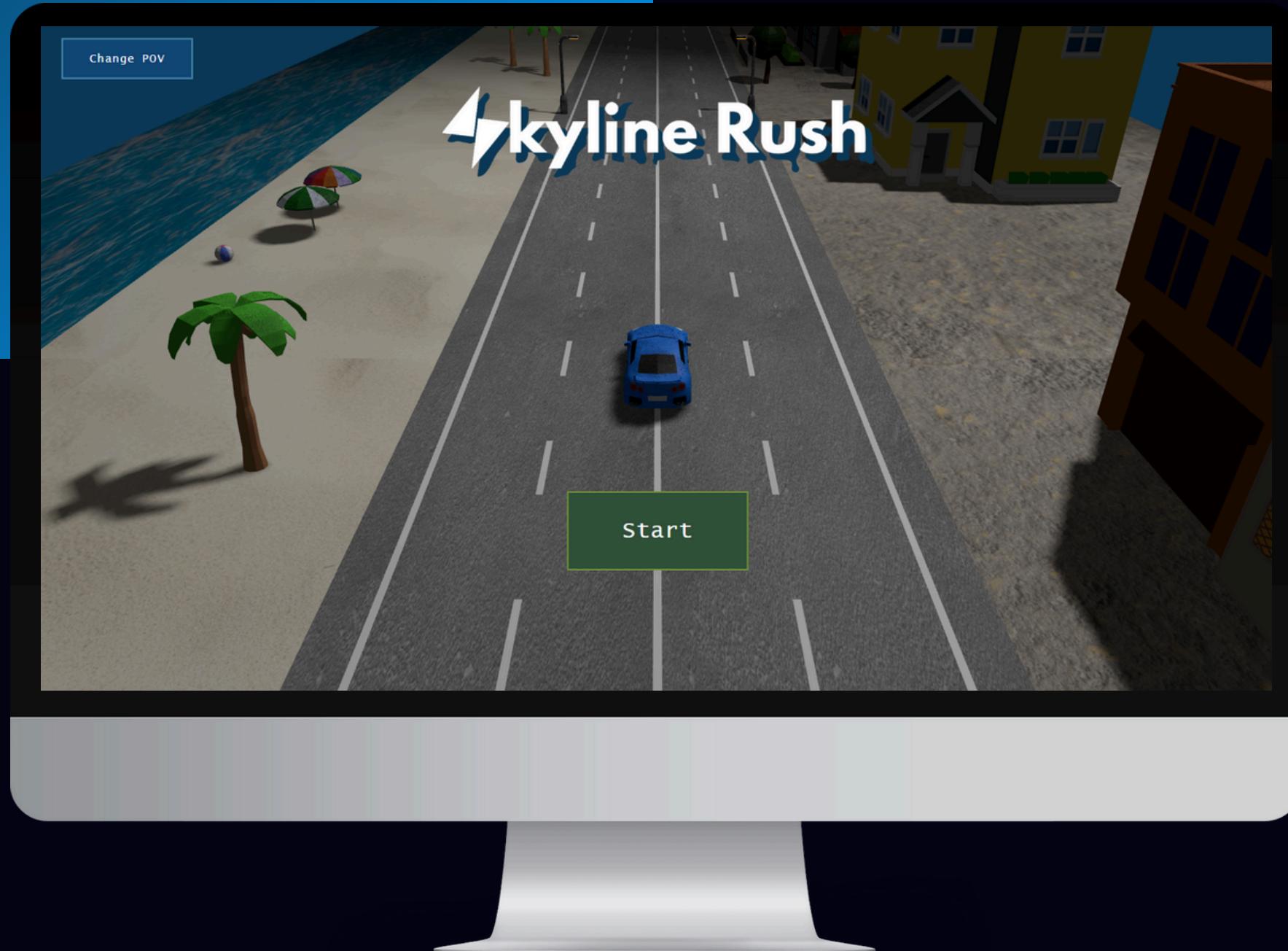
Code Example

```
const box = new THREE.Box3();  
  
const mesh = new THREE.Mesh(  
    new THREE.SphereGeometry(),  
    new THREE.MeshBasicMaterial()  
);  
  
// ensure the bounding box is computed for its geometry  
// this should be done only once (assuming static geometries)  
mesh.geometry.computeBoundingBox();  
  
// ...  
  
// in the animation loop, compute the current bounding box with the world matrix  
box.copy( mesh.geometry.boundingBox ).applyMatrix4( mesh.matrixWorld );
```

Constructor

Box3
min - (Infinity, -Infinity)
max - (Infinity, -Infinity).

[THREE.BOX3\(\)](#)



GAME LINKS

-  rodrigograc4.github.io/Skyline-Rush
-  rodrigomgraca@ua.pt
-  github.com/rodrigograc4/Skyline-Rush