Interim Report

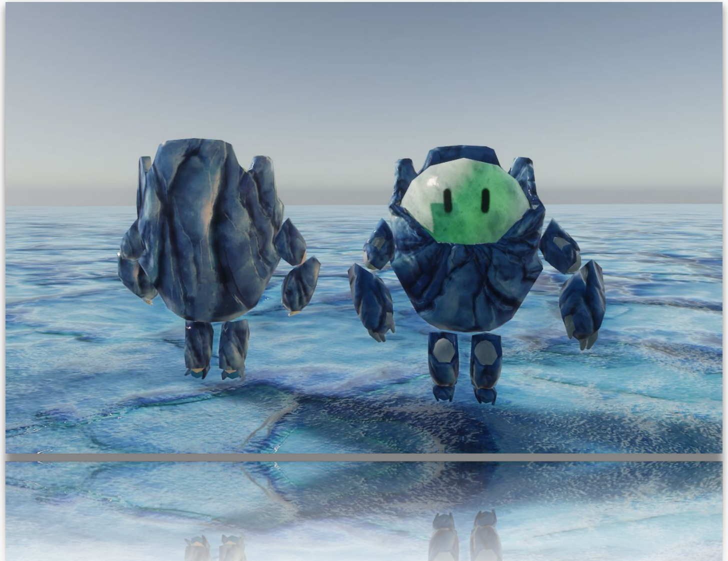
Slippery Bash

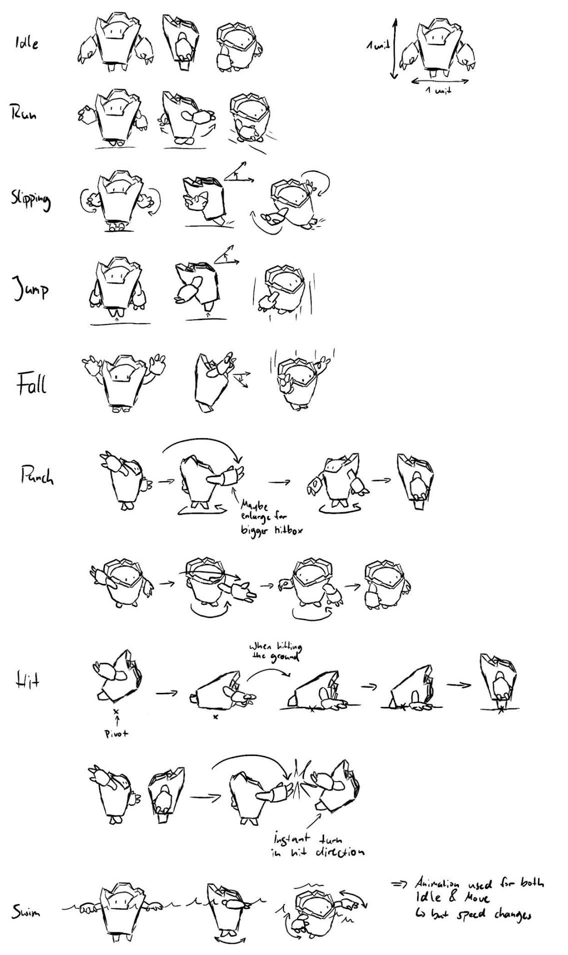
By Ice Guys

Overall Progress

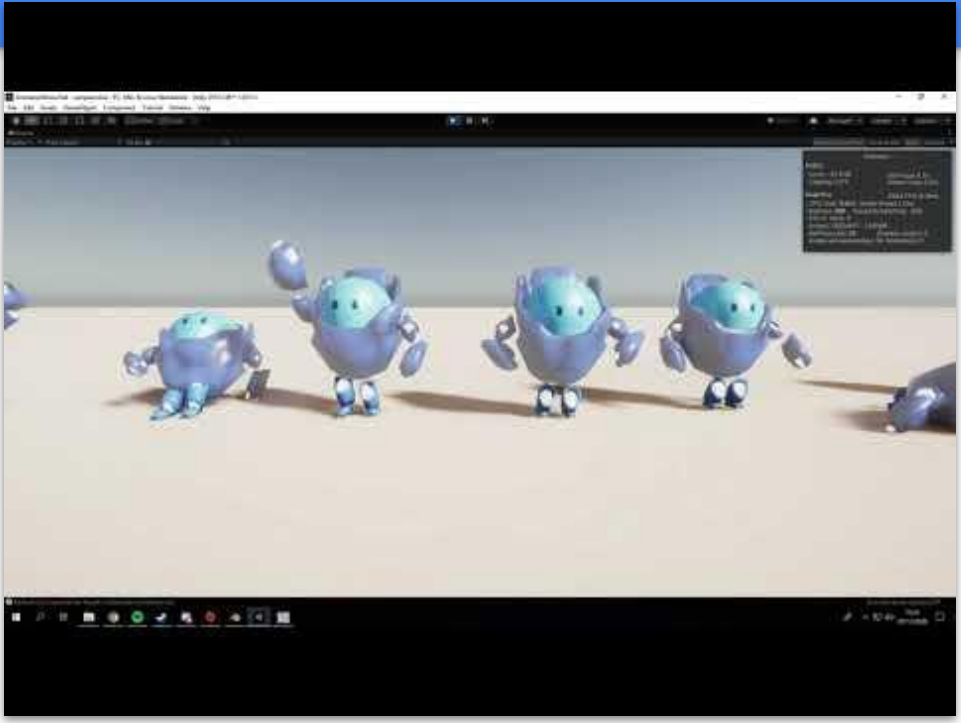
- Most of the tasks of this milestone were met
- Did not have much time at all for testing integrated functionality
- Different materials for the ground (snow, ice) not yet integrated
- Lacking polish
- Overall met our own expectations for this milestone

Character

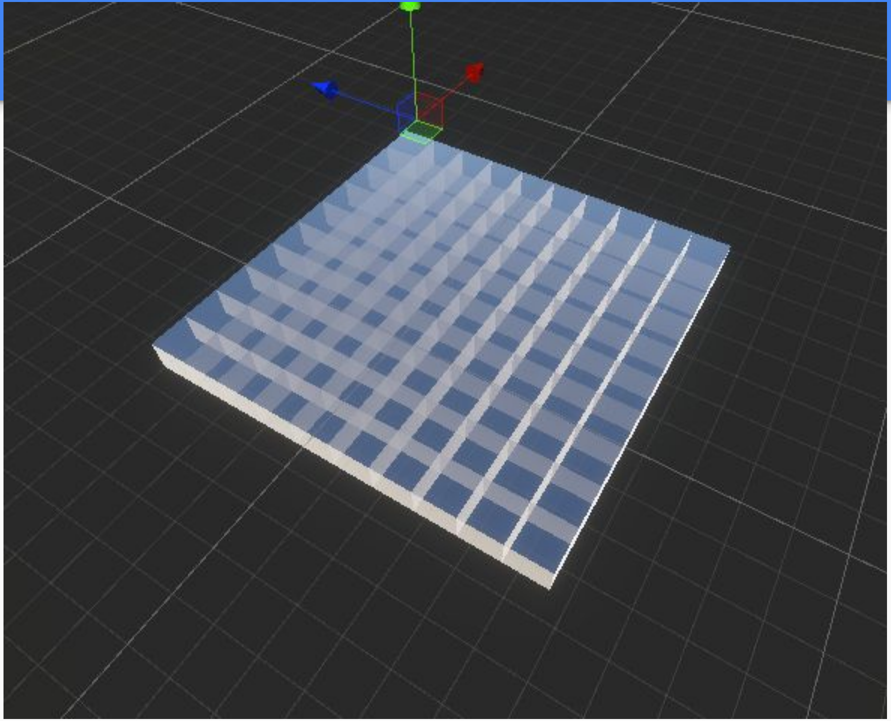



Idle
1 unit
1 unit
Run
Slipping
Jump
Fall
Punch
Maybe enlarge for bigger hitbox
Hit
When hitting the ground
Pivot
Instant turn in hit direction
Swim
=> Animation used for both Idle & Move
↳ but speed changes

Character



Platform Physics



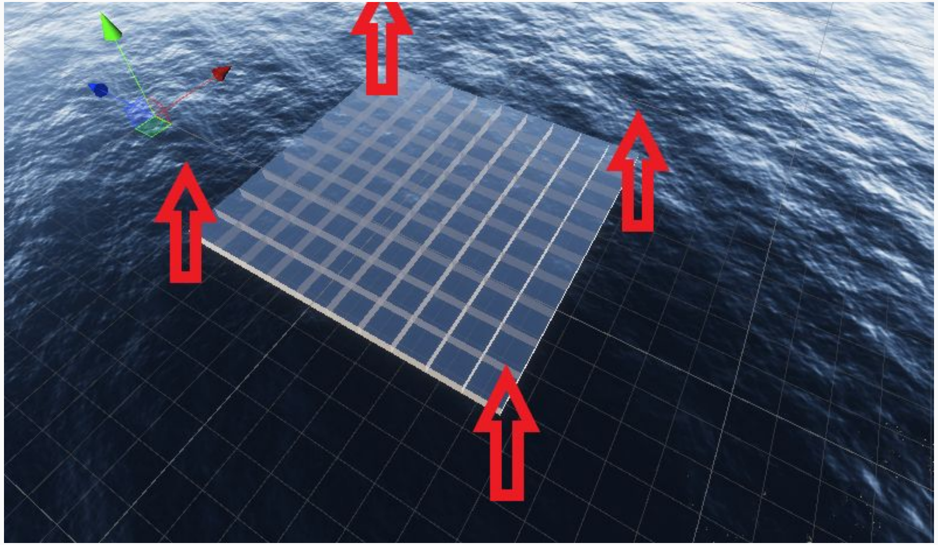
Platform

- 10 x 10 tiles
- Have box colliders and one rigidbody for the whole platform
- Tiles are breakable
- Tiles have physical properties (material)

Platform Physics

Buoyancy

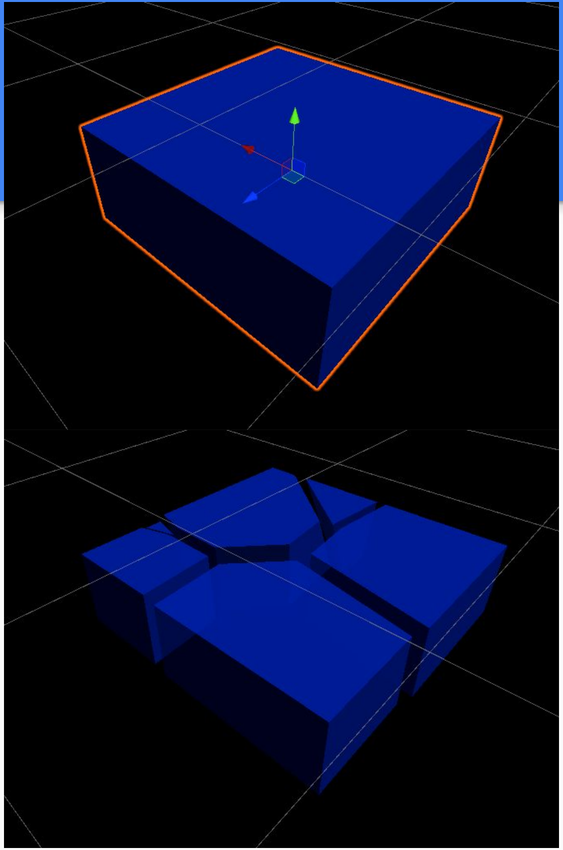
- Generic buoyancy scripts
  -> flippable and out-of-control
- Force thrusters to keep the platform afloat
- Thrusters placed in the corner and adds force when it is under surface
- Dynamically moves with the waves



Platform Physics

Breakable Tiles

- Procedural Destruction on Mesh
  -> Performance Intensive
- Predefined broken tile with separate mesh pieces
- Two states for the tile
  -> Normal and broken



Controls

Using new Unity Input System

- Independent controls for each player
- Seamlessly handle different input types (keyboard, controller, etc..)
- Different maps (Player, UI)

UI

Integrated UI Input Module

- Simple in concept
- In reality, behaviour was often unpredictable
  - Changing components even slightly would be a huge headache
- Outside Pause Menu, not really used
  - Title Screen simply waits for a player to enter
  - Start Game button ‘listens’ on Player map; players maintain character control in lobby
- System probably going to be replaced in a future milestone

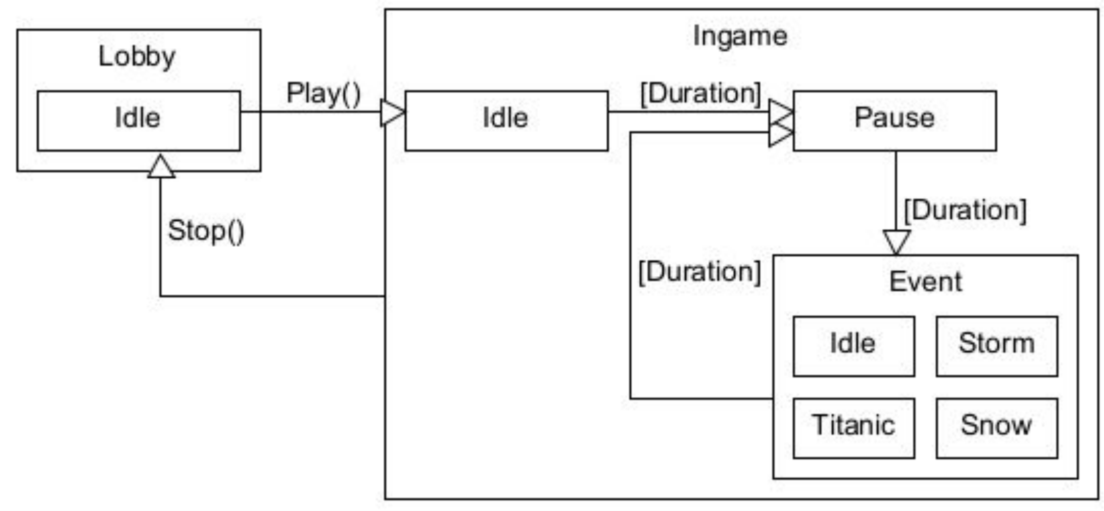
Character Physics & Mechanics

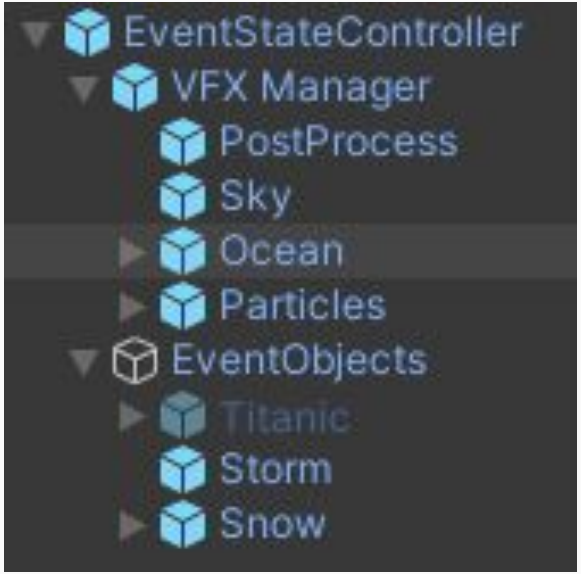
- Components
  - Simple capsule collider works very well
  - Rigidbody to maintain physical properties
    - Gravity, forces
    - Enable onCollision Methods
    - Freeze x, z rotations to ease movement/control
  - Various behaviour scripts
- Movement
  - Apply scaled force in the direction of the player's vector input (i.e. analog stick)
  - Always rotate the player so as to be looking at the direction of movement
  - Affected by friction
    - Ice, snow have different frictions/physics

Character Physics & Mechanics (cont'd)

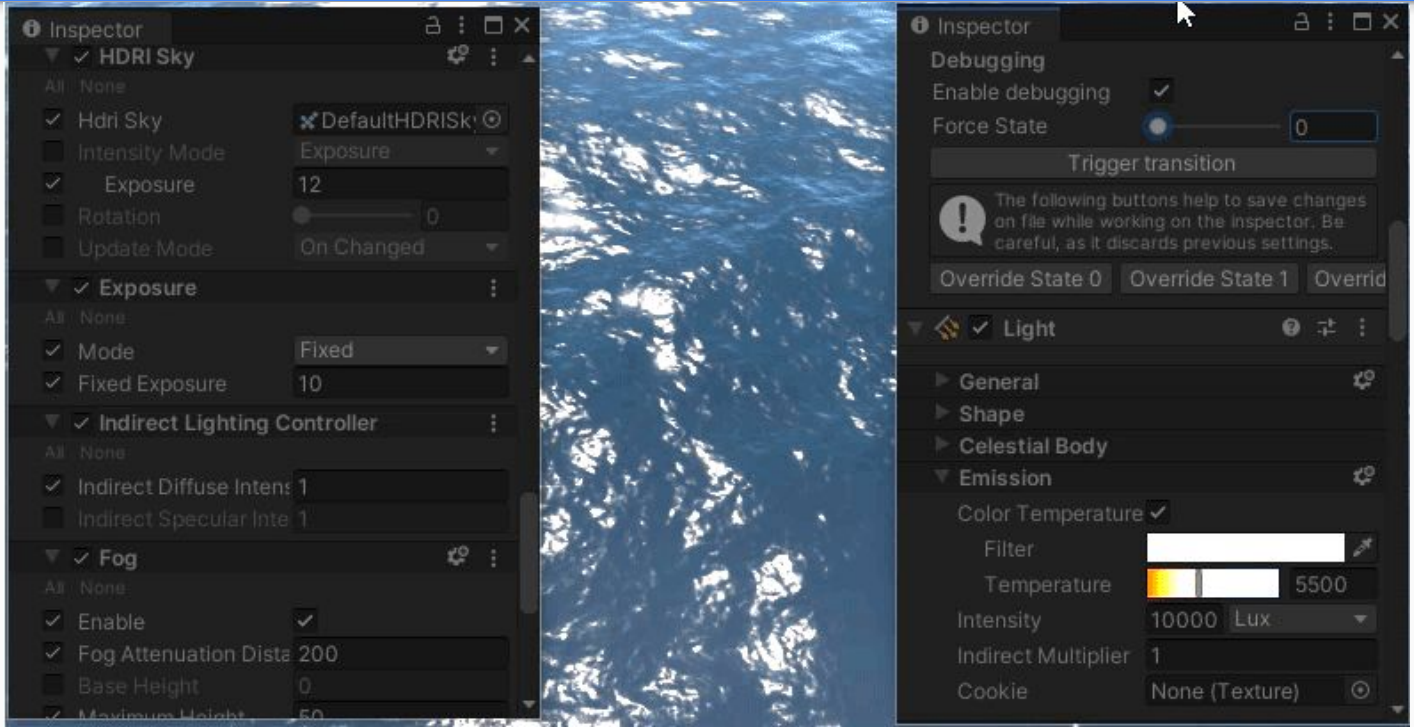
- Punching
    - Store a transform at the punch's position
    - Check for colliders at the time of the punch
    - 'Hit' other players detected along the vector to their position
- Jumping
    - Apply a scaled upward force on the player
    - Can only jump again after colliding with another gameObject
- Swimming
    - Uses buoyancy similar to that used on the platform to stay afloat
    - A 'drowning bar' is visible above the player's head
        - When it's filled up completely, player dies

Events and their effects





Events and their effects - Sky



Inspector

☑ HDRI Sky

All None

☑ Hdri Sky DefaultHDRISk

□ Intensity Mode Exposure

☑ Exposure 12

□ Rotation 0

□ Update Mode On Changed

☑ Exposure

All None

☑ Mode Fixed

☑ Fixed Exposure 10

☑ Indirect Lighting Controller

All None

☑ Indirect Diffuse Intens 1

□ Indirect Specular Inte 1

☑ Fog

All None

☑ Enable ✓

☑ Fog Attenuation Dista 200

□ Base Height 0

☑ Maximum Height 50

Inspector

Debugging

Enable debugging ✓

Force State 0

Trigger transition

The following buttons help to save changes on file while working on the inspector. Be careful, as it discards previous settings.

Override State 0 | Override State 1 | Overrid

☑ Light

General

Shape

Celestial Body

Emission

Color Temperature ✓

Filter

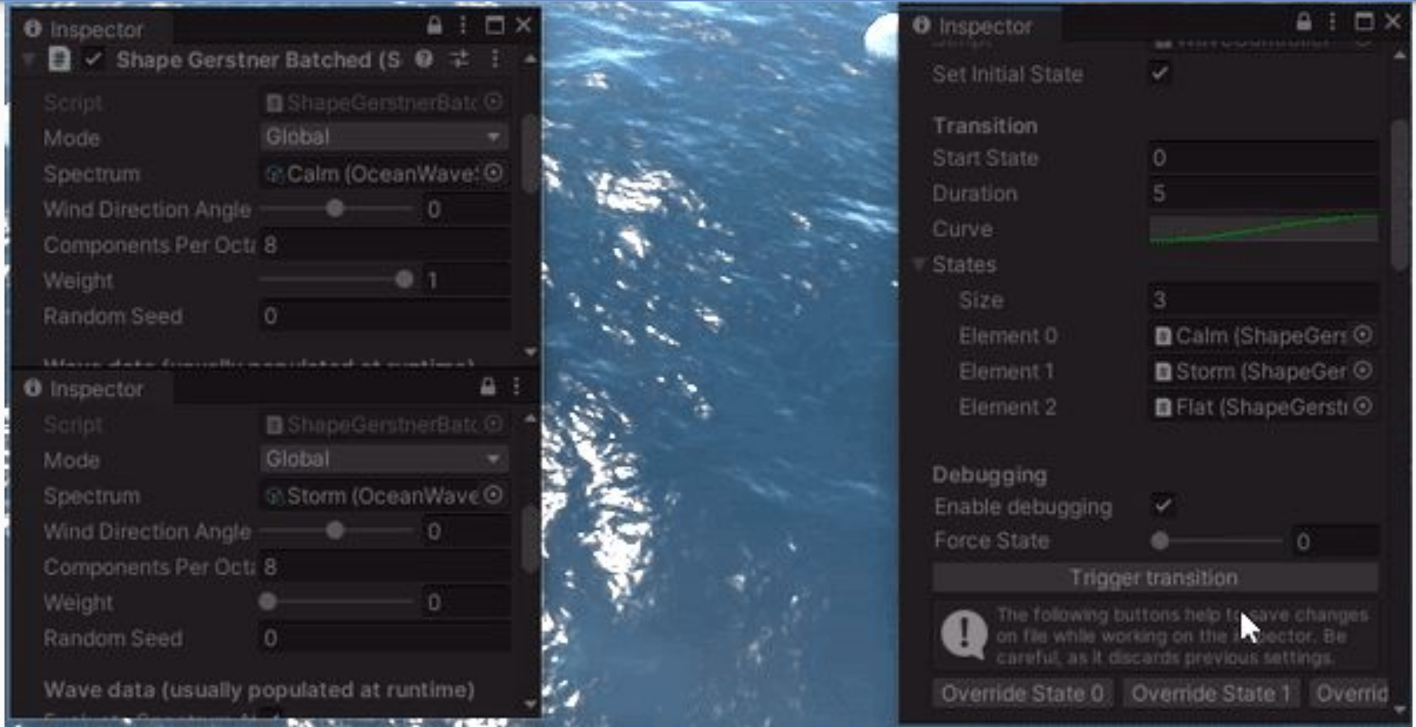
Temperature 5500

Intensity 10000 Lux

Indirect Multiplier 1

Cookie None (Texture)

Events and their effects - Waves



Inspector

☑ Shape Gerstner Batched (S

Script ShapeGerstnerBatc

Mode Global

Spectrum Calm (OceanWave:

Wind Direction Angle 0

Components Per Octi 8

Weight 1

Random Seed 0

Inspector

Script ShapeGerstnerBatc

Mode Global

Spectrum Storm (OceanWave

Wind Direction Angle 0

Components Per Octi 8

Weight 0

Random Seed 0

Wave data (usually populated at runtime)

Inspector

Set Initial State ✓

Transition

Start State 0

Duration 5

Curve

States

Size 3

Element 0 Calm (ShapeGers

Element 1 Storm (ShapeGer

Element 2 Flat (ShapeGerst

Debugging

Enable debugging ✓

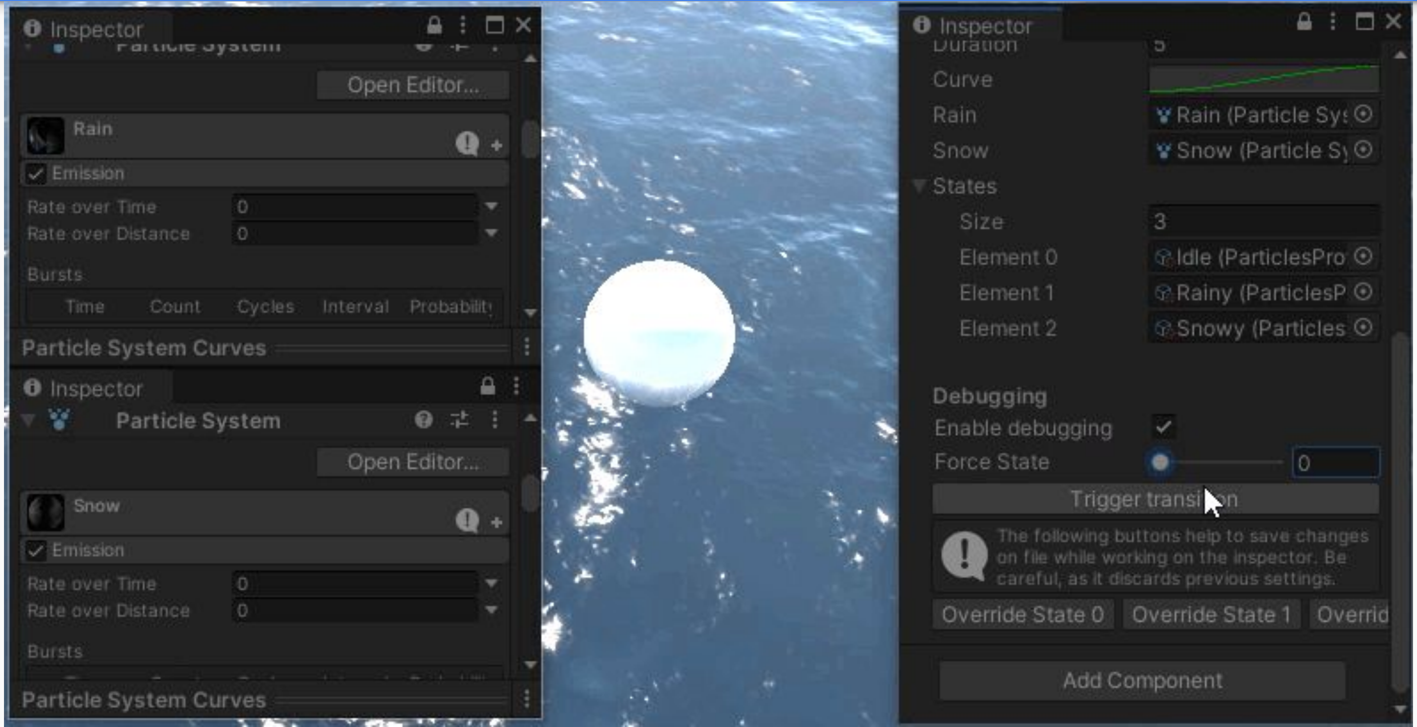
Force State 0

Trigger transition

The following buttons help to save changes on file while working on the inspector. Be careful, as it discards previous settings.

Override State 0 Override State 1 Overrid

Events and their effects - Particles



Rain

☑ Emission

Rate over Time 0

Rate over Distance 0

Bursts

Time	Count	Cycles	Interval	Probability

Particle System Curves

Particle System

Snow

☑ Emission

Rate over Time 0

Rate over Distance 0

Bursts

Particle System Curves

Duration 5

Curve

Rain: Rain (Particle Sys

Snow: Snow (Particle Sy

States

Size 3

Element 0: Idle (ParticlesPro

Element 1: Rainy (ParticlesP

Element 2: Snowy (Particles

Debugging

Enable debugging ☑

Force State 0

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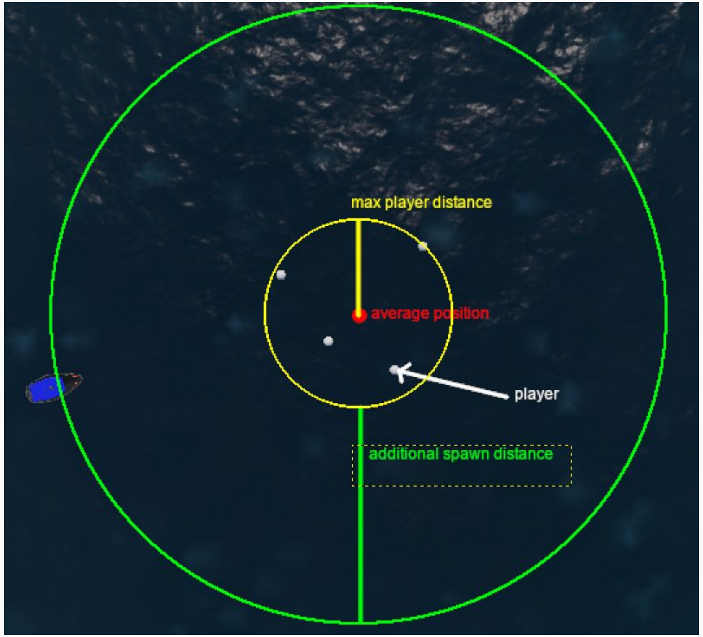
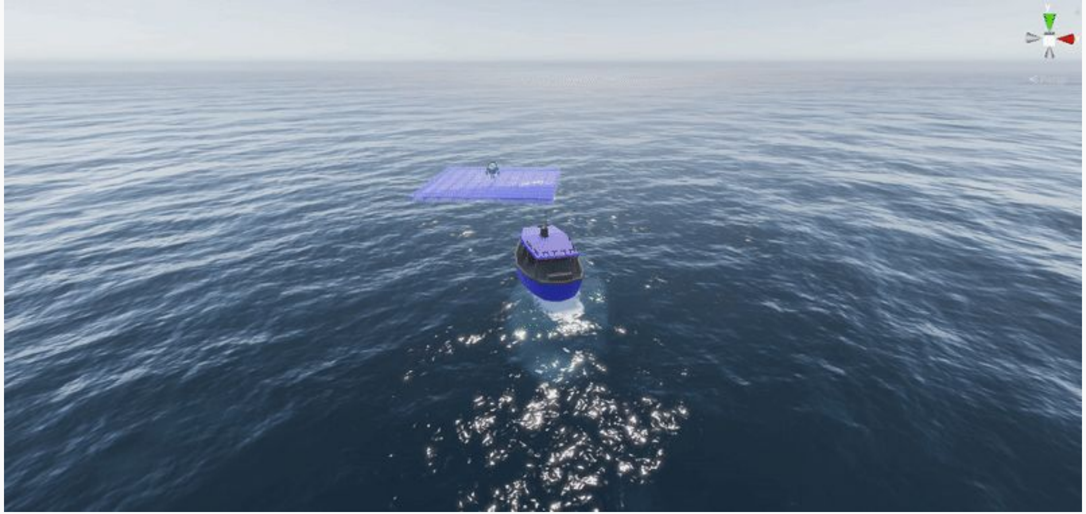
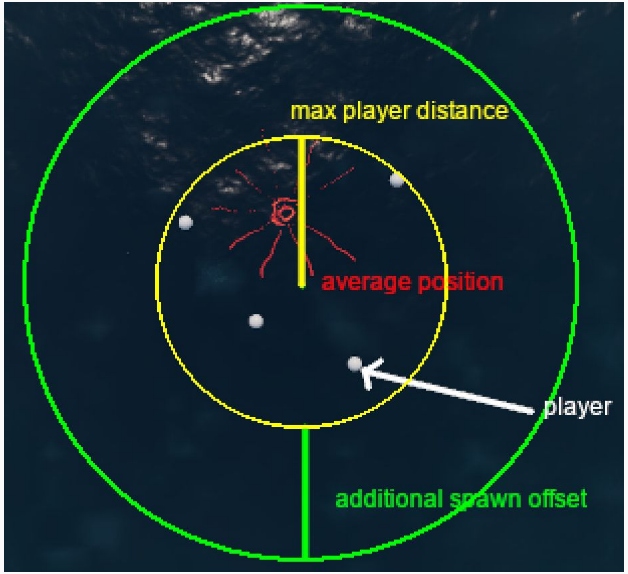
Events and their effects - Titanic





Events and their effects - Storm



Events and their effects - Snow

- Enable collider over the ocean
- Freeze tile physics

Integration

- Independent development scenes for separate features
- Features extracted as prefabs
  - Easily modifiable outside a scene context
  - Reusable
- Prefabs imported into rolling “MainScene”
  - Very few modifications to the scene; only when adding a new prefab
  - Small meetings for bigger integration efforts

Known Bugs

- Some physics interactions/collisions need to be reconsidered
  - Some can appear very clunky/odd
  - Some (others) can cause freezes/frame drops
- Only Player 1 can use the pause menu properly
- Swimming can get too fast really quickly
- Tile destruction is quite inconsistent
  - Should be destroyed on jump; due to issues with collider hierarchies, currently destroyed after a player walks on them a few times

Possible Improvements

- Camera should move/scale very slightly to fit players in frame
- Light effects have some shading and illumination bugs
- UI Improvements
    - Both behaviour and images/fonts

Demo

Discussion