Capstone NYU

- Type: AR / Spatial Comp
- Description: A city prototype to display the collaborative elements while discussing assets / infrastructure & a city.

Tech Stack

Unity: 2020.x
Magic Leap SDK Version:
Magic Leap 1 Creator Edition
Simulated Data Feed
Network / Anchor sharing
URP

Assets:

- island
- roads
- town
- markers
- info panels

Interaction

single hand held controler

- Beam
- trigger
- bumper — magnify glass
- scroll ↔ ↕
- back button

actions

Beam + trigger = populate info window (Highlight)

bumper - transparacy on Building

scroller info up & Down

back button ⇒ deselects

High level concepts

spatial anchoring

face to face collaboration

Ability to view town in different directions

middle level concepts

Understanding of #assets spat-rl relationships

- example, the fleets where they are at
- how much work they have accomplished - like plows
- Fuel & maintenance levels
- How much time they have left before return to home

Weather and impacts Hazards

low level concepts

zoom to a location
and understanding
managerial level operations

Examples

see activity in a building
may be color for
health

see individual statistics
on an asset.

Trailer Demo Concepts

use premade Apps

to get lips wet

like art

assets

Key: category?

Rain

Fire

Wind

island

info panel

Beam

Table

Clouds

water

roads

Town

Building (x number)

Lightning

Nav Mesh

(select)

smoke

Vegetation

Trees

grass

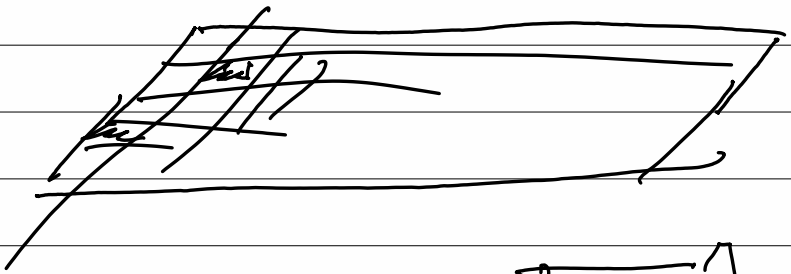
Car (Low poly)

People (Low poly

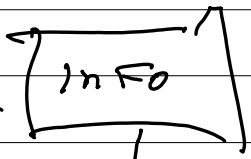
Unity Assets

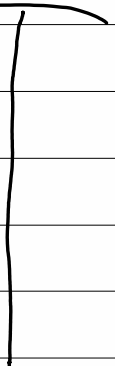
assets.....

focus grid



asset marker

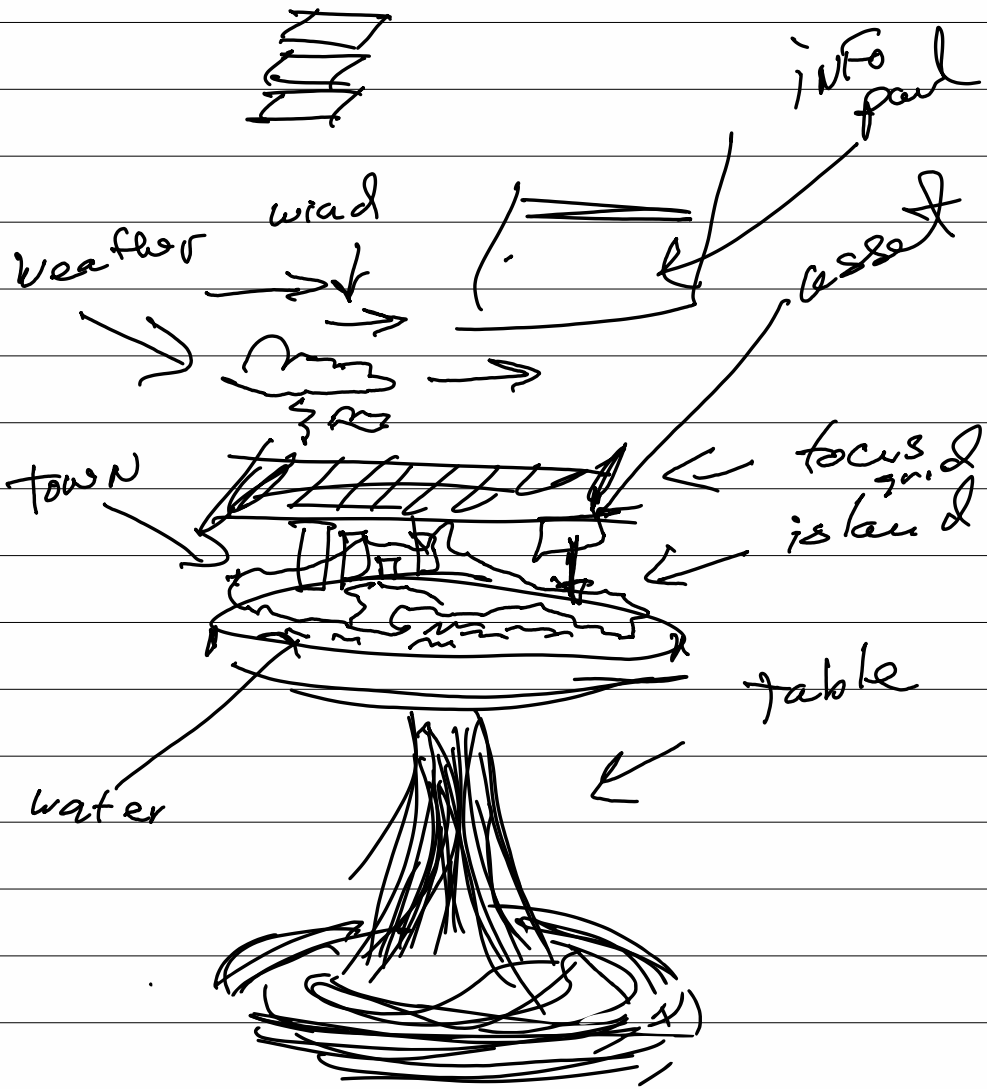




asset

Goal Start building out layers like GIS

Concept Art



Focus layer
- soil, Hazards, trafic jams

other things

Weather is a priority

simplification is a must.

why?

on maps

Tom: what do you want to see?

Bob: Everything. why? what do yo want me to see?

Tom: only what you need to.

Main Concept:

Theirs

Create a World prototype that is simple in color, shape, and forms. but adheres to GIS best practices in principle.

Layers that are meaningful and have separation of Concerns - each layer is its own thing but because it's loosely couple can interact with other layers freely.

Project Proposal

Island wars

Concept: Two floating islands are waging war

Resources (wood, wheat, metal)

Tech Tree

Weather Attacks (storm, fire, cloud)

Tech attack

tunnel, missiles, paratroopers, drill

Death By Ram

final outcome

Proposal

In three to four weeks, create a low polygon town model on an island that has the ability to spawn city/town assets based on a coordinate.

Concept/Thesis

Create a world prototype that is simple in color, shape, and form, but adheres to GIS best practices in principle.

On a simple level, the higher level meaning is that in GIS there are multi dimensional

layers that have meaning with othe layers but have thier own individual meaning. Essentialy meaning, each GIS Component has its own seperation of concerns. A model view Controller paradigm

Project Proposal V 2

Island Wars

Concept: Given two territories each controlled by an opposing player; in XR (augmented reality) use weapons such as weather and technology to destroy the others floating island.

Tech:

Unity 2019.2.15
Mag Leap (w) Headset
Lightwave 3D
M'L SDK 0.23.0

Alert! When resources are gone, your island sinks

the game concept & feel

the game is a realtime strategy game in augmented reality that pits two players against each other and the winner is the one that destroys the other island.

they do this by generating fuel (resources) and building weapons as well as control weather to attack their enemy.

Why is AR a good fit?

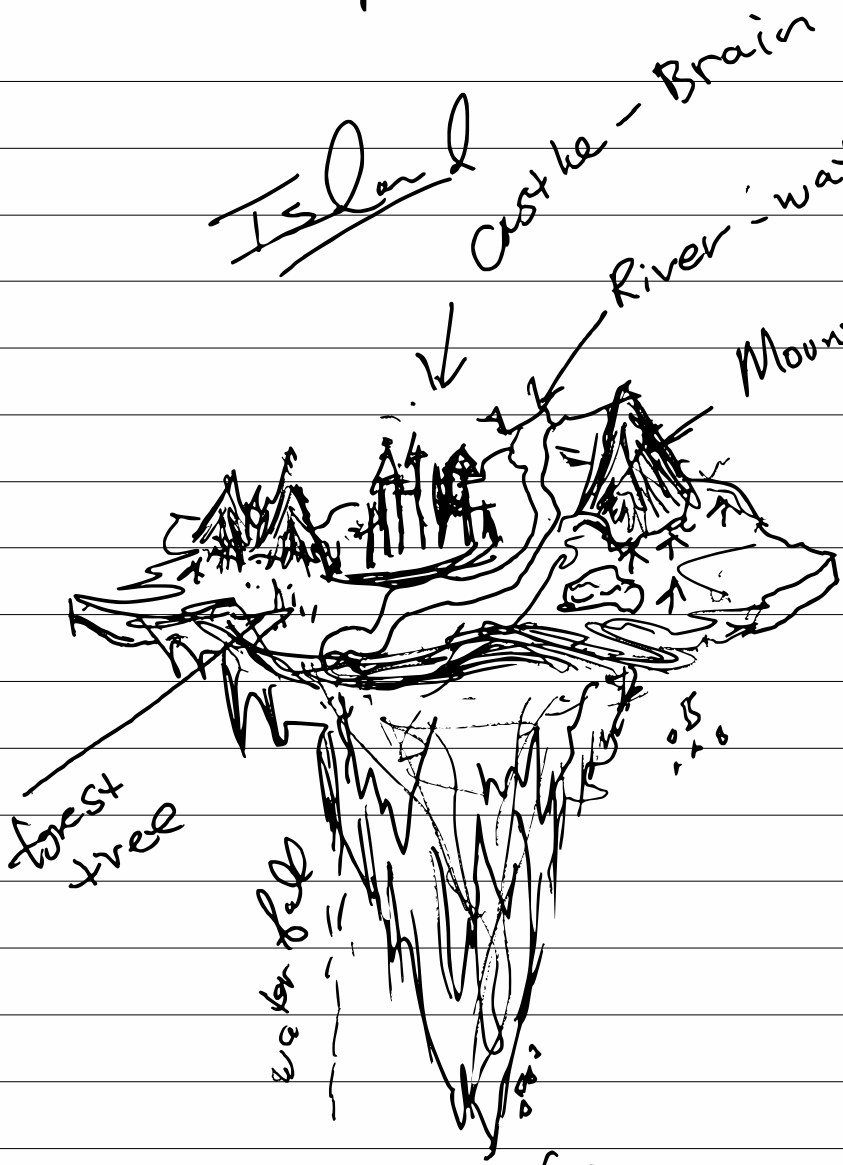
→

A: Beause it allows players to look at each other in the same space while playing a gam.

Q: Why did you chose this Gene

A: Because I believe in our environmental problems and believe that creating games that have environmental resource mangas ment helps people understand the dangers we have as we polute our Atmos

Concept Art



main assets
island (the resource)
Cattle (Brain)
resources (water, tree, mineral)

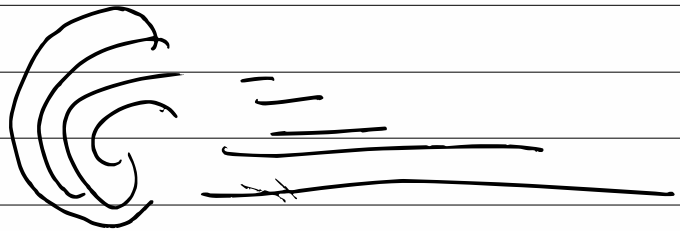
Concept Art

Weather Assets

Wind

What it is :. A force that blows other weather systems

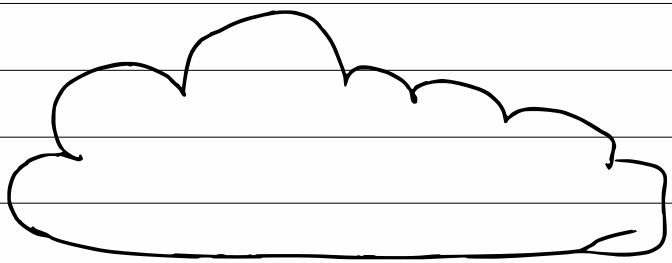
Under the hood - it adds vectors to other weather objects to move them



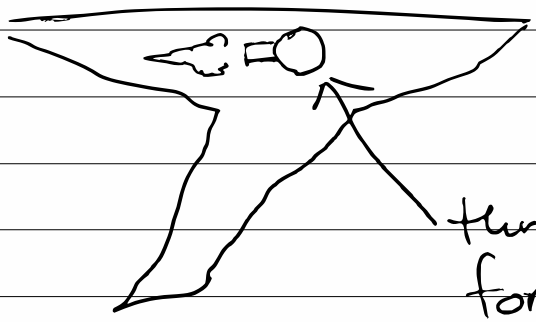
Clouds

what it is: is slows resource gather over the affected are.

Cannot influence any other weather system



movement



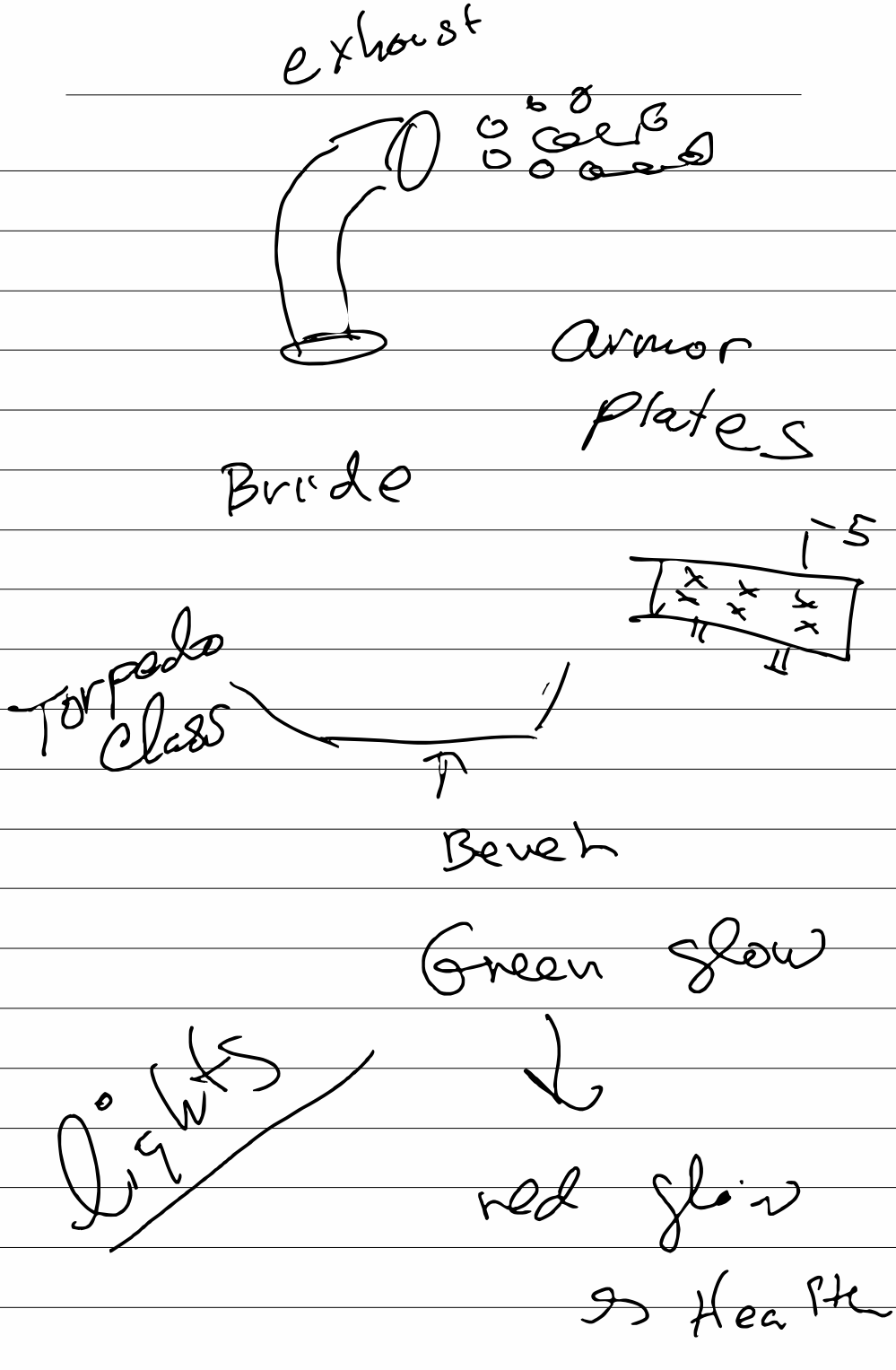
water - change to oil

→ powers thrusters

mountains → power weapon

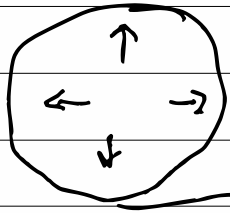
free power ?

give Health


exhaust
armor plates
Bridle
1-5
Torpedo Class
Bevel
Green glow
red glow
Health

Movement track pad

Forward → Vector Add



Rotate

Left - (Right thruster)

Rotate Right (left thruster

Brakes

Vector Subtraction

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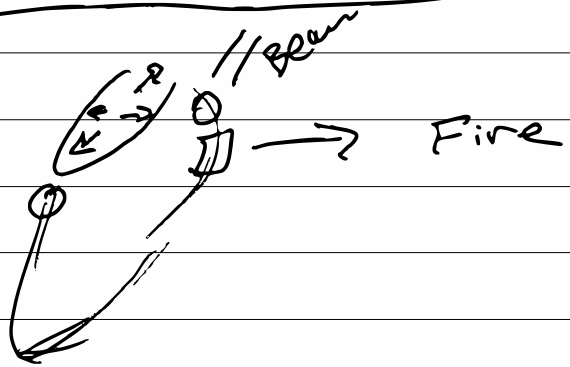
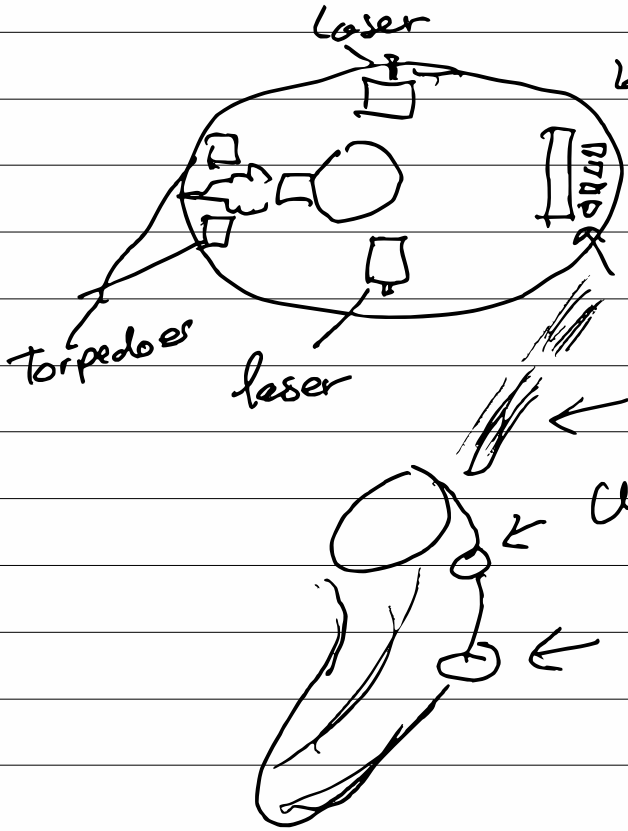
thrust has resistance

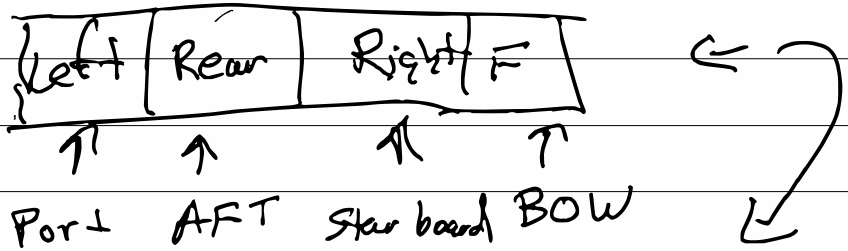
public variable



Fire Weapons

example lvl 2 torpedo cruiser





MI that repositions itself, according to you ? Quaternions

Movement

math

Rotation Quaternion

Forward + Reverse

Vectors

Resources

Oil → Thrusters

trees → Health

Rock → minerals

oil → thrust

- movement
- thrust weapons
  - it is Fuel

Forward: takes a Lot
Breaking: takes a Lot
Rotation: takes less
thrust weapon: take even less

trees:

Heals at a certain Rate as stated in public variable

Rocks:

give minerals + Buildings

What can you do

- Build out your island
- Heal Armor
- Add to tech + replenish & Fix weapons

Basic Attributes

Island Characteristics

*** (Fuel, Health, tech Level)

Health : 100

Starting Fuel : 100

- each rotation or thrust/ Brake cost 10 Fuel pts per sec

- each thrust weapon costs 2 pts per use (5 torpedoes = 10 fuel pts

Starting Health : 100

- Damage is taken when hit with
  - Environment
  - Weapon
- All has to be determined

Tech: TBD

Resources - Basic

Oil Rig generates 3 Fuel pts per second

Tree chopper generate 3 Health per second
→ Tree can be destroyed

Miner generate 3 minerals per sec

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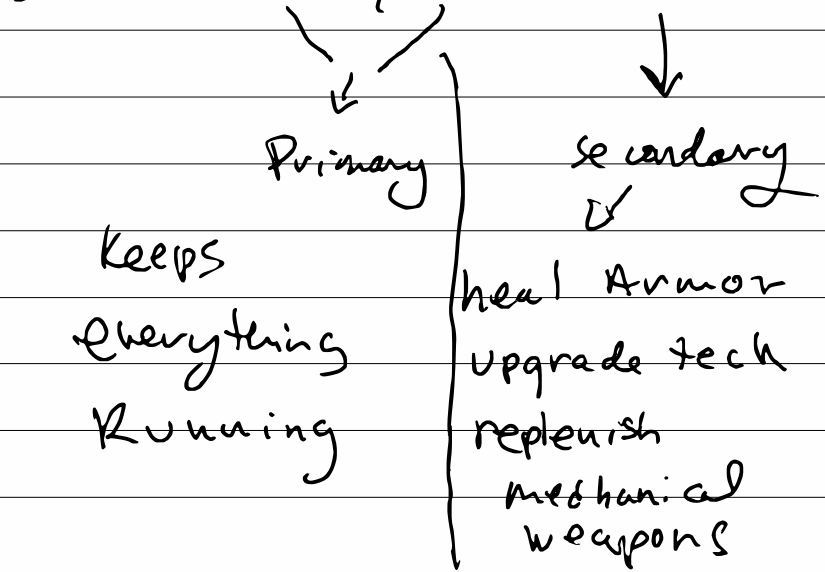
so Health, thrust, & other



Weapons

are:

Smart or Dumb

Tech tree determines that

Tech & weapons

LvL 1: All are Dumb
LvL 2: will track towards centroid

LvL 3: will navigate around obstacles

Business Plan Enhancements

⇒ table top

- Metal miniatures or plastic

- books

- film

| Need to trade mark it |

⇒ Cards

Equipment

Overview

thrusters

Main thruster

Rotaters

brakes

Weapons

Lasers

torpedoes

Fleet attack (Fighters)

Drill (one shot)

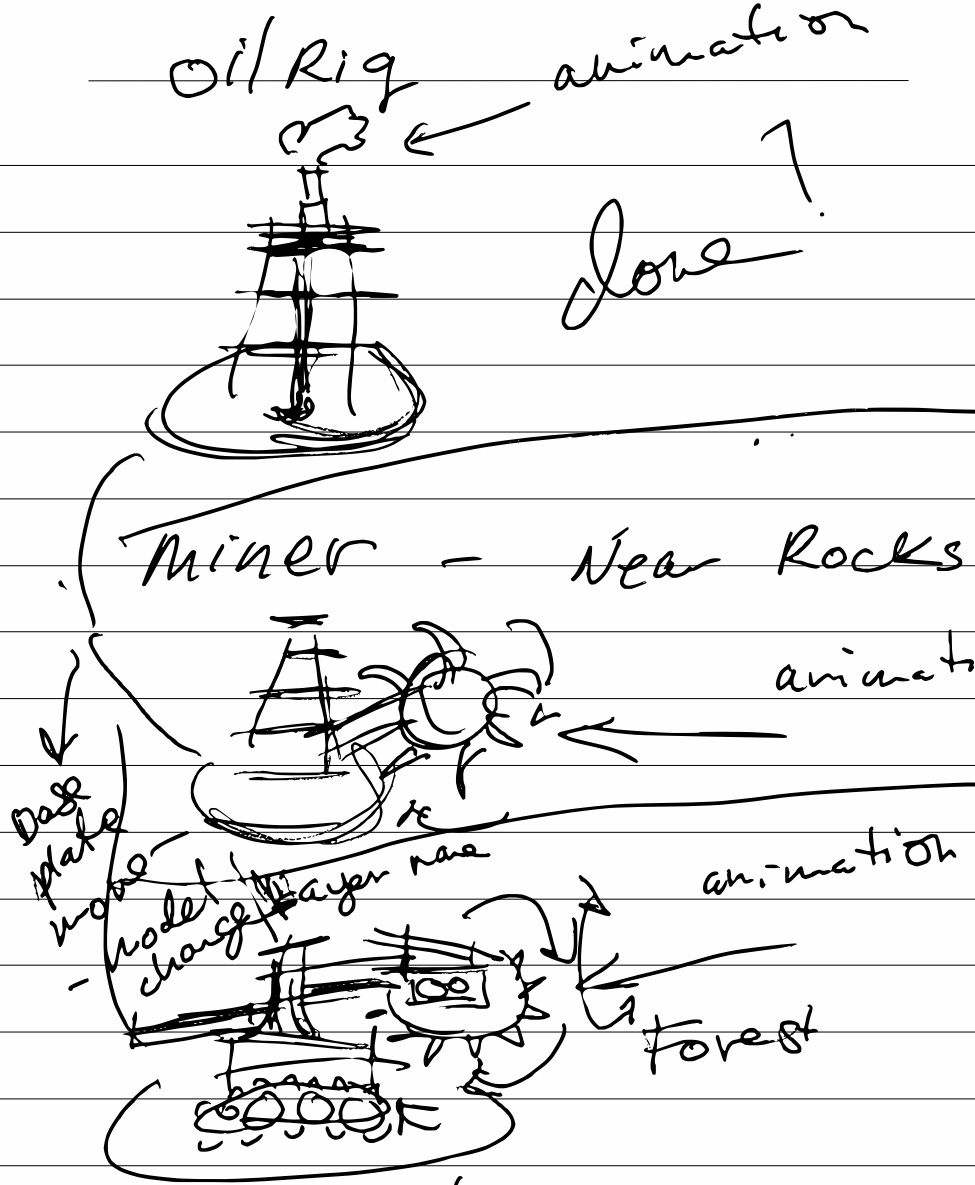
Rock throwers

(fast moving rocks)

Mechanical cannons

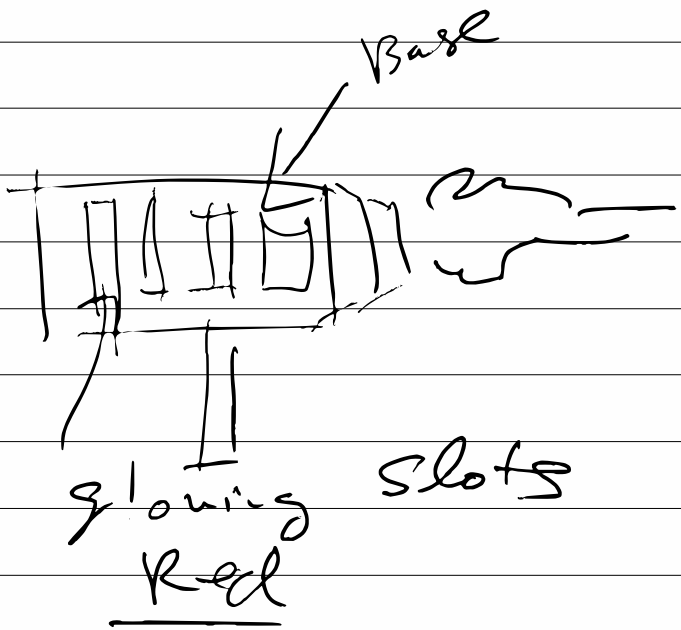
Plasma balls (energy

slow moving)


Oil Rig
animation
done
Miner - Near Rocks
animation
Base plate
model
change layer name
animation
Forest
10 Extreme Dangerous Excavator tree

Refinements

Side Thrusters



Environment:

(Rock, Paper, scissors)

Storms

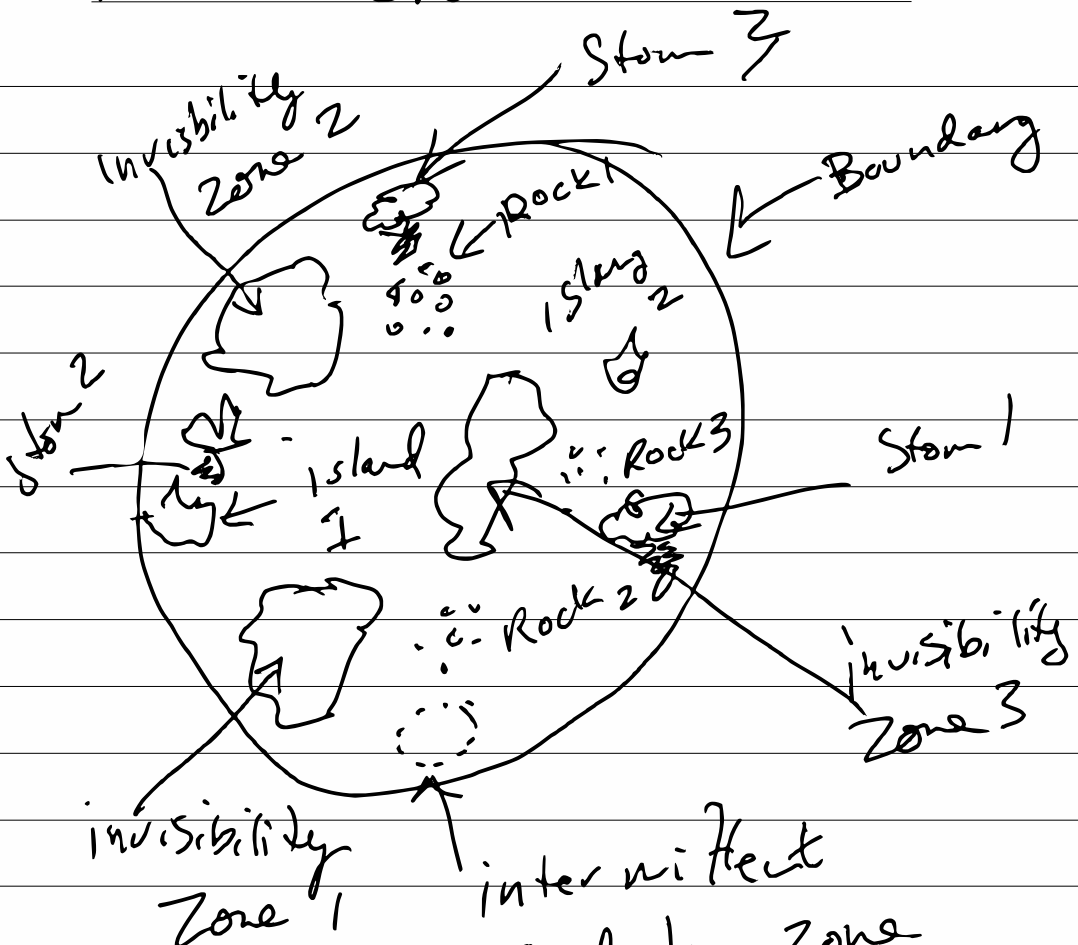
- if lightning hit a resource, the resource does not work for X seconds

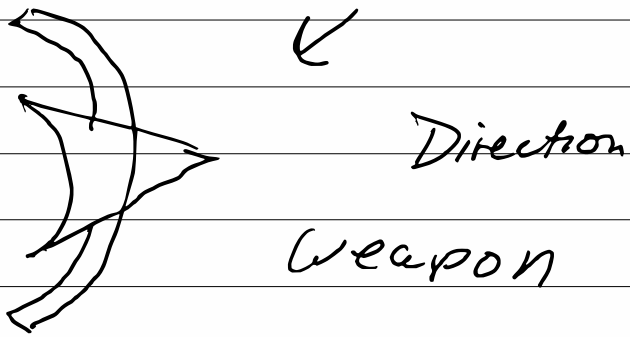
Clouds / the Fog (Anti water storm) is a voxel system and hides the islands

At tech 3 there is a sonar detection system.

Rocks — floating rocks that provide cover and damage islands that come in contact with them.

Arena Overview




Direction
Weapon

Cut at 35 seconds

ADD A button to the Controller