

Alpha Release

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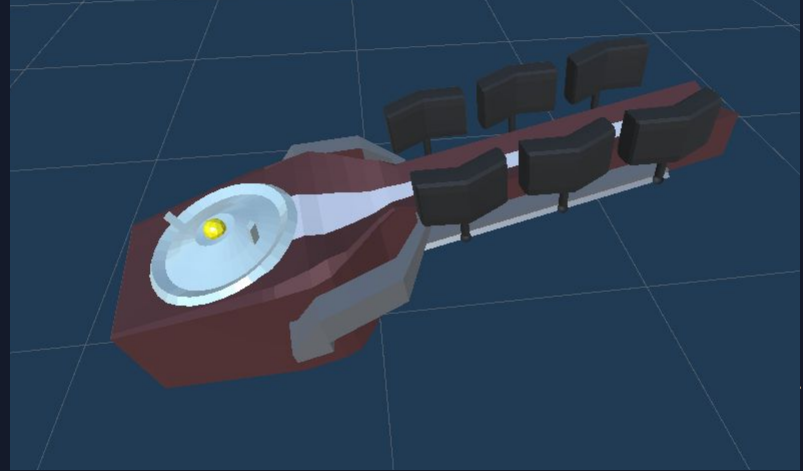
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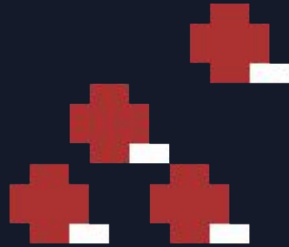
Main Weapon

- 1 Main Weapon in the game
- It is always equipped
- Infinite ammo
- Lower damage and situational



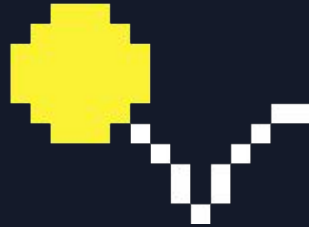
Secondary Modes

- One is always equipped
- Can easily swap between them
- Limited ammo but higher potential



Pulse Shot

Picture 1



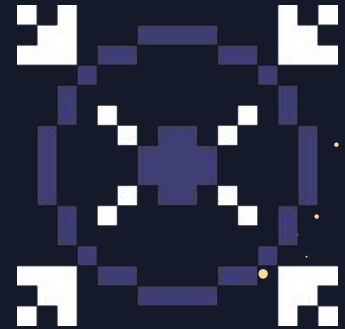
Grenade Launcher

Picture 2



Machine Gun

Picture 3



Singularity

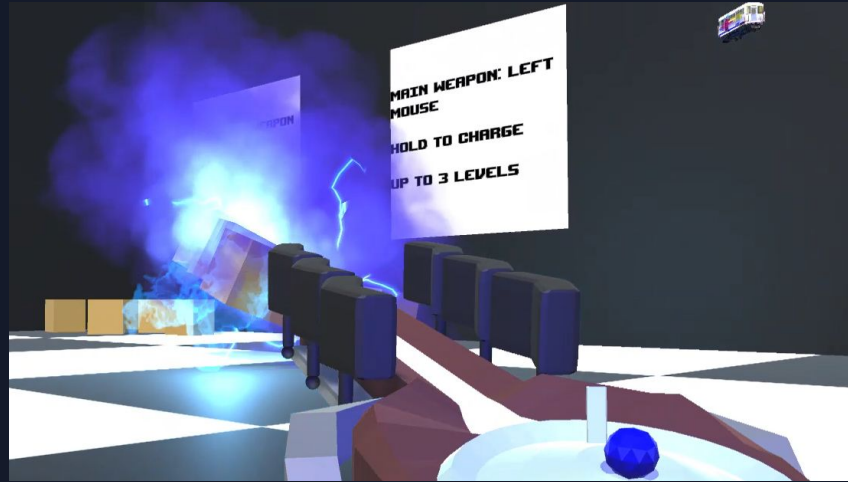
Picture 4

Weapon Visuals

Each secondary mode is associated with a color

Different shooting animations and sounds

Particle effects for the explosions



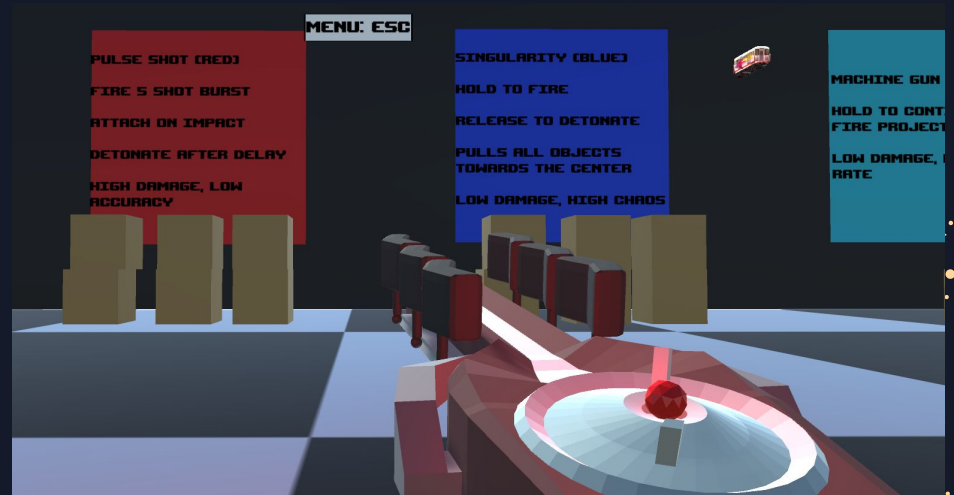
“Tutorial” Level

Each weapon functions differently

Tutorial level provides short explanations

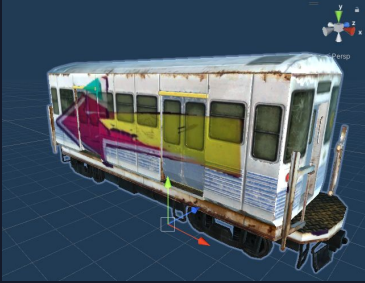
Can try out the weapons without enemies

Mini sandbox

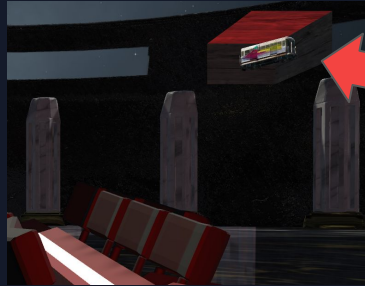


Roller Coaster Movement Cues

1. 3d Object mimicking the future movement of the roller coaster



Picture 5



Picture 6

2. Warning Signs shortly before a radical movement



Picture 7



Picture 8

Sound

1. Implemented

- a. Weapon Sounds
- b. Alert Sounds
- c. Background Music

2. Missing

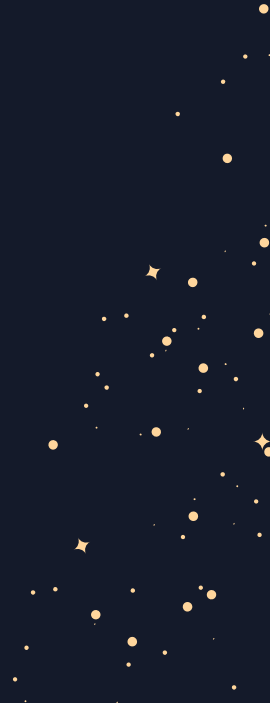
- a. Enemy Sounds
- b. Ambient Sound
- c. Better Background Music



Picture 9

Menus

- Main menu
- Pause menu



Main Menu



With some cool music

Pause Menu

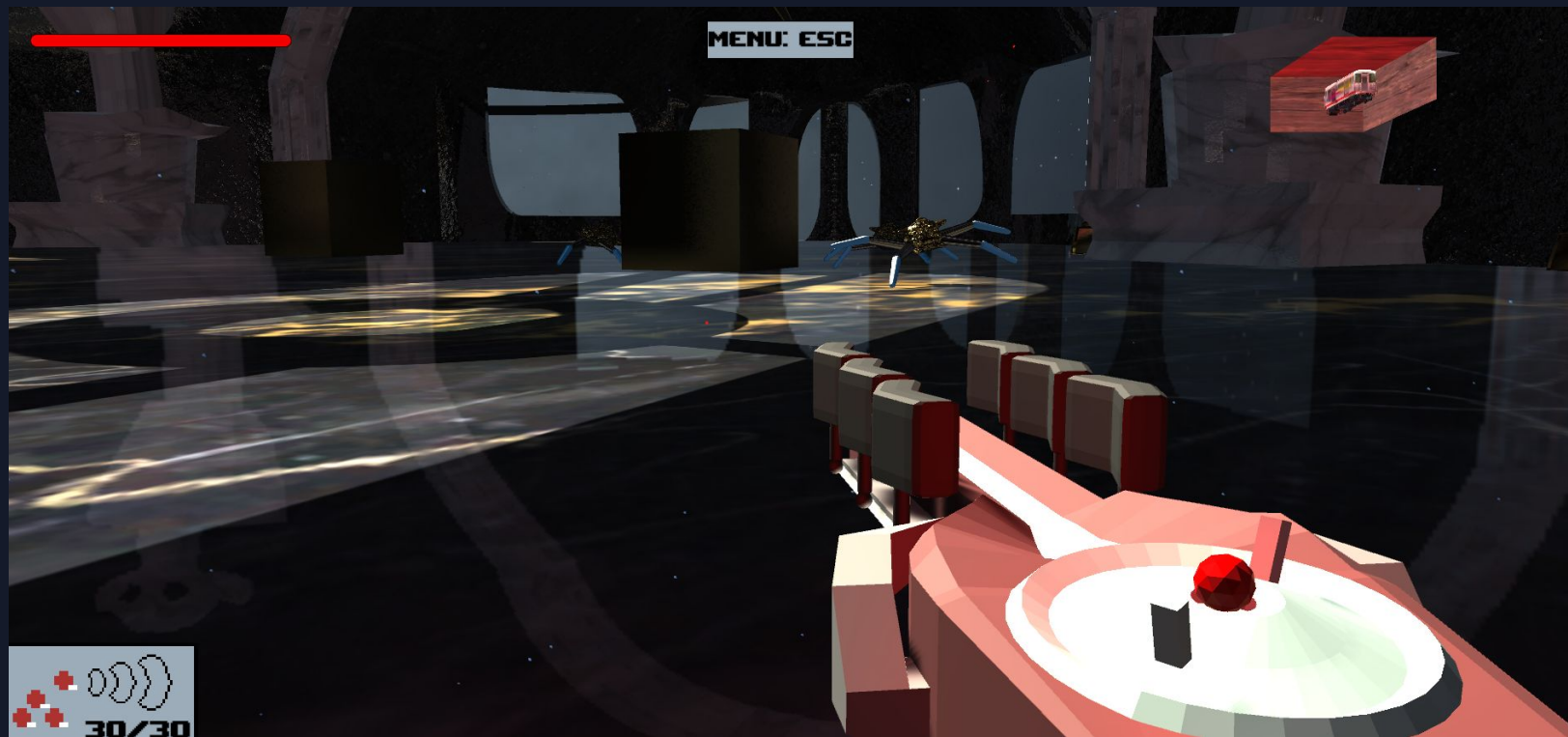


Wave Spawner

- Fully customizable
- Predetermined spawn points, enemy types and number of enemies
- Fully random spawn points had problems

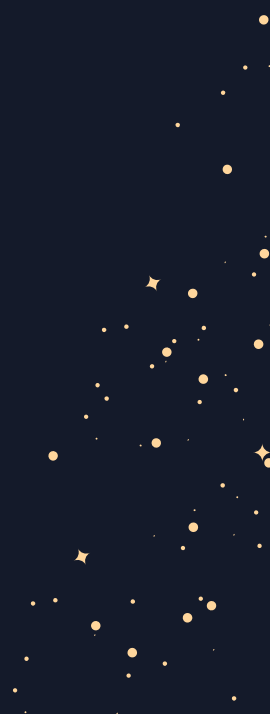


Wave Spawner



Win Condition

- Goal is to survive the onslaught of the waves of enemies

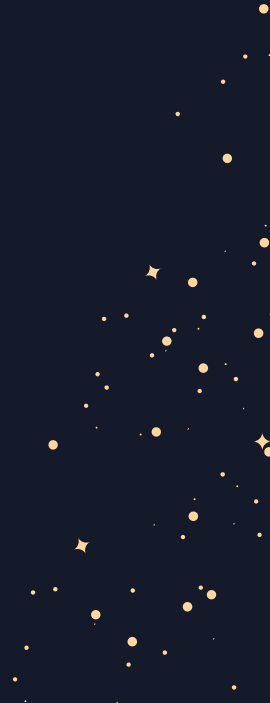


Win Condition



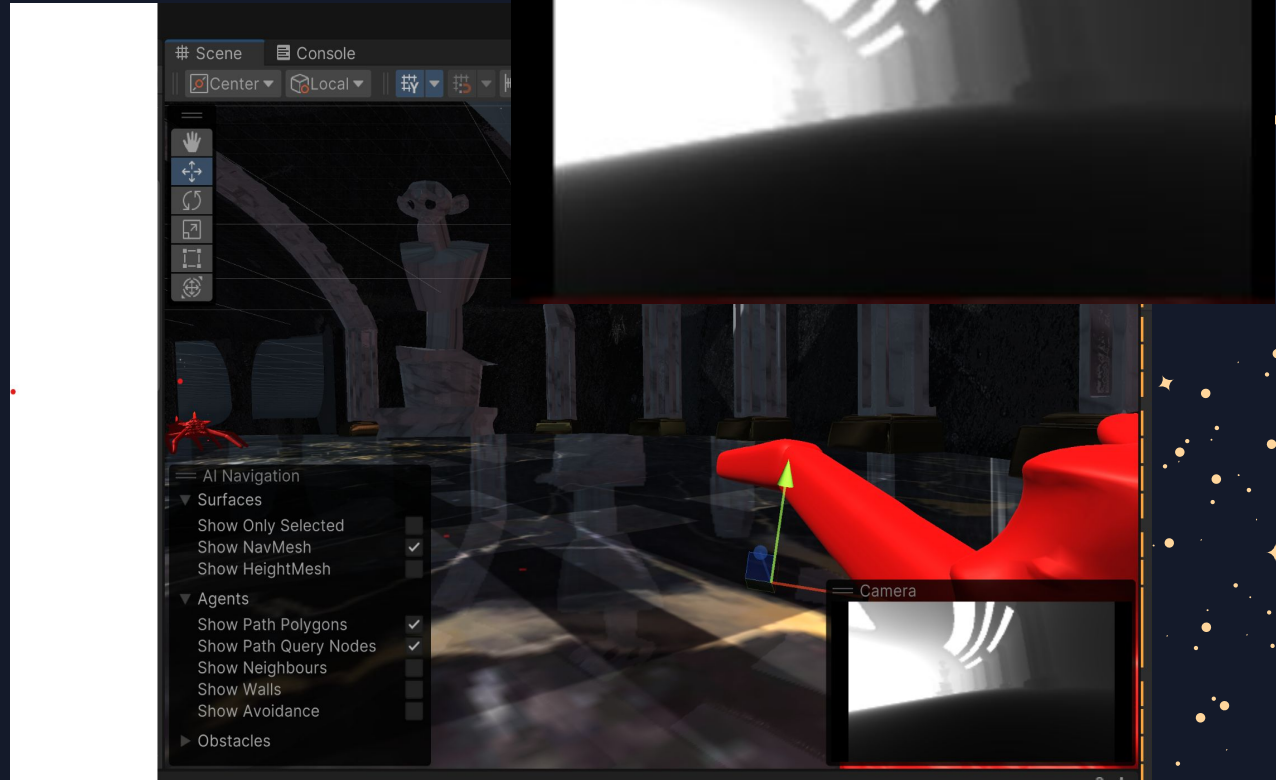
Navigation with mlagents

- very Complex tasks
- NavMesh is not suitable for a radical changing environment
- Our solution: use a depth sensor and a 2D CNN Voxel Map



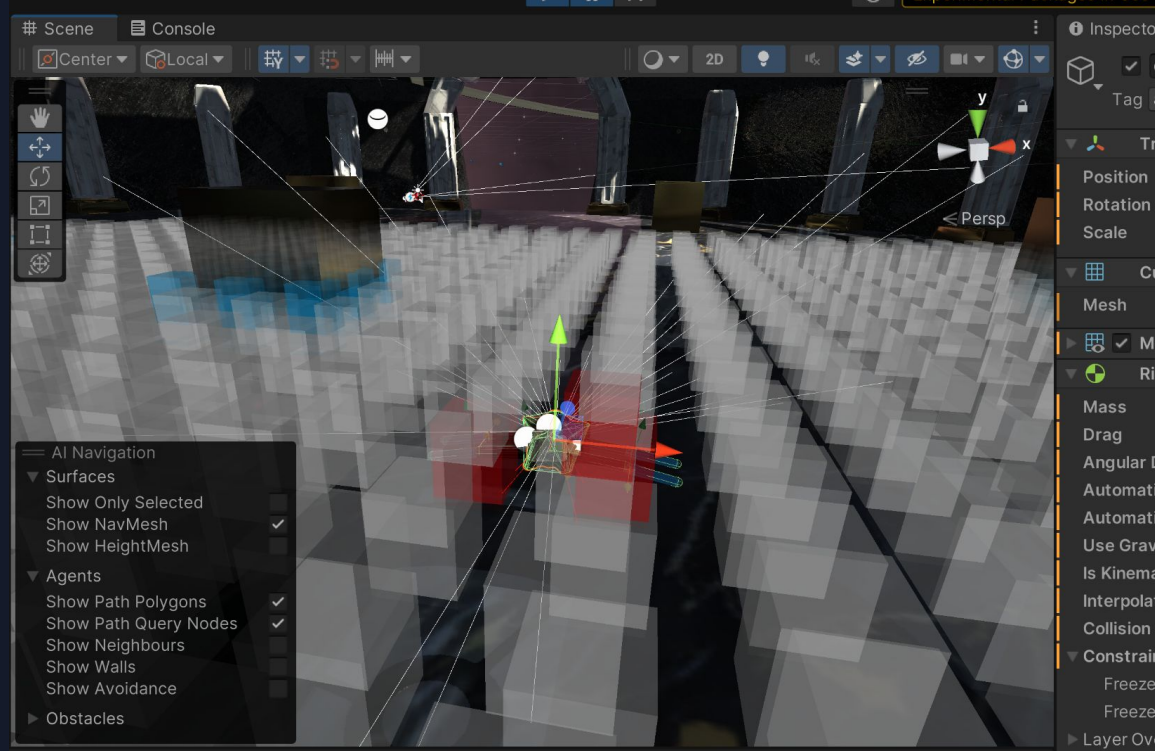
Depth Pixel Shader

- 30x30 size



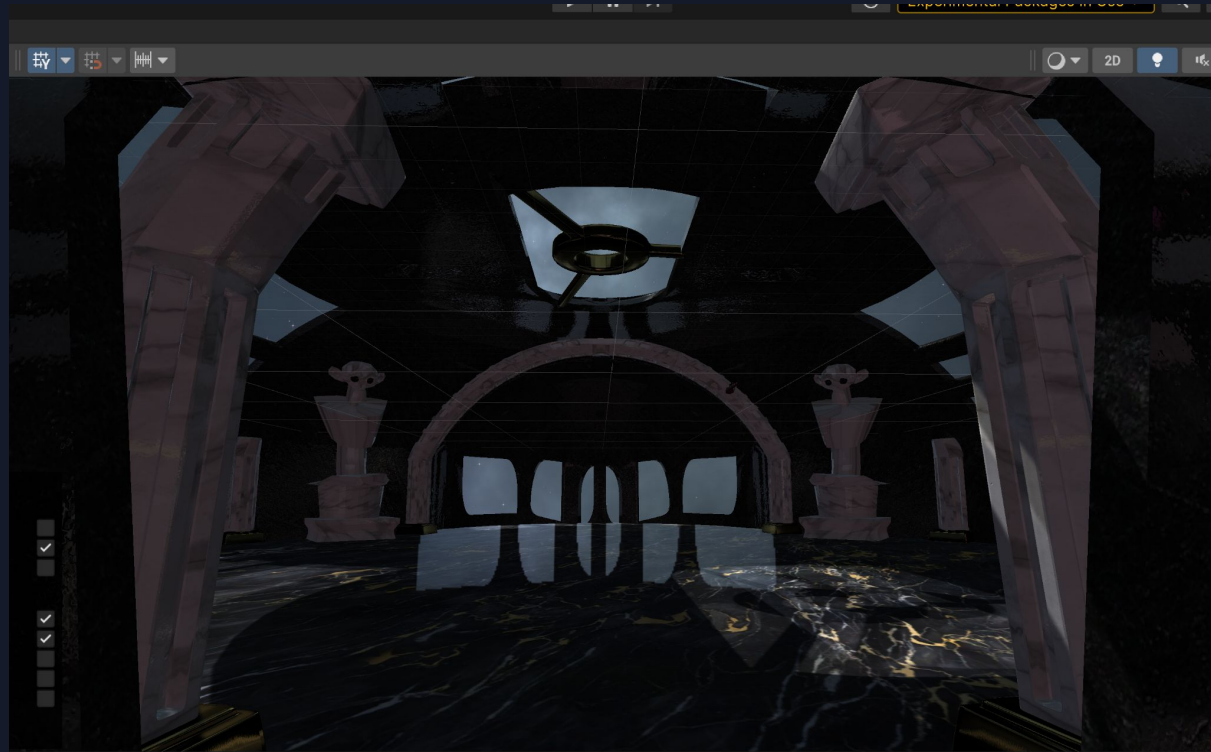
2D Voxel Grid with CNN (Unity build in)

- using build in Sensor



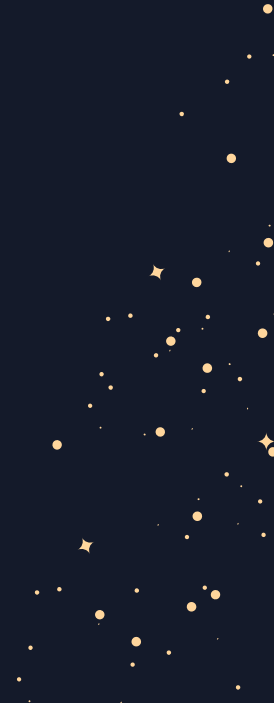
Map design

- Using Cubemap
Reflection probe
- Selfmade in Blender



Grunt - Humanoid Enemy Type

Blocking out



Grunt

Sculpt



▼ Transform

Location:

X	6.1
Y	
Z	-0.12

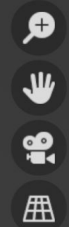
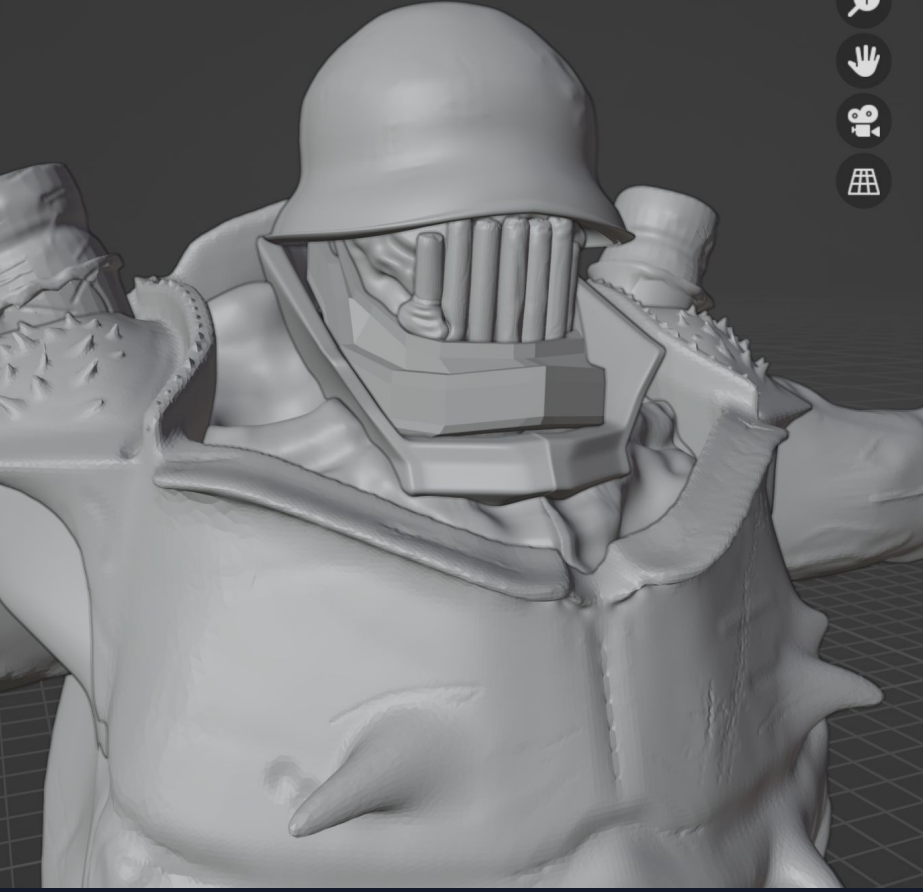
Rotation:

X	
Y	
Z	

XYZ Euler

Scale:

X	
Y	
Z	



Location:

X	-1.680
Y	0.9087
Z	8.347

Rotation:

X	
Y	
Z	

XYZ Euler

Scale:

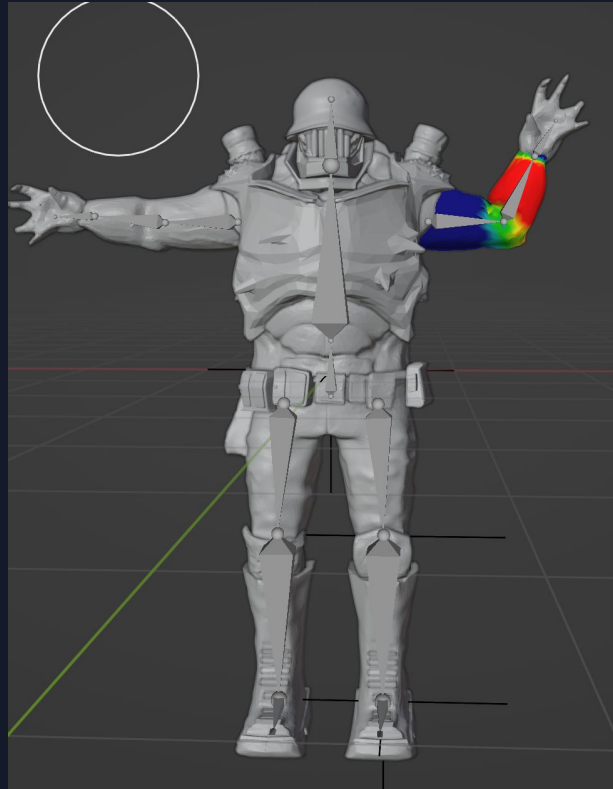
X	1.
Y	1.
Z	1.

Dimensions:

X	
Y	
Z	



Low Poly, Rigging, normal mapping



Other things


- Missiles being controlled by PID controller
- Target spawning by grid
- Get Speed of Train by average numeric derivative



What failed

- Make it work moving in complicated map
- Make it move fast and action packed

Solution

- using Nav-Mesh or other classical pathfinding
 - Adding jump or boost to the Agent to use
 - Putting canons on spiders to be dangerous from the distance
 - making flying enemies
- 
- A decorative pattern of small, glowing yellow and orange dots and stars is located in the bottom right corner of the slide, extending from the right edge towards the center.

Functional Minimum

Functional Minimum (Layer 1) Goals	Goal Statuses
One type of enemy to shoot at that reacts in physically plausible way	Completed
Basic gun play	Completed
Basic levels	Completed
Rapid movement of the environment (only a few like e.g. rotation)	Completed
Rigidbody physics	Completed
Keyboard and mouse control	Completed

Low Target

Low Target (Layer 2) Goals	Goal Statuses
More complex level movements (g-force, free fall, sudden turns, acceleration)	Completed
Weapons have accurate knockbacks and recoils (such as rocket jumps)	Completed
Physically-based player controls (impulses, force, momentum)	Completed
Ability to control level movement (to some degree)	Delayed
Basic UI	Completed

Desirable Target

Desirable Target (Layer 3) Goals	Goal Statuses
Sound design (movement of the roller coaster, music, weapon sounds etc.)	In progress
Different Projectile weapons (push enemies, break things, cannon balls, spikes etc.)	Completed
Different enemy types	In progress
Water physics	In progress
Breakable objects (glass, boxes, destructible environment)	Delayed
Nice looking UI	In progress

High Target

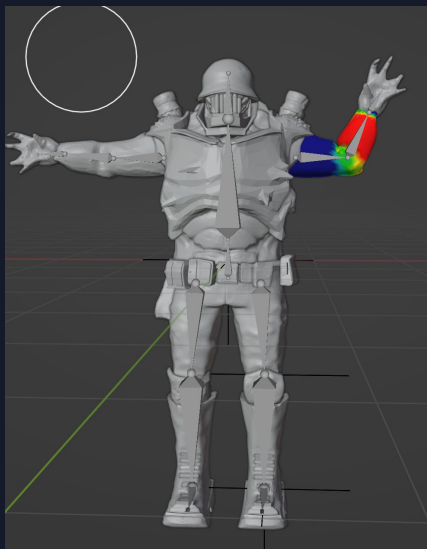
High Target (Layer 4) Goals	Goal Statuses
Story and characters	In progress
Physics based puzzles (environmental, use the movement of the level)	Delayed
Good weapon effects and animations	In progress
Nice art and assets	In progress
Well trained AI for bosses	Delayed
Game controllers (such as Xbox and Playstation controllers)	In progress

Extra Targets

Extra (Layer 5) Goals	Goal Statuses
Cutscenes	Work on it not started yet
Multiplayer / co-op modes	Work on it not started yet
First-player animations (arms, legs, doom-like kills for enemies)	Work on it not started yet
More fluid simulations etc.	Work on it not started yet
Shot off body parts move after they fall to the ground etc (for example like zombie arms).	Work on it not started yet
Weapons that use fluid dynamics like a water jet gun etc.	Work on it not started yet
Weapon progression such as adding mobility skills to weapons (crossbow provides a hook etc.)	Work on it not started yet

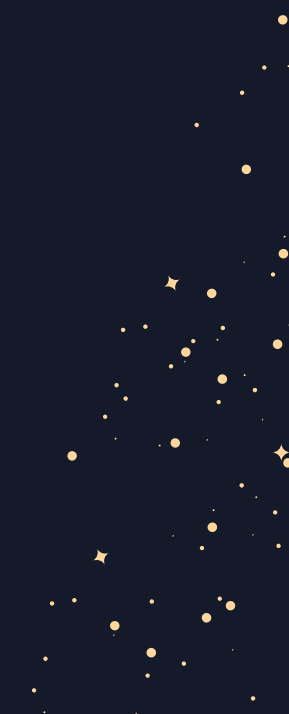
DEMO





Thank you for your attention!

GG



Citations and Sources

- Picture 1:
- Picture 2:
- Picture 3:
- Picture 4:
- Picture 5: Screenshot of development
- Picture 6: Screenshot of development
- Picture 7: <https://pixy.org/407431/>; altered (edited new content into the sign)
- Picture 8: <https://pixy.org/407431/>
- Picture 9: <https://www.voices.com/blog/how-video-game-sound-design-improves-accessibility/>