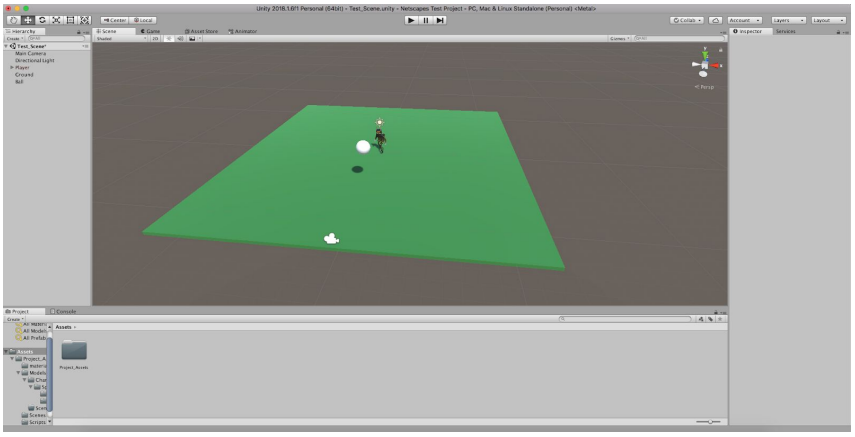
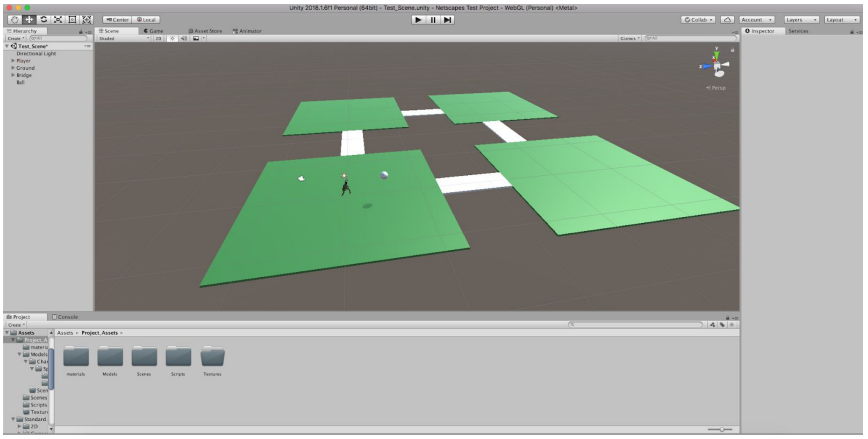
Project overview.

The idea for this project is to create a browser-based sandbox game for 1-4 players to walk around a small map separated into 4 zones. These 4 zones will have different themes and objects for the players to interact with, such as physics-based objects like boxes/crates, football/bouncy balls etc. Other interactable objects can include things like interacting with other players through an in-game chat, an in-game computer with a simple chatbot or web browser, or simply pushing objects around. We hope to also include various mini-games such as a mini football game inspired by Destiny 2's farm social space.

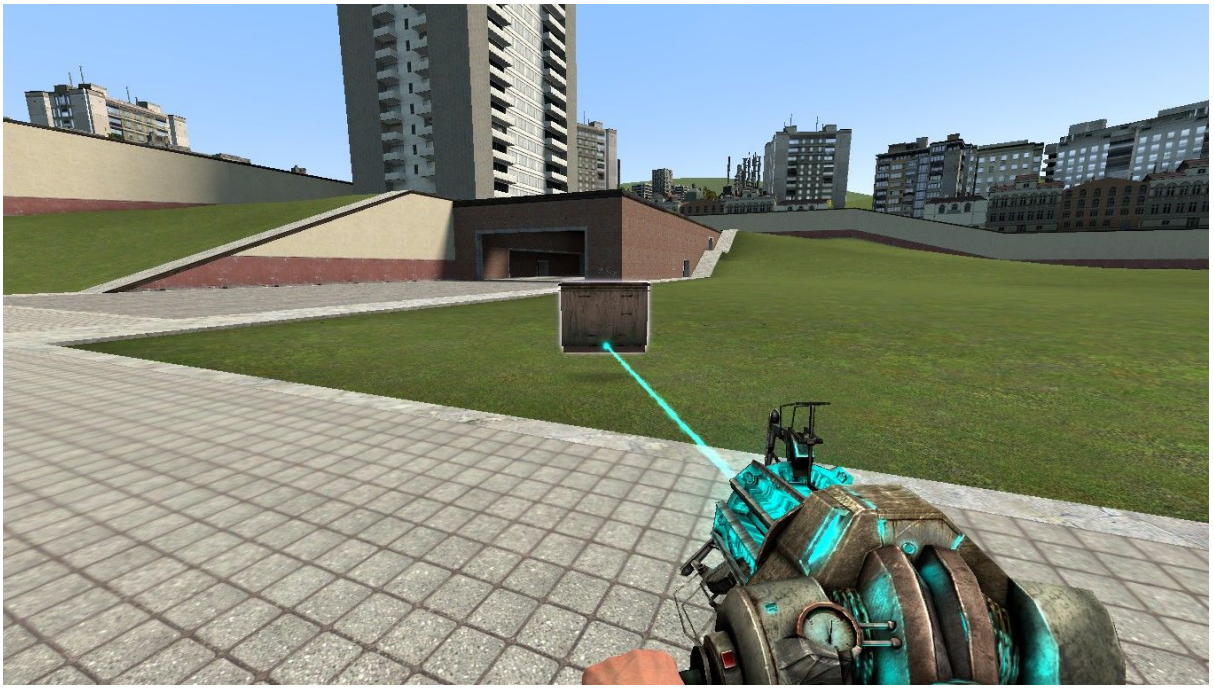
General inspiration, design and examples.

(early concept/project screenshots)



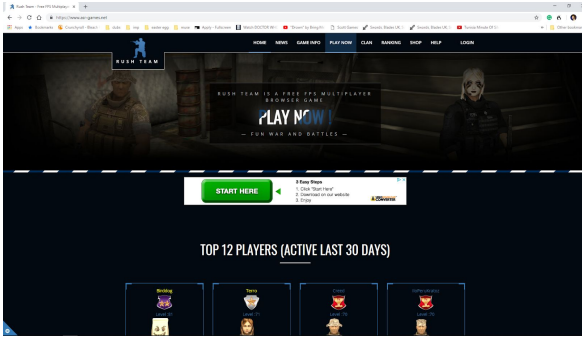


Garry's Mod (Gmod) Physics Example

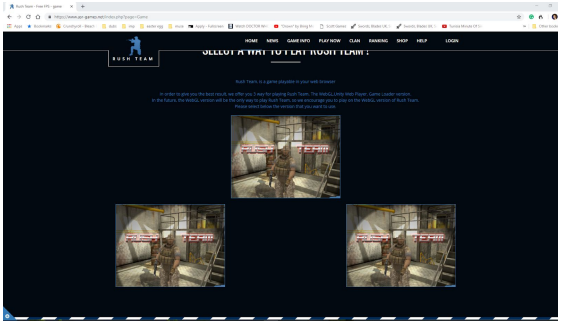


Rush Team (Browser Game Inspiration)

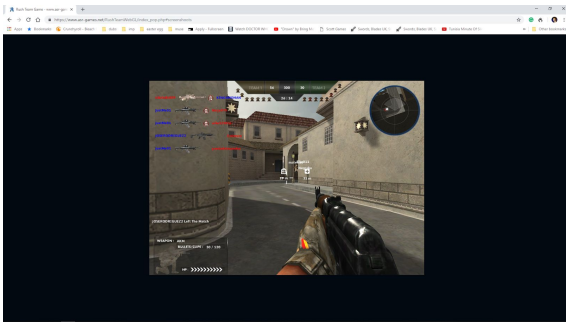
1. Home page



2. Choose launcher



3. In browser game



Destiny 2's farm social space (Mini-Game inspiration).

Research

- Multiplayer Cameras - **https://forum.unity.com/threads/multiple-cameras.342006/**
- Networking and basic multiplayer setup - https://unity3d.com/learn/tutorials/topics/multiplayer-networking/identifying-local-player?playlist=29690

The inspiration for the project came heavily from the browser-based unity game, titled "Rush Team" an online first-person shooter played through a web browser such as google chrome. How this inspired the project was how rush team is played in a web browser as well having multiplayer. Having knowledge of the different platforms that unity is capable of building to this inspired me to make the project

browser-based, be it I needed at least a simple website to house the game.

The sandbox element of the project was inspired by Garry's Mod or Gmod for short, gmod is a stand-alone sandbox mod game based off of Valve's Half-Life 2 game. Gmod is essentially an open version of Half-Life where players can use Half Lifes assets to create custom game modes, maps, and player skins. However, it was Gmods sandbox genre and physics that inspired the multiplayer side of the project since I wanted to create their own experience from the game presented to them.

The mini-game side of the project is inspired by games like Destiny. The Destiny games are known for having a social space where players can interact, buy in-game loot, collect quests, and "hang out" with other players before playing other parts of the game. The inspiration for the project comes from Destiny 2, which has 2 social spaces, the one I drew inspiration from is called "The Farm" as the name suggests it's based in a farm like setting with the barn being the main hub for quests. How this area inspired the mini-games is that there is a small field with two football nets at either side with an oversized football in the center. In this area, players can compete in games of football where the first to score 2 points win. While playing through Destiny 2 I enjoyed playing with other players in the social space and wanted to replicate something similar in one of my own projects. I'll talk more about creating the game in detail in the analysis section.

https://www.cochrane.org/CD001471/SCHIZ_educational-games-for-mental-health-professionals

https://www.sciencedirect.com/science/article/pii/S0360131514001869

The specific technologies I used to create the game portion of the project include Unity for developing the game, Mono-Develo/Visual studio for programming/scripting the game, I also used MagicaVoxel to

Model the islands, tokens, and football field mini-game. In terms of developing the game itself I started by creating a small square platform and adding 2 very simple player models and started experimenting with multiplayer before moving onto to expanding the game world by adding 3 more platforms connected by 4 bridges. I then expanded on this by modeling out the 4 islands in more detail to make them look more like islands and modeled one with a simplistic football field. After having a basis to work in I went to Adding in the game elements such as colliders to stop the players falling off the map, at this point I also added a physics based ball and trigger colliders to start work on the football mini-game. After scripting/programing in the neccasery parts to get the football game to work, I then added in a scoring system where players need to collect tokens around the map to increase thier individual score, I then adopted this into the football mini-game so when the player scored in the mini-game hey recieved a point to there score. After this I implemented doors that required other a player to stand on a platform to open the door or move a physics based box onto the same platform. Here i experimented with the idea of the player clicking the box to pick it up then dropping it on the platform, however I couldn't get this to work in multiplayer. How I got around this was by tweaking the physics options on the key cubes to make them easier to push around and onto the platforms. During development of these parts I was actively play testing and bug finding to iron out as many issues as I could. Lastly I added details such as trees, walls, rocks, and text hints.

We intend to use unity to create the web-based browser game, we will also try to implement a login page and a share link to invite friends to play. (Using basic HTML, CSS & javascript)

Blender was used to create the 3D model assets for use within the game. We decided on a low-polygon style for the game as this gives the game are cartoon-like design as well as helping to keep the game simple for performance reasons.

The main issues we had while developing the game in Unity is making sure everything worked within multiplayer, thankfully the parts of the game such as coins, physics objects, and certain objects that are intractable by the players just needed a unity network identifier. However, the players themselves and setting up a multiplayer game, in general, was

a bit more complicated. While getting it was a bit more complicated to get the player characters and network manager setup I did so without any issues. The issues only occurred when I added in the character walking animations, one issue that came up was the players become out of sync when playing multiplayer and on each players screen it would appear the player appear to be controlling the other players as well as also some animations not playing. How I fixed this issue was by adding a network animator component that comes with unity multiplayer networking package. While this fixed some of the sync issues and the issue of the player seemingly controlling every other character, these issues still occur but not as bad, and I couldn't quite smooth out this issue.

Communication for this project has been very poor and the organization of the project overall.
Upon reflecting on how well this project went we can say with certainty that it wasn't executed to the best of our ability.
We have delivered a game but the process has not been an enjoyable one, we should've communicated better.

https://github.com/trixrr/Netscapes