

LDD: Space Casino

Goals

This map's design objectives are:

- Offer a combination of multiple heights to flank the mission areas.
- Give different types of players their respective areas where their playstyle shines.
- Provide a map with various elements to have fun playing the map several times.

Summary

Inside the CSC (Central Space Casino), a band of space pirates planned to control the main channels of interstellar commercialisation by hacking into three mainframe terminals. The Ministry of Security, having heard of this attack from their spies, has sent their personnel to stop this breach, which is preparing for the assault in the command room. It's up to the players to decide the destiny of this coup d'état.

Game Mechanics

For this game, we have considered that the following mechanics are the only ones used for navigation and combat:

- Running
- Jumping
- Climbing (Ladders)
- Shooting

Game Mode

The CSC combat map is designed to be played in domination mode, a typical game mode of shooter games where two teams fight for the control of 3 different mission zones.

Each zone can only have one 'owner' at a time, meaning that for each second that ticks, the owner team of a zone scores 1 point. If a team has secured all 3 zones, each second 4 points are gained. The first team to reach 200 points wins.

At first, all zones are neutral, meaning no team controls any zones, so no points are being acquired.

Teams

Two teams are fighting to control 3 terminals, which will give them points to win the game. These teams are:

- **Blue Team:** the security personnel of the CSC (Central Space Casino)
- **Red Team:** the space pirates trying to storm into the casino.

The Blue team aims to defend the terminals and protect the Command Center. On the Red team, the objective is to take control of the terminals to overpower the Command Center and take over the Casino. Each unit has its respawn zone, where fallen players appear after being eliminated.

Constraints

For this map, several difficulties appeared that may have jeopardised the level's design:

- We haven't been able to playtest it in a real environment.
- This is our second time using Unreal Engine for a project of these dimensions, so most of the time was spent learning how to use some of the program's capabilities.
- Most assets may crash with one another, as they are taken from several sources simultaneously.
- Due to the quality of the assets being too high, it was impossible to fill the level with all the assets we would've liked, as the project occupied too many gigabytes for GitHub. As such, many walls and areas from the art build are only filled with all the props for the covers.

Moodboard



Asset Packs

General:

- [Modular SciFi Season 1 Starter Bundle in Environments - UE Marketplace](#)
- [Modular Scifi Season 2 Starter Bundle in Environments - UE Marketplace](#)
- [Spaceship Interior Environment Set - UE Marketplace](#)

Parking:

- [Freeway Props - UE Marketplace](#)

Emergency Tunnels:

- [Sci-Fi Old Rusty Props PBR | 3D Sci-Fi | Unity Asset Store](#)

Offices:

- [Free Sci-Fi Office Pack | 3D Sci-Fi | Unity Asset Store](#)
- [Sci-Fi PBR Props | 3D Sci-Fi | Unity Asset Store](#)

VIP:

- [Modern ArchViz: Sea View | 3D Environments | Unity Asset Store](#)

Storage:

- [Sci-Fi Construction Kit \(Modular\) | 3D Sci-Fi | Unity Asset Store](#)
- [Industry Props Pack 6 - UE Marketplace](#)

Casino:

- [Spin-N-Win Machine - Download Free 3D model by Arman.Abgaryan \(@Arman.Abgaryan\) \[4ee448c\]](#)
- [Roulette Table - Download Free 3D model by Tameranian \(@tameranian\) \[f276b7f\]](#)
- [ATM | 3D Sci-Fi | Unity Asset Store](#)
- [simple low poly casino chips and dices - Download Free 3D model by lupas \(@ivan.anton.albarracin\) \[f7ac7a2\]](#)
- [Fast Food Restaurant Kit | 3D Environments | Unity Asset Store](#)

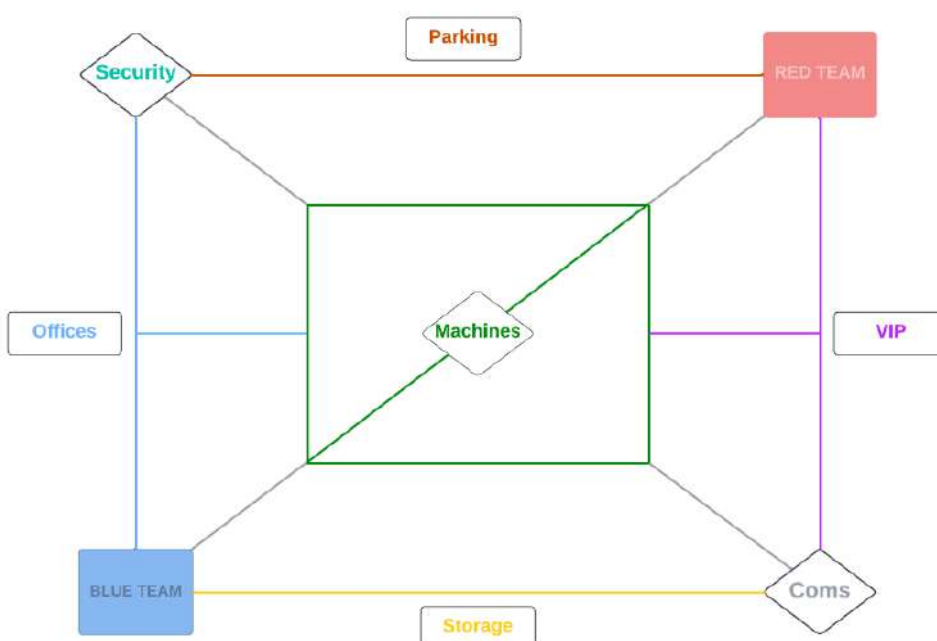
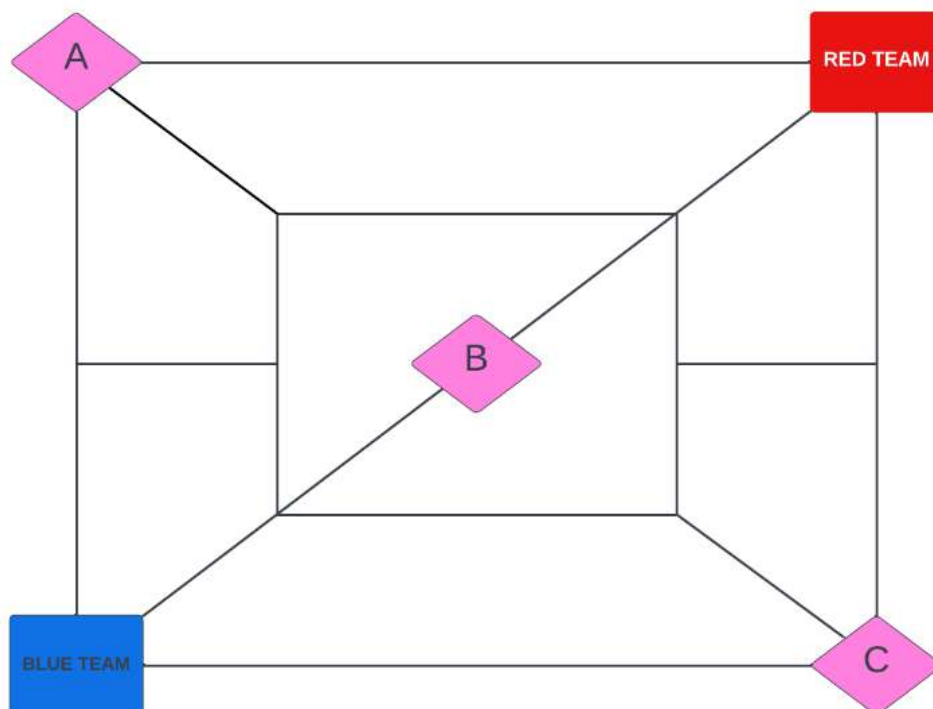
Other:

- [Soul: City in Epic Content - UE Marketplace](#)
- [Polar Sci-Fi Facility in Environments - UE Marketplace](#)
- [Broadcast Studio in Props - UE Marketplace](#)

Development Process

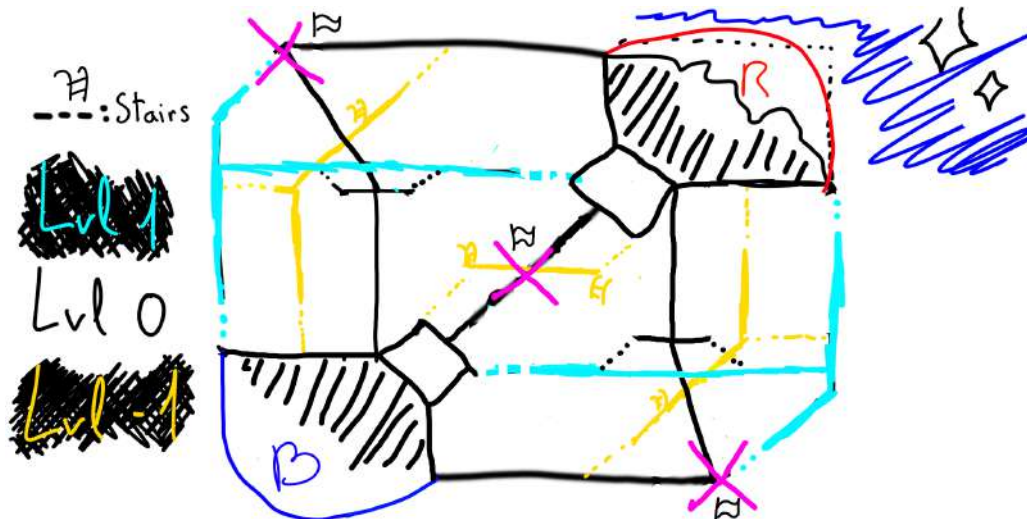
- Wireframe

The wireframe shows that the map is symmetric in its basic shape, having each spawn position in opposite corners of the map and each mission area traversing the middle part. One of the objectives of this map is to allow for multiple, unpredictable options each team could have to enter & capture each section. As such, multiple intermediate zones and hallways at different heights were created to create a dynamic overall experience, with a thematic division based on whether or not it is a public or private area, which we will elaborate on later.

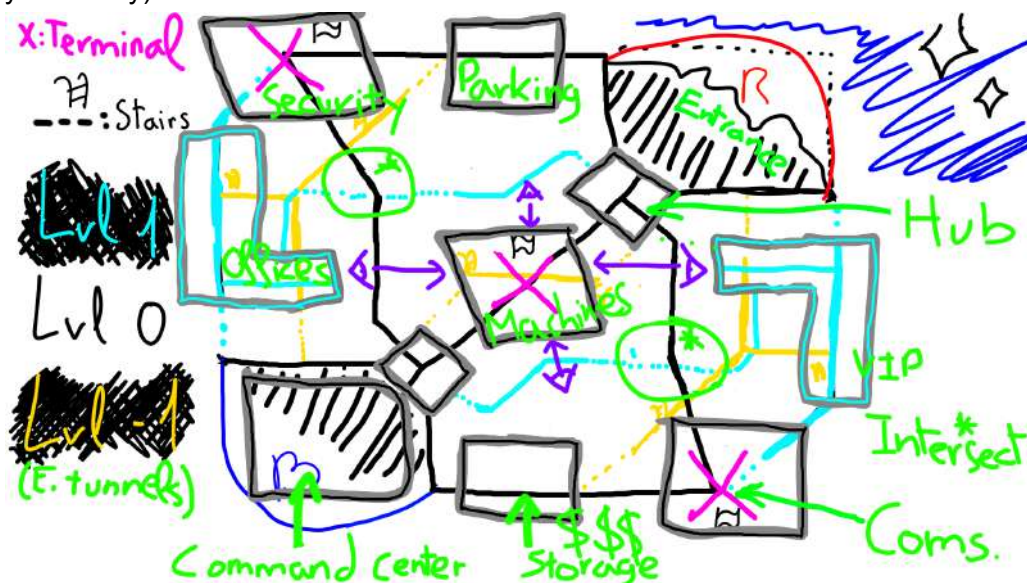


• Sketches & Division of Zones

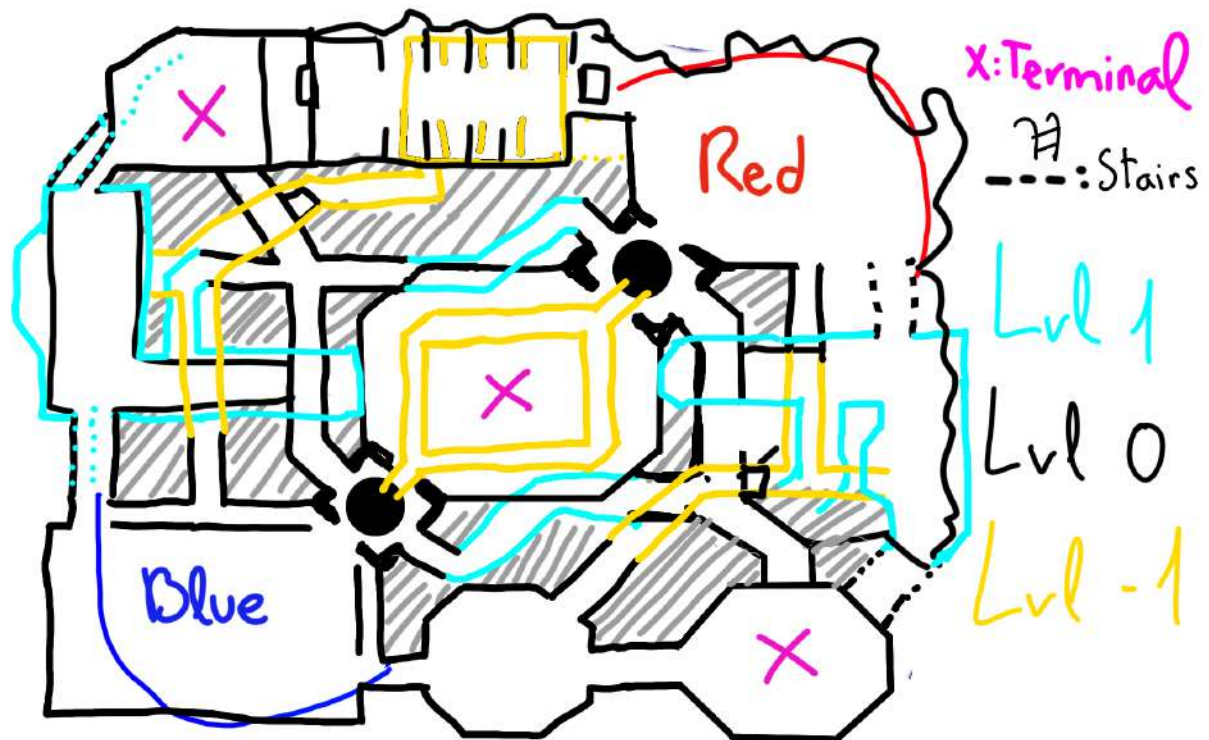
As a first approach, we started by dividing the zones into a rhomboid area with connections between the mission areas and the spawn points. The initial approach regarded using multiple crossroads that opened the opportunity for intersections. However, as the map was getting stale and leaving no room for flanking opportunities, we opted to add height levels to create dynamic zones. We didn't move from using 2 levels of height: one subterranean (for stealth players) and another one level above the spawn points, creating height advantages for both teams in all mission areas. As such, the first wireframe created looks like this:



With these corridors defined, it was time to give the scene a theme. It was decided early on that the primary setting should be sci-fi, as it lined up with our available assets. However, based on the symmetric division of the place, we opted to create something available to the public while also containing private sections. As such, from the concept of a central hub of commerce, the idea of making this place a space casino appeared, including a central zone for machines, a VIP area, parking slots, security and logistics. Hence each of the points to capture became the main terminals of the ship for specific purposes (communication, security & money) and divided each zone like such:

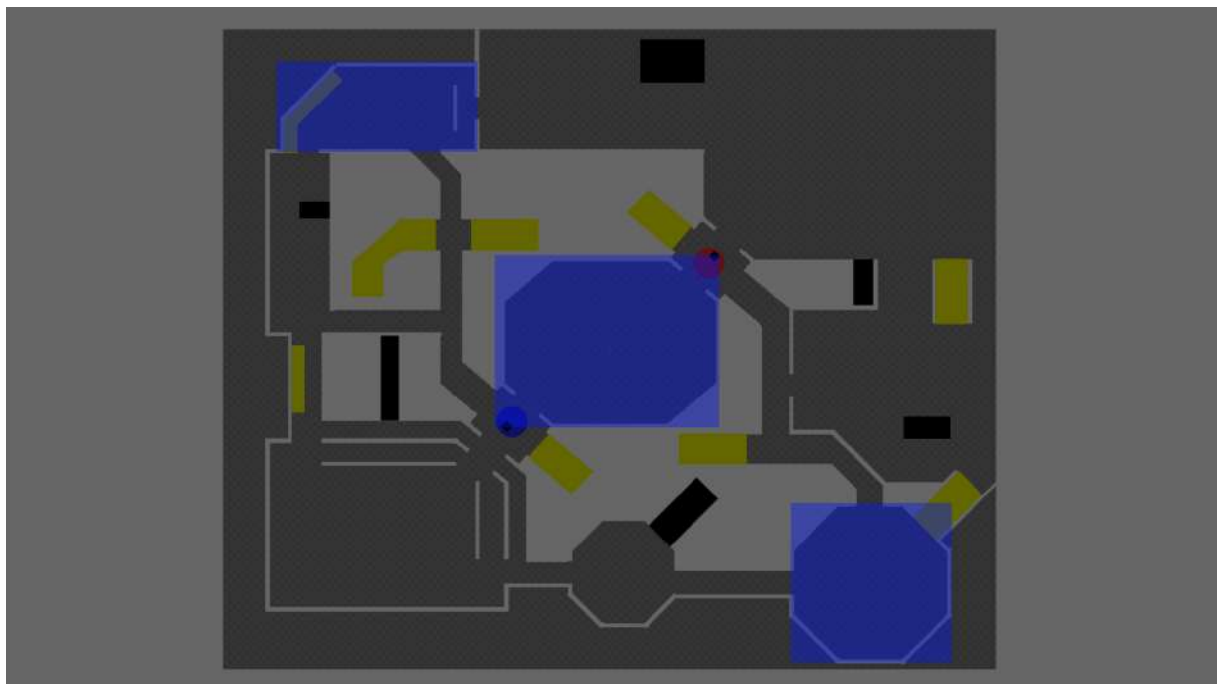


Finally, after delimiting zones, we created the necessary hallways and spaces for each zone, with some new additions to balance it out.



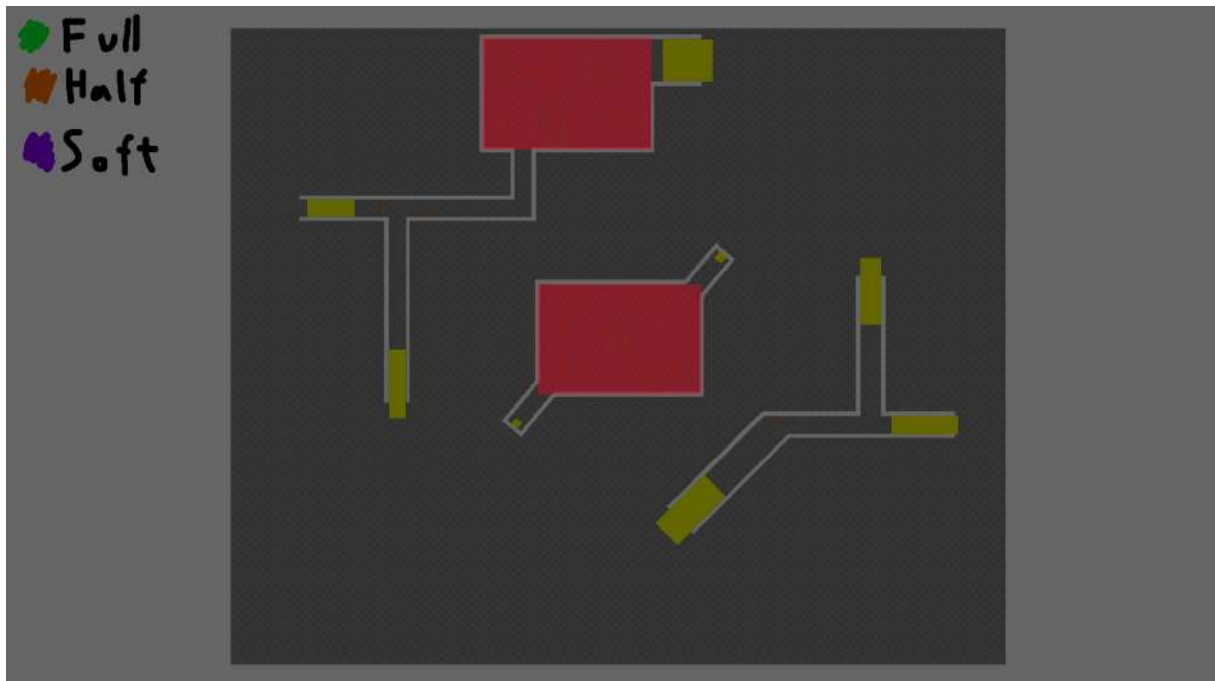
- Mission Areas

The three mission areas of the map represent the zones where each objective in the domination game mode is present. As mentioned before, since this is an invasion of the place, each point represents a different aspect of the casino requiring protection from vulnerabilities. From top to bottom, these are security, money and external communications.

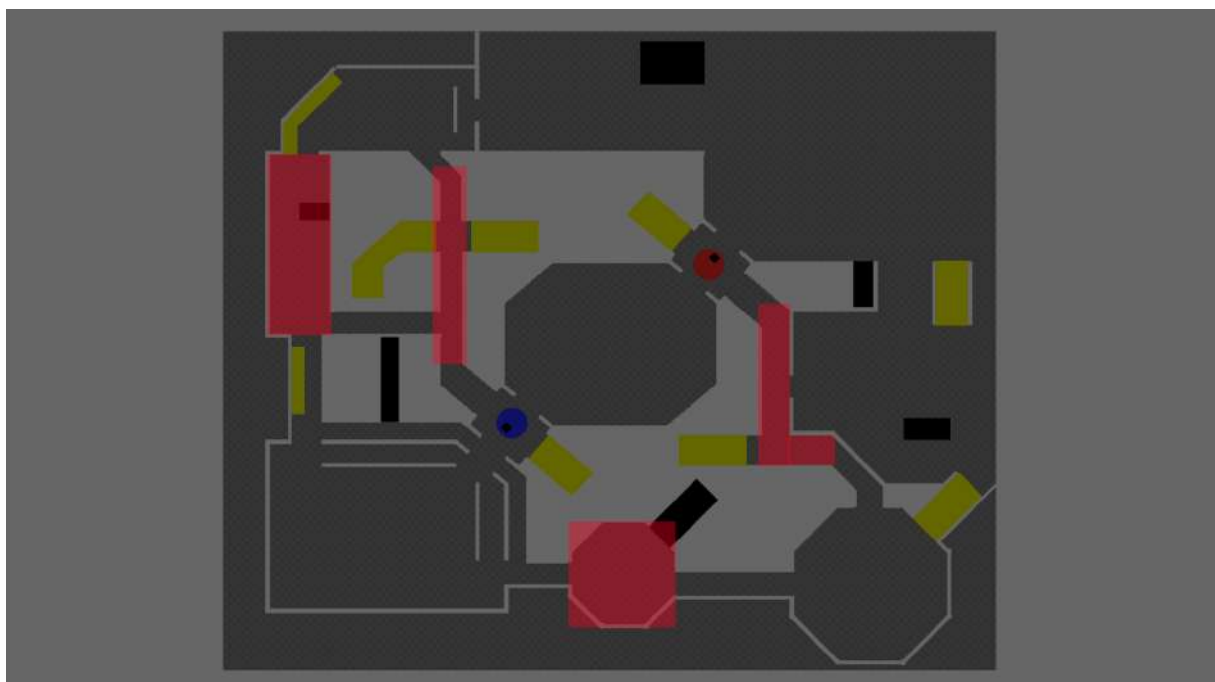


- Battle Areas

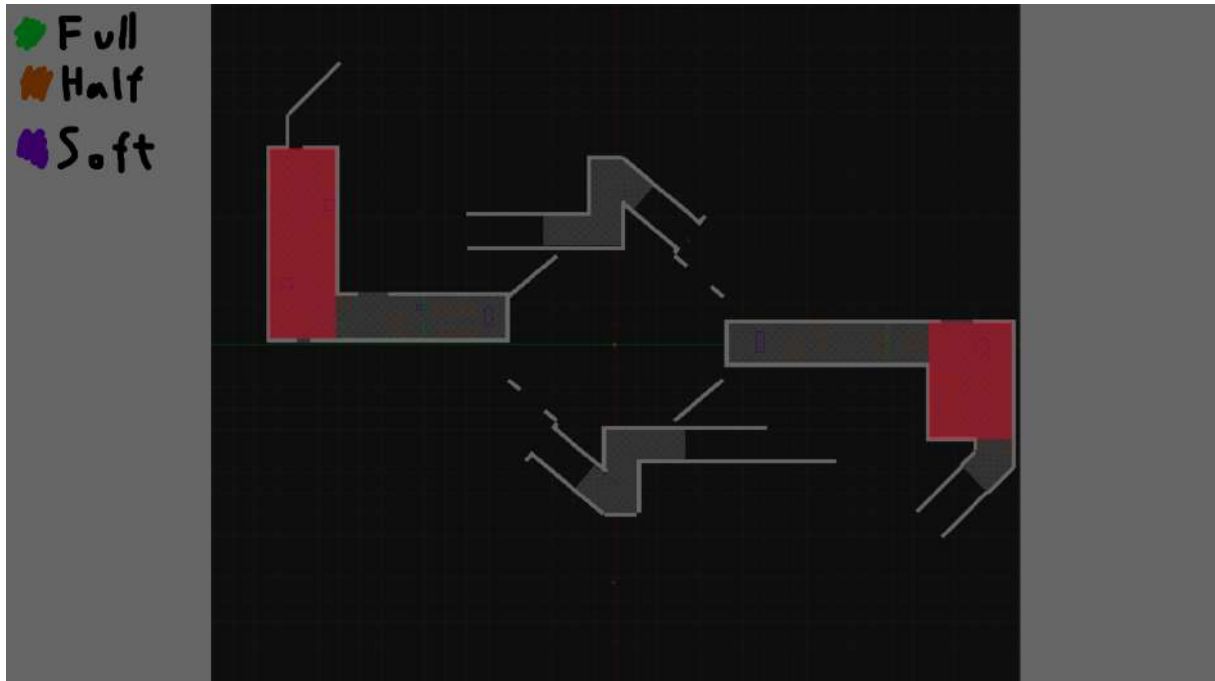
In Floor -1 (Under), the combat is short-distance and CQB with several covers (full and half ones) as an indoor fight requires to create this urban immersion. The bottom area does not include a battle zone to both break the symmetry and since it is already a closed-off area.



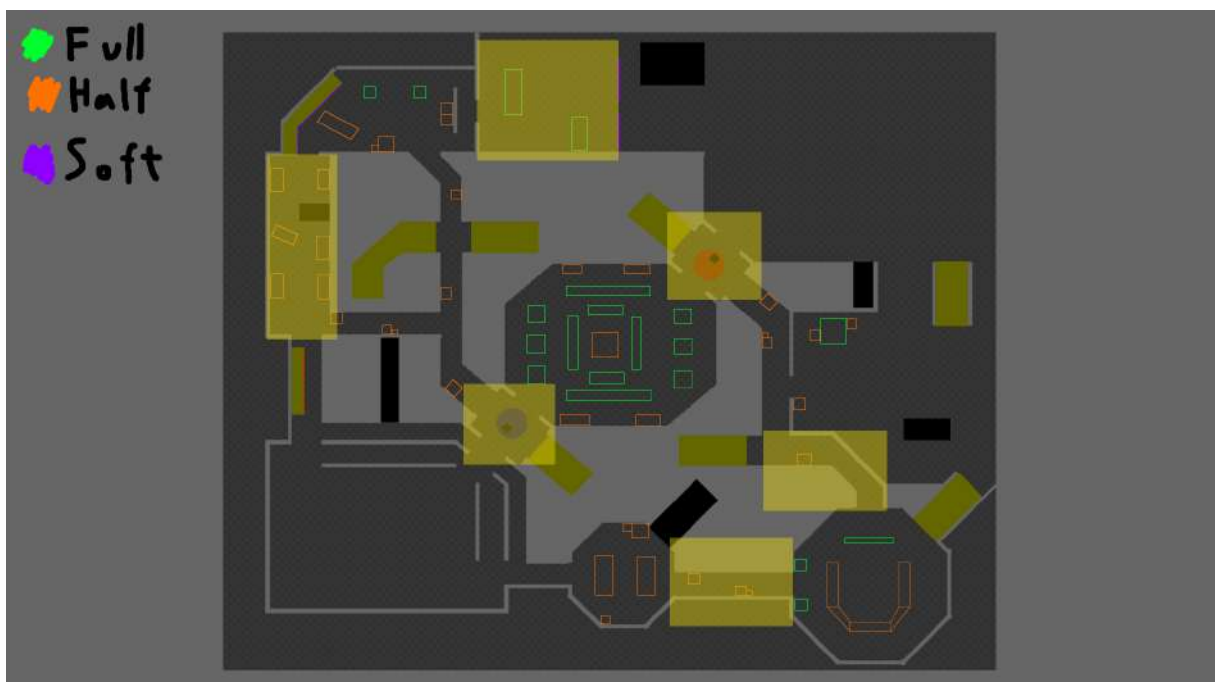
The corridors connecting mission areas in Floor 0 are more mid-ranged combat for Assault Rifles (AR) with still some half covers. Most of the level is made out of hallways connecting between rooms; however, we wanted to create open spaces to contrast the claustrophobia for hallways.

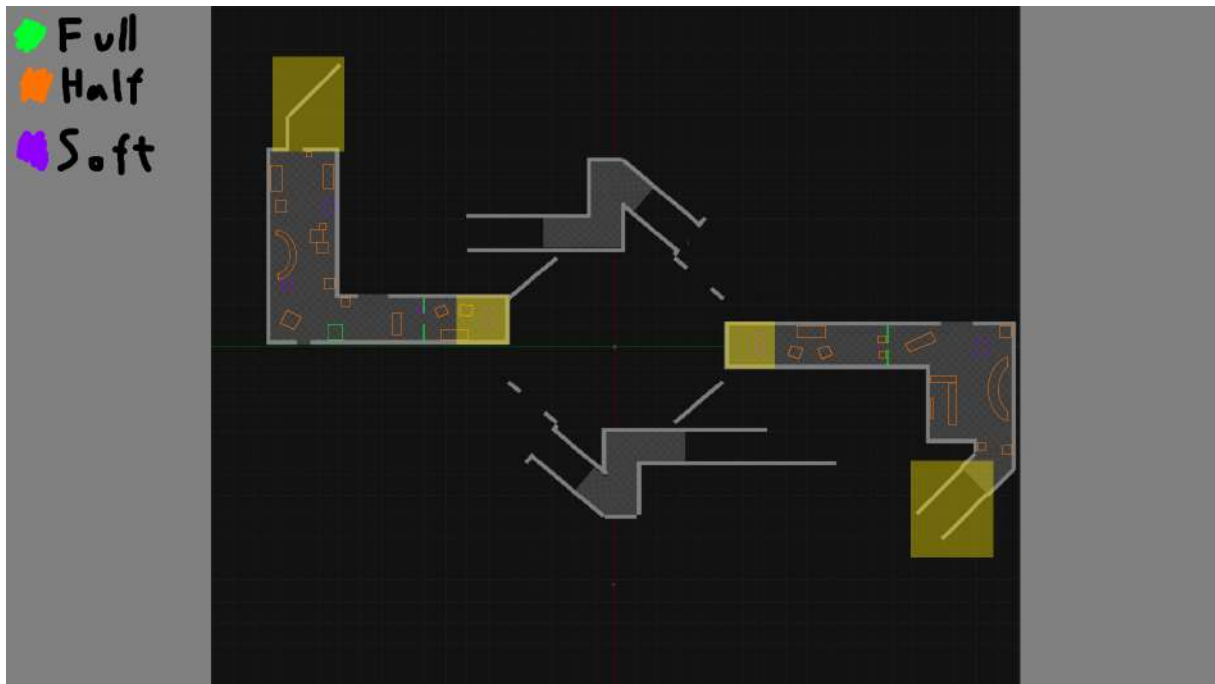


Battles areas on the Floor 1 are short, and even mid-range combats with indoor covers like furniture and structural elements from the building. It also includes a long-range sniper position connected to the middle area for protection purposes, with counter-sniper positions on opposite sides.



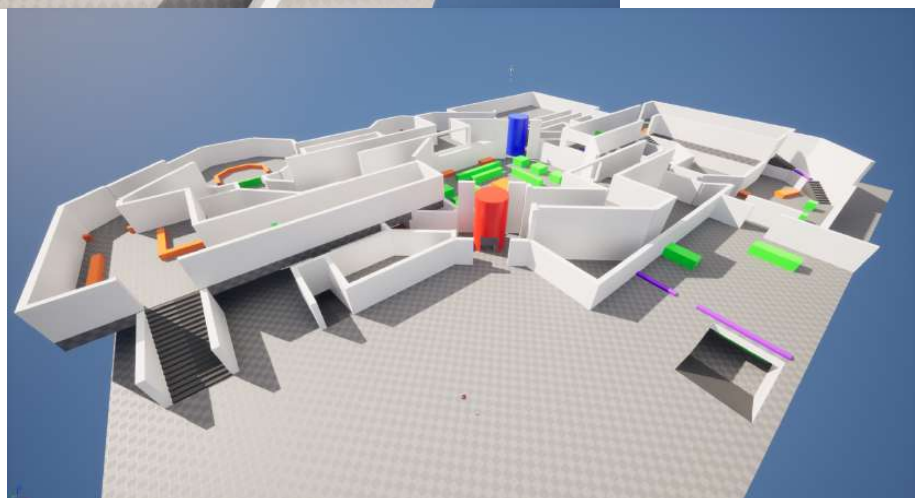
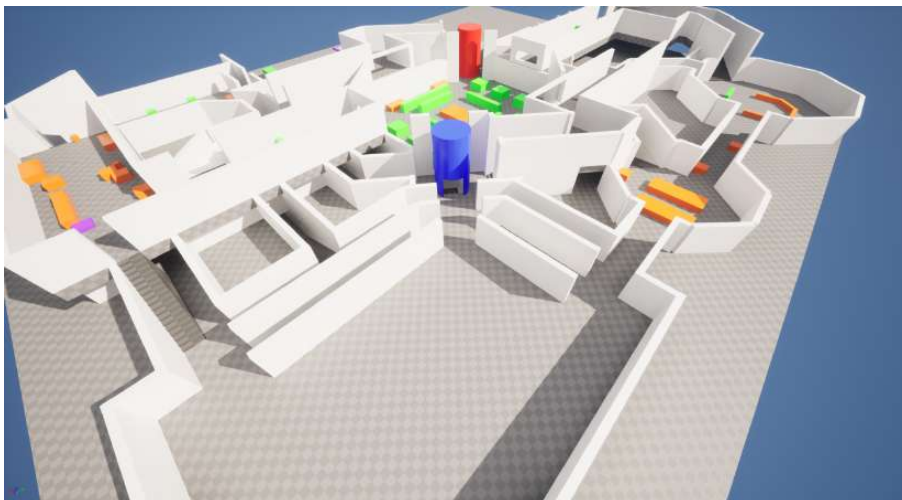
- Choke Points





- **Spawn Points**

On the bottom left corner of the map, the Blue team will respawn in the bottom left corner (defending the casino's terminals & Command Center). Similarly, the Red team will always respawn in the top right corner (invading the casino). Two coloured columns are indicators.

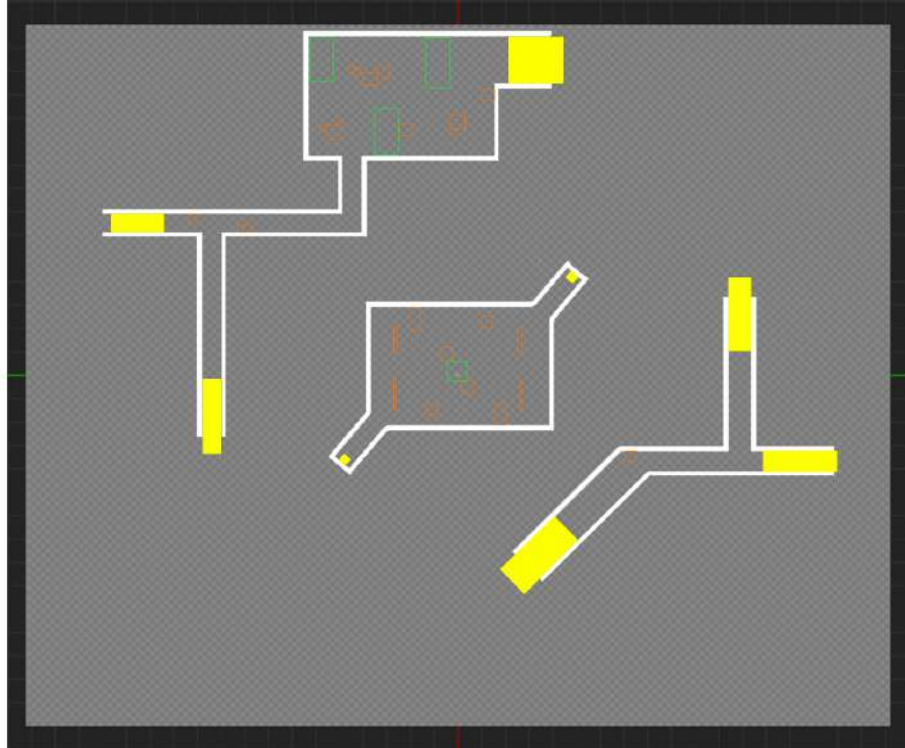


- Cover Points

We decided to place cover points as the following images will show:

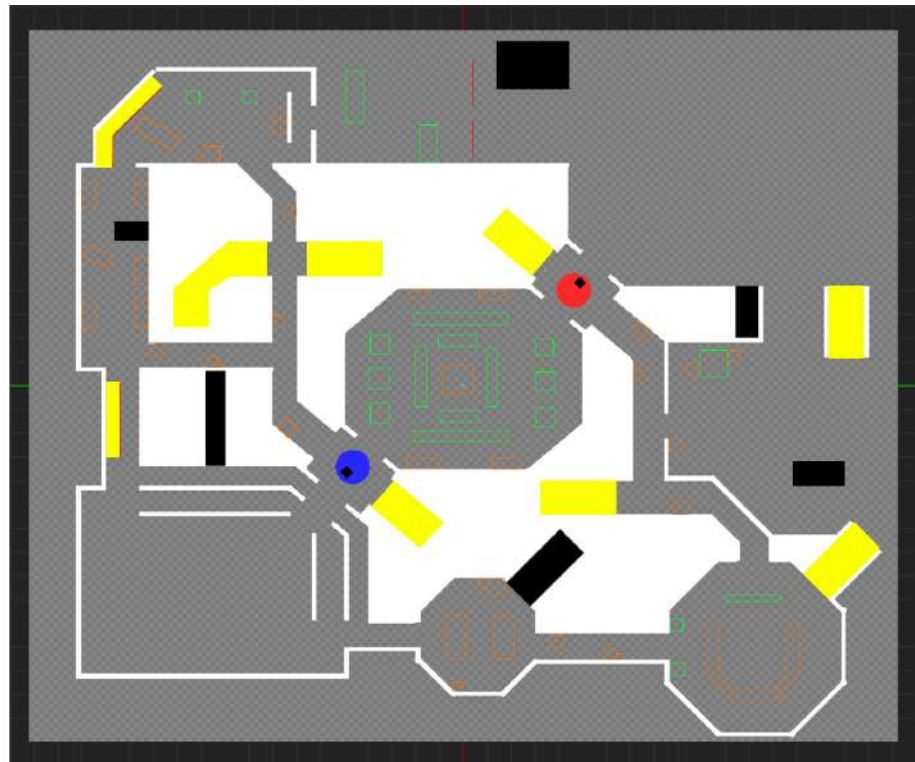
- Floor -1:

● Full
■ Half
■ Soft



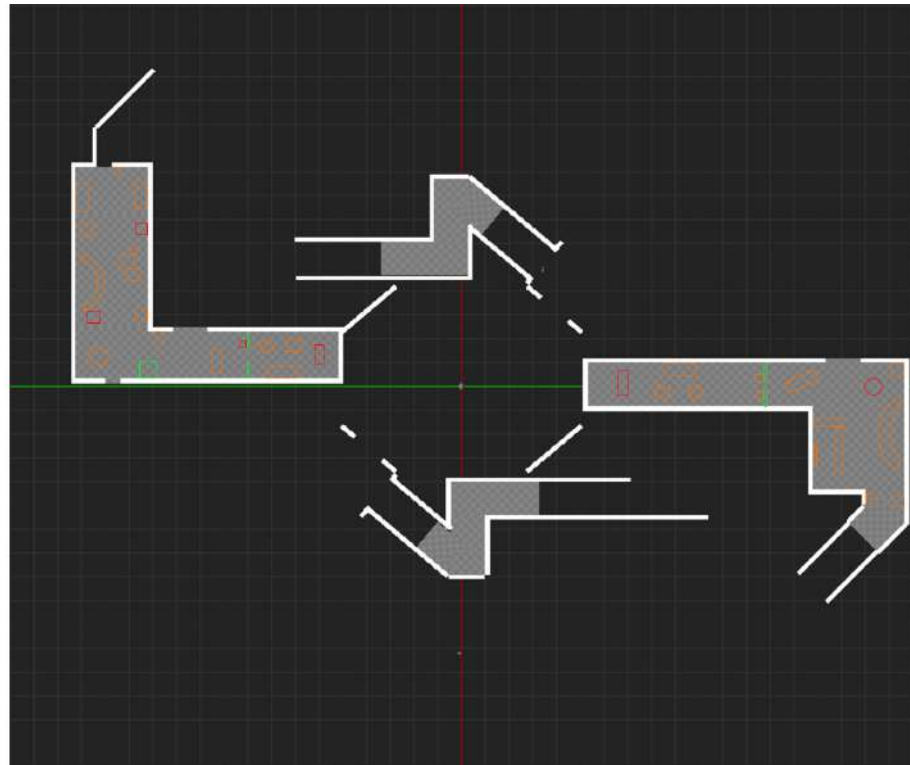
- Floor 0:

● Full
■ Half
■ Soft



- Floor 1:

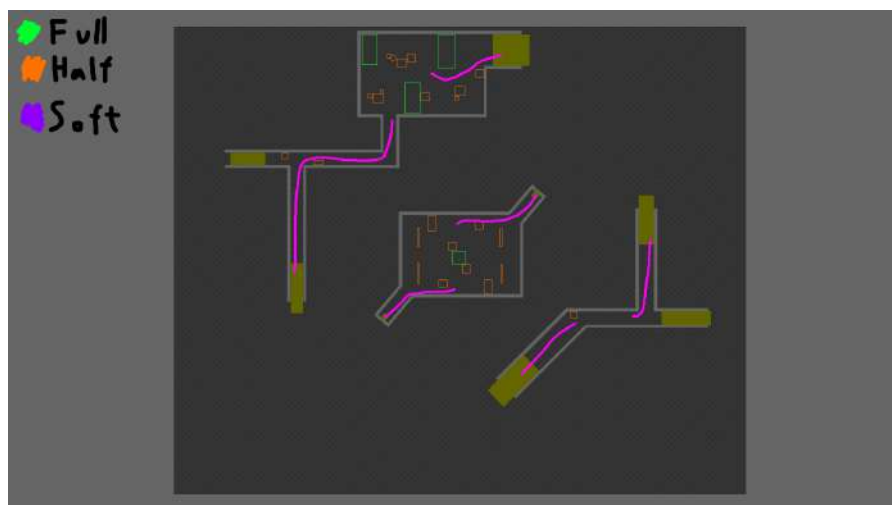
-  Full
-  Half
-  Soft



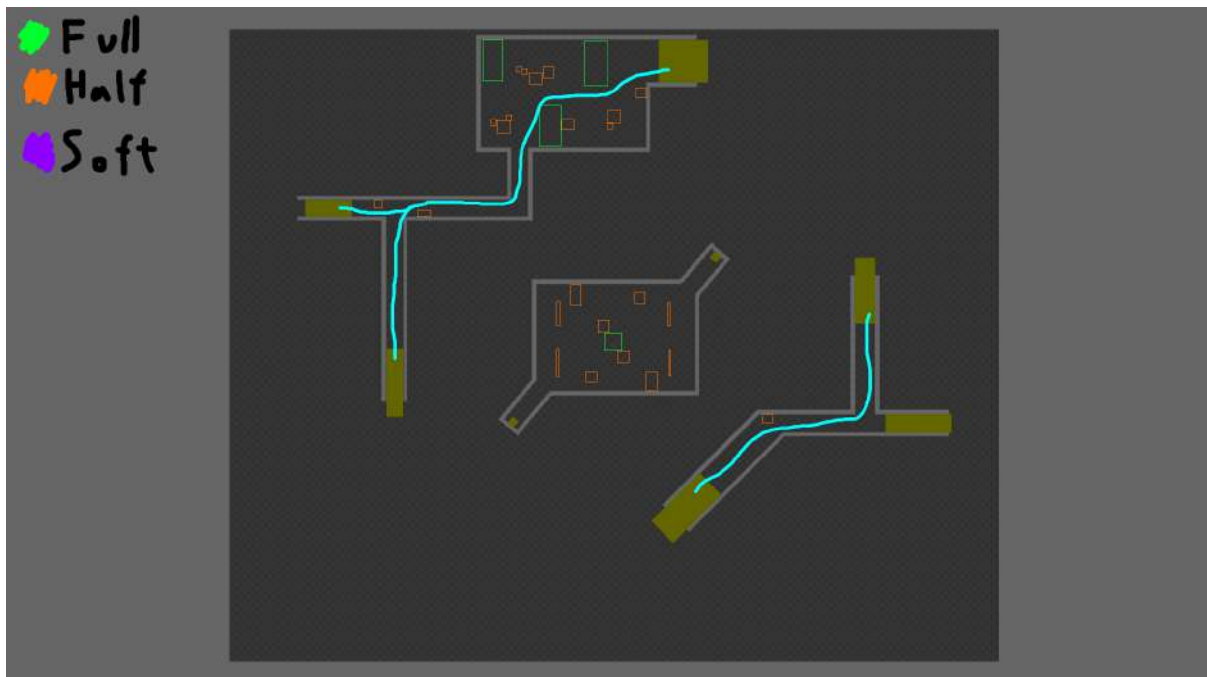
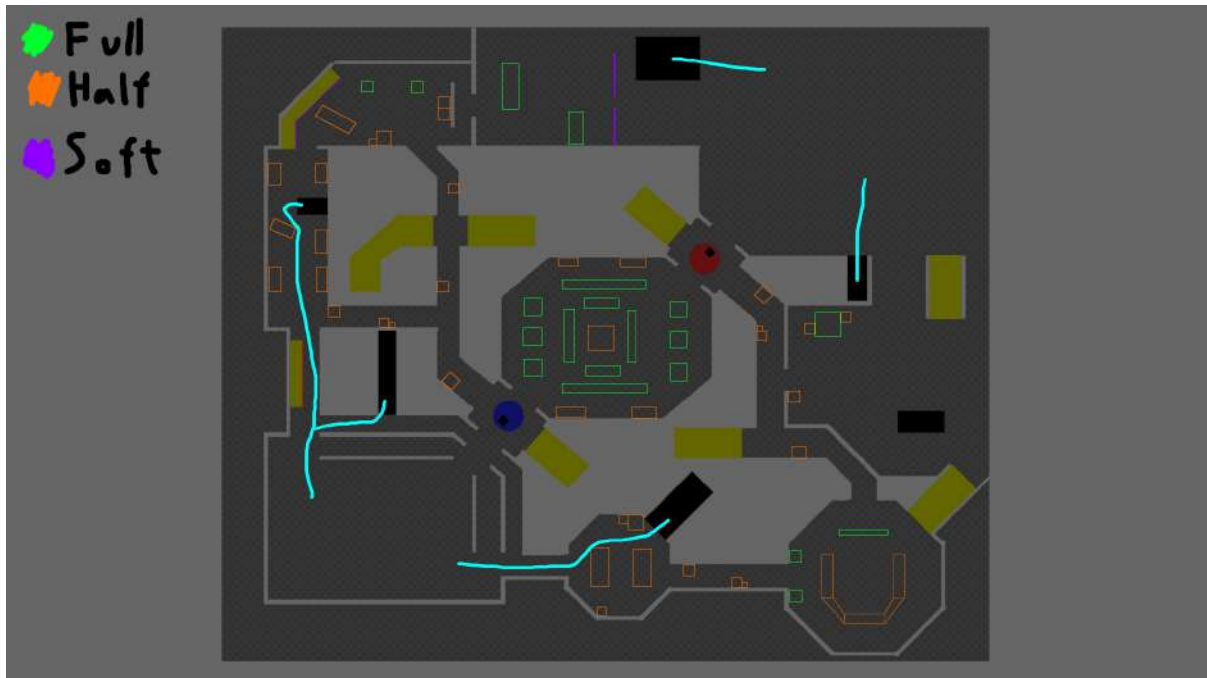
Flowchart

The following images showcase the many paths a player will take based on their player type.

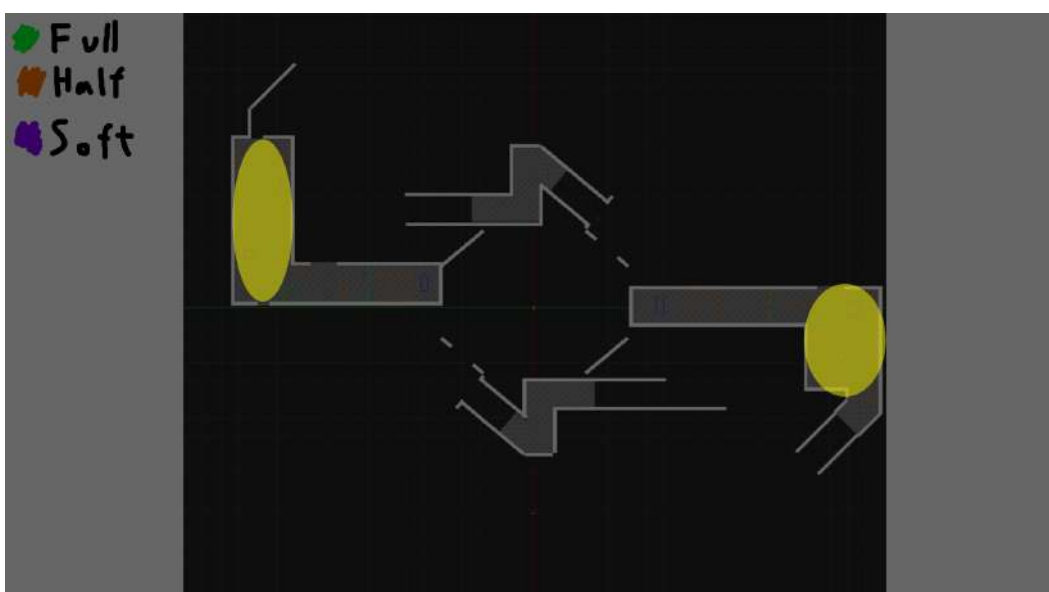
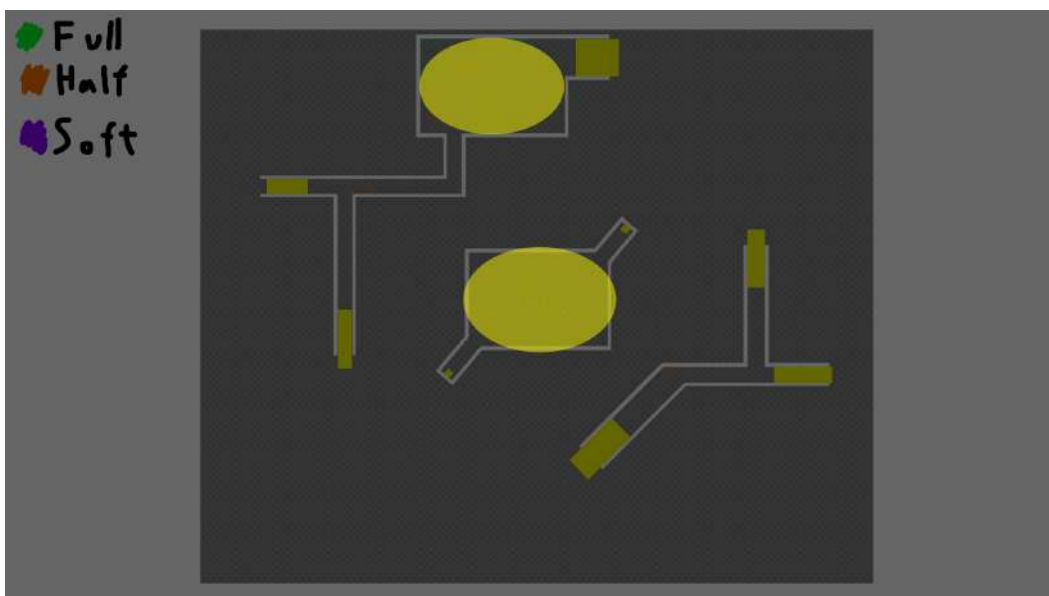
- CQB: Most of the zones in this map are thought with CQB in mind, so they will be comfortable taking paths around the map like a roamer. However, they will mostly focus on the middle.



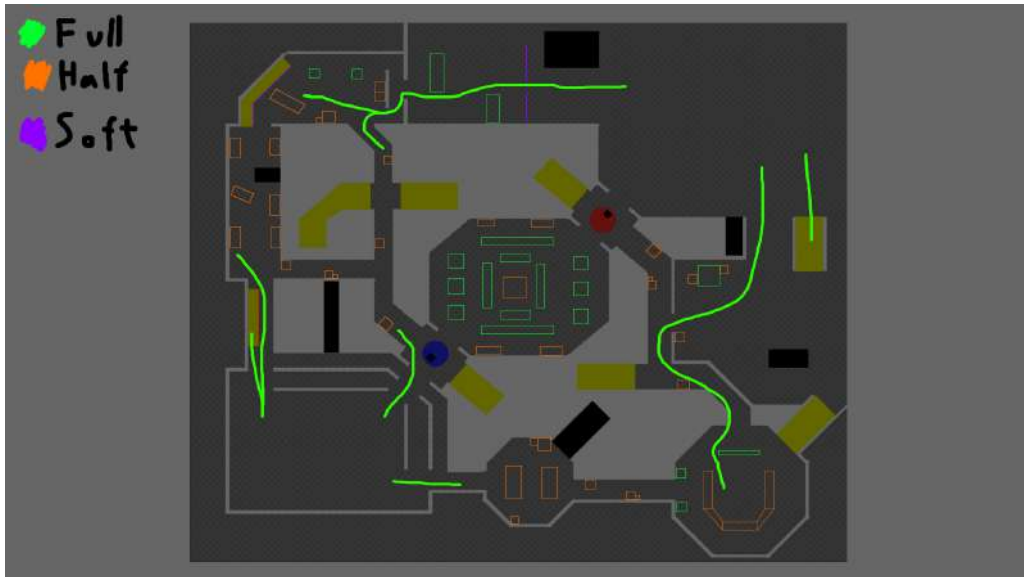
- Stealth: They will focus on the subterranean tunnels that flank around all the map



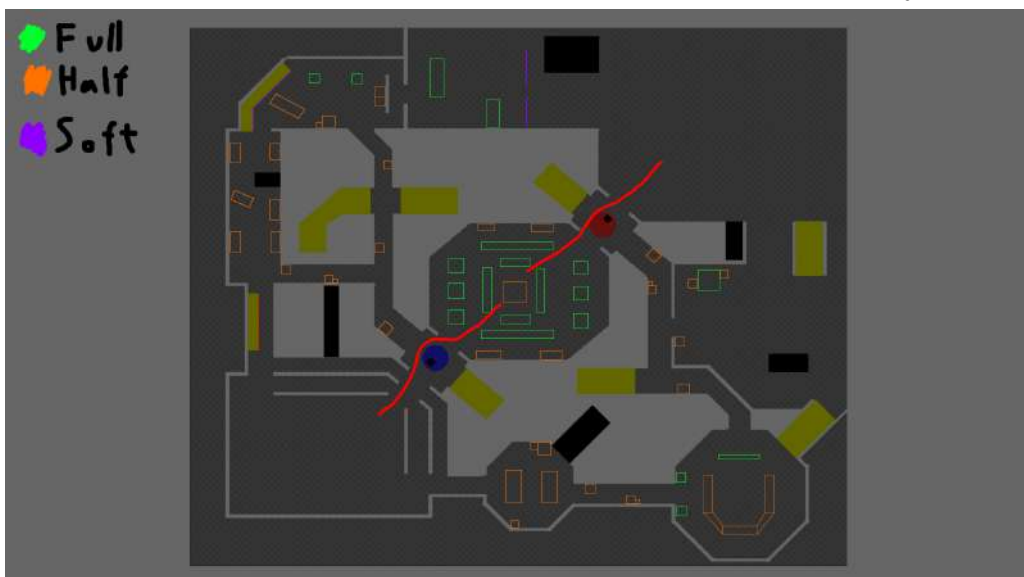
- Roamers: They will wander around the biggest areas in all levels



- Snipers: Either paths towards the top rows connecting with the middle or long ranges



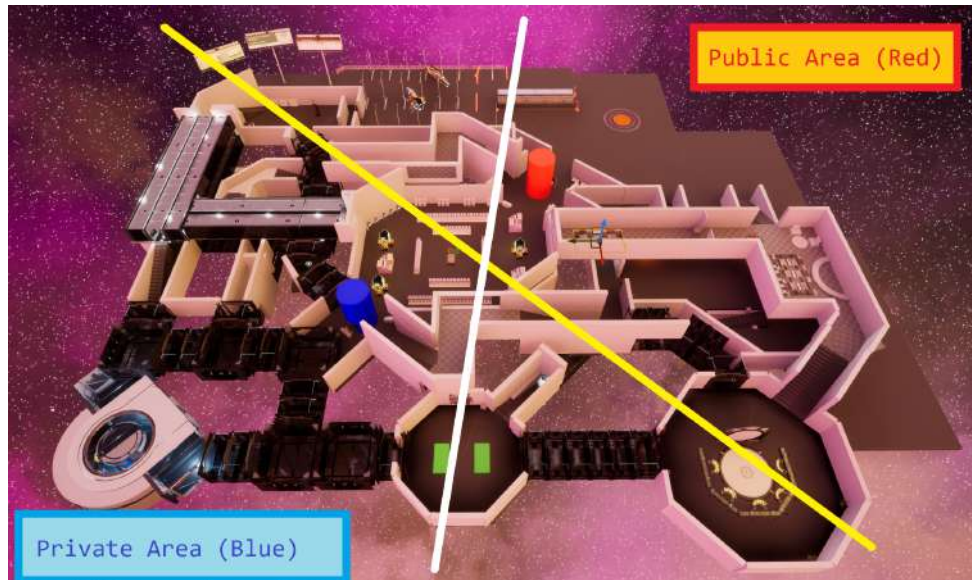
- Rusher: The obvious path to take is the middle one. Is the fastest way to map points.



Player Guidance

- Lighting & Zone Division

As explained before, in this map, we aimed to create two symmetrical areas to divide the zones thematically (one per team). In the following image, two lines have been drawn. The yellow signifies the thematic division, and the white represents the structural division.

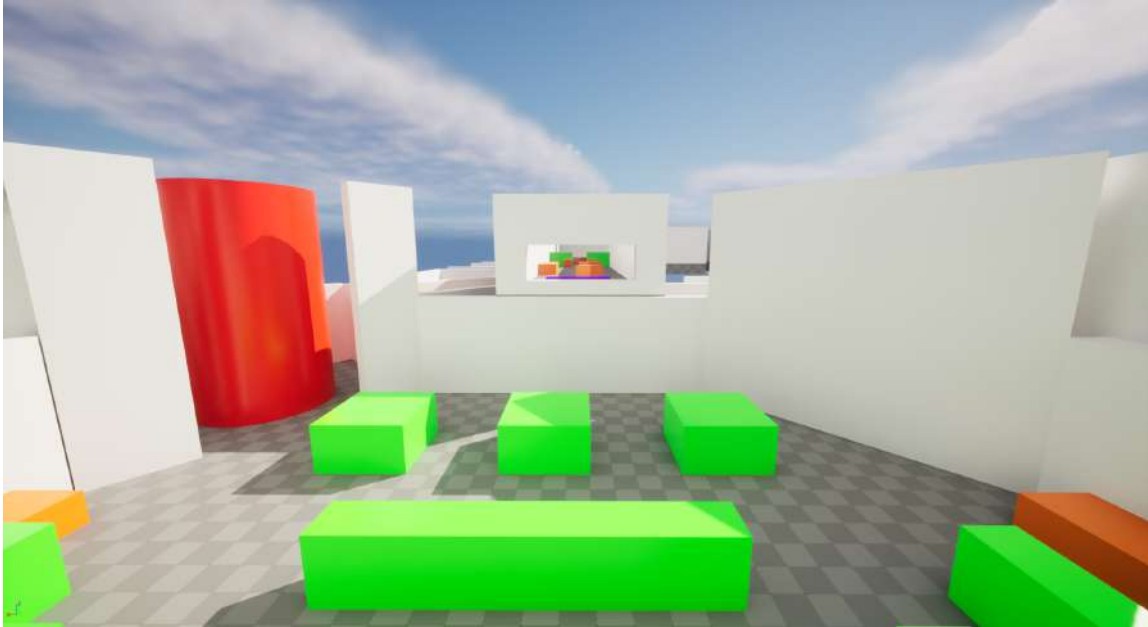


We wanted to further reflect this division with both assets and lighting. As shown in the picture, most of the areas in the bottom left half of the screen represent rooms not open to the public (such as the command zone, offices, storage, etc.), mainly containing colder lighting and machinery. At the same time, the top right of the map is primarily outside and open to the public, mainly the VIP Room, parking spots & hallways for the public, with warmer lighting from the general aesthetic obtained with the cubemap's lighting. Using lighting to divide areas is more significant in the main underground level, where lighting divides each zone based on team colours.



- **Vaults**

In the Mid zone, snipers have window spots to take control of the objective from an elevated position. Moreover, they can jump into the arena using the window as a vault.

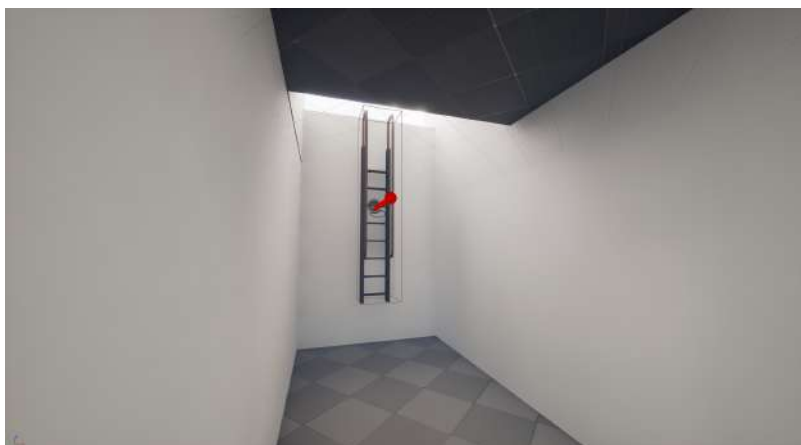
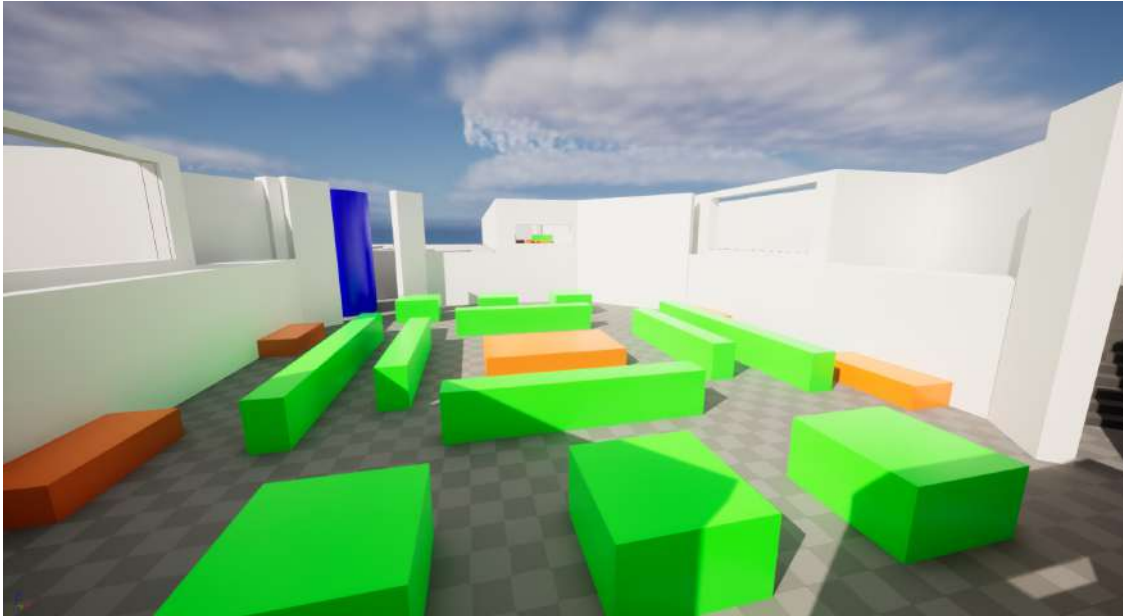


On the other hand, the corridors present on floor 1 only allow you to see the Mid zone, but not jump into it. They serve as a physical cover but not visual.

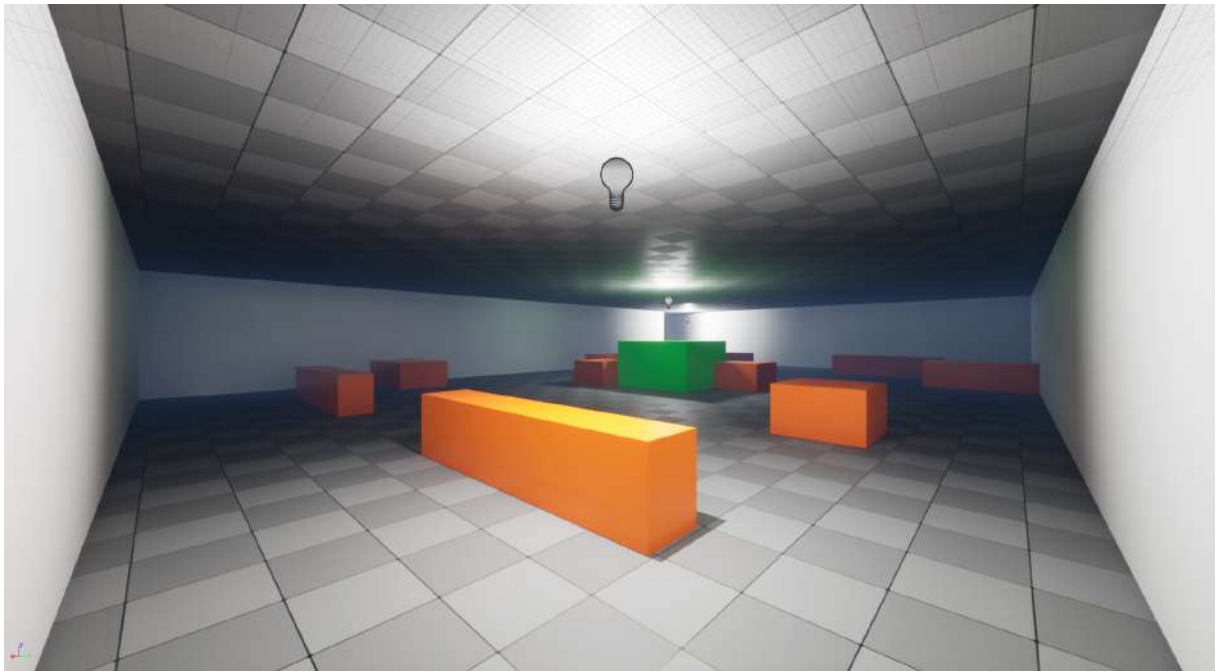


Map & Screenshots

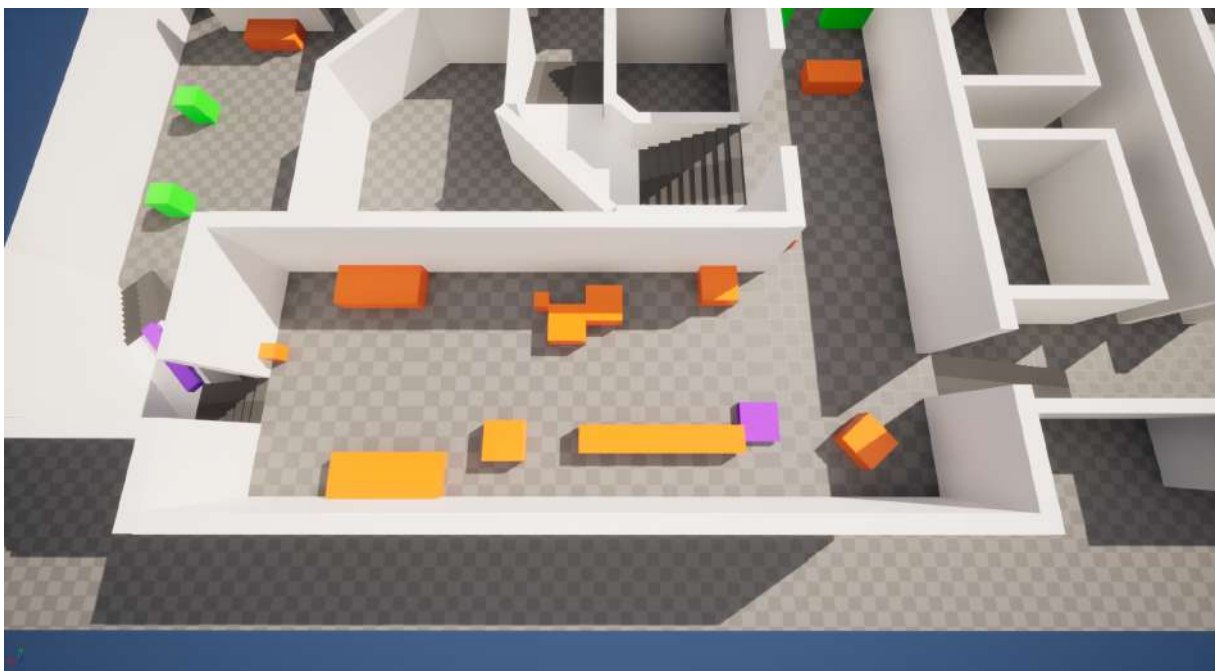
Mid

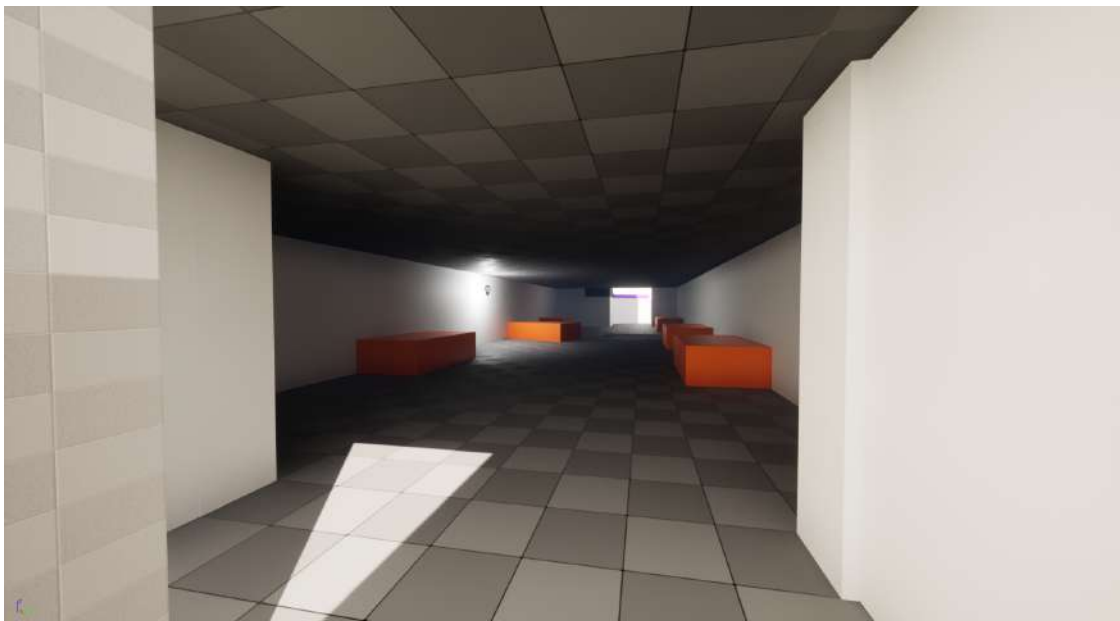


Inside each team column (in Blue/Red) is a ladder to go to floor -1 that players can use to go up/down.

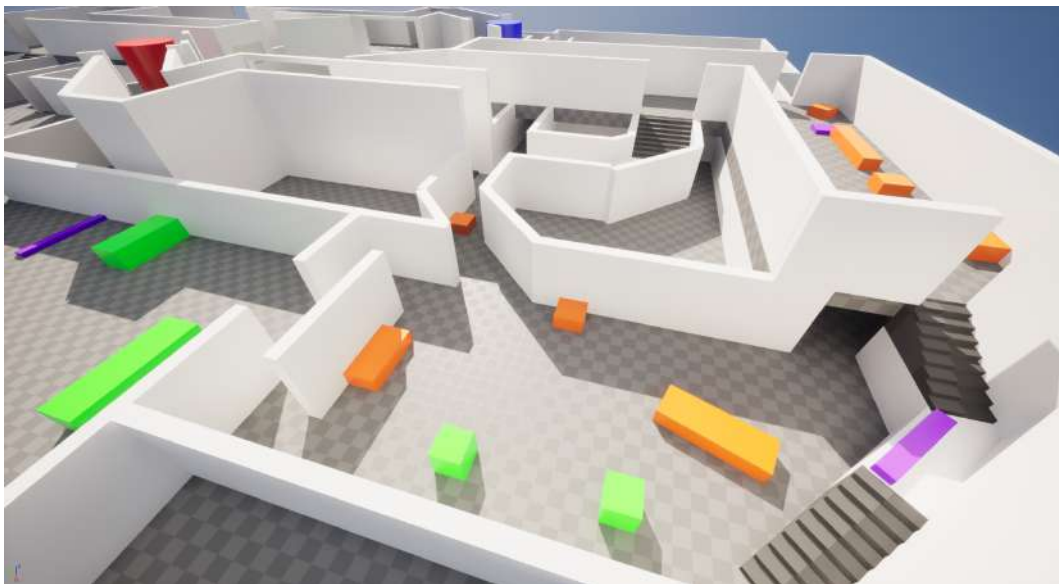
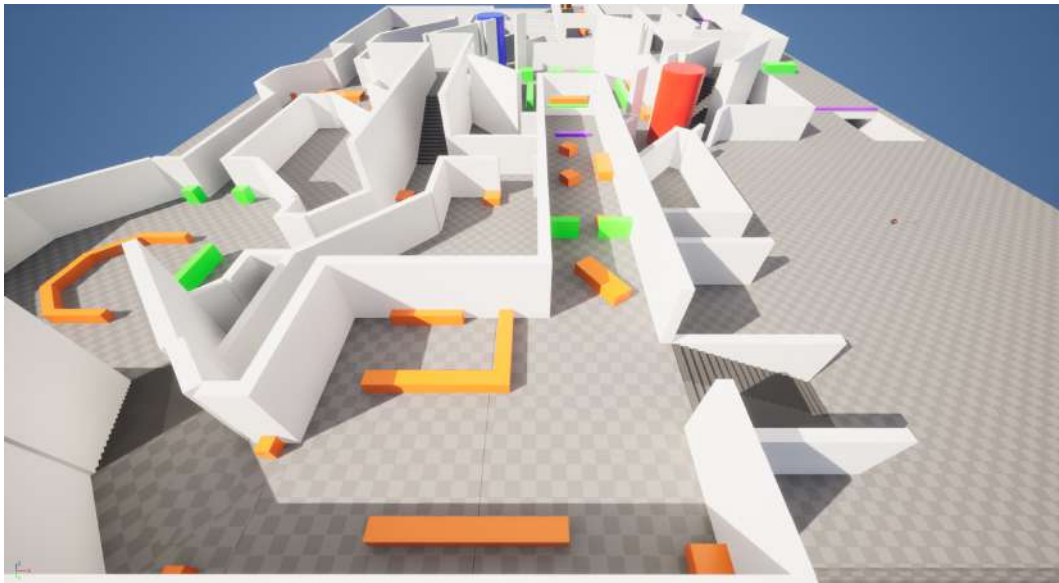


Offices

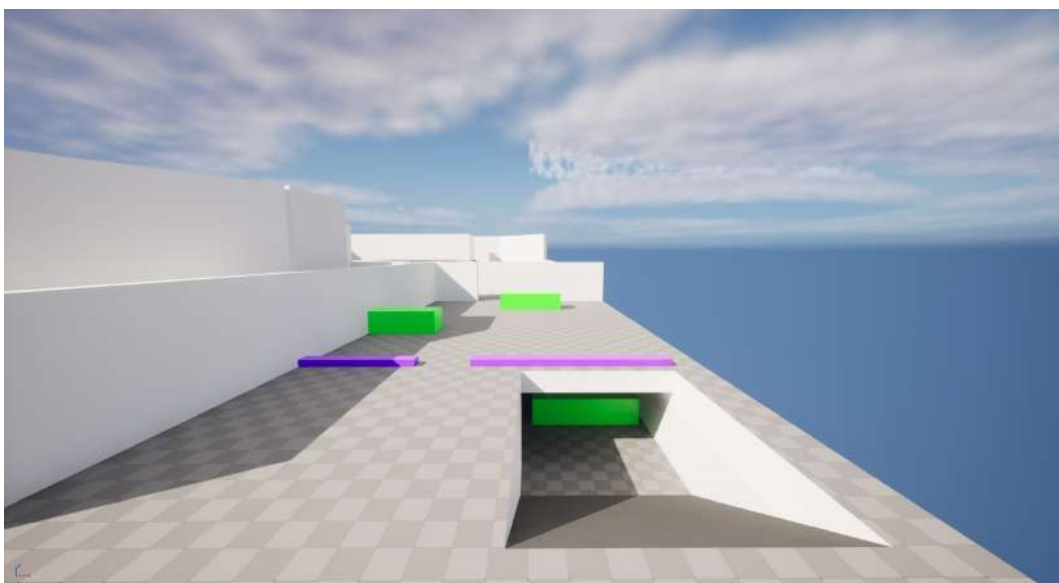
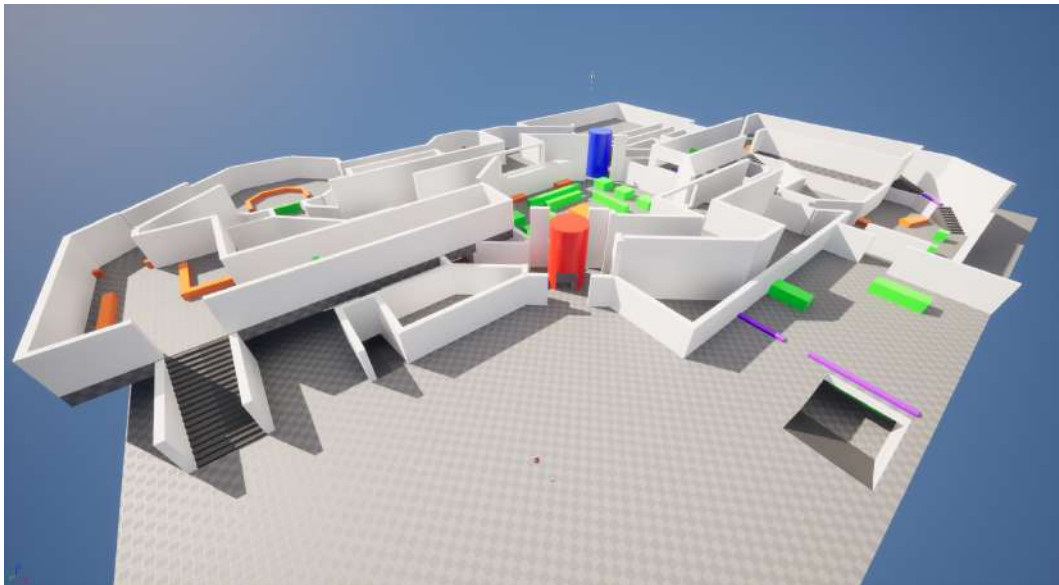




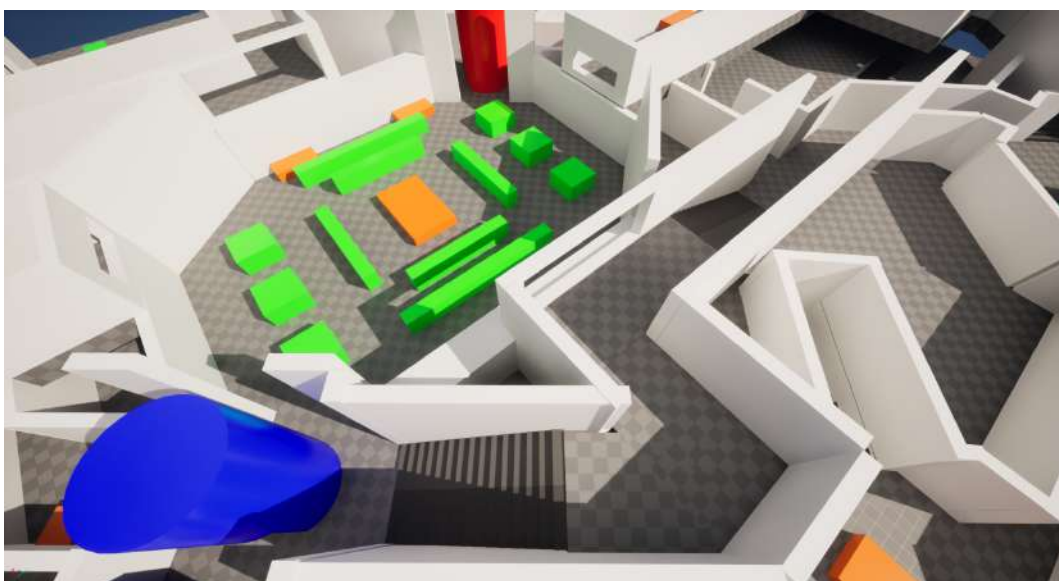
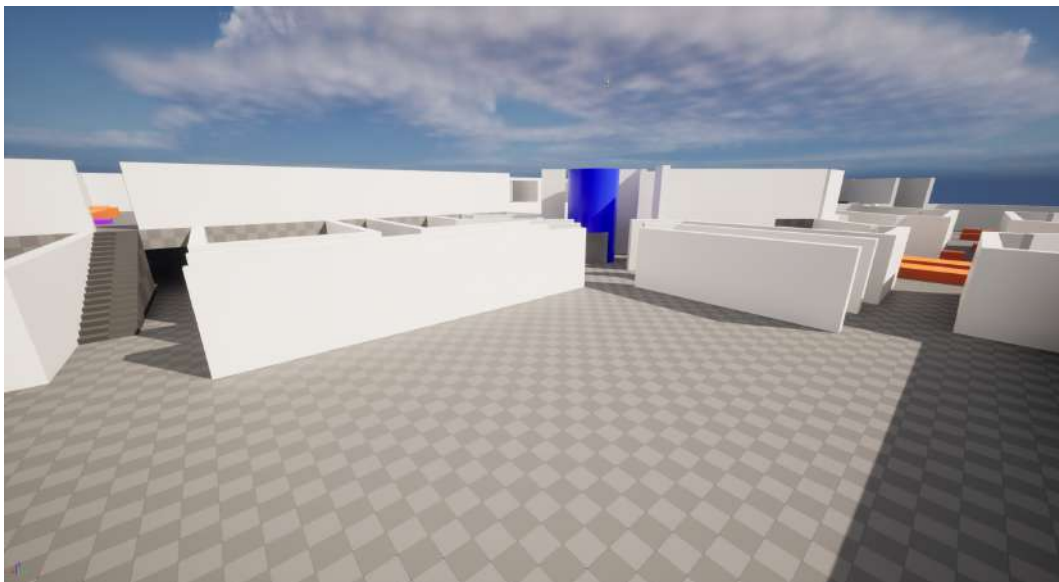
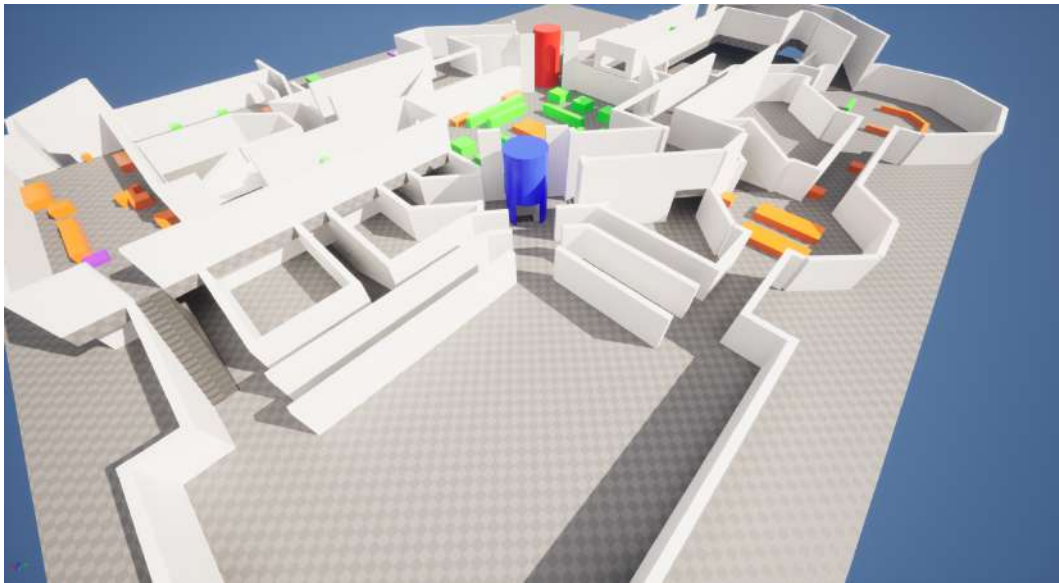
VIP

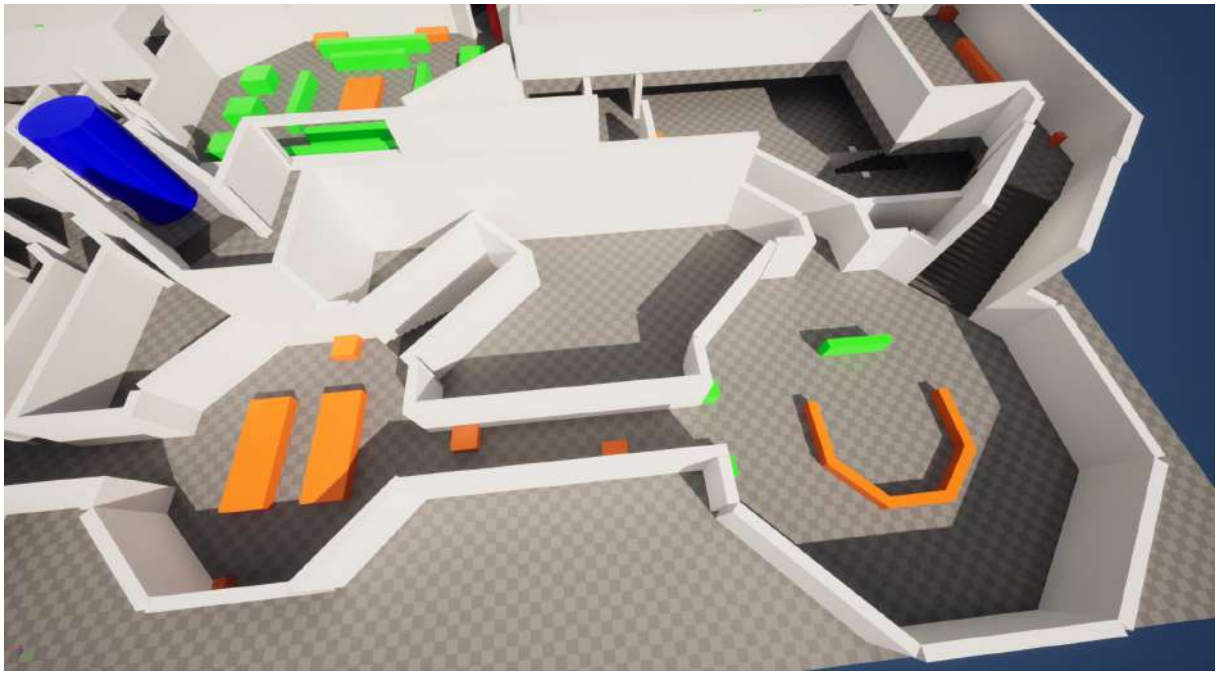


Red Spawn



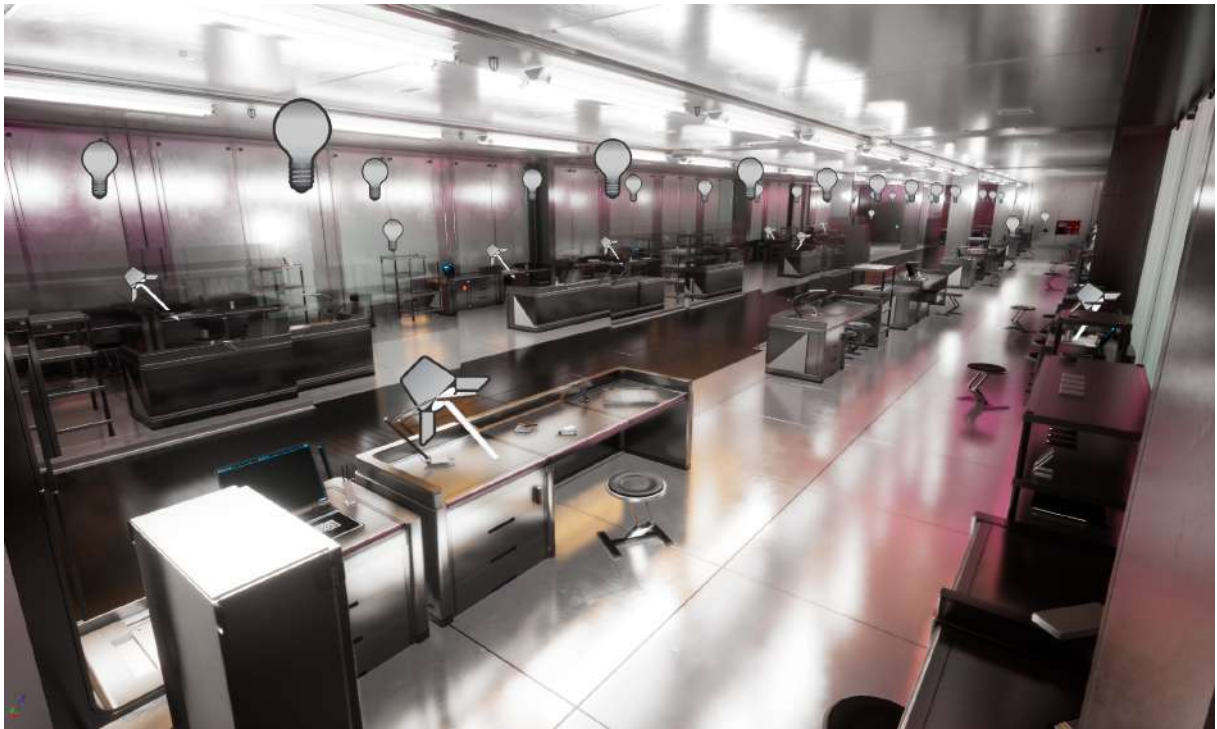
Blue Spawn

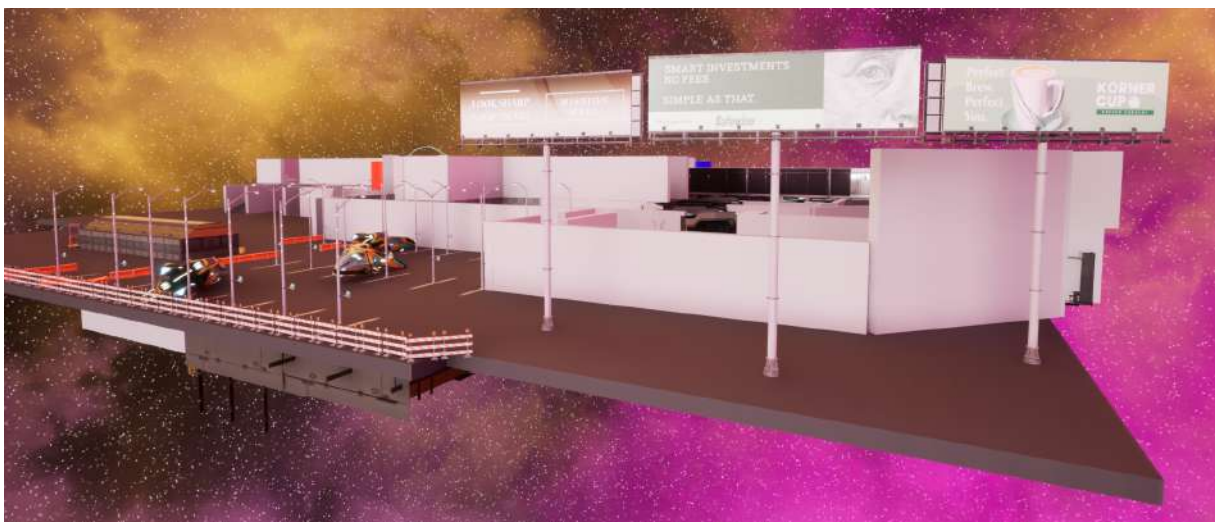




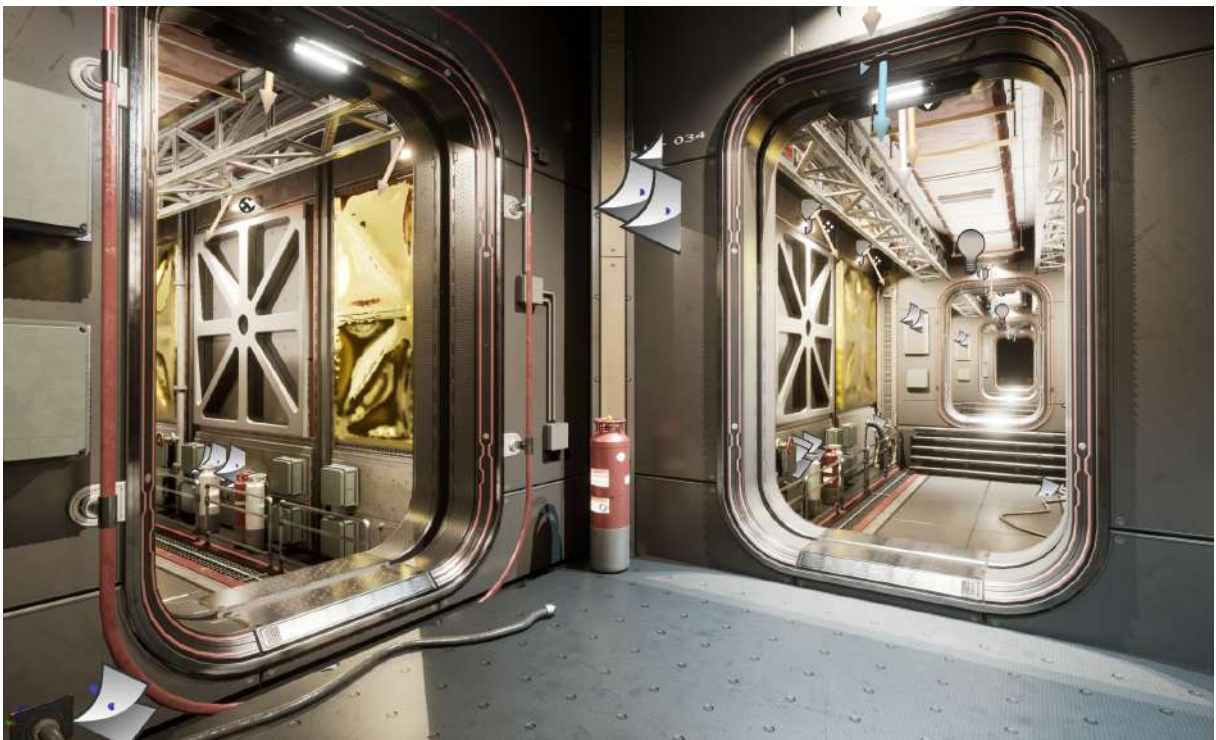
Art











Contributions

● Guillem Àlava

- LDD writing
 - Wireframe:
 - First Approach
 - Ambient definition
- Asset compilation
- Level Art & Player guidance

● Sergi Colomer

- LDD Writing
 - Wireframe:
 - First approach
 - Ambient definition
- Flowcharts
- Mission Areas & Battle Areas
- Cover Points
- Main mechanics programming
 - Sprinting
- Blockout modelling & design of floor 0

● Yeray Tarifa

- Project Setup (UE5 & GitHub LFS)
- LDD Writing
 - Wireframe:
 - Ambient definition
- Cover Points
- Choke Points
- Blockout modelling & design of floor -1 and 1
- Gameplay Programming
 - Ladder climbing