

# Team 2-bit Dev Log

Week 11: 27/11/23 - 01/12/23

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## Overview:

After the last few slow weeks, we were able to achieve a lot this week within the project which has been a pleasant experience. However, there is a lot of work to be done for submission and if we want to try to achieve submission to the Liminal platform. Therefore we will take the weekend to reset and identify our goals for the remainder of the trimester which will influence our plans going forward.

## Agile Sprint Update:

### Sprint 5: Alpha Build

Create a feature complete alpha build that has all the core components and features present.

## Links

Link to Minutes and Agenda: [CS2 - Minutes and Agenda](#)

Link to Team's Jira Scrum board:

<https://cs2mr.atlassian.net/jira/software/projects/CS2LVR/boards/2/backlog>

Miro board overview: [https://miro.com/app/board/uXjVMj-Nye0=/?share\\_link\\_id=77318451600](https://miro.com/app/board/uXjVMj-Nye0=/?share_link_id=77318451600)

Marketing campaign: [CS2 - Marketing Campaign - Plan](#)

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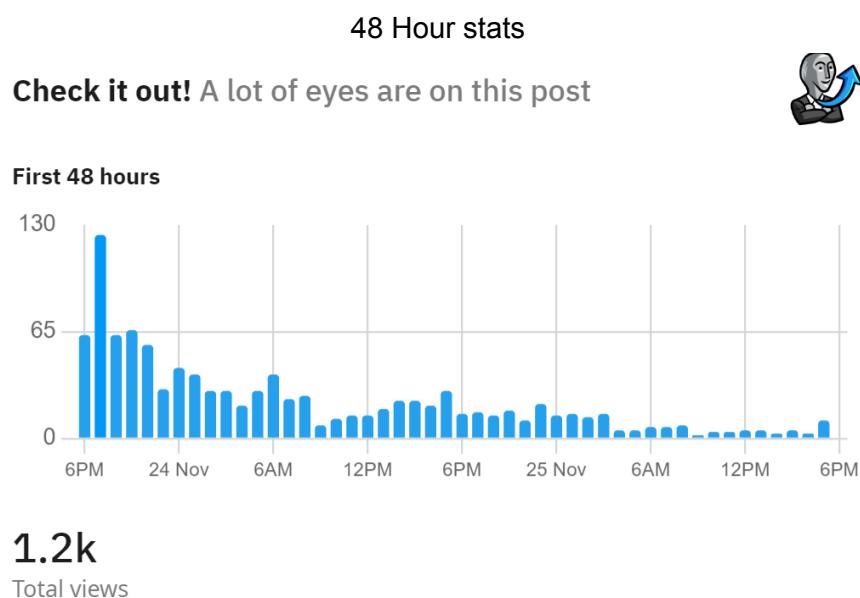
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## This week's completed tasks:

### Sprint 5 Tasks:

Marketing - First Reddit Post Review

Results from the first reddit post:

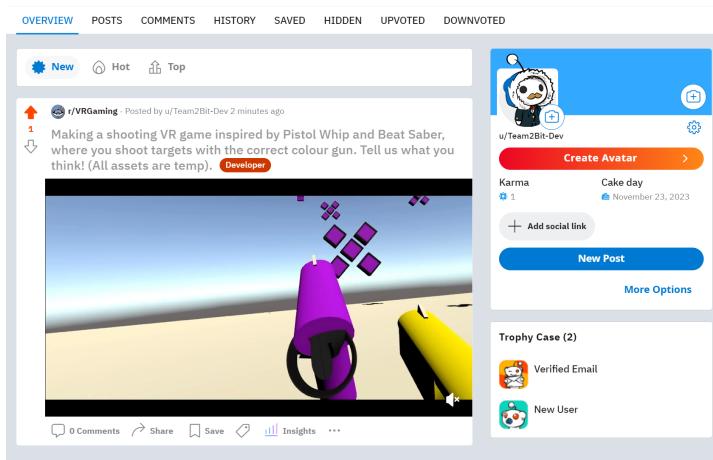


Overall, the reddit post appeared to be successful, however with no links to the game page or product in any way, there was 0 movement of viewers across the marketing campaign.

Therefore, for the other posts, we will need to make sure this is included. However, with the current sub reddit, it is against the rules to link to other sites

Here is the link to our post:

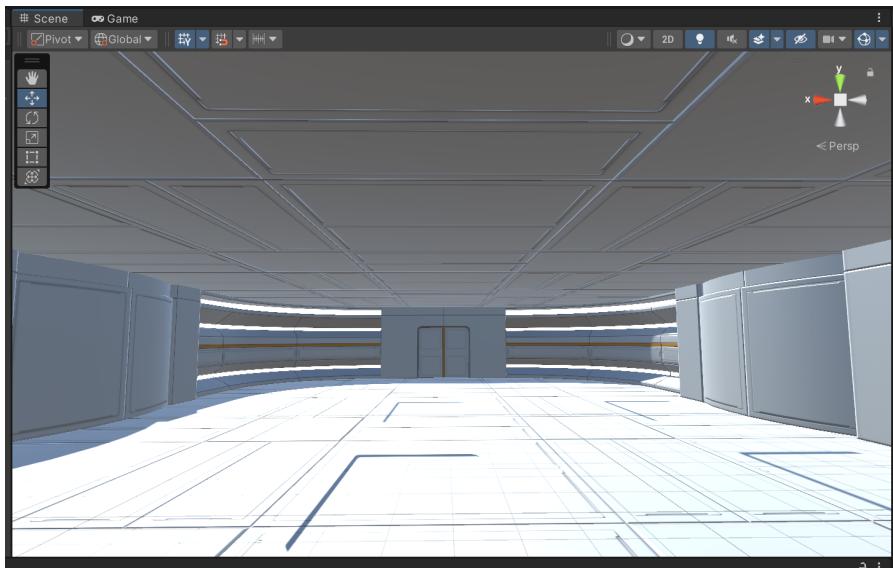
[https://www.reddit.com/r/VRGaming/comments/1827yc0/making\\_a\\_shooting\\_vr\\_game\\_inspired\\_by\\_pistol\\_whip/](https://www.reddit.com/r/VRGaming/comments/1827yc0/making_a_shooting_vr_game_inspired_by_pistol_whip/)



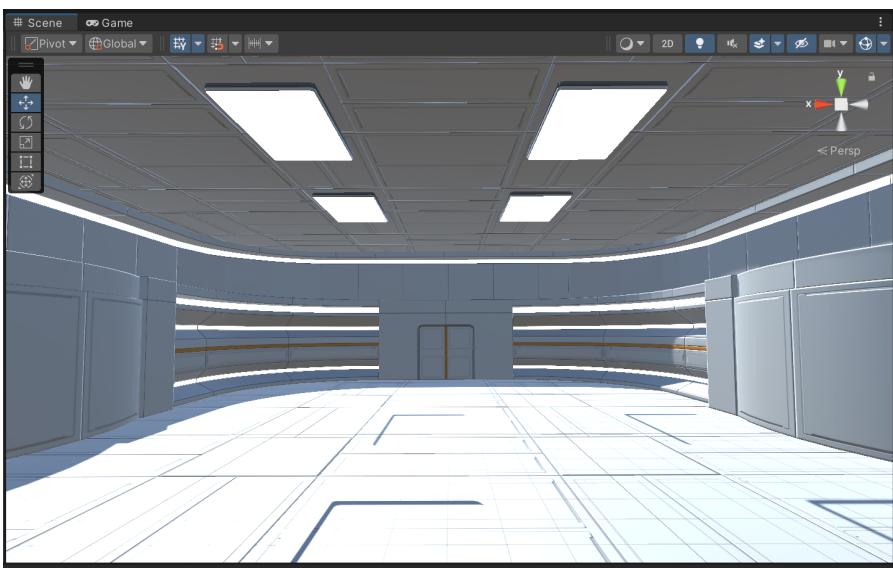
## Creating Environment

As mentioned before, the previous environment's low roof made the room feel small for no reason as we have access to unlimited space in VR. I still wanted the space to feel realistic as we are on a spaceship, however If possible I would like to create a dome of glass with a view of space and cool planets, or alternatively add some windows to space on the area above.

Previous roof image



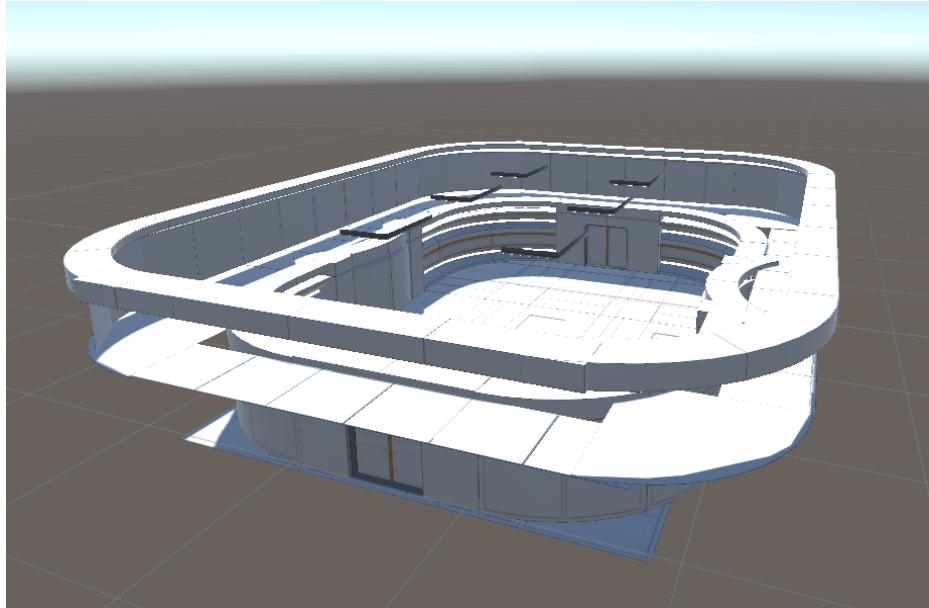
Raised roof



## Log No. 11 - 5SAE0PE102 23T3 [LON]

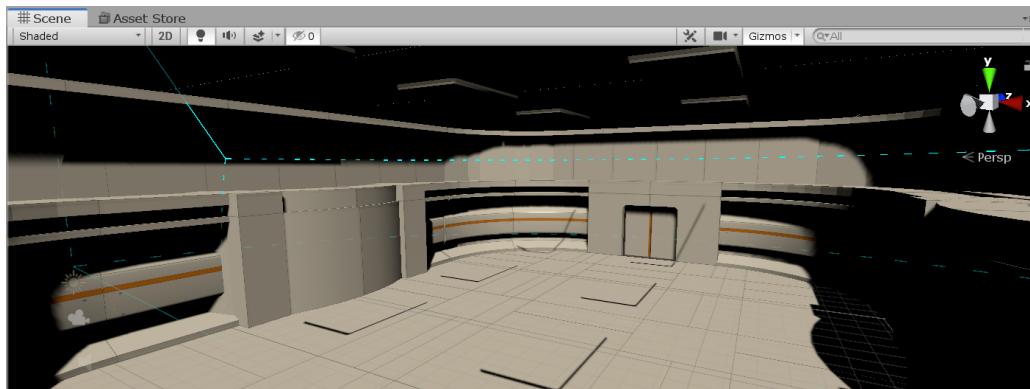
To try and make the game more optimised and less resource intensive, I tried to add as many planes as possible that were in the asset files. This removed unnecessary geometry that the player will not be able to see.

Spaceship room outside view



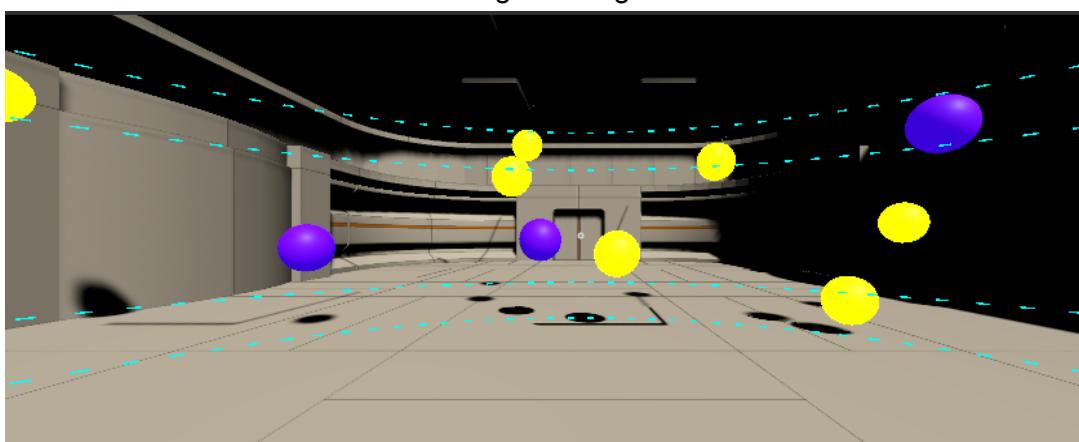
Once finished, I then prefab the room and exported it, so I could then import into our main project. As explained in the previous Devlog the lighting is broken here as it is an older engine and I will need to fix this.

Imported Room



Log No. 11 - 5SAE0PE102 23T3 [LON]

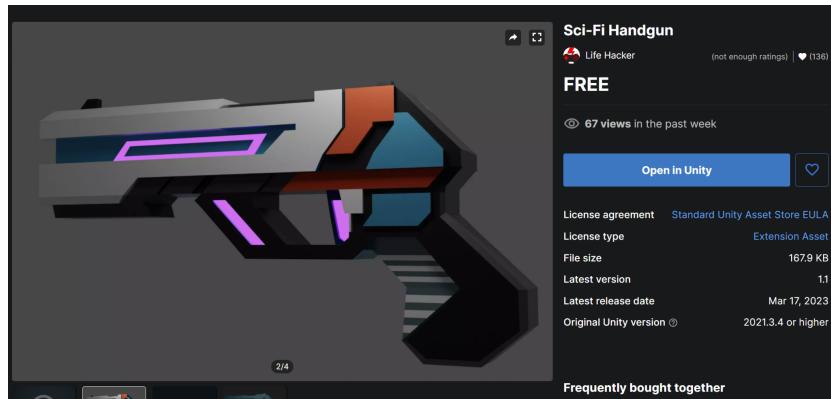
Testing with targets



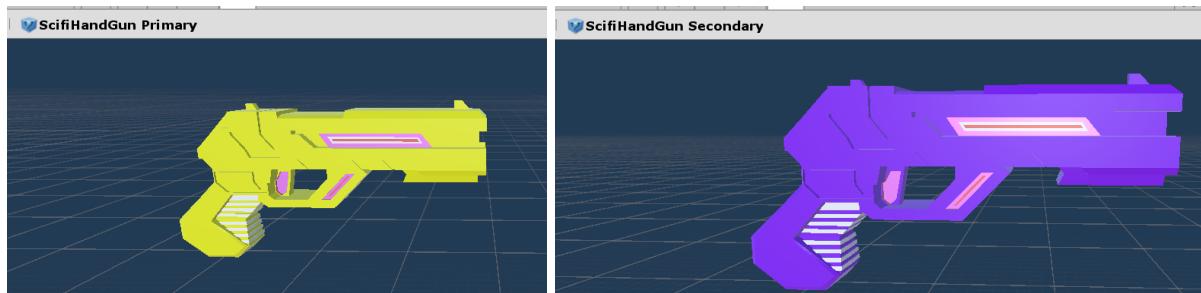
## Adding sci fi gun

As we do not have time to create a weapon now for the final alpha build we have downloaded a free one from the asset store.

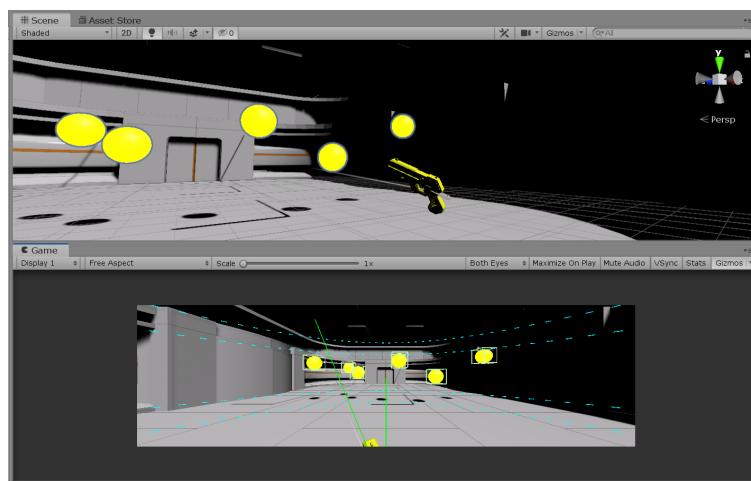
<https://assetstore.unity.com/packages/3d/props/guns/sci-fi-handgun-225160>



After checking the prefab out in a different project, I imported the necessary files to our main scene and added our primary and secondary materials to it, to match the colours of the targets, using prefab variants.



Weapon in game



## Adding sound effects

As there are not many SFX within the game, we deemed it unnecessary to implement a sound management system at this time.

To call the laser shoot sound, I created a separate script with a public method that was called after activating an input, on the player input class.

Laser Sound Class

```
public class LaserShotSFX : MonoBehaviour
{
    [SerializeField] private AudioSource laser;

    public void PlayShootSound()
    {
        laser.Play();
    }
}
```

Player input class

```
20
21  private void Update()
22  {
23      var rightHandInput = GetInput(VRInputDeviceHand.Right); // Primary Hand
24      var leftHandInput = GetInput(VRInputDeviceHand.Left); // Secondary Hand
25
26      if (rightHandInput != null)
27      {
28          if (rightHandInput.GetButtonDown(VRButton.One))
29          {
30              Debug.Log("Call right hand input");
31              rayCast.Fire(primaryHand.transform, primaryGunIndex);
32              sfx.PlayShootSound();
33          }
34      }
35  }
```

To call the destroyed target sound, I used unity events.

First I declared a delegate and made it a static event so other classes cannot overwrite any data. This was done within the class that is responsible for casting a raycast from the laser weapons. The event takes in the parameter raycast hit, which will be used to decide where to play the sound.

### Laser Gun RayCast event code

```
Unity Script | 6 references
public class LaserGunRayCast : MonoBehaviour
{
    public delegate void HitAction(RaycastHit hit);
    public static event HitAction OnLaserHit;
```

This event is then called when a target matching the weapon's colour is hit.

### Laser Gun RayCast class on hit method

```
34     private void PrimaryTargetHit(RaycastHit hit)
35     {
36         spawner.despawnTarget(hit.collider.gameObject);
37         OnLaserHit(hit);
38         Debug.Log("We destroyed a primary colour target");
39     }
```

On a new script attached to a game object in the scene, we subscribe to the on laser hit event and then play the destroy audio clip at the point where the raycast hit the target's collider. This is independent of any other occurrence so multiple audio clips can be played at the same time without any clipping. To ensure that there are no errors when a target is no longer needed, we need an OnDisable method unsubscribing from the event.

### Target destroy sound class

```
My C# script
1  using UnityEngine;
  Unity Script | 0 references
2  public class TargetDestroySound : MonoBehaviour
3  {
4      [SerializeField] private AudioSource destroy;
  Unity Message | 0 references
5      void OnEnable() => LaserGunRayCast.OnLaserHit += PlayDestroySound;
  Unity Message | 0 references
6      void OnDisable() => LaserGunRayCast.OnLaserHit -= PlayDestroySound;
7
8      private void PlayDestroySound(RaycastHit h)
9      {
10         AudioSource.PlayClipAtPoint(destroy.clip, h.point);
11     }
}
```

Went through how to use event system

Robin wanted to use the event system, so I showed how to implement it with mechanics. First subscribing to the event and then using the raycast hit with point, to convert it into a vector 3 value.

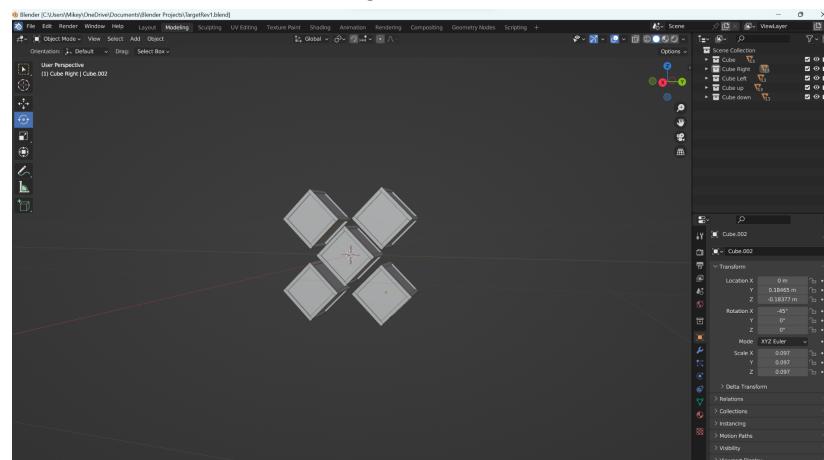
Target Hit event, instantiating a particle system

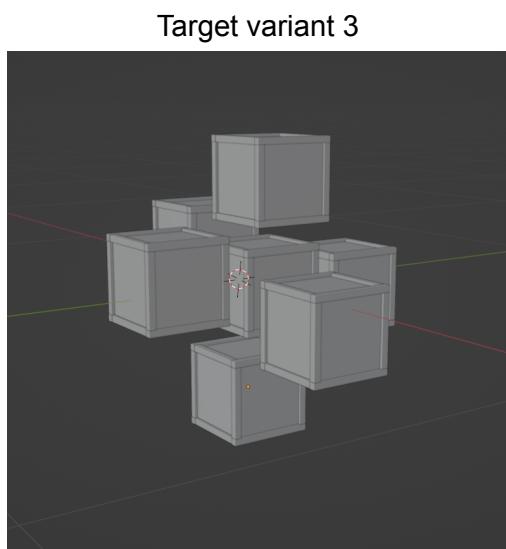
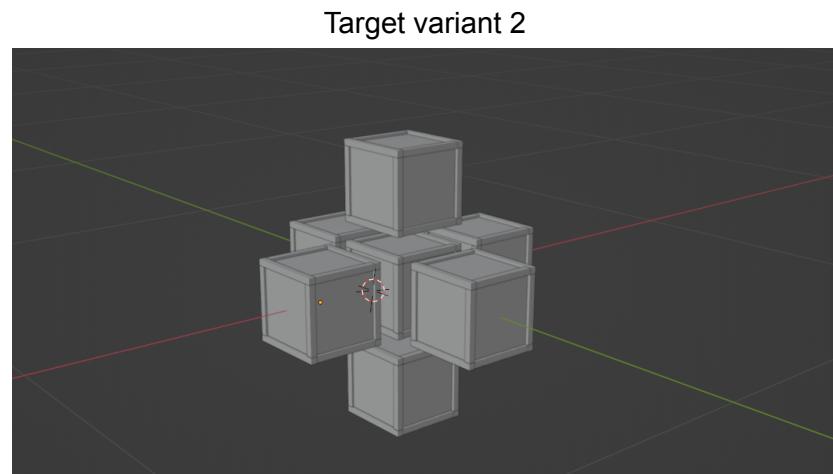
```
3  public class SpawnParticles : MonoBehaviour
4  {
5      [SerializeField] private ParticleSystem PSEFinal;
6      [SerializeField] private ParticleSystem PSEPurple;
7      [SerializeField] private ParticleSystem PSEYellow;
8
9      void OnEnable() => LaserGunRayCast.OnLaserHit += AcitvateParticleEffect;
10     void OnDisable() => LaserGunRayCast.OnLaserHit -= AcitvateParticleEffect;
11
12     private void AcitvateParticleEffect(RaycastHit h)
13     {
14         switch (h.collider.gameObject.GetComponent<TargetType>().GetTargetType())
15         {
16             case TargetType.TargetMaterial.Primary:
17                 Instantiate(PSEYellow, h.point, Quaternion.identity);
18                 break;
19             case TargetType.TargetMaterial.Secondary:
20                 Instantiate(PSEPurple, h.point, Quaternion.identity);
21                 break;
22             case TargetType.TargetMaterial.Final:
23                 Instantiate(PSEPurple, h.point, Quaternion.identity);
24                 break;
25         }
26     }
}
```

Making the new targets

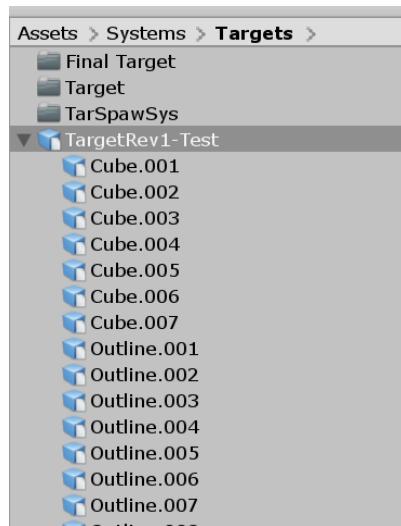
Using the blender mentioned in my previous devlogs, I finished 3 variants of the target.

Target variant 1

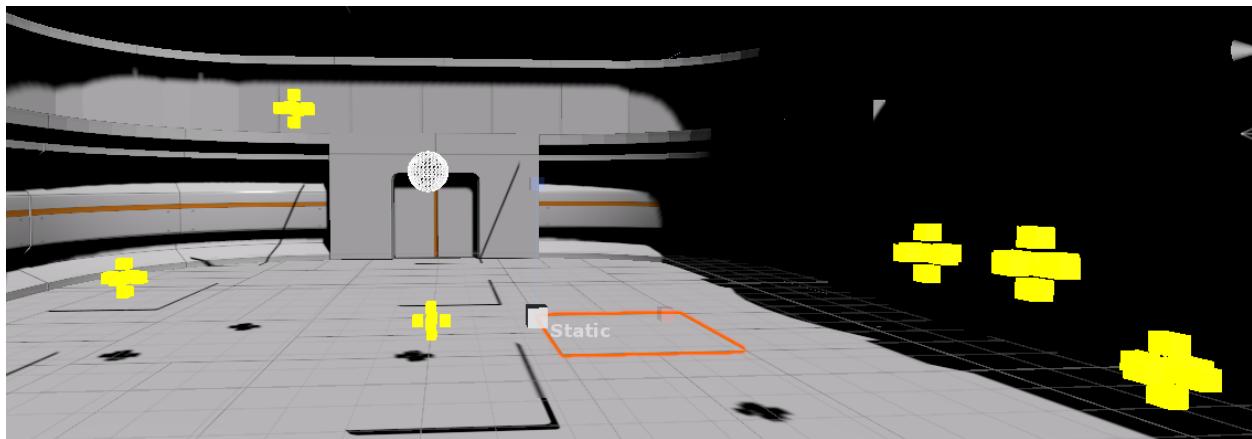




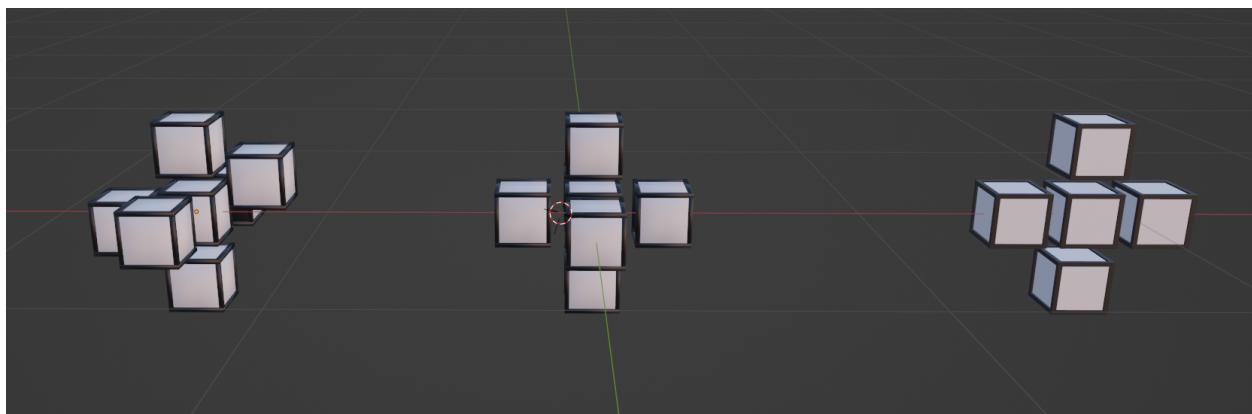
After exporting and importing a FBX file, I realised that all the meshes were separate



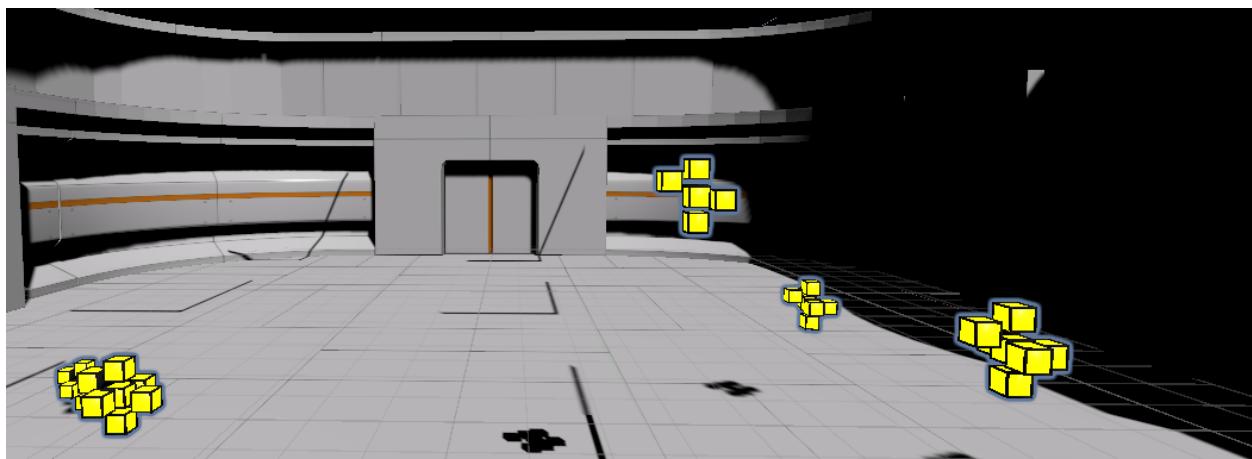
To fix this, I first joined the meshes together in blender before exporting  
The next problem was that it was too hard to see the shape with the same material



Then, I realised that the objects don't show the geometry very well with a neon colour applied.  
Therefore I created a black border around the edge of each cube.



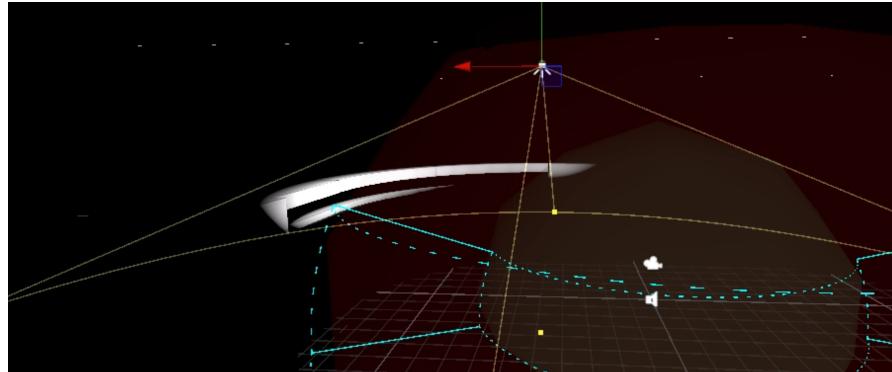
Final Version



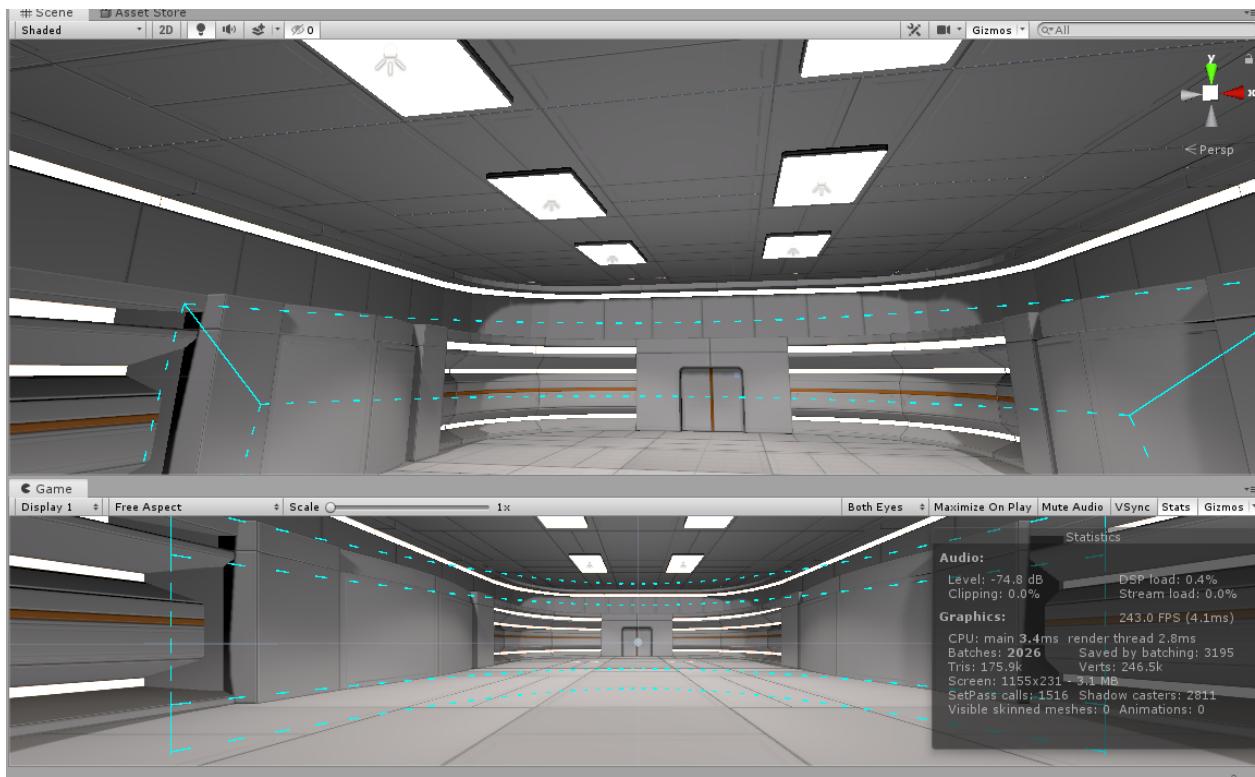
## Fixing the scene lighting

Before playtesting I had to fix the lighting within the scene. To do this, I added point lights to each ceiling tiles prefab and altered the direction of the scene directional light. To remove any unnecessary shadows I selected the light to ignore the layer mask, Ignore Raycast, which allows the light to pass through. At first the scene's reflections were not behaving as expected, as shown in the below example, however after selecting a different shader and then re-selecting the old shader, everything started to light up correctly.

First try of point light now working as expected



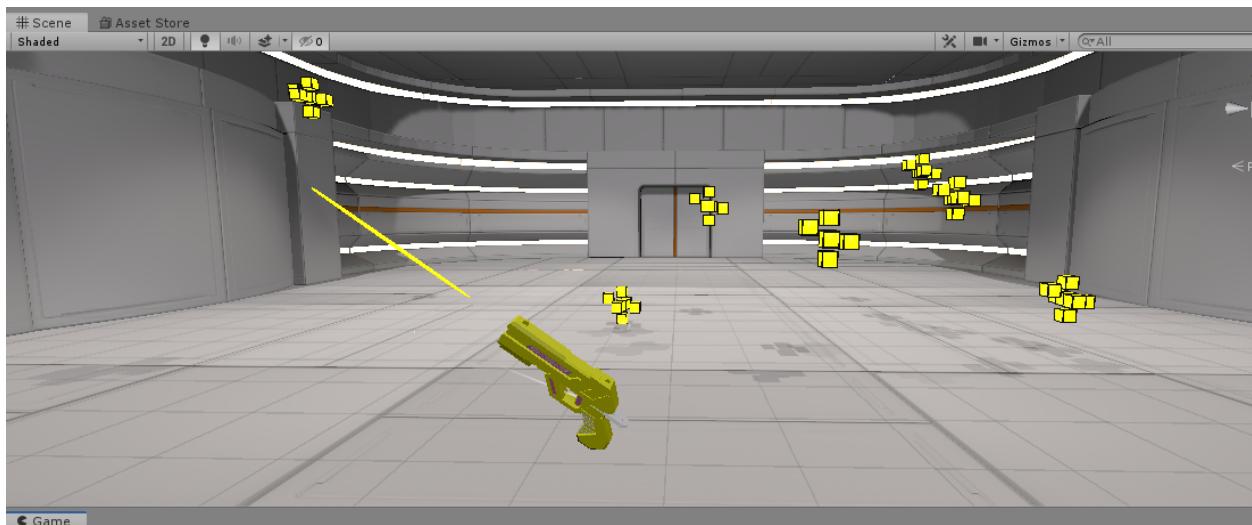
First draft result



## Adding Laser

To provide the player feedback on where they are shooting we re-added the laser effect. This time I made sure to make the colour of the laser match the primary or secondary colour depending on which gun was fired.

Final result



## Creating test build / Liminal review

For Liminal review, we completed the following tasks to get ready for an apk alpha build:

- Moved locations of guns so they feel better
- Moved locations of targets

After sending to Liminal we had a meeting where they had the following criticisms:

- Gameplay is on the boring side, low engagement
- There is no progression throughout the experience
- Feels like there is no reason to play the game
- The environment and lighting needs updating, but for now focus on the gameplay
- The guns were facing the wrong direction

For the following week we will need to identify how we can increase engagement and implement a feeling of progression to the experience to see if it would be possible to get the experience onto the Liminal platform. Although, as the Liminal experience is competing against big hits, we will need to evaluate if we have the time and passion to try and achieve this goal. As for the guns facing the wrong direction, this was due to when testing within Unity, the position of the day dream controllers were pointing down at an angle. When playing, to correctly fire the laser guns straight ahead, you would be required to hold the controllers facing slightly down causing discomfort. However, it appears that this is not an issue once the game has been built, meaning the correction is causing a problem of the weapons positioning.

## Team Members:

### Robin Pound - Co-Lead:

Individual works:

- Added music file and altered target spawn curve to fit the tracks beats per minute
- Fixed some bugs
- Final target
- Particle system

## Next Week's Goals:

Complete the outstanding tasks for sprint 5 Alpha Build.

- Playtesting
- Identify new progression and engagement mechs

Projects / 2-Bit Scrum Board (Mike & Robin)

### Alpha

Move into new repo for Alpha. Implement all features of the game, implement first round of assets, playtest so we can receive feedback and adjust accordingly

Q MH RP +

TO DO 1	IN PROGRESS 1	DONE 9
Identify new progression and engagement mechs <input checked="" type="checkbox"/> CS2LVR-185	Play Test build in VR <input checked="" type="checkbox"/> CS2LVR-183 RP	Make Apk & Send to Liminal <input checked="" type="checkbox"/> CS2LVR-139 MH
		Target Spawning System Refactoring <input checked="" type="checkbox"/> CS2LVR-148 RP
		Reorganaise File Struture <input checked="" type="checkbox"/> CS2LVR-156
		Add sounds and music <input checked="" type="checkbox"/> CS2LVR-174
		Create feedback form for playtest <input checked="" type="checkbox"/> CS2LVR-182 RP
		Complete Environment <input checked="" type="checkbox"/> CS2LVR-24 MH
		Add scene lighting <input checked="" type="checkbox"/> CS2LVR-184 MH
		Laser Guns Refactoring <input checked="" type="checkbox"/> CS2LVR-152 MH
		Target Refactoring <input checked="" type="checkbox"/> CS2LVR-149 MH

## Feedback and Comments: