**Game Platforms Report**

The submitted project is a VR Firing Range experience where the player’s main goal is to obtain the highest score on the range that they can.

**INTERACTION**

The player can interact with their environment in three ways.

Gaze-Based Interaction:

The most limited implementation, the player is required to look at three lights to allow access to movement and thus the rest of the experience.

A video game screen shot

Description automatically generated

Controller-Based Interaction:

The player’s right hand is used for interaction in the experience. There are two interactables in the scene: some boxes at the start that the player needs to move to be able to leave the starting tent and then the gun at the firing range. For both of these, the player must use the Right Grip Button to grab the objects. While holding the gun, the player can press the Right Trigger Button to fire the gun.

A video game of a video game

Description automatically generated

UI Interaction:

To start the actual firing range, the player must press the green “START” button with the Right Trigger Button. This will spawn the targets that they can fire at.

A screen shot of a game

Description automatically generated

**Character Movement and Player Comfort**

The player has two methods of traversing the scene:

Glide Locomotion:

The player is able to move through the scene by pushing forward on the Right Thumbstick, this will move the player character forward (relative to the direction they’re facing). This is much like a traditional video game but can cause motion sickness in some VR users.

A screen shot of a computer program

Description automatically generated

Teleportation:

As an alterative, the player can push forward on the Left Thumbstick to teleport around the scene. Giving the player this choice means that player’s that suffer from motion sickness when using Glide Locomotion are still able to access the experience.

A computer screen shot of a program code

Description automatically generated

(The left hand has the teleportation provider).

**Lighting and Optimisation**

The use of lighting in the scene impacts the performance of the game.

Baked Lighting:

Before baking the scene’s lighting, the game ran at roughly 45 FPS; which is not acceptable for a VR experience as low framerate can increase player’s discomfort and potential motion sickness. Baking the light yielded an increase of roughly 30 frames bumping that average up to roughly 70 FPS, a much more acceptable framerate for a VR experience, while also making the scene look much nicer. However, doing this broke some Realtime lights used in the starting tent and this could not be fixed before the deadline.

Assets:

The use of assets downloaded online created a much more interesting and immersive experience for the player, an important element to a VR game. To ensure a stable framerate however, low poly assets were used due to being less demanding on the hardware – important for the Meta Quest 2.

A video game of a desert

Description automatically generated

**Conclusion**

Creating an optimised VR experience is difficult however the final product turned out fairly well. The unfortunately broken Realtime Lighting is a shame and with more time could’ve been fixed however the final experience is well put together and stable. Creating a VR game was a fun experience and would be good to try again.

**References:**

POLYDesert:

<https://assetstore.unity.com/packages/3d/environments/landscapes/polydesert-107196>

Low Poly Barriers Pack Free:

<https://assetstore.unity.com/packages/3d/props/exterior/low-poly-barriers-pack-free-201810>

Military Free:

<https://assetstore.unity.com/packages/3d/environments/military-free-260358>

Low Poly Weapons VOL.1:

<https://assetstore.unity.com/packages/3d/props/guns/low-poly-weapons-vol-1-151980>