Visual Scripting Design Document.

Tools and systems design and production.

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**Tool Breakdown.**

1. **Movement.**
   1. **Teleportation / fast move.**

Movement is the first obstacle the room scale motion controller VR systems built into Unreal engine are a simple point and phase the camera down and then back up at the location my intention is to change this slightly so as to give the impression of superfast movement, this will allow the player to stay oriented as they don’t lose sight of their surroundings. Movement is one of the things most likely to cause inertia I want to avoid this, I will also apply a motion blur to everything bar the player while in this transition this I hope will help break up the sharpness of the shapes and reduce inertia whilst still allowing the player to keep their orientation.

The Movement will be limited to a certain distance and should perform a check to ensure the player can stand in the desired location, this check will check for the nav mesh which will be visualised on the floor while teleport button is pressed to the max distance the player can teleport.

* 1. **Room scale setup.**

The VR template should allow for easy room scale setup this may require some testing once the movement has been created, the setup may not accommodate wall collision.

1. **Shooting in VR.**
   1. **Aiming.**

While a weapon is equipped a Multi Line trace by channel should fire from its muzzle this line should detect the first thing it hits it hits and return with the hit result this can then be used to do damage to that actor if the weapon is fired as well as firing through an object to hit an enemy.

A good point of reference for this is this ue4 page

<https://docs.unrealengine.com/latest/INT/Gameplay/HowTo/UseRaycasts/Blueprints/>

* 1. **Firing.**

The aiming method I have chosen grabs the information I need to either do damage to an enemy or spawn a decal if it strikes architecture This gives me an easy option to inflict damage on the enemy when a shot is fired on target or alternatively by firing projectiles down the ray trace that must strike an enemy to inflict damage. I also want to be able to slow time in the game this means this will give a much more interesting feel if you can see the bullets streaming past you.

* 1. **Reloading.**

The usability of VR has increased the need for a more complex reloading loop to be developed, having played with a few different types of shooting and reloading mechanics I really like the idea of a 2 part reload with snapping

First

* Use the grip buttons to release the magazine.

Then

* Bring the weapon back to the chest rig.

Or

* Grab a magazine from the chest rig and place it in the gun

Because of the snapping this will allow the player to potentially trick shot ammunition into their weapons or if multiplayer becomes a possibility throw ammo between players.

* 1. **Holstering.**

The player should only be able to carry a limited amount of weapons this will be limited by their chest rig slots, weapons are too large to go into the backpack. Holstering a weapon to free up the players hands will be a common action as the player switches between weapons during combat or interacts with the world around them.

1. **Picking up Objects.**
   1. **Pick up objects with motion controllers.**

I this is built in functionality of the UE4 VR Template project, however I am setting some time aside to understand it better.

* 1. **Base item for objects**

I this is built in functionality of the UE4 VR Template project, however I am setting some time aside to understand it better.

1. **Inventory System.**
   1. **Place objects in inventory.**
   2. **Inventory readout.**
   3. **Selection and use of inventory items.**
   4. **Dropping items.**
   5. **Chest Rig**

The chest rig comes as part of the VR Gun ToolKit which I will probably utilise in this projects as its an easy and scalable process for creating weapons that I need but also the versatility and support for the future.

1. **Visor.**
   1. **Highlights outline of objects of interest.**
   2. **Highlights enemies.**
   3. **Can be removed and replaced with motion controllers.**
2. **Enemies.**
   1. **Basic AI.**
   2. **Event spawning.**
   3. **Implement animations.**