SCG Full Body Controller

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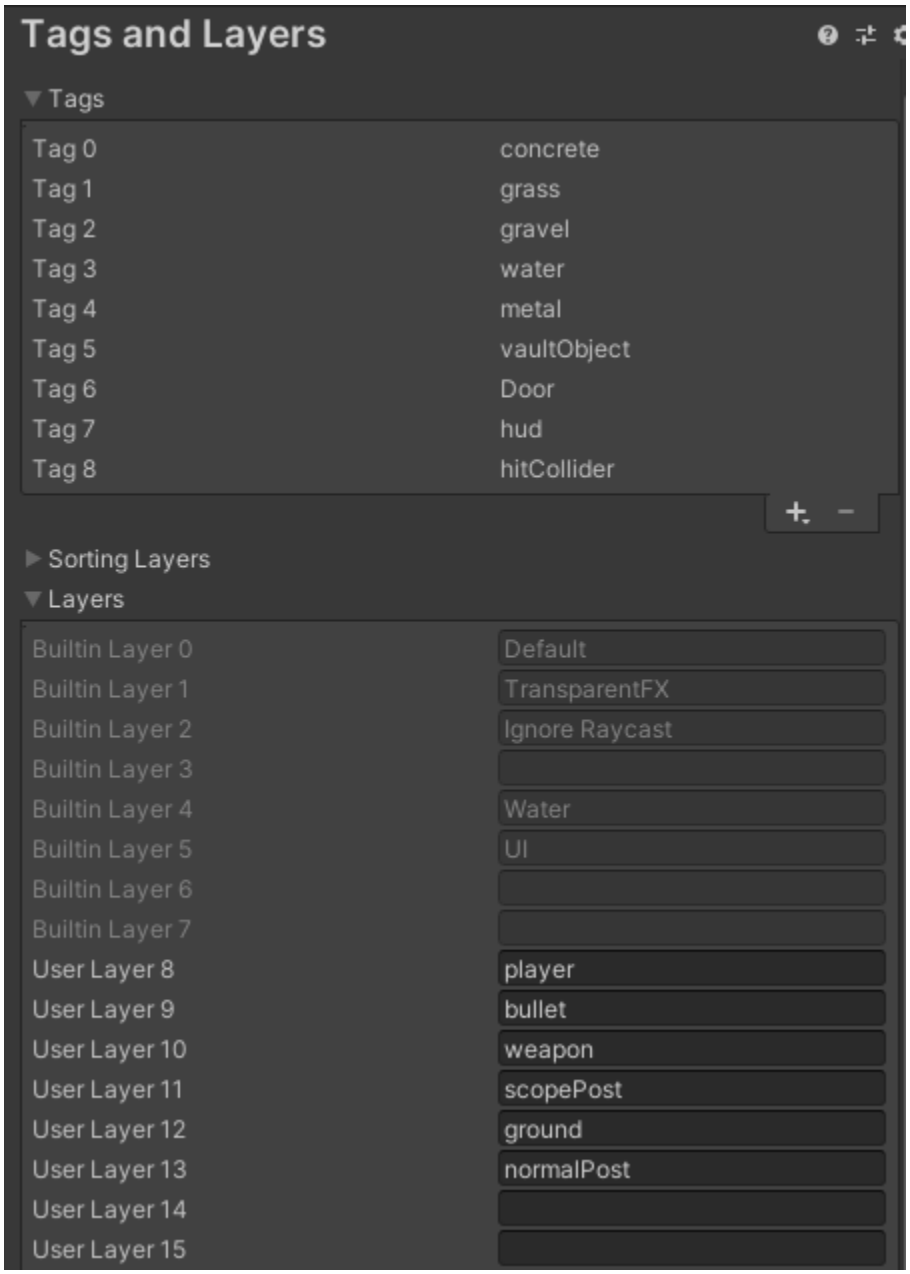
Design

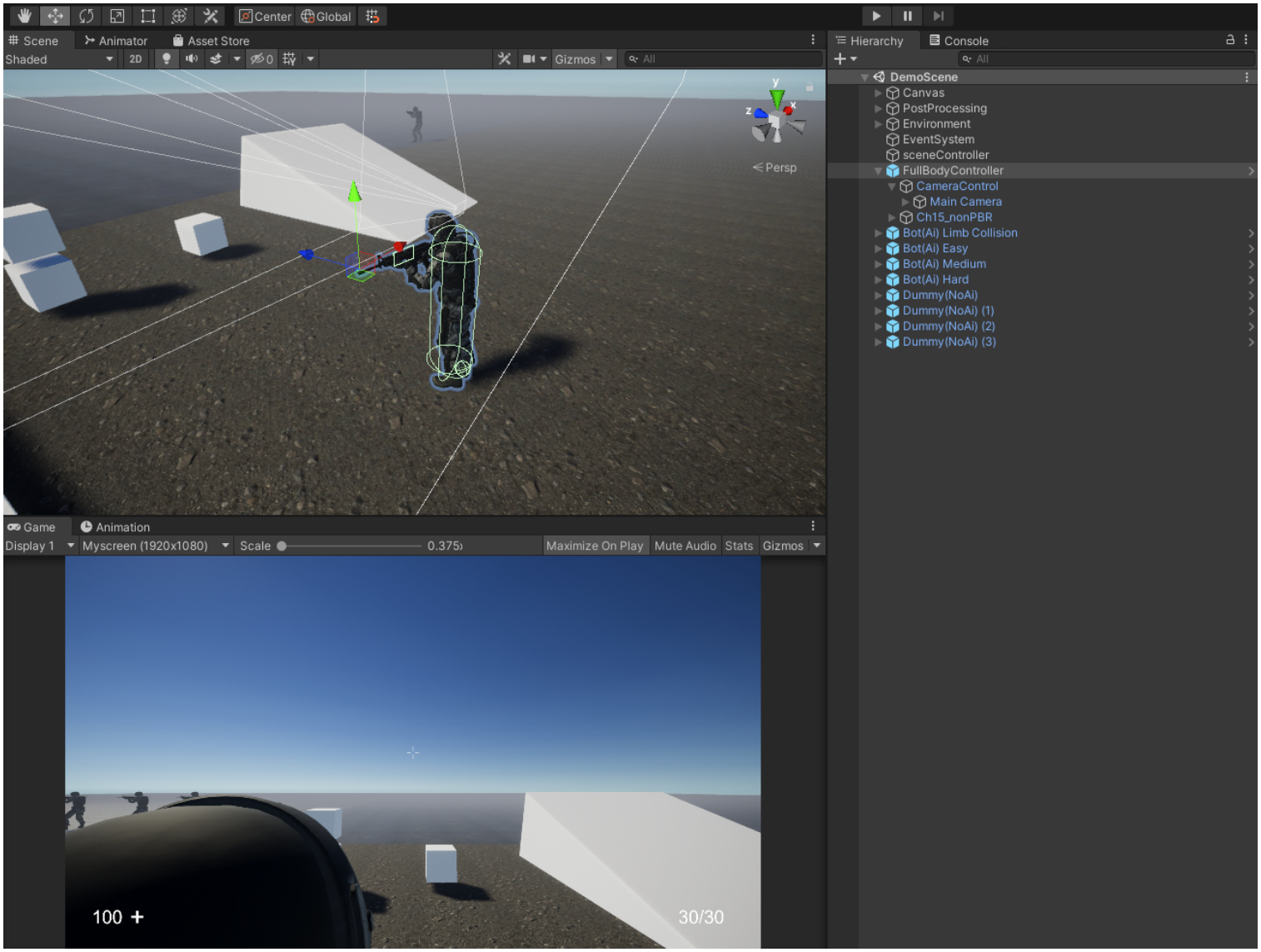
- The core design of this controller was based off of the third person character controller from Standard Assets but heavily modified.
- Many of the modifications continued to use physics based features for movement and shooting thus incorporating a need for much of the code to use FixedUpdate.
- Changes made to the timestep of this project could drastically affect how the controller and its weapon system work.

Setup

- On first time setup, make sure that all these tags and layers appear in project settings



- Next, open up the demo scene located in the Scenes folder



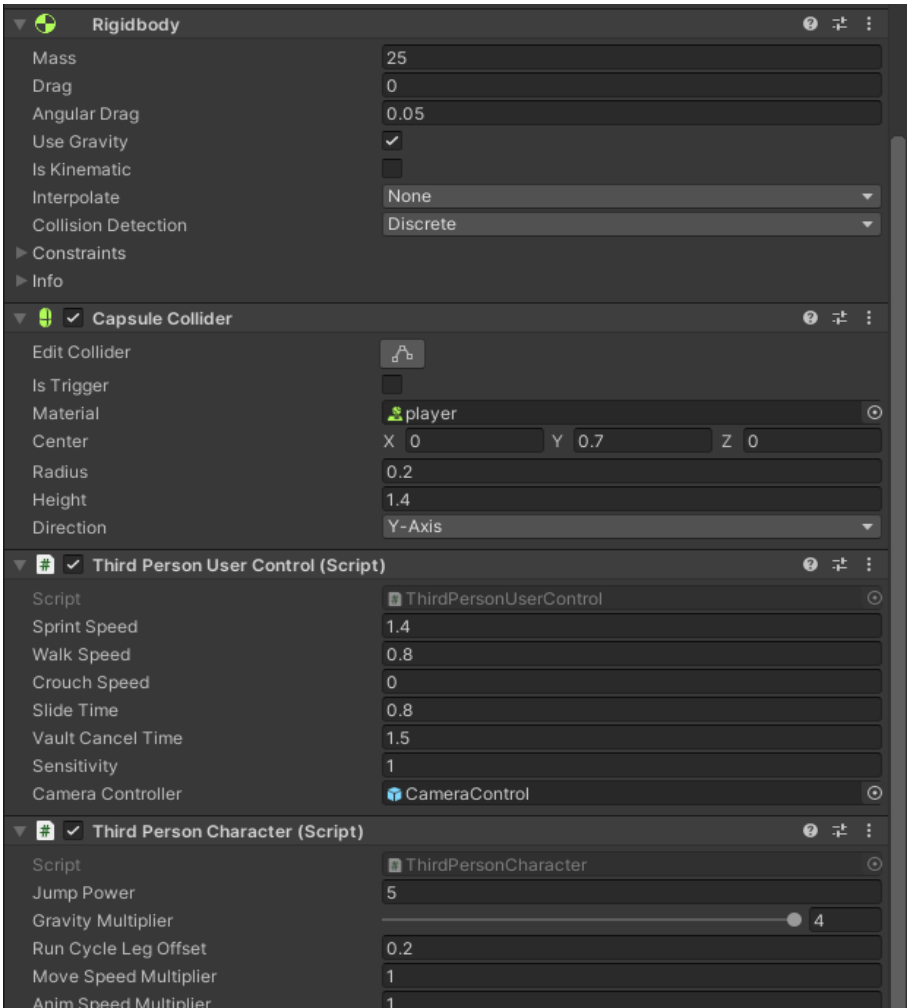
- In the demo scene, all player and AI prefabs are included already but are not necessarily needed to be in the scene. These objects can be removed from the scene and spawned in with code if desired.

- When the scene is played, if the camera movement with the weapon is jittery, this is due to a Unity bug. This issue is resolved however when the project is built.

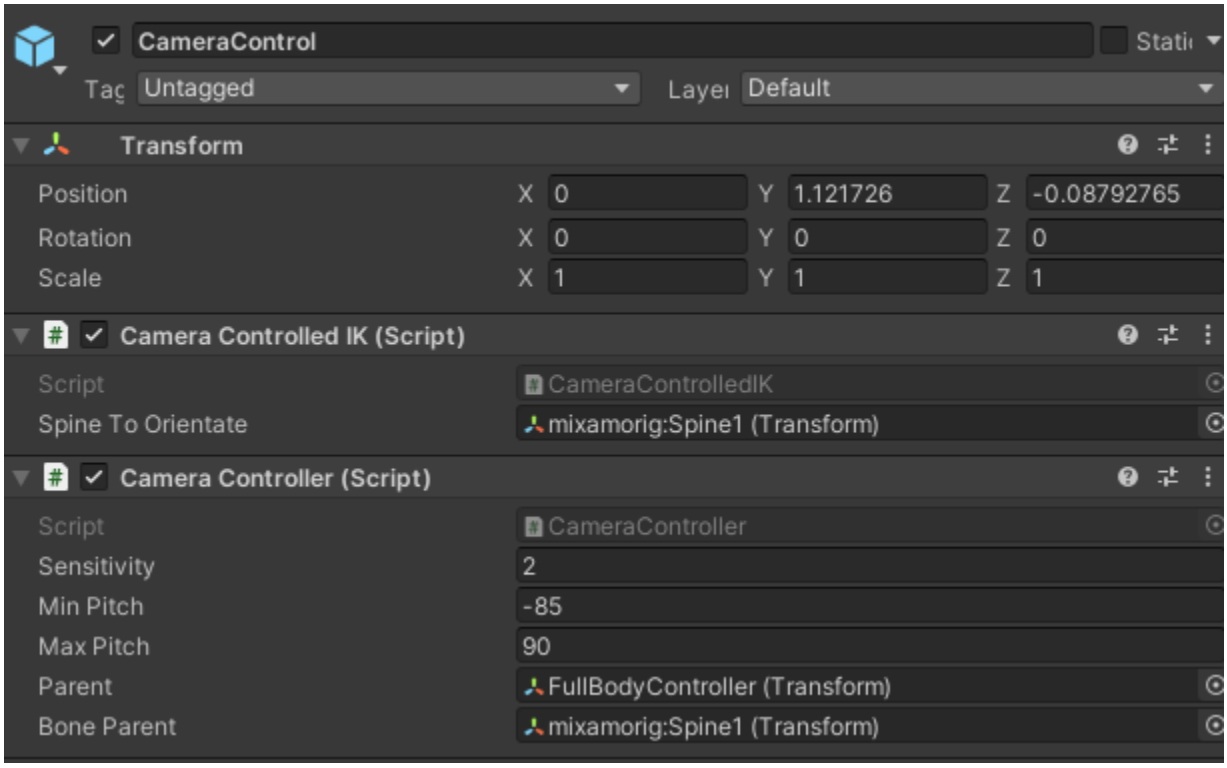
Using the controller

- The basic layout of the FullBodyController prefab should look like the picture below

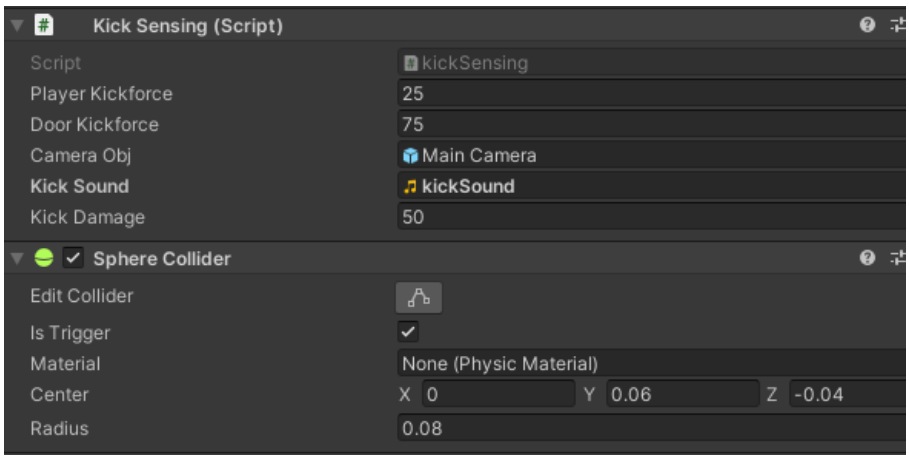
- The FullBodyController object contains multiple scripts that only work when on the root object. The components shown below are the only ones required to move the controller around.



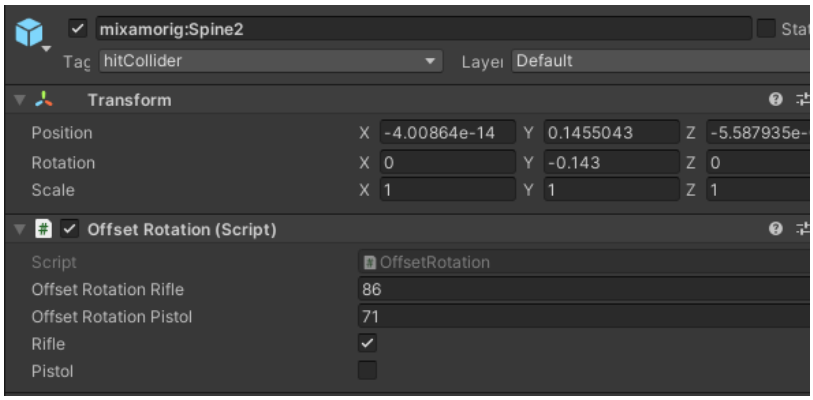
- The CameraControl object contains scripts that control the movement of the camera which inadvertently control the movement of the player.



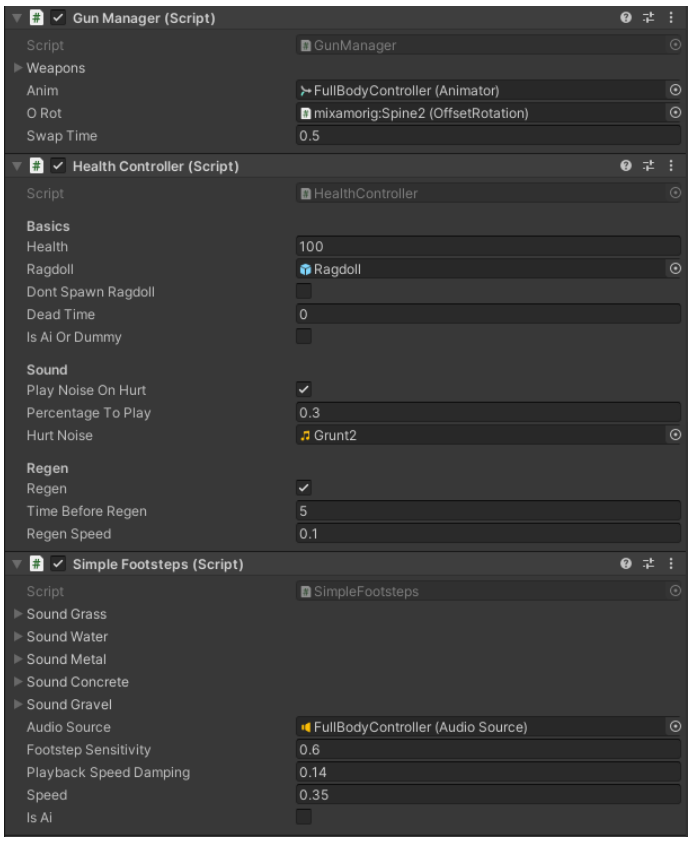
- The look sensitivity can be changed as well as the max and min pitch of the camera (up and down look limits)
- The Camera Controlled IK script rotates the assigned spine bone with the pitch of the camera
- Kick sensing is done by these components on the right foot bone of the player model rig where the sphere collider tells the controller whether to kick or not



- The y rotation of the upper spine is done by a script on the spine object itself that offsets the y rotation a certain amount to line the gun up perfectly with the camera



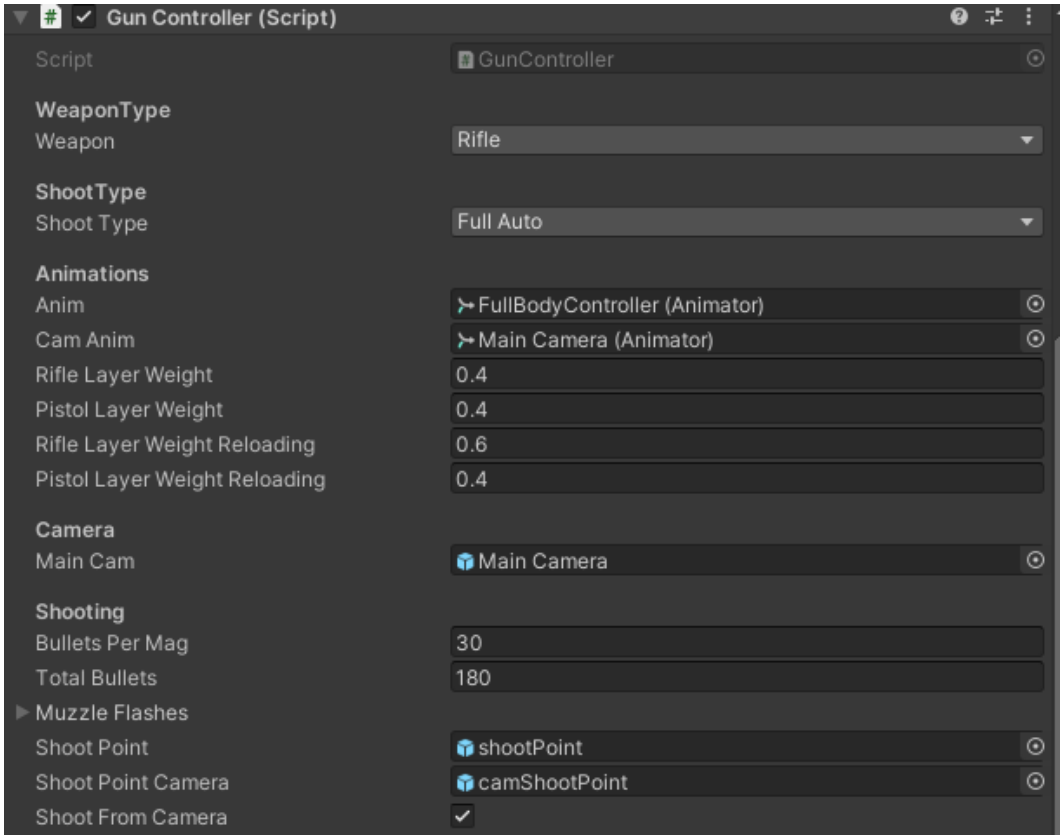
- These next scripts are located on the FullBodyController object and add functionality for using weapons, health, and footstep sounds



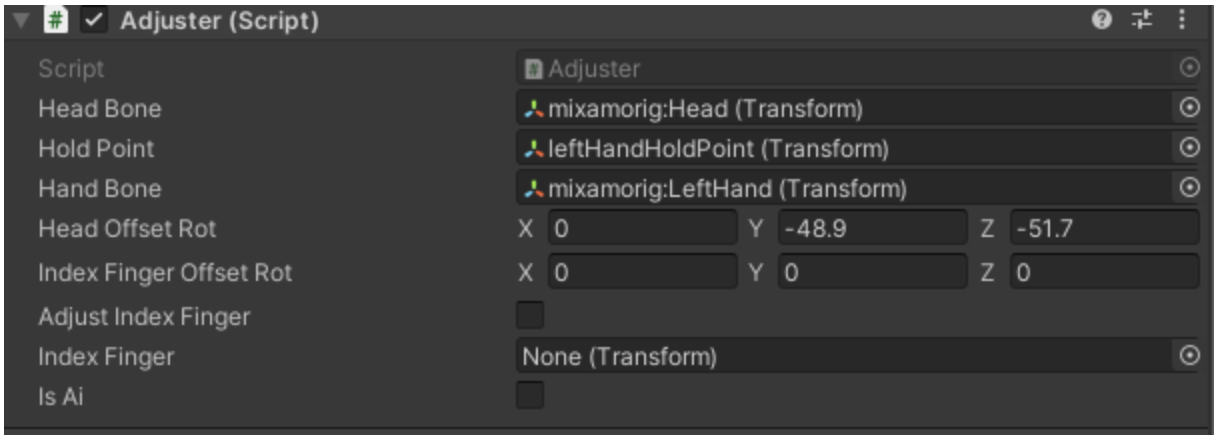
Weapon system

- The weapons should all be located underneath the player rig's hand bone and only the primary weapon should be active.

- The gun controller script is a dynamic object that can be added to any new weapon and adjusted to meet the new weapon requirements.

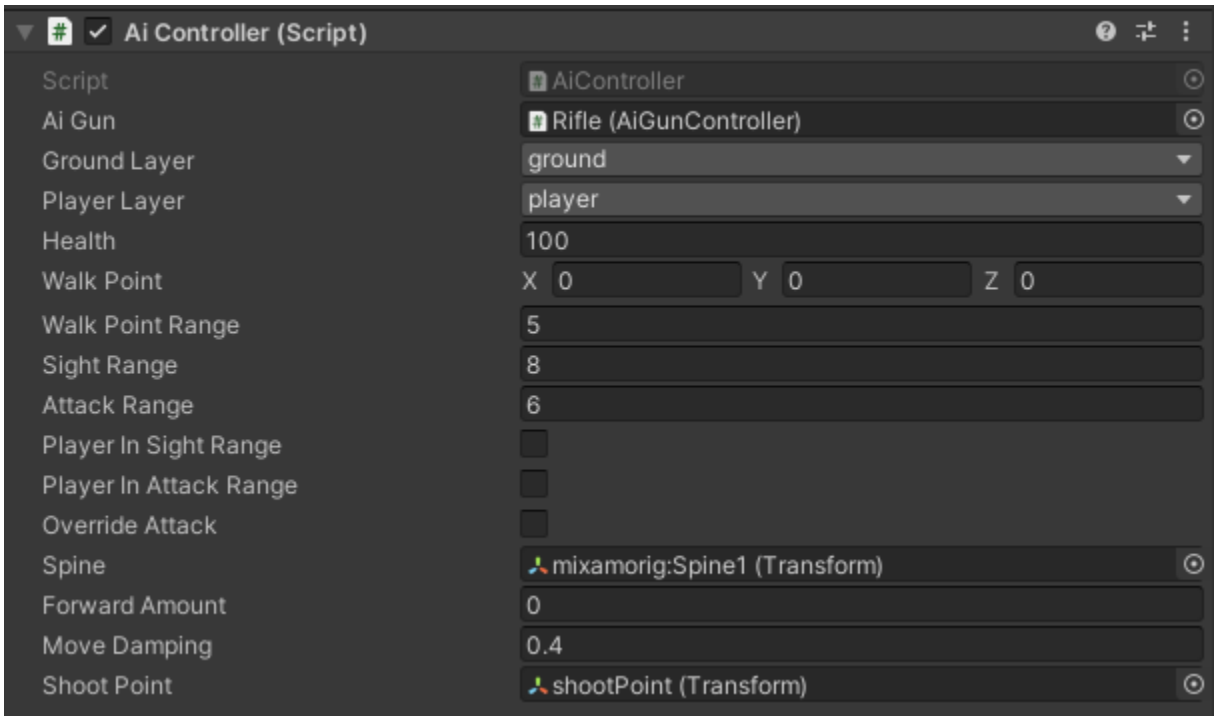


- The adjuster script orients the head to not clip with the camera and also updates the left hand to always stay connected to the gun.



Simple AI

- The simple AI uses almost everything the full body controller does except some slightly modified code for movement. The script locates the navmesh component on itself and finds players with the tag “Player”. When it is in the attack range of the player, it will attack using the AI gun controller script located on the weapon object in its hand. If a player directly attacks an AI it will attack back unless the player leaves its line of sight.



FAQS

- The weapon movement is jittery and laggy.
    - This is due to a bug with Unity that happens after the project is recently imported. The solution is to build the project as the jittery movement no longer exists in the build.
- The weapon system is not robust enough.
    - This controller merely provides a way to control the body when in a first person view with weapon placeholders that can be removed and or modified.
- The AI are not smart enough
    - Again, the AI are just there as placeholders to test the controller with and should be upgraded/modified to the user’s liking