

COMP3421/COMP9415 Computer Graphics

Project Report

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Group Elevencent

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1. Overview	5
2. The Purpose of our System	5
2.1 Overview of the system	5
2.2 Target audience	5
2.3 Style of the system	5
2.4 Existing Systems and differences	6
2.5 How the system engages users	8
2.5.1. Shooter - FPS lover	8
2.5.2. Parkour	8
2.5.3. Fantasy/Role-playing	8
2.5.4. UNSW Campus Exploration	8
2.6 Feature Explanations	9
3. Explanation of Implementation	14
3.1 Character System	15
3.1.1 Character Settings	16
3.1.2 Health System	17
3.1.3 Animation	21
3.1.4 Weapon Aiming	27
3.1.5 Weapon Reload	29
3.1.6 Grapple Wall	30
3.2 Weapon System	31
3.2.1 Weapon AK47	32
3.2.2 Weapon M4A1	36
3.2.3 Weapon Switch	39
3.2.4 Grenade	40
3.2.5 Smoke Grenade	42
3.3 Enemy System	44
3.3.1 Model	44
3.3.2 Animation	45
3.3.3 Interaction	47
3.4 User Interface	50
3.4.1 Display of HUD	50
3.4.2 Start Menu	51
3.4.3 Option Menu	51
3.4.4 Interlude animation	52
3.5 Props	53
3.5.1 Ammo Pickup	53
3.5.2 Health Pickup	53
3.5.3 Objectives	54
3.5.4 Collection	54
3.5.5 Portal	55

3.5.6 Respawn Checkpoint	55
3.6 VR	56
3.6.1 VR Pawn	56
3.6.2 Grab	59
3.6.3 Fire Trigger	59
3.6.4 Props	59
3.7 Incomplete features	61
3.7.1 More advanced Parkour moves	61
3.7.2 Speed Runs mode	61
3.7.3 Hidden packages	61
4. Levels	62
4.1 Tutorial	62
4.1.1 the Ground floor	62
4.1.2 the First floor	66
4.1.3 Function in map	67
4.2 UNSW Higher Campus Map	68
4.2.1 Design of map	68
4.2.2 Function in map	70
4.3 Law Library	75
4.3.1 Design of map	75
4.4 UNSW Lower Campus Map	78
4.4.1 Design of Map	78
4.5 Cyberpunk Map	80
4.5.1 Design of map	80
4.5.2 Function in map	80
5. User Manual	84
5.1 3D Version	84
5.1.1 A guide to keyboard mechanics	84
5.1.2 A comprehensive game manual	85
5.2 Additional User Manual for VR Version	88
5.2.1 Controller Mappings	88
5.2.2 A comprehensive guide for playing VR version	89
5.3 Full gameplay video	91
6. Reference	92
6.1 Assets	92
6.2 Function	92
6.3 Music and video	93
6.3.1 Music	93
6.3.2 Video	93
7. Appendix - Game Flow	94
7.1 Start Menu	94
7.2 Tutorial Map	94

7.3 UNSW High Map	99
7.4 Law Library	103
7.5 UNSW Low Map	106
7.6 Cyberpunk Map	109
7.7 Victory Map	113

1. Overview

In this project, we aimed to develop an action-adventure platform titled “*yoU Never Stop Walking*”, which is set in a combination of a futuristic UNSW campus and a Cyberpunk city environment. The game is a mixture of parkour and combat, which allows the players to explore the world and fight enemies while climbing, sprinting, and vaulting around the environment. Within this 3D/Virtual World game, players step into the role of the main protagonist who is skilled in parkour and shooting, and undertake a series of missions to save UNSW when a viral outbreak has turned most of the campus into mindless zombie-like creatures.

2. The Purpose of our System

This section will explain what our system will do, its target users, the style of our system, how it differs and/or builds upon similar existing systems and how our system will engage users.

2.1 Overview of the system

As explained in Section 1: Overview, our system is a subtle blend of parkour and first-person shooting. We opted for a linear design for the story-driven gameplay consisting of 5 major missions, with open-world exploration available for the player. While the UNSW campus game map is a replica of the real campus, we'd like to imagine what UNSW would be like in the next century and embed futuristic visual components into it, such that its visual theme would be more harmonious with the Cyberpunk city map. In terms of building the UNSW Campus and Law Library level, we also embedded some creative Carnival and Halloween components throughout the implementation process.

2.2 Target audience

Our system is before anything else a game system which is created to appeal to all ages and genders to those who specifically have an interest in the genre of shooting, parkour, fantasy and UNSW campus exploration.

2.3 Style of the system

Our system is a game system with educational purposes.

On the one hand, “U Never Stop Walking” contains some entertainment elements such as parkour, shooting, riding the sky wheel and the roller coaster and so on. They can also enjoy beautiful campus scenery, gorgeous galaxy and rainbow stairs while exploring campus, which provides a relaxing ambience.

On the other hand, We hope players will be familiar with the map of UNSW campus while experiencing the exciting parkour and shooting game. It is a more effective way for them to know the campus instead of just seeing the Google map.

2.4 Existing Systems and differences

1) Existing systems

We conducted research on existing action-adventure games with parkour and FPS mechanics. The pros and cons of these systems (consisting of two 3D and two VR games) are summarised and presented in the table below.

Game Title	Advantages	Disadvantages
Mirror's Edge 	<ul style="list-style-type: none">Fineness and intelligence of the game's action systemComplete control and consistent player interaction through a first-person perspective	<ul style="list-style-type: none">Limitations in the design of melee mechanicsRelatively short game flow in the story mode
Temple Run 	<ul style="list-style-type: none">Thrilling endless-runner modeSimple game controls and player upgrade system	<ul style="list-style-type: none">A single game map with repetitive scenes could be dull

Stride VR 	<ul style="list-style-type: none"> • Subtle blend of parkour and shooting • Freedom of movement through a smooth locomotion system • Unique multiplayer game modes: Arena, Time Run, Endless 	<ul style="list-style-type: none"> • Flaws in the climbing movement mechanics • Dizzy and nauseating when the game forcefully takes control of the player's head
Infinity Runner VR 	<ul style="list-style-type: none"> • Intriguing sci-fi background setting and coherent storyline for role-playing 	<ul style="list-style-type: none"> • Issue with visual prompting • Restricted view setting which disables the 360-degree vision

2) Differences

We first implemented our system in 3D before converting it to VR. Referring to the cons of similar existing systems we identified in the above section, we aimed to solve the following problems:

- ★ Flaws in FPS and climbing mechanics
- ★ Lack of storyline and visual prompts in each mission
- ★ Lack of open-world exploration
- ★ Some parkour moves induce severe motion sickness

To address these issues, we would modify both technical and non-technical features of the system, as well as adding extra novel components. Details of our system features and technical improvements could be found in Sections 3 and 4.

2.5 How the system engages users

2.5.1. Shooter - FPS lover

The game's primary target audience is the shooter subgenre. We believe our game will deliver the satisfaction of defeating enemy characters by using weapons given to the player, and it delivers highly competitive experiences. Since the skills needed, that many players want for their first-person shooters will be present in our game, this includes fine motor control in

- moving around
- viewing the environment
- dodging/covering from fire

all while accurately aiming.

2.5.2. Parkour

We parallelly target the parkour audience of the video game market by providing the feeling of adventure, high energy, and speed all compounded in an immersive VR game. Our game also provides the satisfaction of puzzle solving by challenging the player to find shortcuts and the quickest paths to the destination to achieve the fastest time possible.

2.5.3. Fantasy/Role-playing

First-person VR games are highly immersive since players are placed into the shoes of the character they're playing as. Their sense of sight and sound is taken over and the added depth of interacting with the game environment reinforces the feeling of living in the game world. In our game, we utilise this advantage of VR that many fantasy/role-playing audiences want out of their video games. Our game will target this audience and make them feel like they're really in the environment, immersed in the story, and ready to save the world.

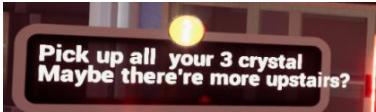
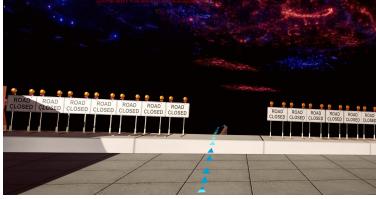
2.5.4. UNSW Campus Exploration

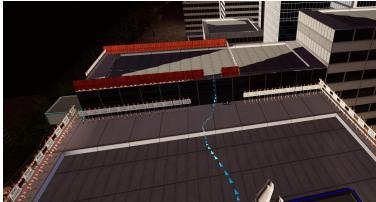
Our game's secondary target audience are people who want to learn more about UNSW. Our game provides an engaging and exciting way for current students, teachers, and staff members to learn the layout of UNSW. This is done through the game's objectives of asking the player to find and traverse to the lecture/tutorial room to which the player is given the room number and map of UNSW to find the room in time. This teaches players the names of buildings, lecture halls, and rooms and where they would be located. Learning the layout of UNSW through VR can help potential students choose whether UNSW is the right university for them, this would help anyone ranging from high schoolers to international students who find it hard to physically visit the university in person.

2.6 Feature Explanations

For complete gameplay, check out the video we made:

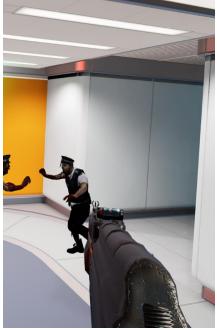
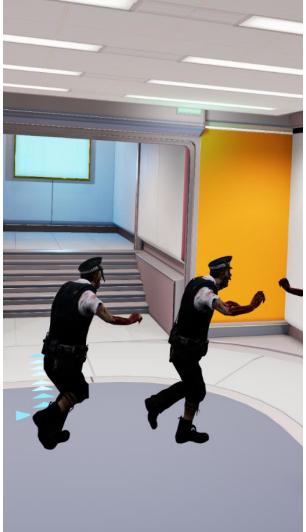
[U Never Stop Walking: Gameplay - YouTube](#)

Feature	Picture	Explanation
HUD		Unintrusive HUD which displays the player's health, ammo, and game time when the player needs it.
In game prompts and messages		Floating commentary boxes around the map to give the player clear guidance .
Starting menu		Ability to change options / play the game
Day & Night cycle		Experience the game and its environment at day or night.

Feature	Picture	Explanation
		
Background music		Tense music played in the background for added immersion compounding the fast-paced, action game.
Sound effects		Audio feedback on gun shots to make the actions the player makes more tangible.
Falling leaves		Falling leaf particles in the environment that the player can see which adds to the detailed environment and creates atmosphere.
Animated billboard		Video media displayed on billboards to alleviate the feeling of a static environment.
Runner vision		Glowing arrows on the ground for suggested route if the player feels lost.

Feature	Picture	Explanation
Ferris wheel		New method of transport that gives a relaxing time from previous parkour missions and gives bird eye view of the entire campus.
Roller Coaster		Exciting method of transport that provides the feeling of being on a roller coaster while viewing the campus landscape.
Grapple hook		A parkour movement tool that pulls you to platforms, which enables new, interesting parkour challenges.
Wall climb		Parkour movement that enables the player to climb a surface using 2 hands in VR, which enables new, interesting parkour challenges.
Sprinting	/	Added parkour movement which gives the player burst of speed to clear parkour challenges with large gaps.
Dual-wield guns		Utilise both guns at once to mow down enemies in a fun, exciting way to give a power spike to the player against a zombie hoard.

Feature	Picture	Explanation
Vibrating motion controls	/	Motion controls vibrate in the player's hands to simulate recoil.
Pickup of items		Able to snap pickup items in VR by using the players hands which gives added immersion
Ammo and health pickup		Replenishes limited resources.
Weapon aiming		Changes the gun's model to aim down sights to give the option for the player to focus an enemy.
Game objectives		Objectives the player has to collect to finish the level
Different weapons		2 different guns with different characteristics in range, precision, damage and rate of fire to give the player options in how to kill the enemies.

Feature	Picture	Explanation
		
Zombies		<p>Enemy characters that damage and block the player from reaching the objective. They provide a challenge and must be shot down using a gun.</p>

3. Explanation of Implementation

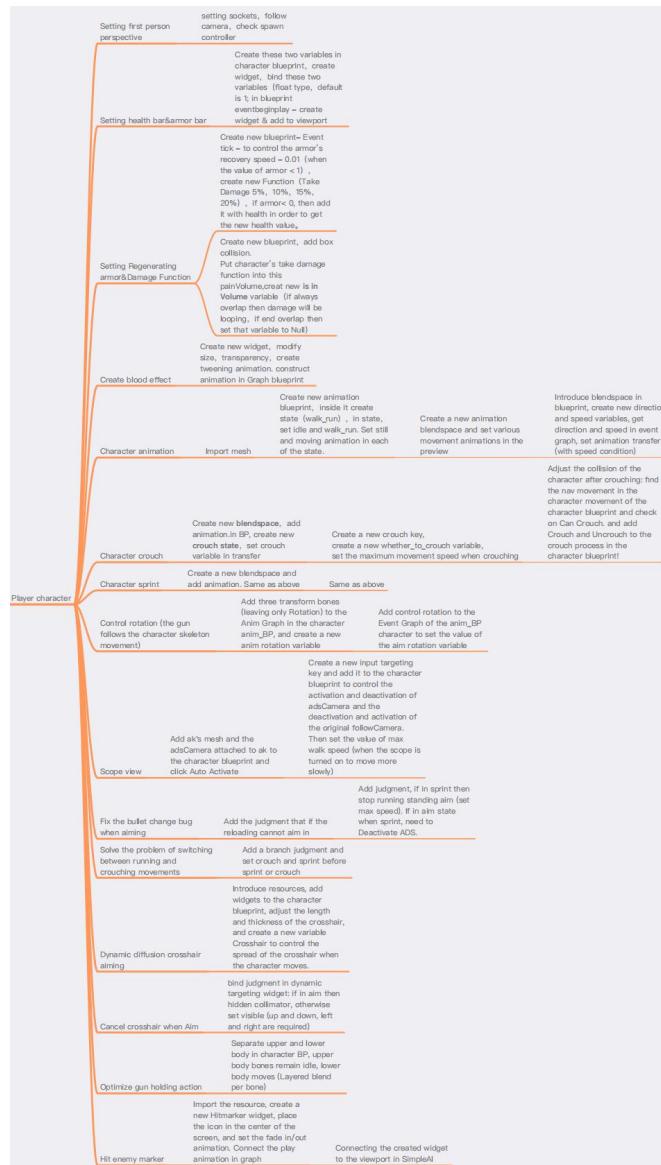
This section lists comprehensive explanations of different features implemented in our system. Mainly includes the following: Relevant objects and actors in the world outliner; Materials used; Relevant Blueprint; Work flow chart and the features that we plan to continue to implement.

The following six modules will be explained in the order below:

- Character System
- Weapon System
- Enemy System
- UI System
- Props
- VR

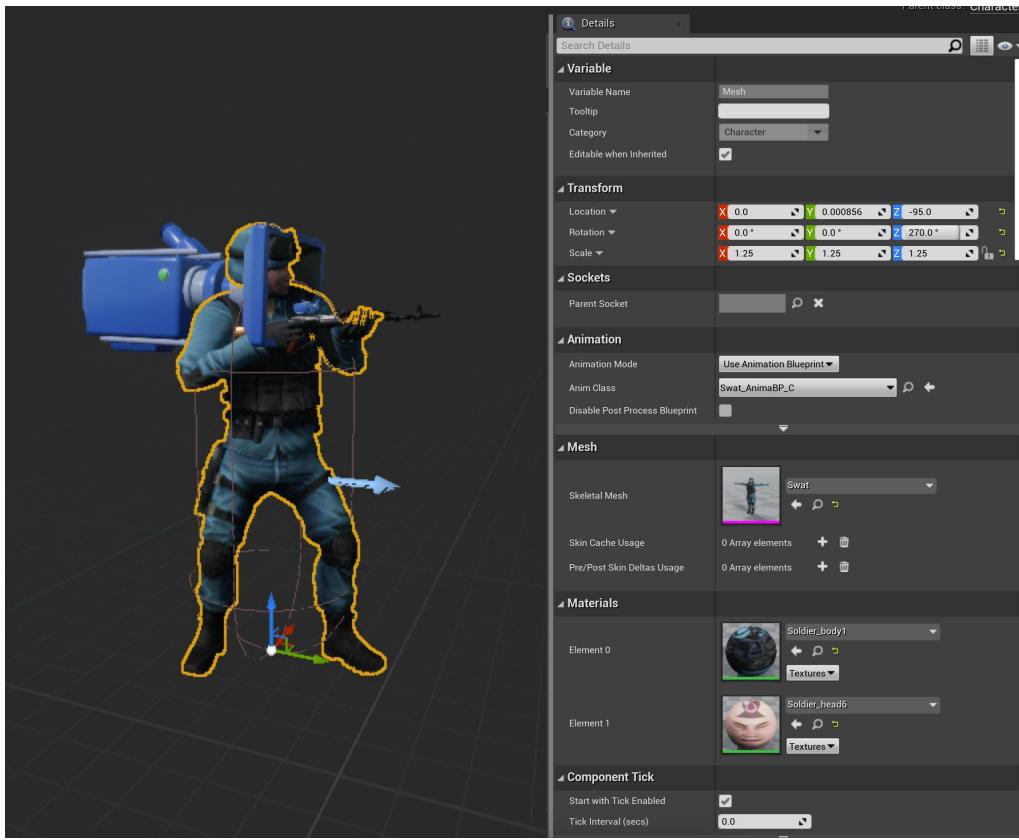
Any features we had planned for but were not able to implement are briefly explain at the ned of this section (see 3.7).

3.1 Character System



3.1 work flow chart (character)

3.1.1 Character Settings



Resources from: <https://virtushub.com/p/resources>

In order to transfer TPS(Third Person View) to FPS(First Person View), we drag the camera from behind the character to the back of the character's head. Then we set the camera's parent socket as character to make it follow the player.

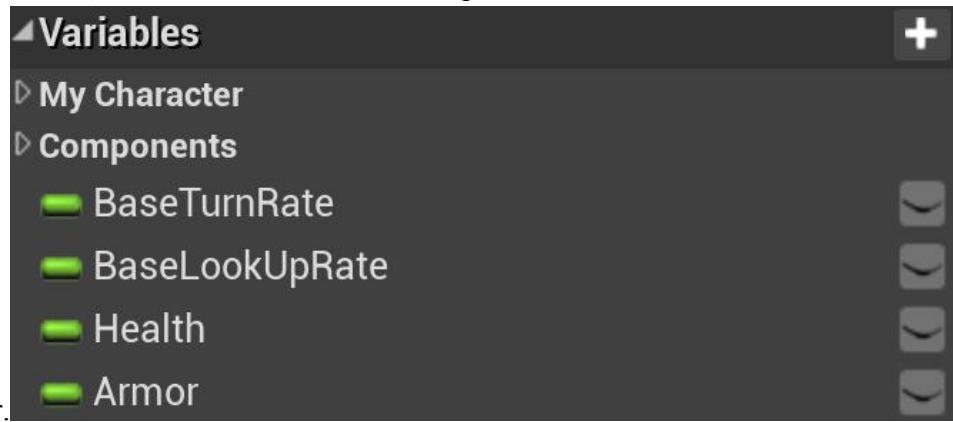


FPS view in world outliner

3.1.2 Health System

1) Health Bar and Armor Bar

- Create two new variables in character blueprint: Health and

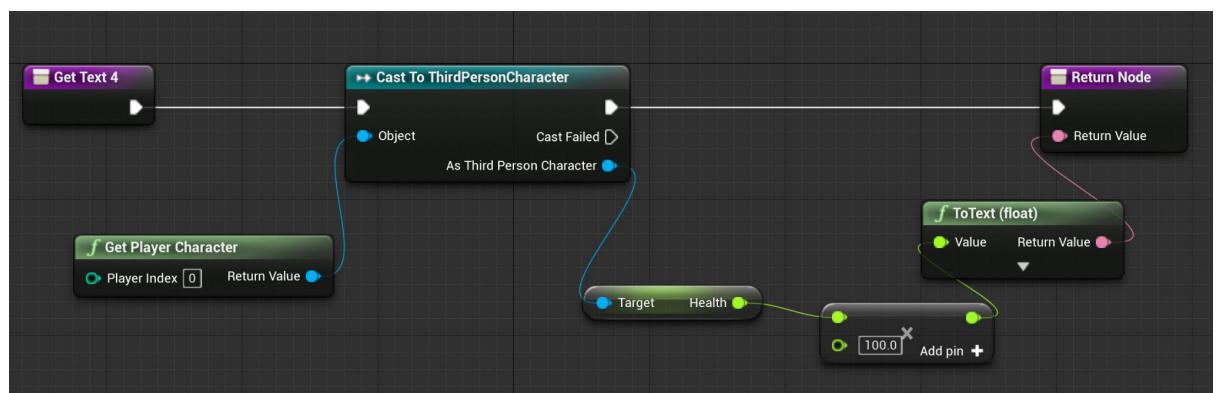


- Create new widget: FPSHUD.

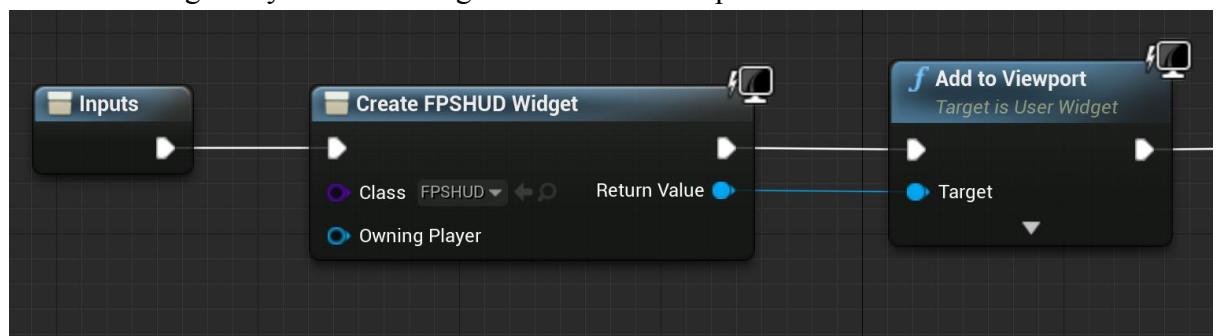
- Create Text and ProgressBar, both for Health and Armor, bind these



variables.



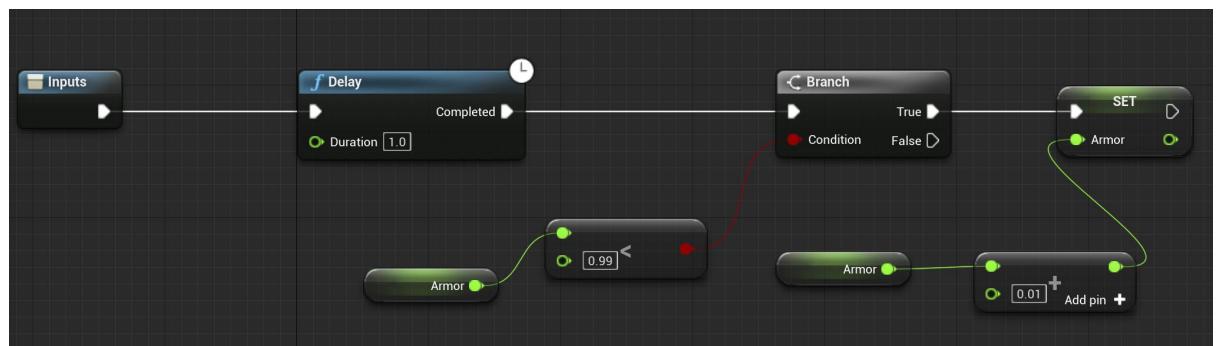
- Use Event BeginPlay to create widget then add to viewport.



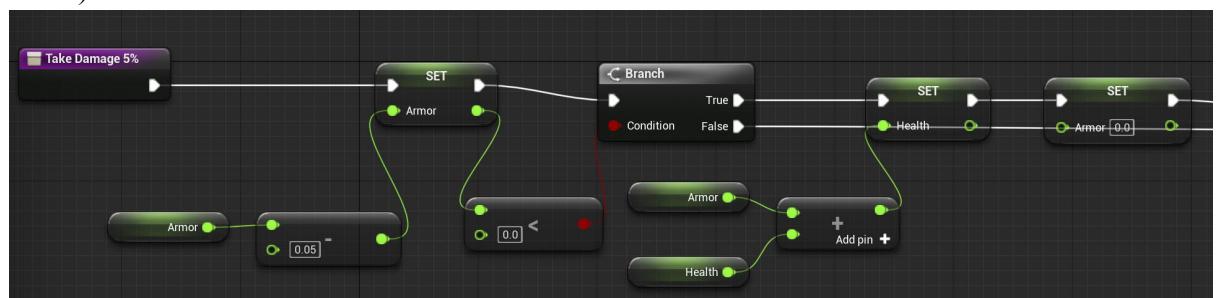
2) Regenerating Armor

- Use Event Tick to control armors regenerating 0.01 every second when armors smaller than

1.



- Create Functions of Take Damage 5%, make armors minus 0.05, and when armors less than zero, health starts to decrease(add the current health value to the decreasing armors value)



- Duplicate Function of Take Damage 5% to Take Damage 10%; Take Damage 20%; Take Damage 100% and Take Damage 200%, only need to modify the value subtracted by armors.

Functions (30 Overridable)

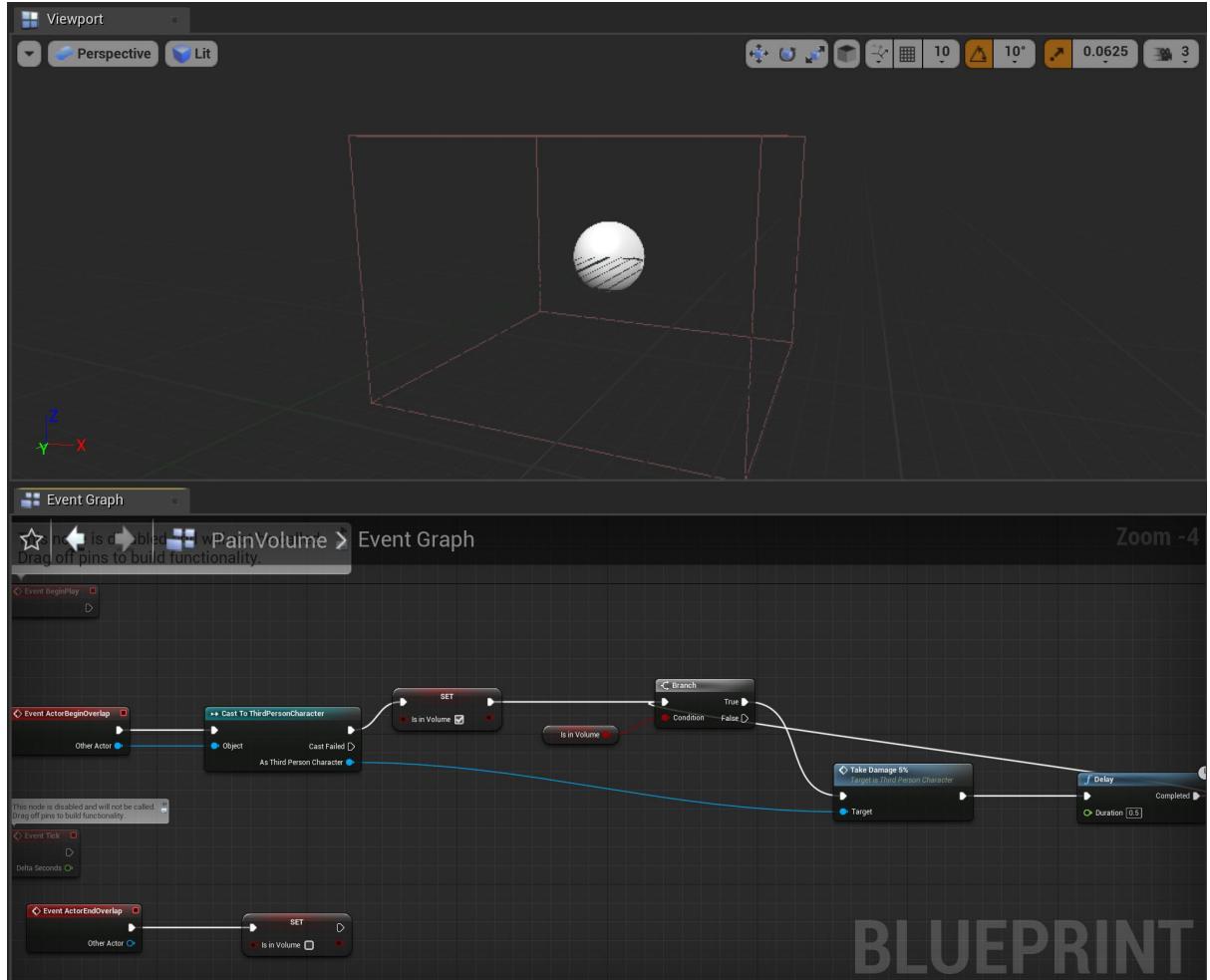
- ConstructionScript**
- f TakeDamage5%**
- f TakeDamage10%**
- f TakeDamage20%**
- f TakeDamage100%**
- f TakeDamage200%**

```

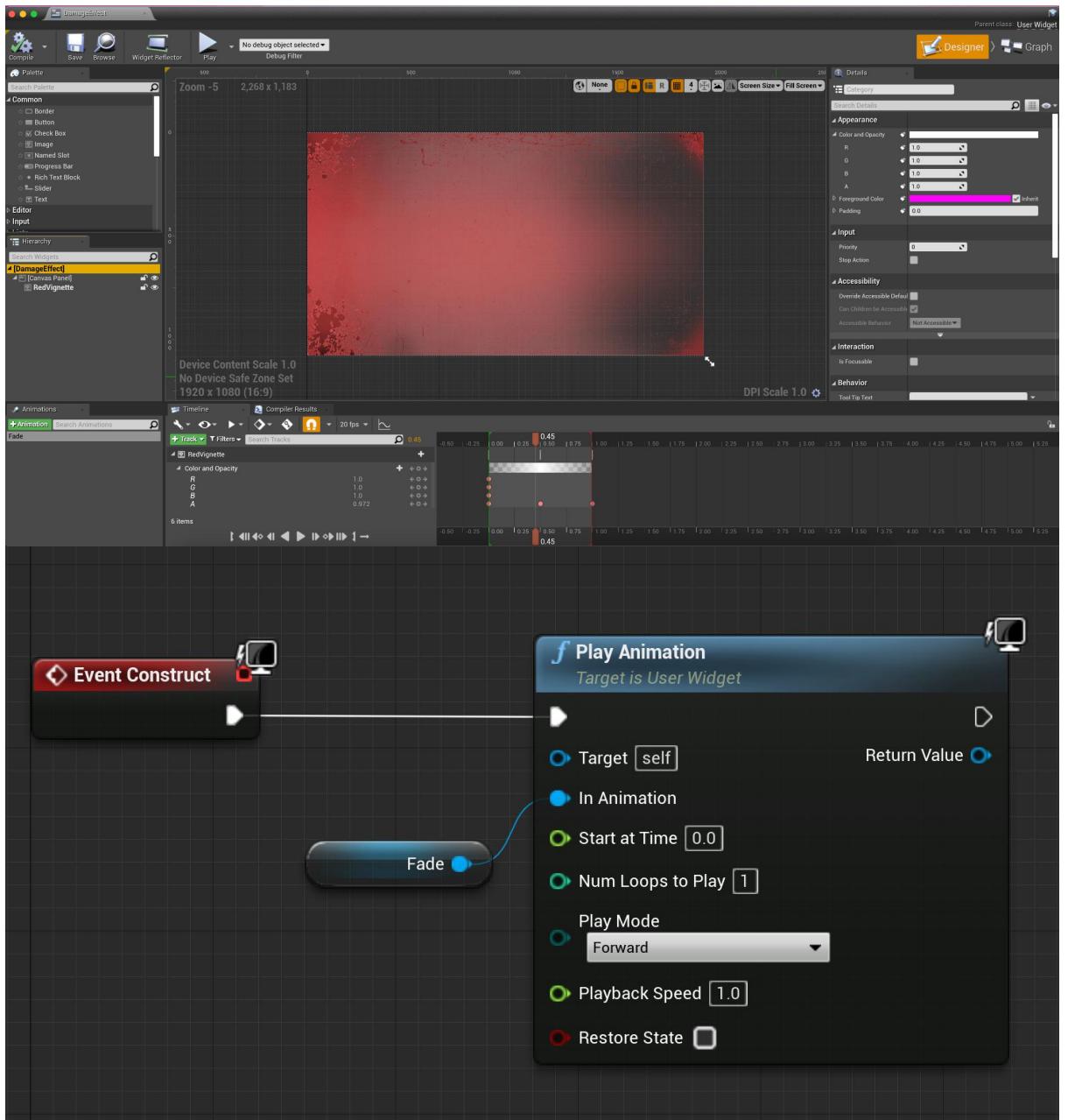
graph LR
    TakeDamage5% --> Mult[.]
    Mult -- Armor --> SetArmor[SET]
    SetArmor -- Armor --> SetArmorValue[0.1]
    SetArmorValue --> SetArmor
    
```

3) Damage Function

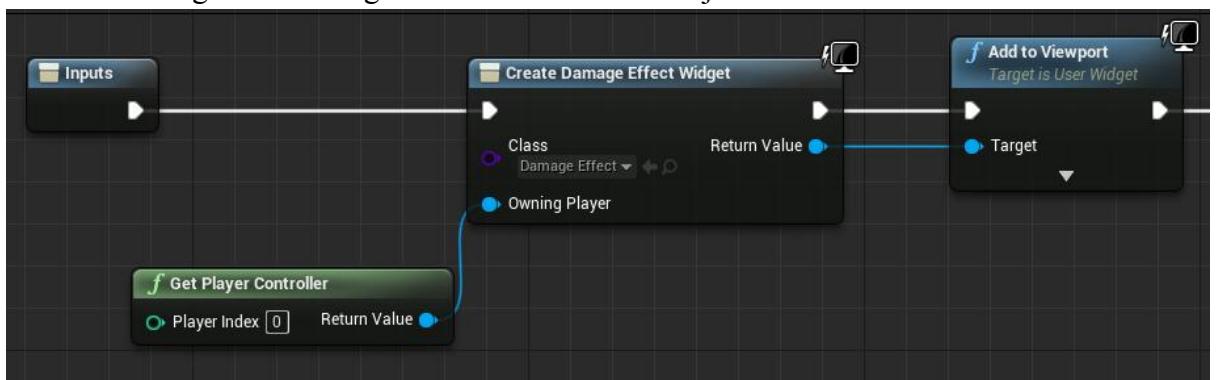
- Create a blueprint of PainVolume, add box collision. Use the function of Take Damage and variable of IsInVolume to avoid damage repeatedly.



- Create a widget of DamageEffect, modify the appearance, make fade animation then construct animation in graph blueprint.

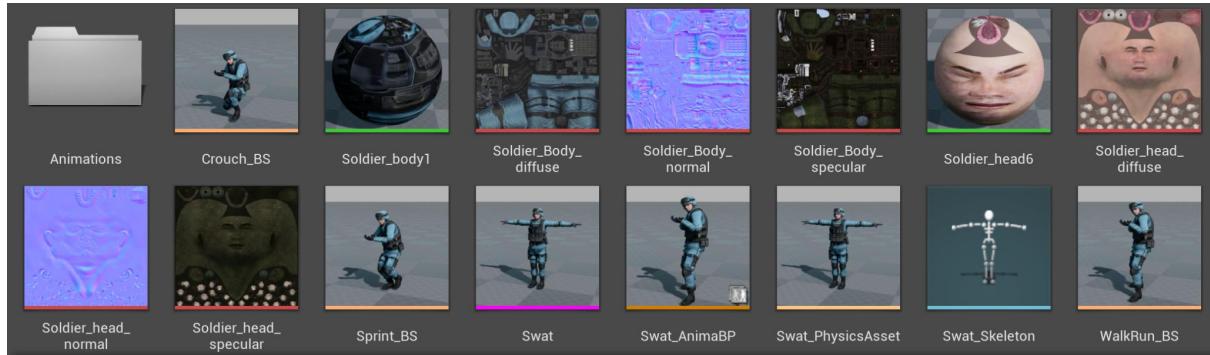


> Add the DamageEffect Widget after the character is injured

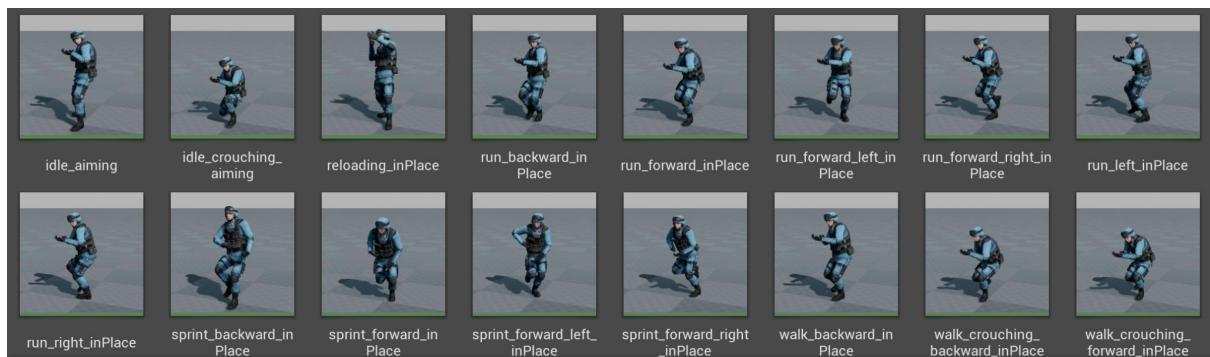


3.1.3 Animation

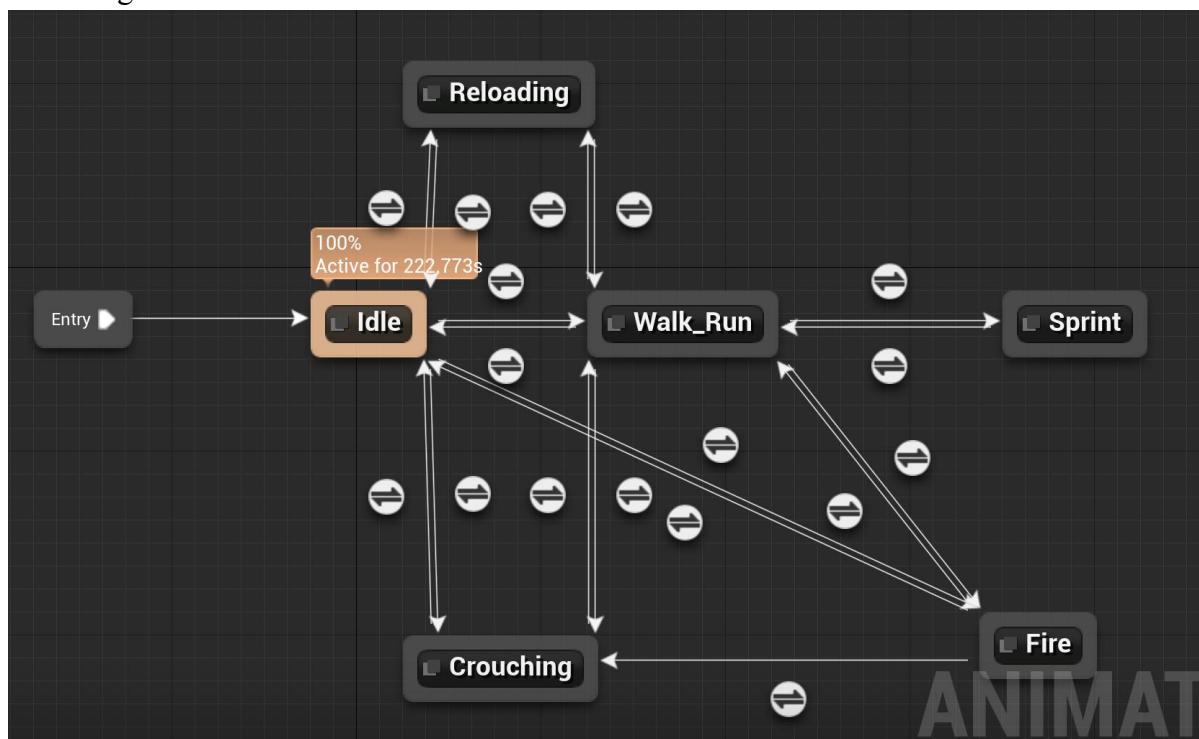
Character animations folder:



Animations folder:

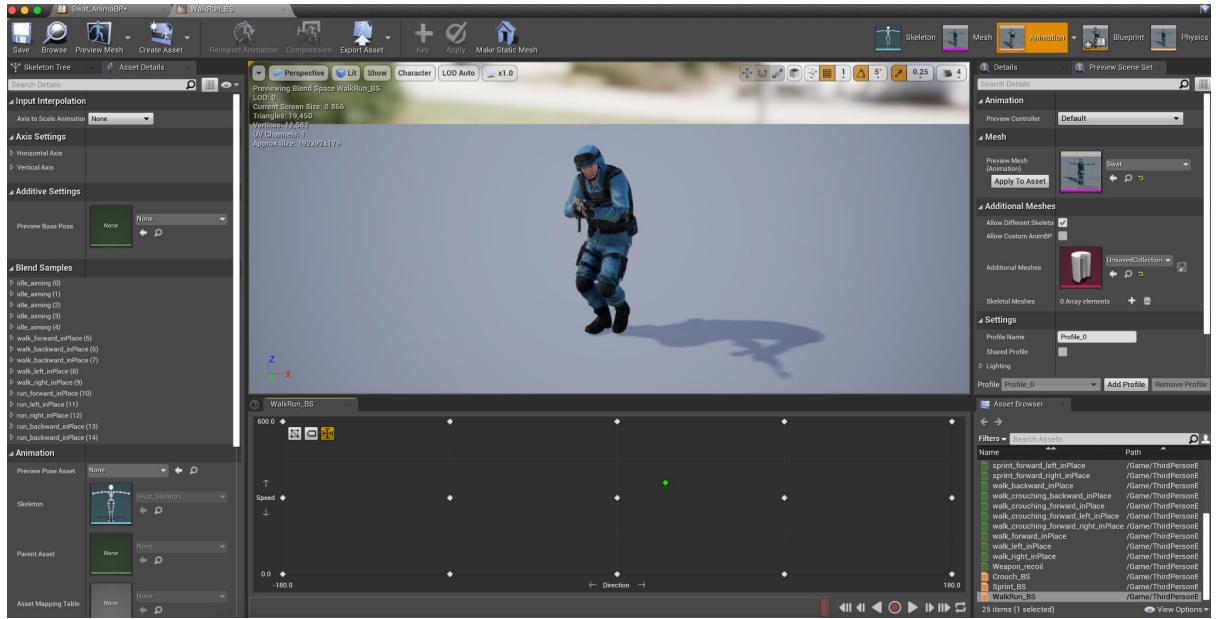


We use Swat_AnimaBP to control all the animations of character movements. And the animations are from different kinds of blendspace, such as Walk/Run, Crouch and Sprint. We built a total of six states, four of them are animations for character movement: Idle, Walk_Run, Sprint and Crouching, the remaining two are animations for characters Firing and Reloading.

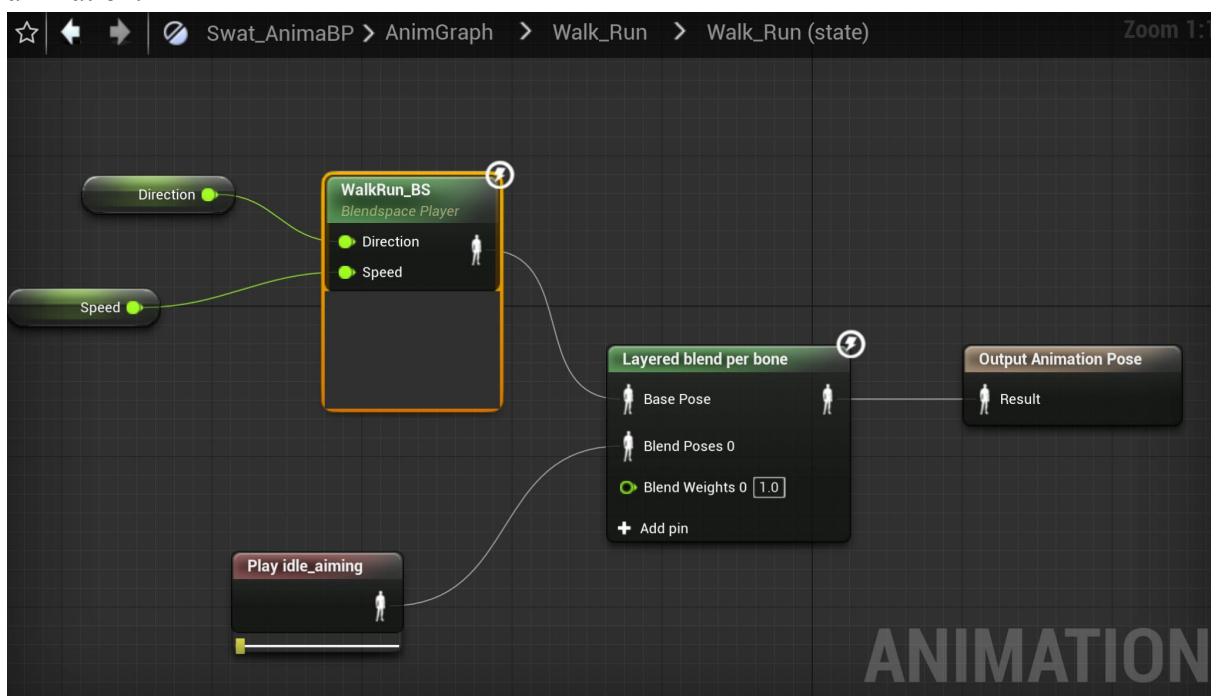


1) Walk and Run

- Create blendspace of WalkRun_BS, set movement animations in preview.

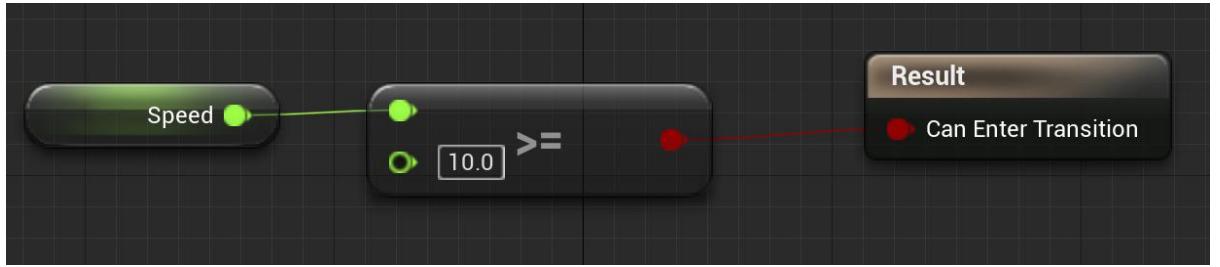


- In Swat_AnimBP, connect Idle state to Walk_Run state, then use WalkRun_BS in that state. Divide the character bone into two layers, the upper part remains static to ensure that the gun pose remains unchanged, and the lower part is walking and running animation.

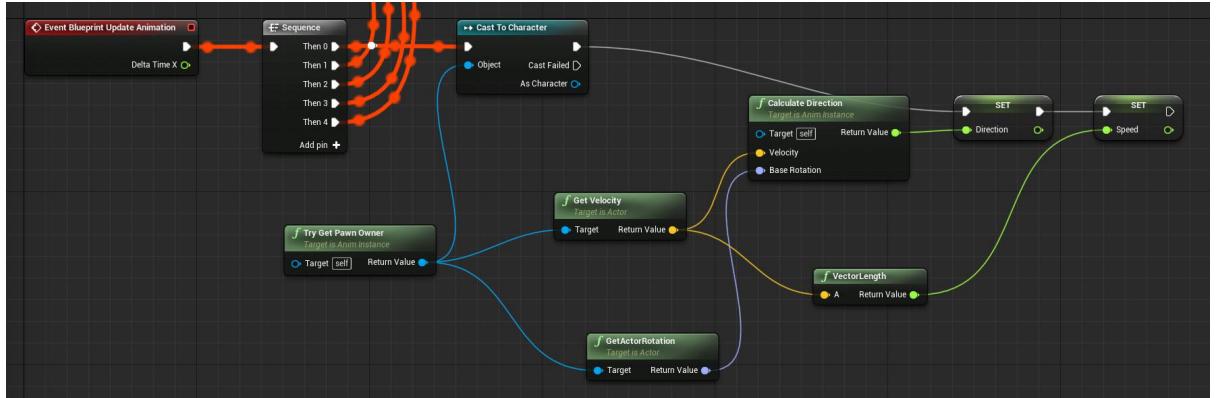


- Also connect Walk_Run state back to Idle state, set the value of speed as the transfer condition. Through the value of speed to control the switch between idle state and walk or run

state.

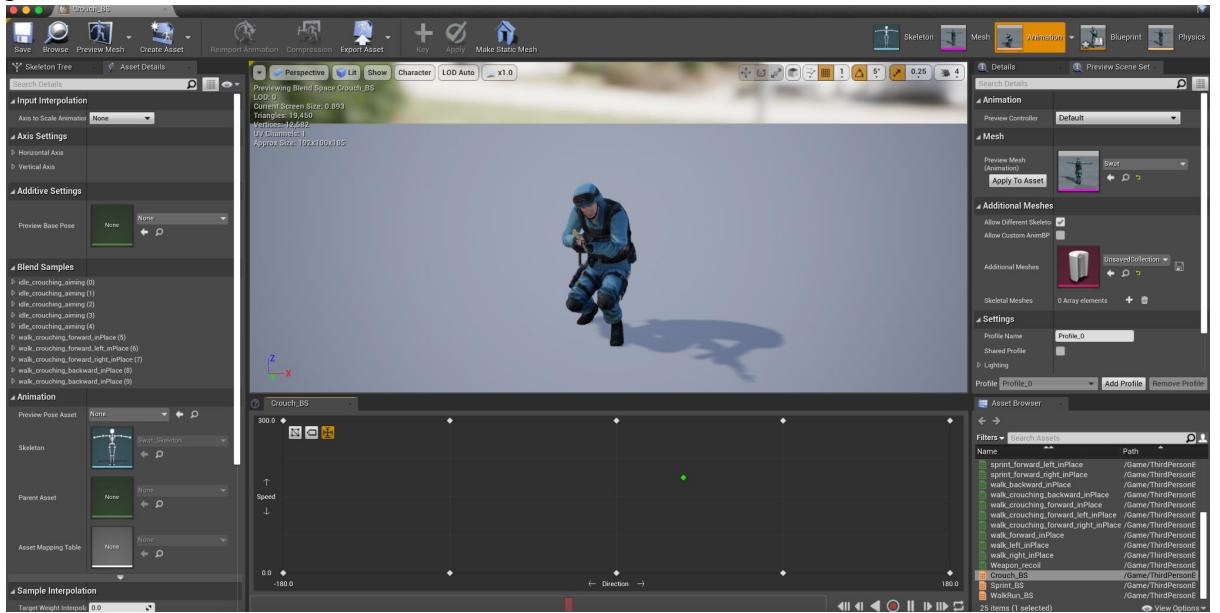


- Obtain the direction and speed in Swat_AnimaBP's Event Graph.

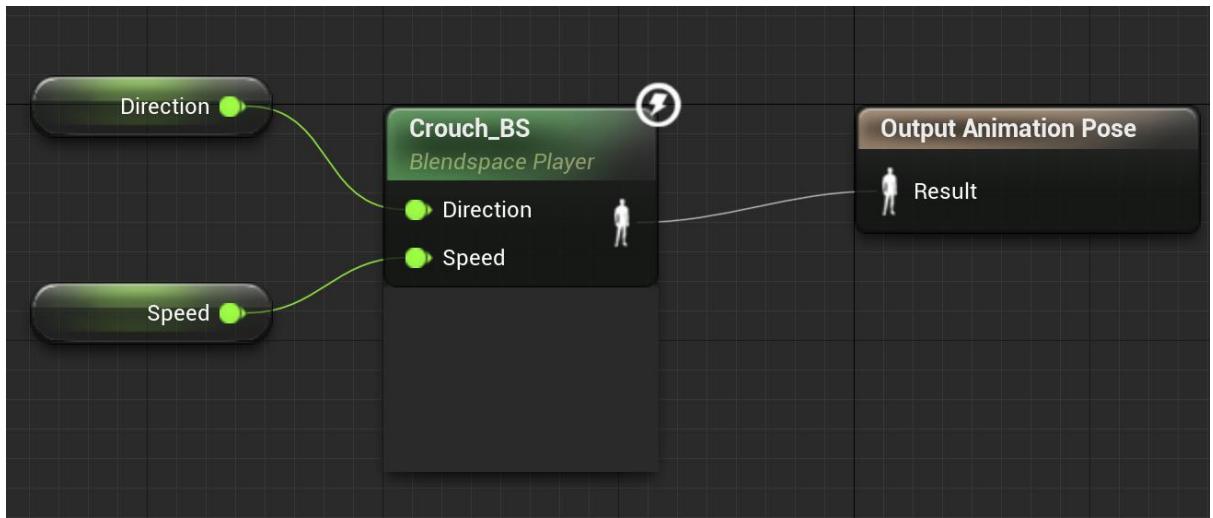


2) Crouch

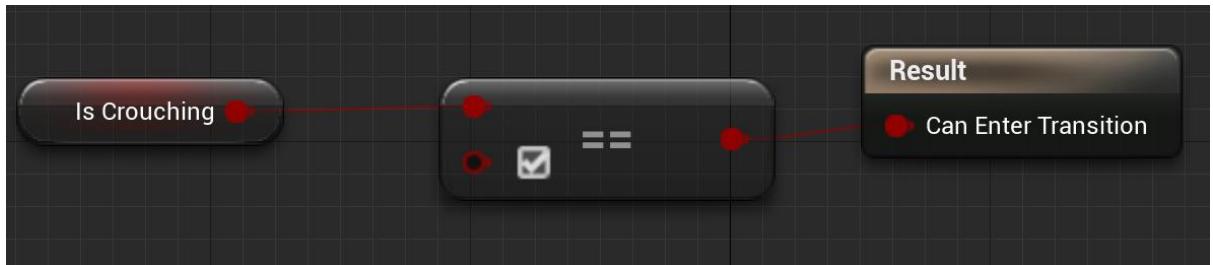
- Create blendspace of Crouch_BS, set crouch animations in preview.



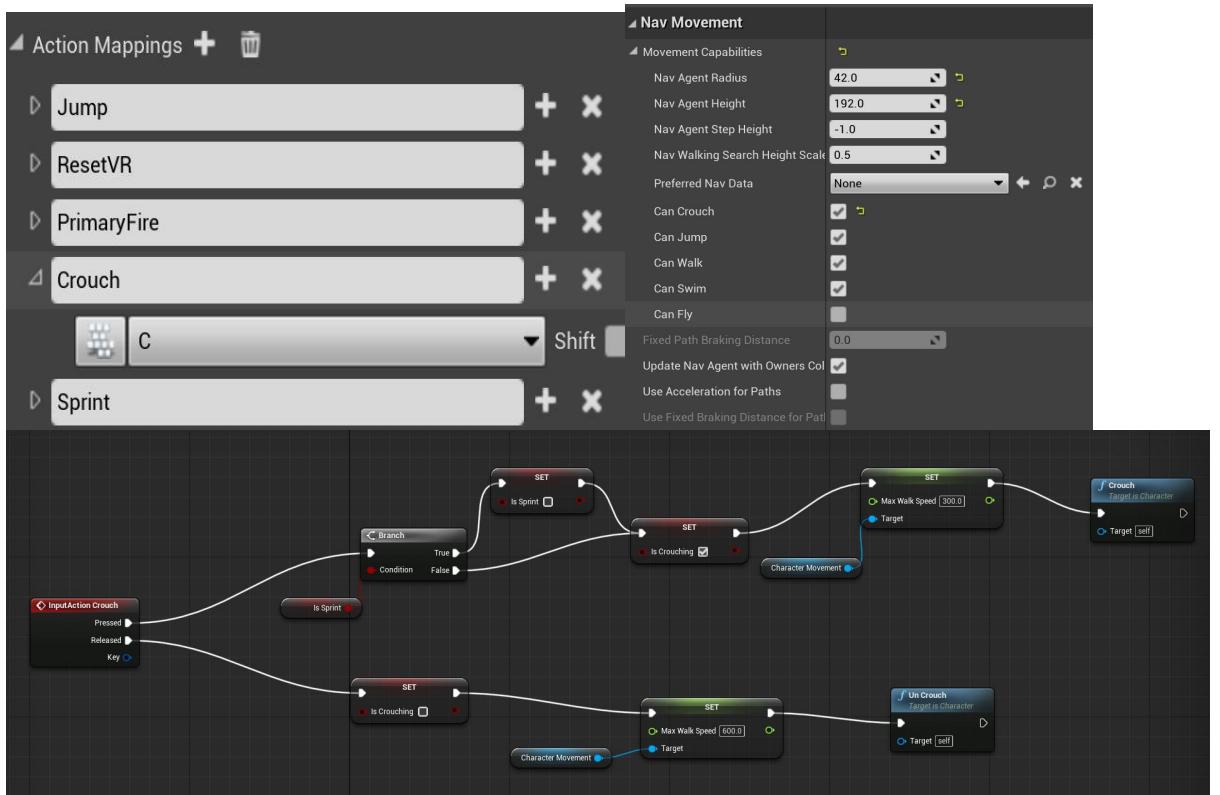
- In Swat_AnimaBP, connect Idle state to Walk_Run state, then use WalkRun_BS in that state.



- Use Is Crouching to control the crouching animation.

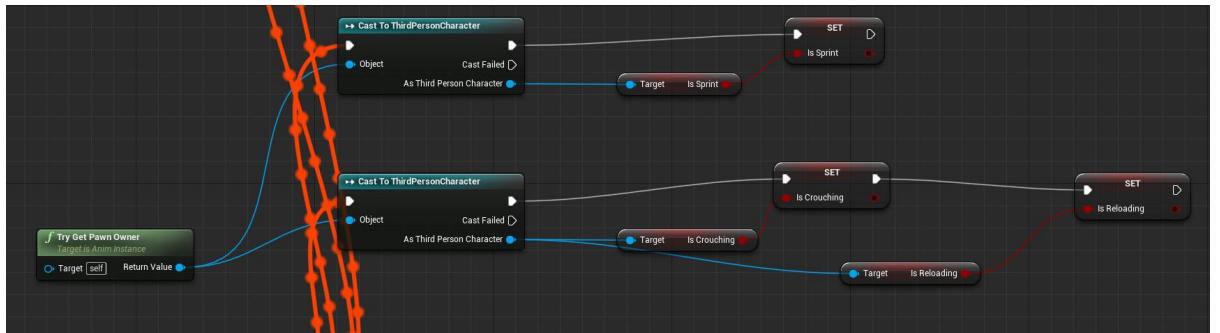


- Create new action mapping for crouch, then add IsCrouching variable in character blueprint. When crouching, decreasing the max walk speed. It should be noted here that we need to change the condition of sprint and crouch to to make sure there are no bugs when player switch between these two actions. We also need to check Can Crouch in character movement so that the collision will be changed when player crouching.



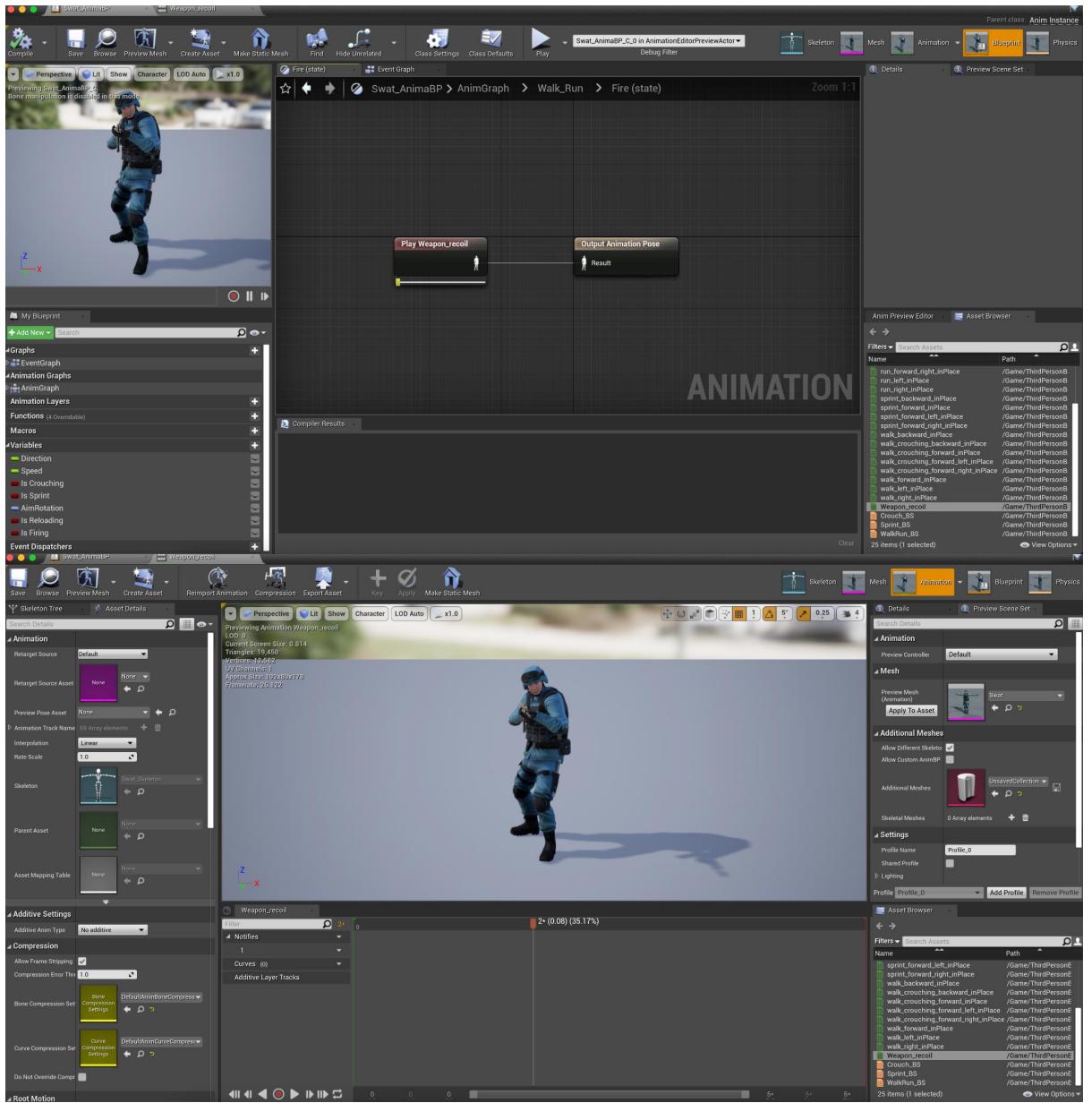
3) Sprint

Same as the
Crouching.



4) Fire Recoil

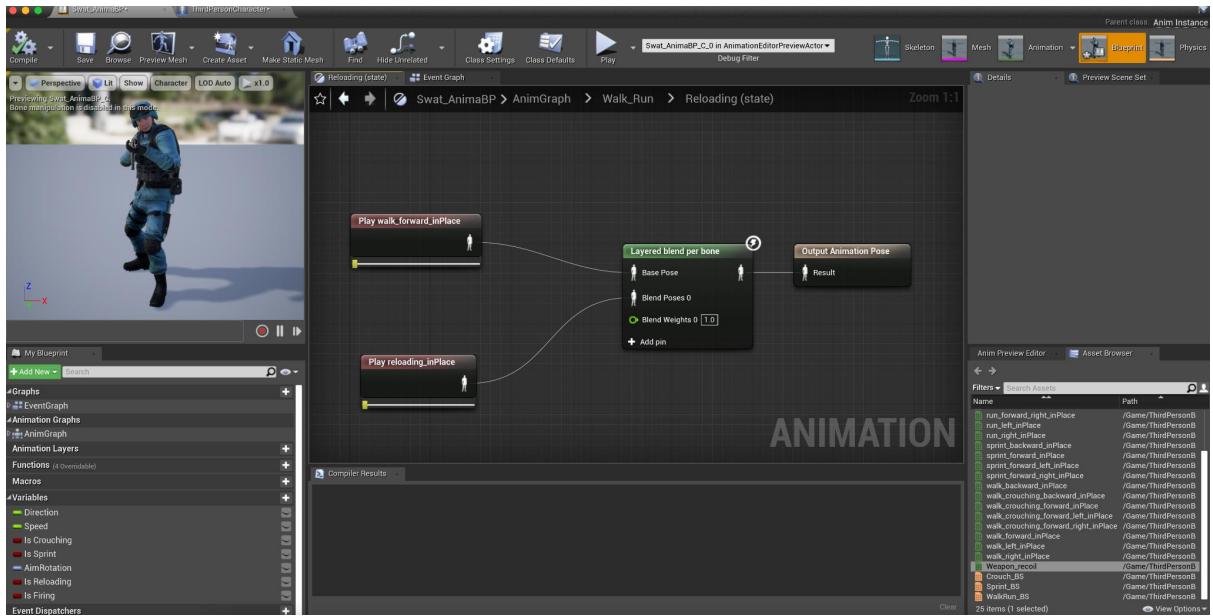
- Here we intercept a part of the idle animation, speed up the playback speed to simulate the effect of the recoil, and make the recoil animation by ourselves. We use bool variable: Is Firing to control whether the character is firing or not.



5) Reload

- When reloading, we make the upper body of the character a reloading animation, and the lower body a walking

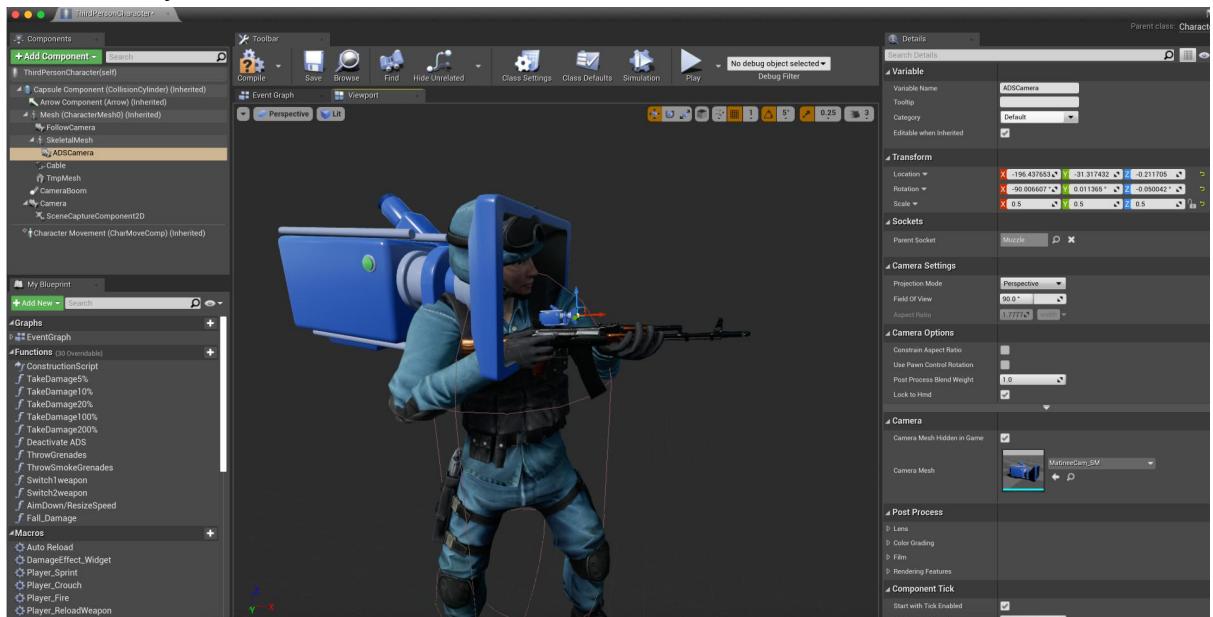
animation.



3.1.4 Weapon Aiming

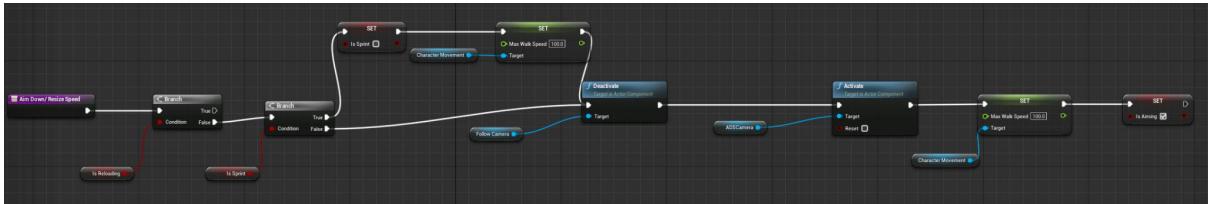
1) Aiming View

- > Add AK47's mesh and adsCamera attached to ak in the character blueprint, click to activate automatically

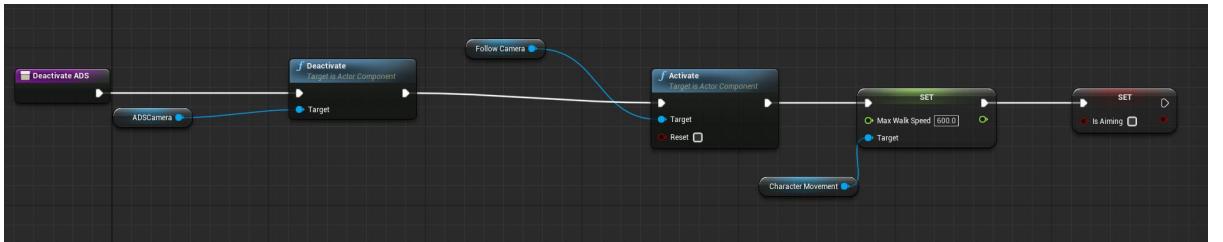


- > Create a new input aiming key and add it to the character blueprint to control the activation and deactivation of the adsCamera and the deactivation and activation of the original followCamera. Then set the value of max walk speed (moving slower when opening the scope)

Function of AimDown:

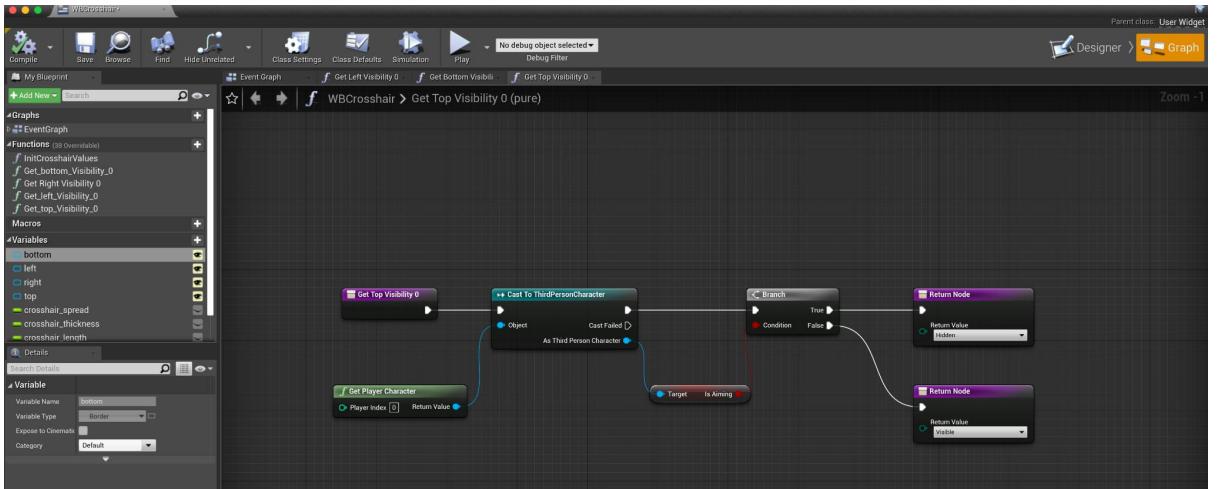


Function of Deactivate adsCamera:



2) Crosshairs

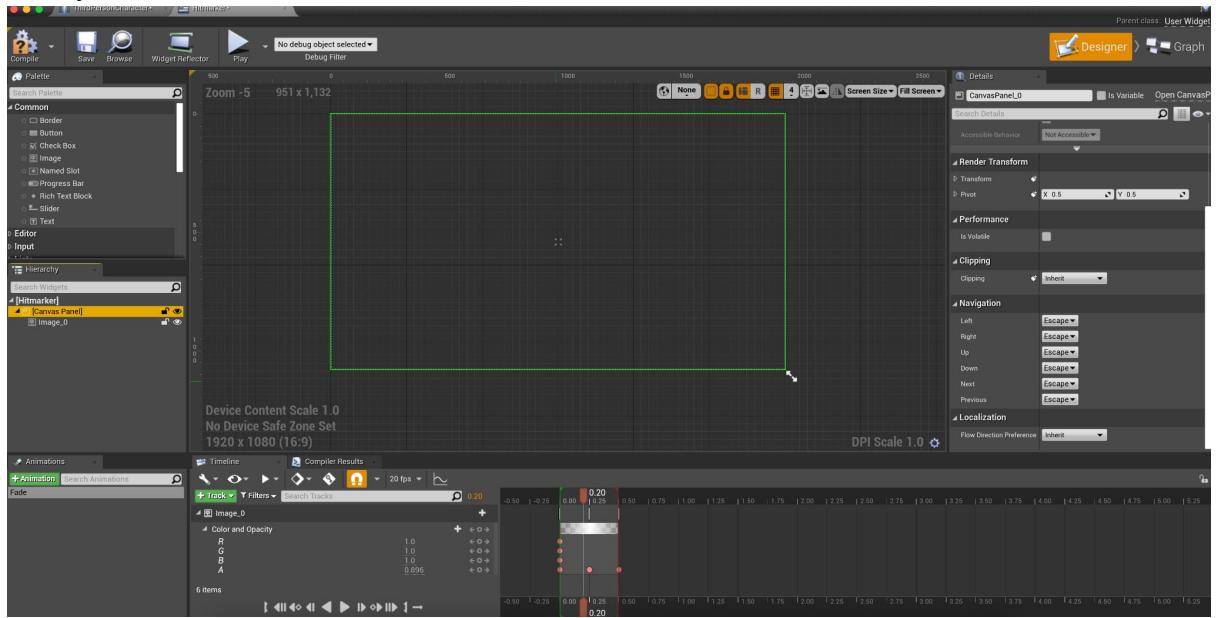
- > Create a new widget of crosshair, import dynamic diffuse crosshairs, set the visible of crosshairs to hidden when the player is aiming.



3) Hitmarker

- > Create a new widget of hitmarker, set fade animation, make it show when the player hits an

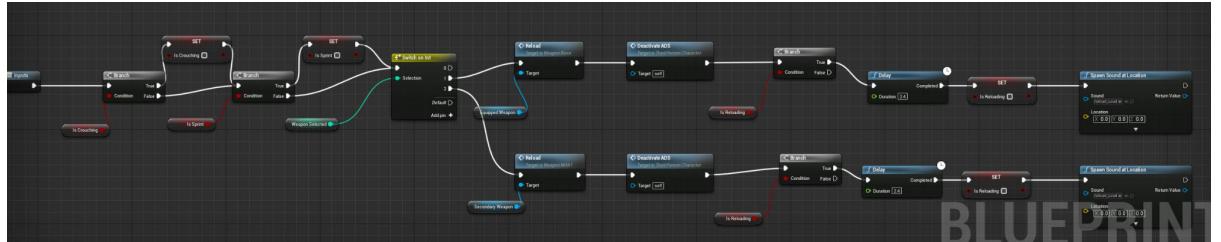
enemy.



3.1.5 Weapon Reload

1) Different Weapon's Reload

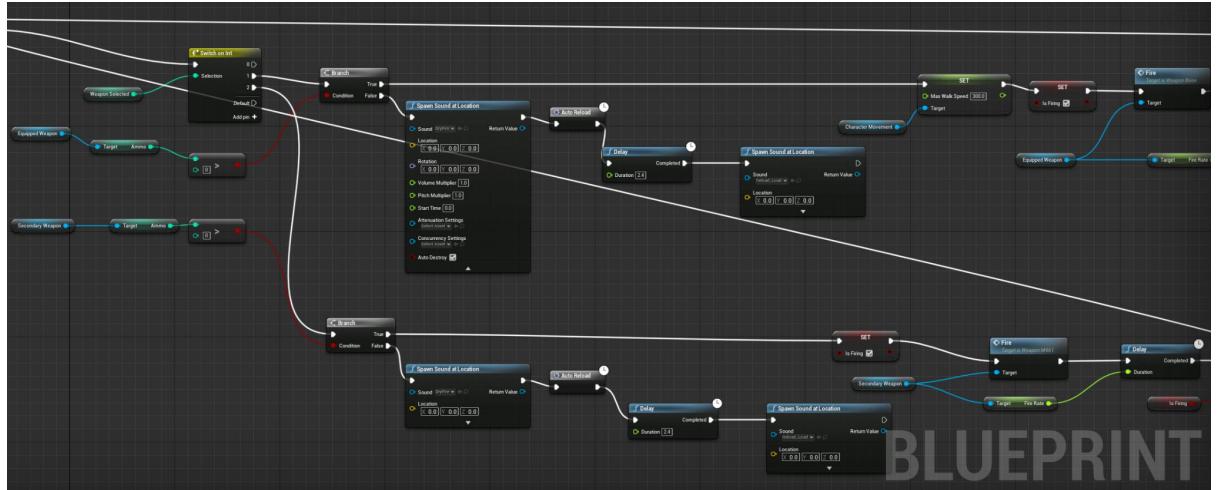
- We use Switch on int to control different weapons to reload.
- Here we create a variable named EquippedWeapon, whose variable type is Weapon_Base(blueprint of AK47). And we also create a variable named SecondaryWeapon, whose variable type is Weapon_M4A1.
- Call the Reload function of different weapons, and deactivate the ADScamera in the case of aiming.



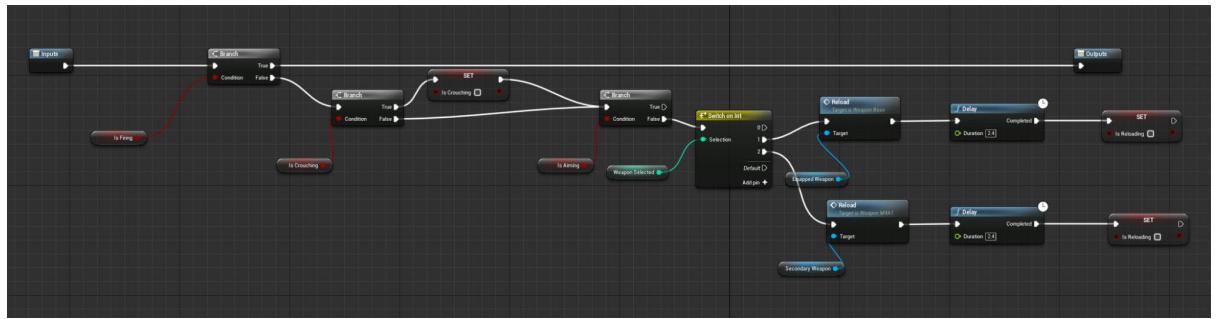
2) Auto Reload

- For the convenience of players, we also set up automatic reloading. When the number of bullets is reduced to 0, if the player presses the fire button again, the function of reloading will be

triggered.

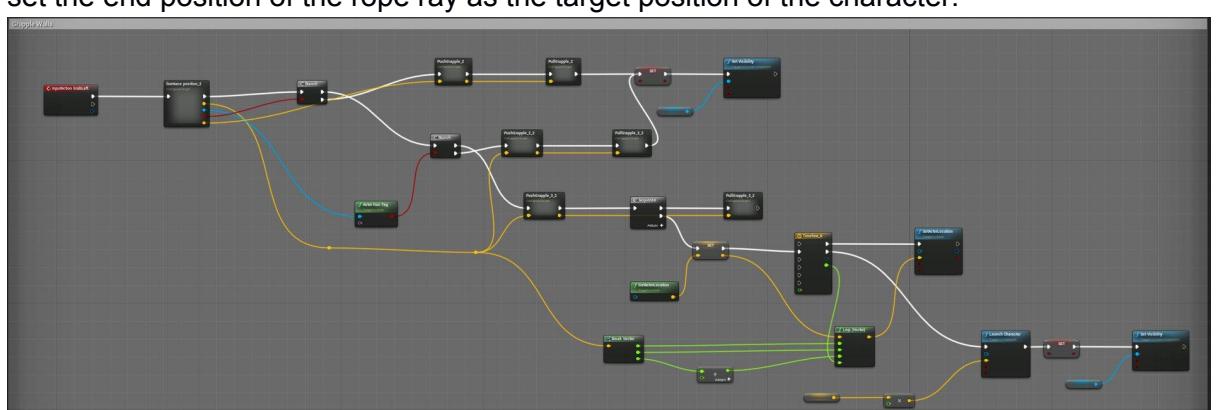


- Function of auto reload



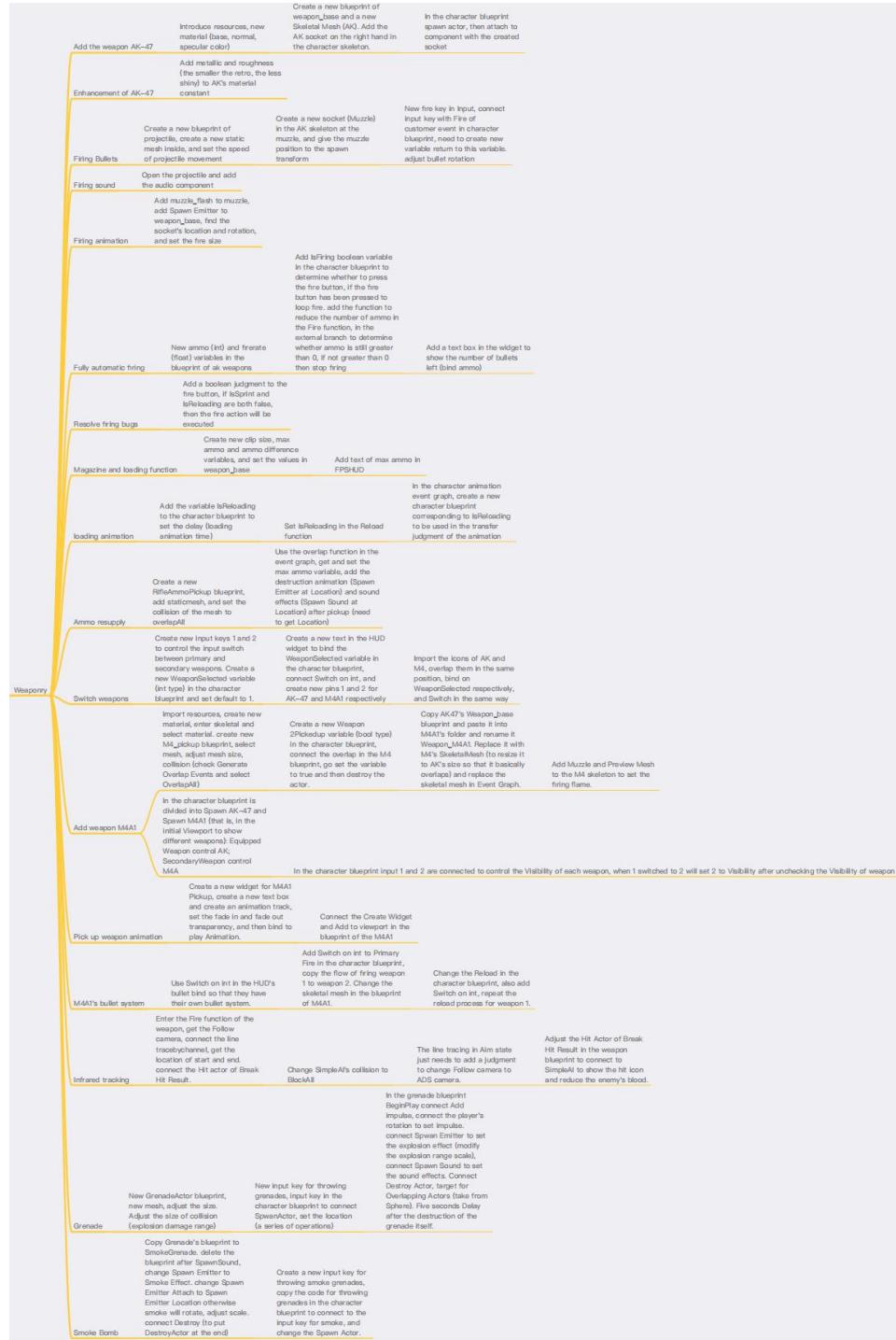
3.1.6 Grapple Wall

- The character can use the cable component to move to any object with a Grapple Wall tag, like Spider-Man!
- We bind the cable and TmpMesh to the waist of the character, and the socket of the cable is TmpMesh, so that the direction to which the hook extends is the following direction of the character's camera. Set up the extend and pull rope functions, and set the end position of the rope ray as the target position of the character.



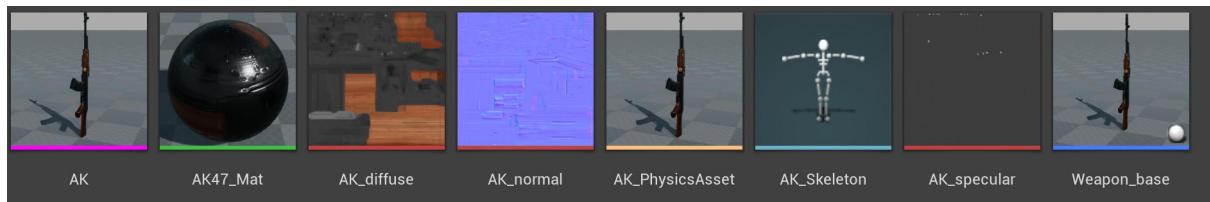
3.2 Weapon System

We add two weapons in total, one is AK47 and the other is M4A1, which are configured with different damage values and ammunition systems. And we also add grenades and smoke grenades.



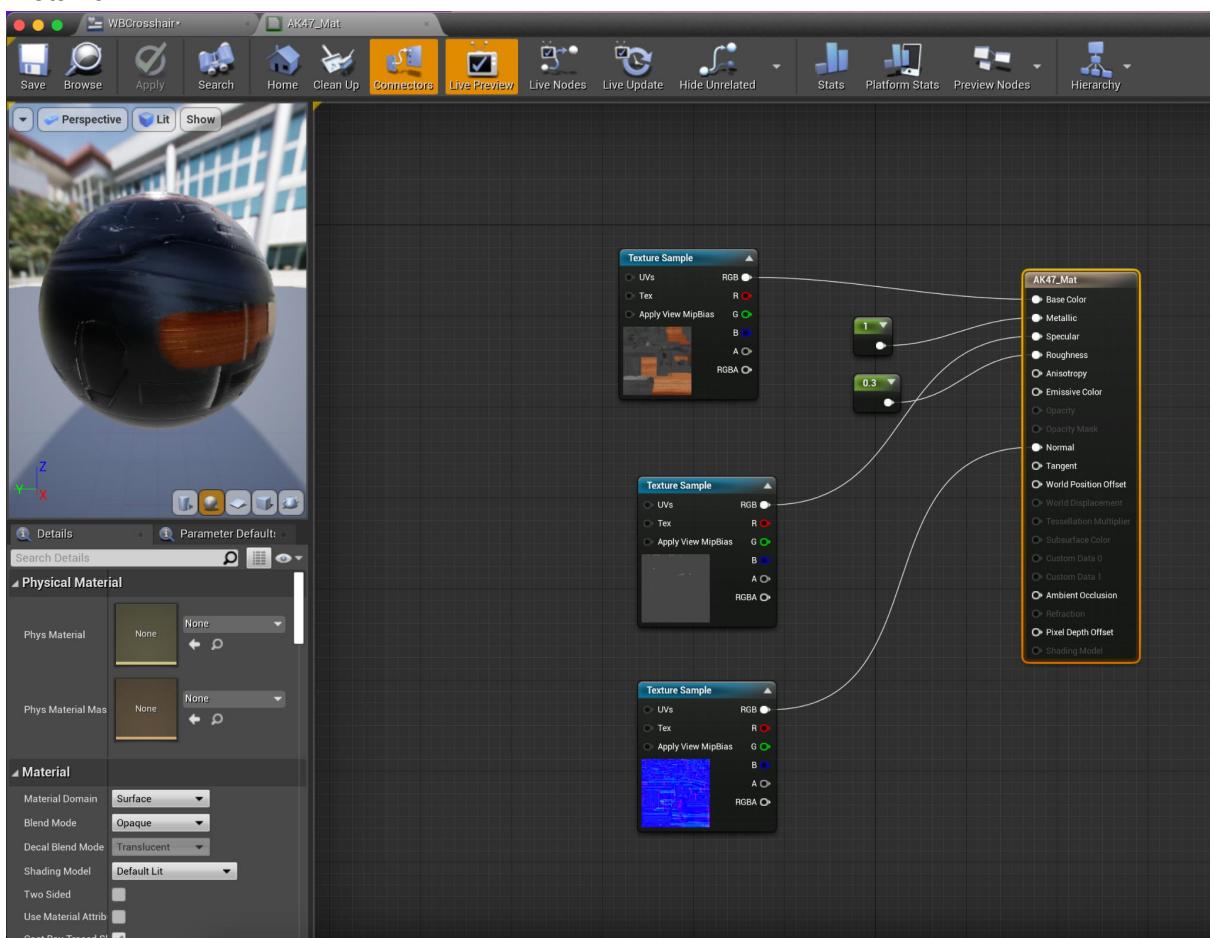
3.2 work flow chart (weapon)

3.2.1 Weapon AK47



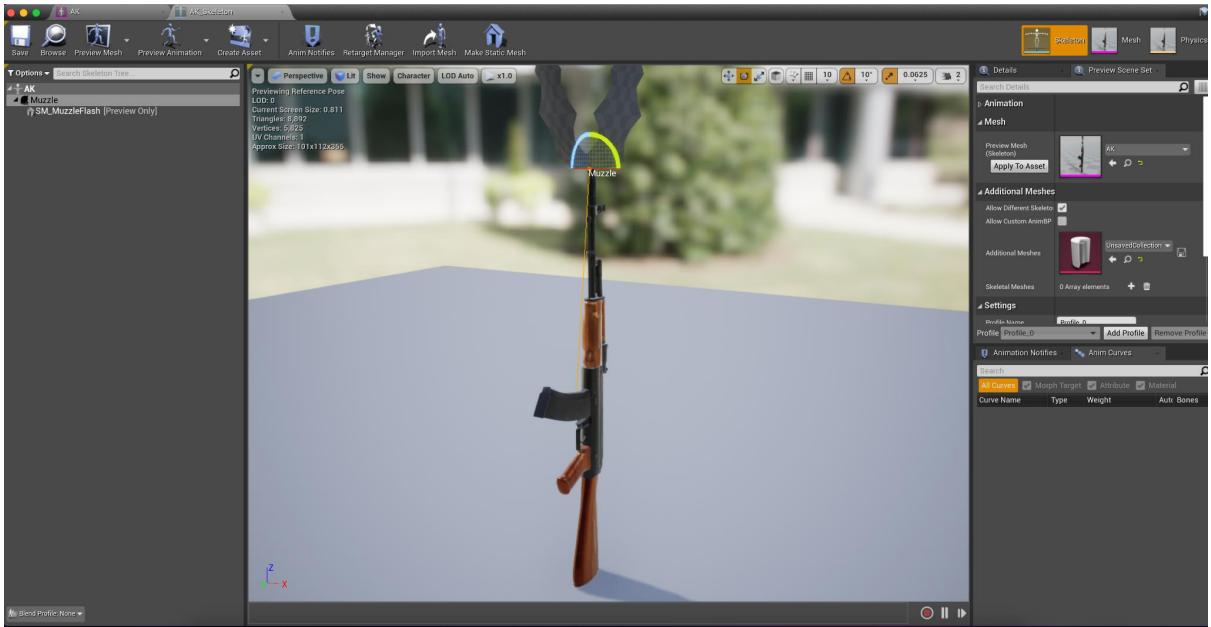
1) Material and Skeleton

- Connect base colour, specular and normal to AK47_Mat, set metallic to 1 and roughness to 0.3 to make the gun more metallic.



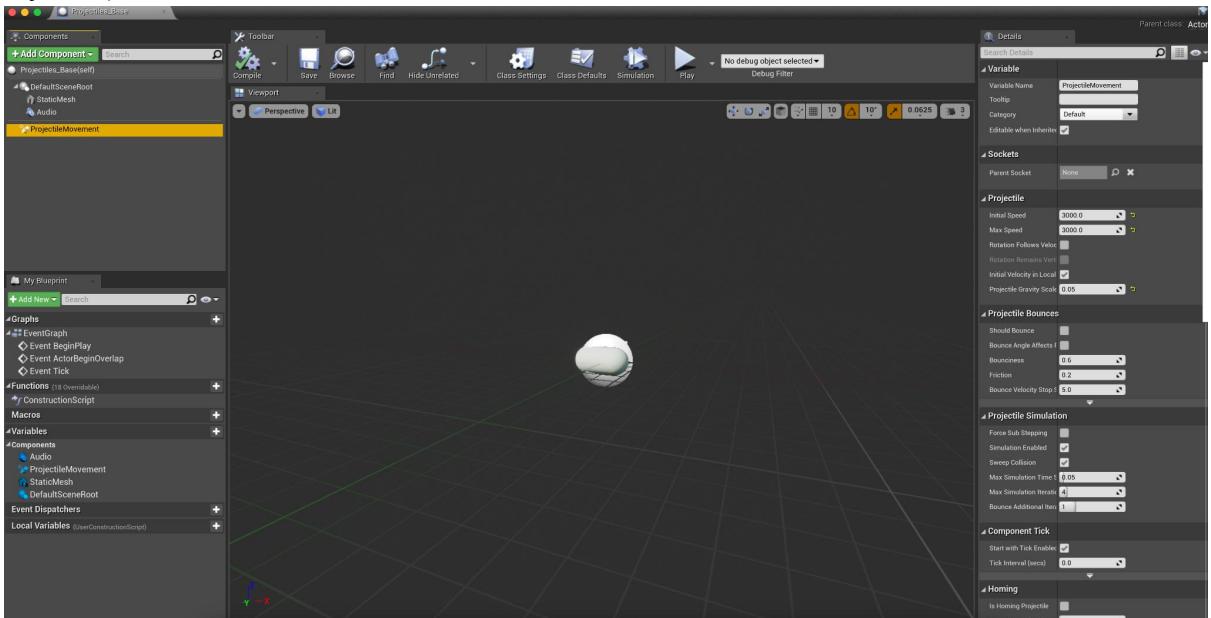
- Create a new socket (Muzzle) at the muzzle of the AK skeleton, and give the muzzle position to the spawn transform, add muzzle_flash on

muzzle.



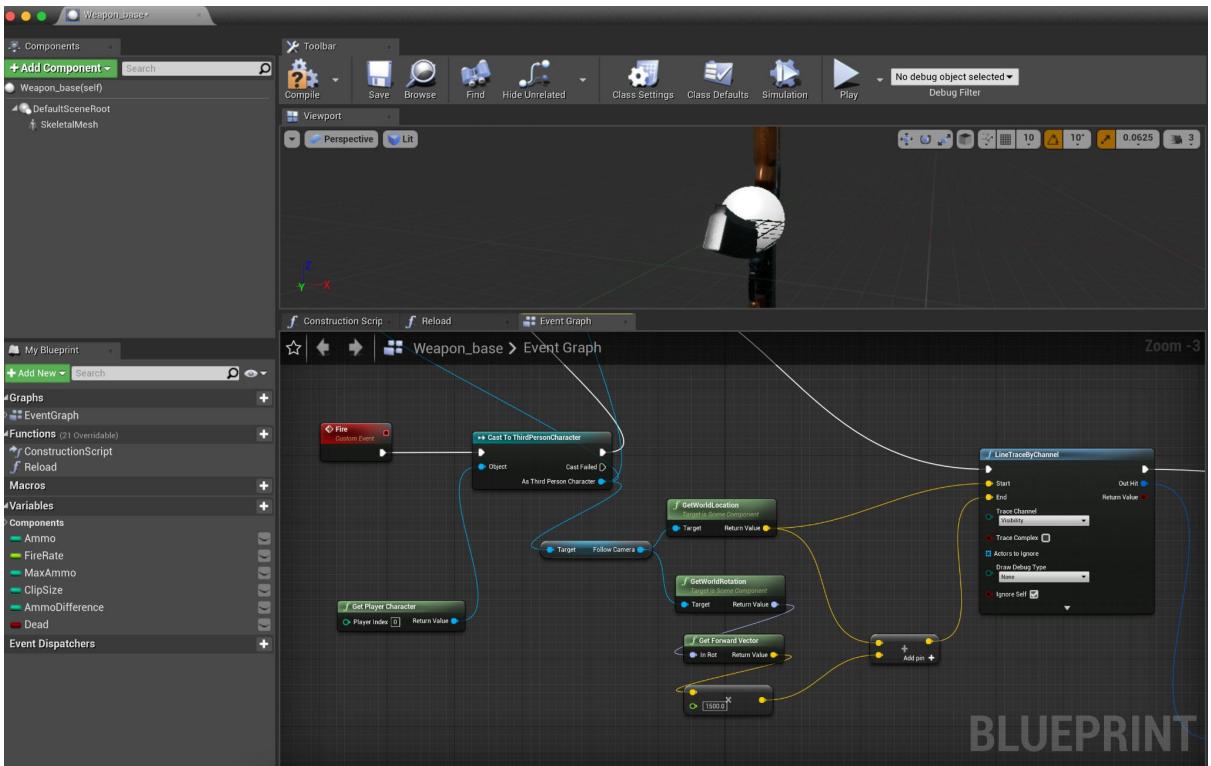
2) Fire

- At first, we use projectiles to imitate fire effects and need to set the speed of ProjectileMovement. It seems like a bullet right? I pinched the shape of the bullet myself :)

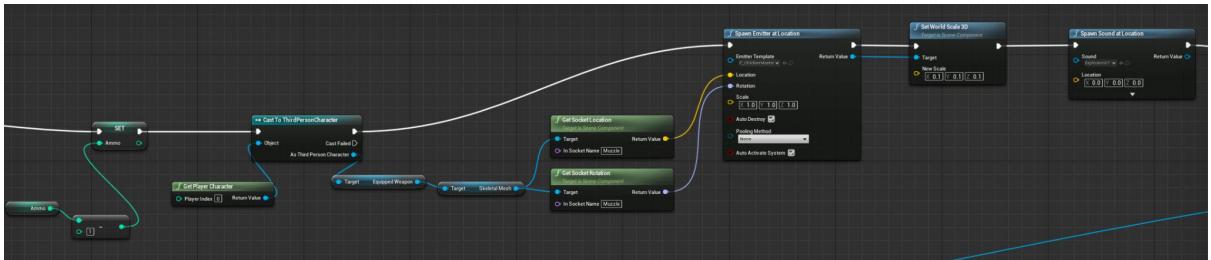


- But after that we learned about LineTrace, which is easier to use and more realistic, so we changed from shooting projectiles to ray. And we created a new custom event called Fire to connect with the third person character. We get the shooting direction from the follow camera on the

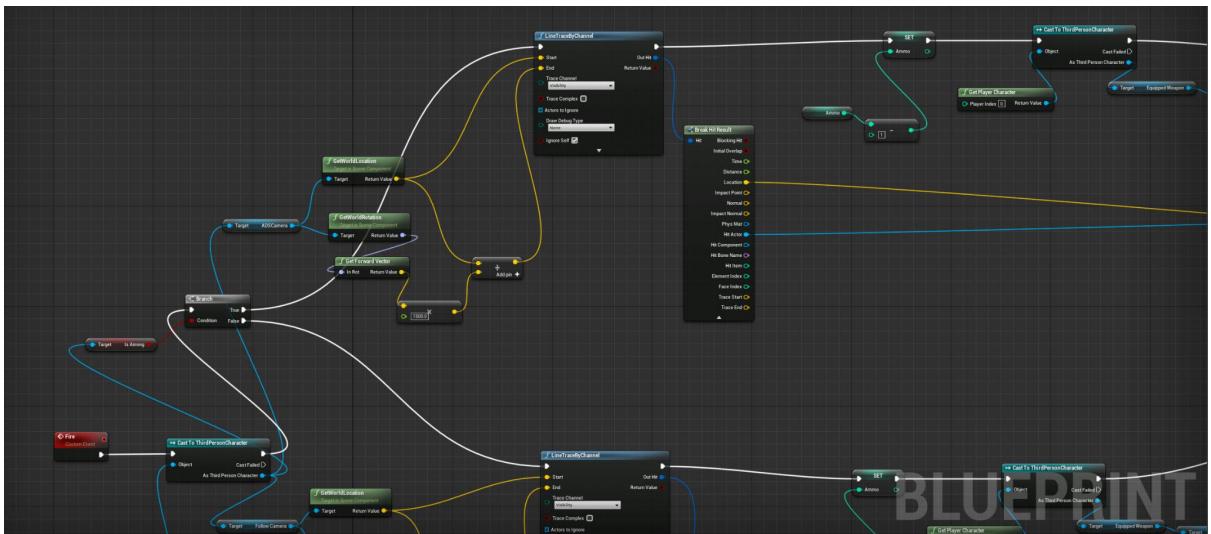
character.



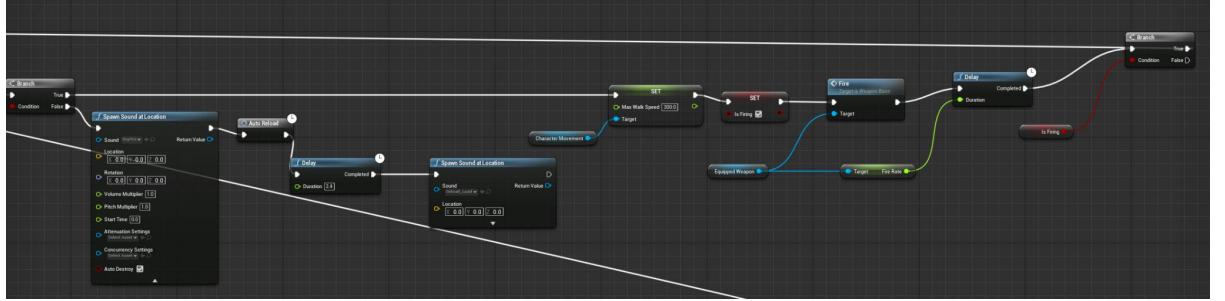
- Then we subtract one from the number of bullets each time we fire. What's more, we set up fire effects and sound effects at the position of the gun.



- In the aiming situation we use another camera(ADSCamera) attached to the gun to determine the shooting direction.

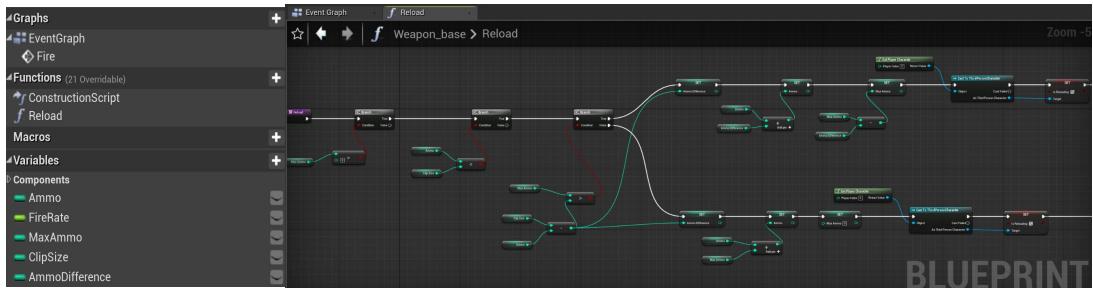


- In the character blueprint, we use the Boolean variable IsFiring and the floating-point variable Fire Rate in the gun blueprint to realise the fully automatic firing of weapons. Here we set the duration of Delay to the value of Fire Rate and slow down the character's movement speed when shooting.



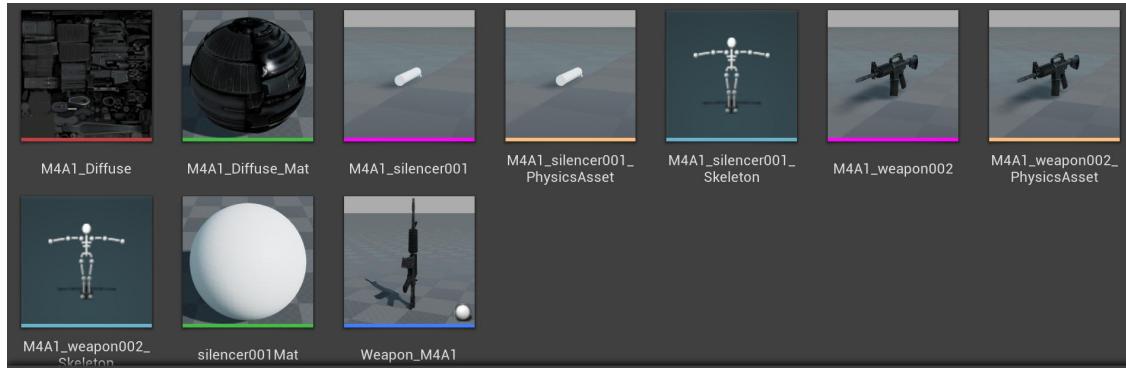
3) Reload

- We create variables of ammo, clip size, max ammo, ammo difference in the blueprint of Weapon_base(AK47). Every time when reloading, need to judge the max ammos firstly, if max ammos greater than 0, you have spare ammo to reload. Then we need to judge whether ammo smaller than clip size, use clip size to subtract ammo's value to take the ammo of that value from max ammo. After that, set the value of max ammo to the value of ammo difference. If the value of max ammo greater than ammo difference, we're going to add ammo to ammo difference, otherwise, let's add ammo to max ammo.



3.2.2 Weapon

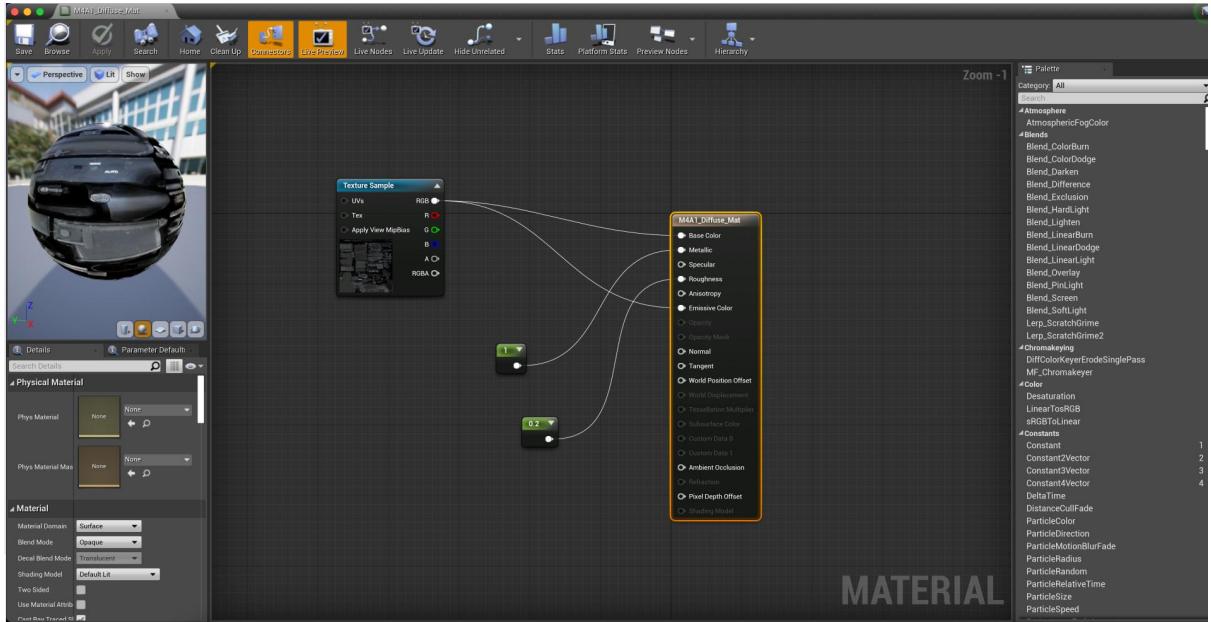
M4A1



Basically same like AK47

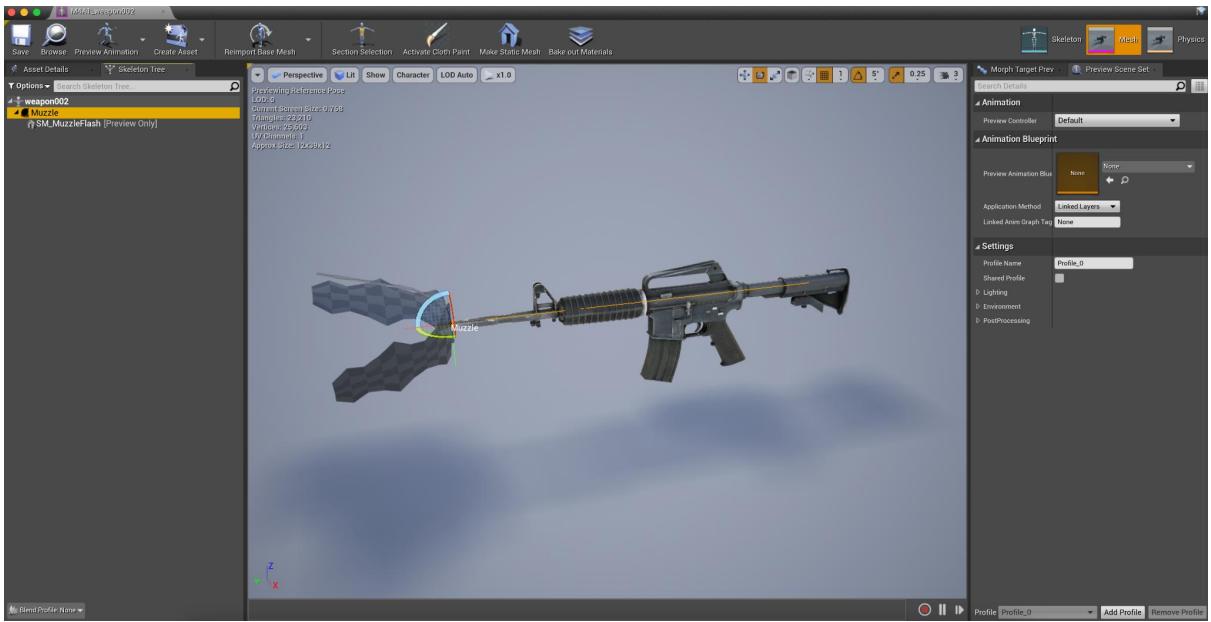
1) Material and Skeleton

- > Connect base colour, emissive to M4A1_Diffuse_Mat, set metallic to 1 and roughness to 0.2 to make the gun more metallic.



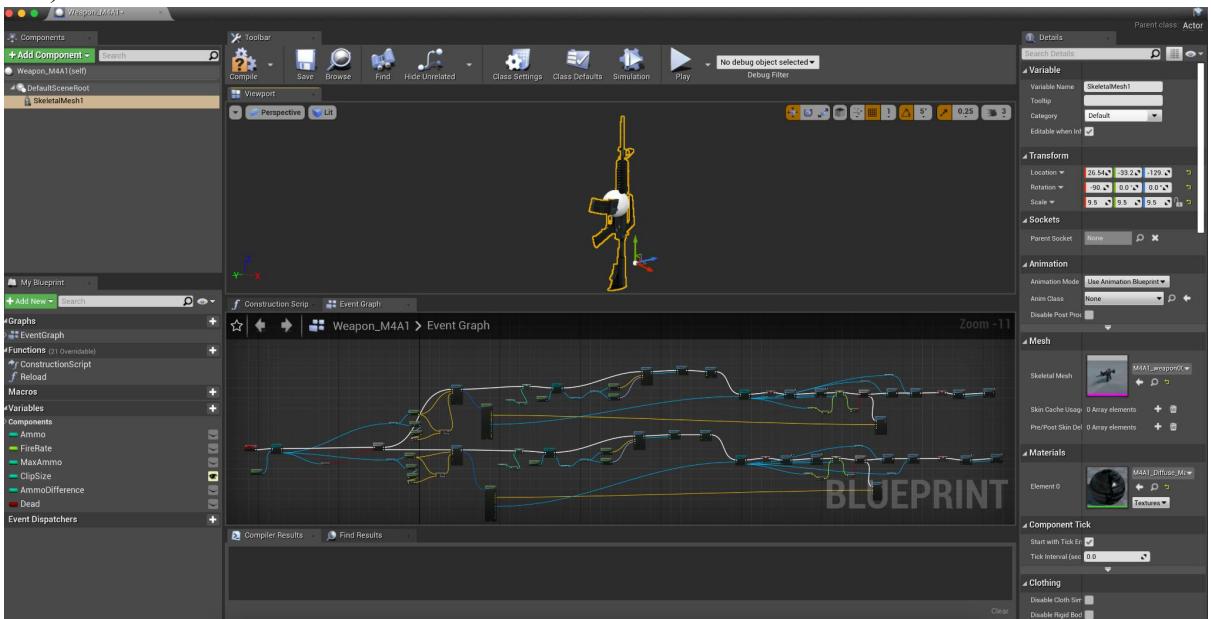
- > Create a new socket (Muzzle) at the muzzle of the M4 skeleton, and give the muzzle position to the spawn transform, add muzzle_flash on

muzzle



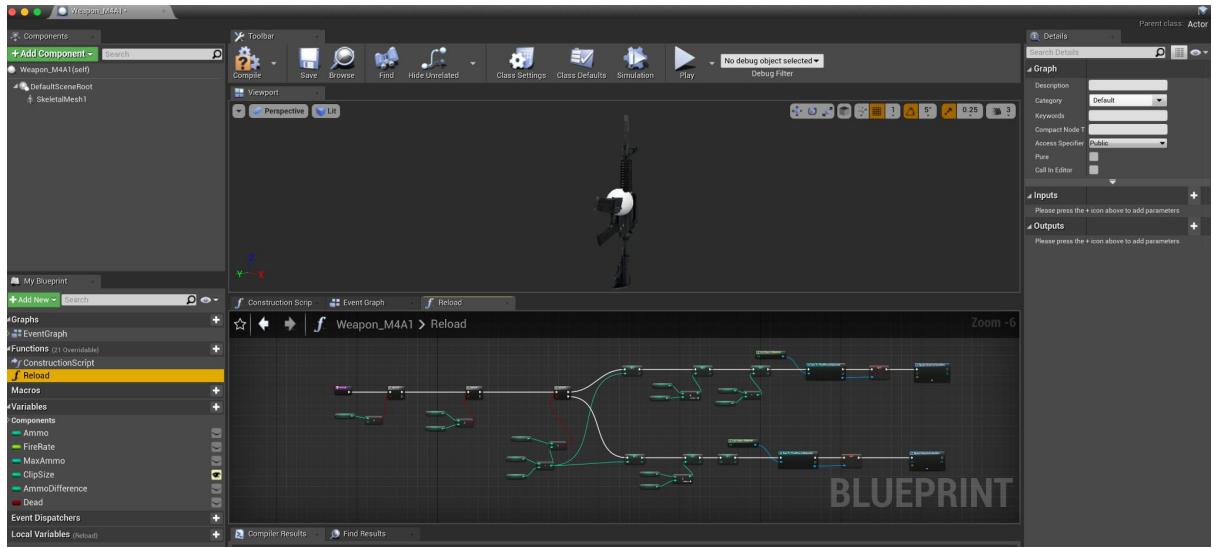
2) Fire

- Duplicate the blueprint of AK47 to M4A1, then replace the skeletal mesh(resize M4 to the size of AK).



3) Reload

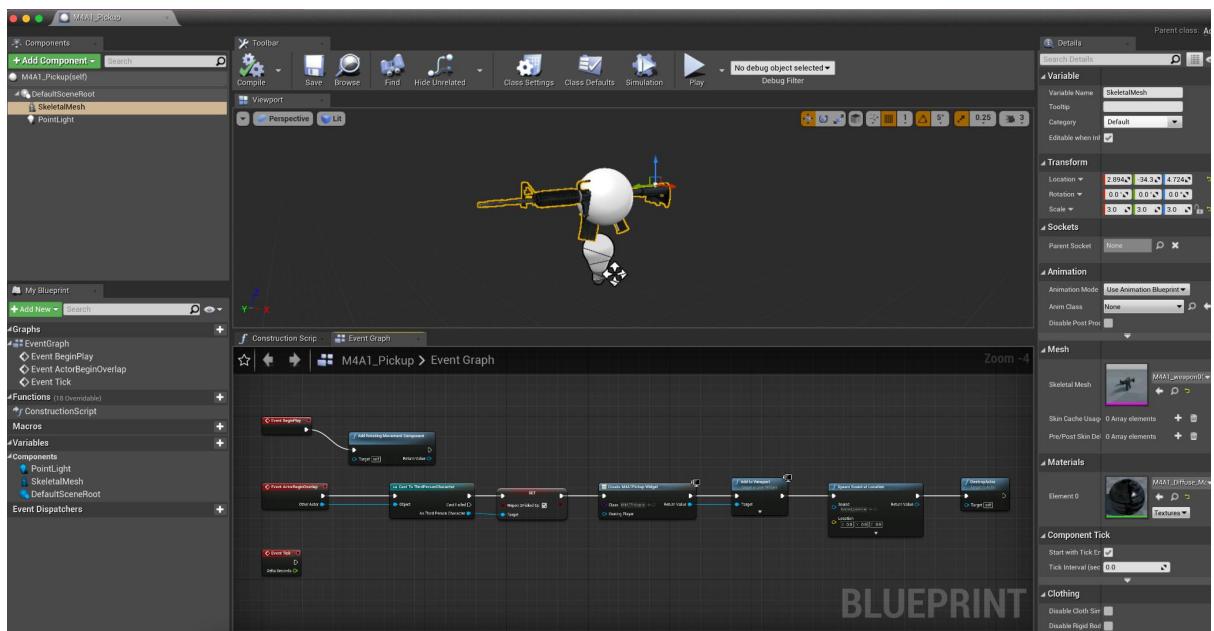
- Use the Reload function from Weapon_base.



- Actually, we can create more weapons based on the blueprint of the first gun, just modify the shooting effect sound and the clip system.

4) Pickup

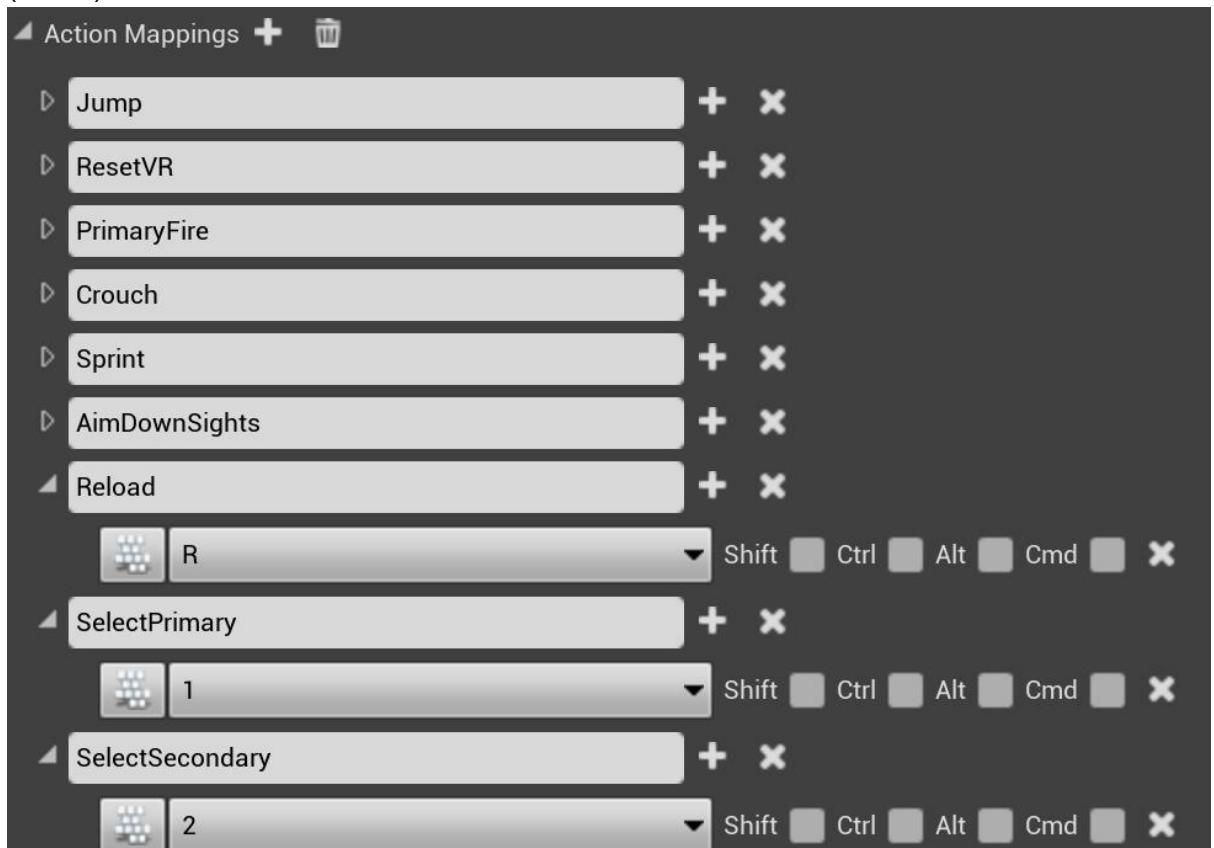
- Create a new M4A1 Pickup widget, create a new text box and create an animation track, set the transparency of fade in and fade out, and then bind to connect to play Animation. Connect create widget and add to viewport in the blueprint of Weapon_M4A1. We also added a point light source to the gun and made it rotate continuously to give people a more obvious hint.



3.2.3 Weapon Switch

1) Character Spawn

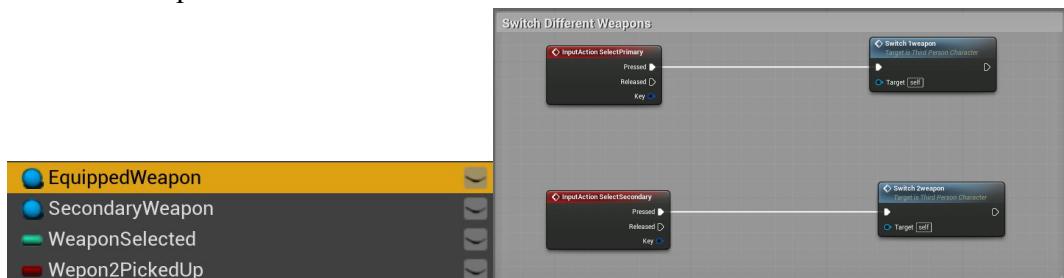
- > We use the 1 key on the keyboard to select the first weapon (AK47), and the 2 key to select the second weapon (M4A1).



- > At first we bound both weapons to the character, set the AK to be visible and the M4 to be invisible.

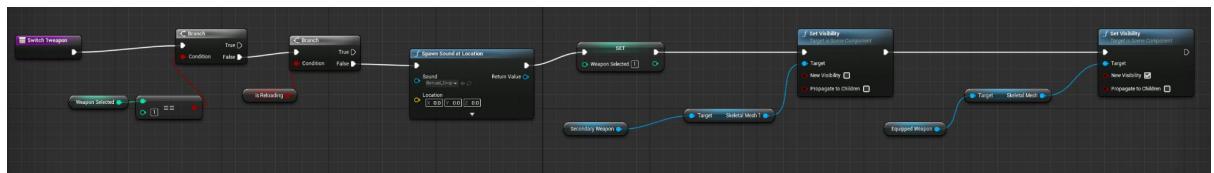


- > We set the following variables to determine whether to pick up a weapon and switch weapons. Then use functions of Switch1weapon and Switch2weapon to switch different weapons.



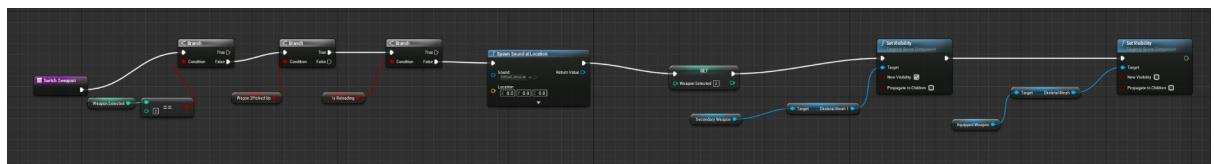
2) Switch to AK47

- Use the function of Switch1weapon to make the visibility of AK47, then set the M4A1 to invisible.



3) Switch to M4A1

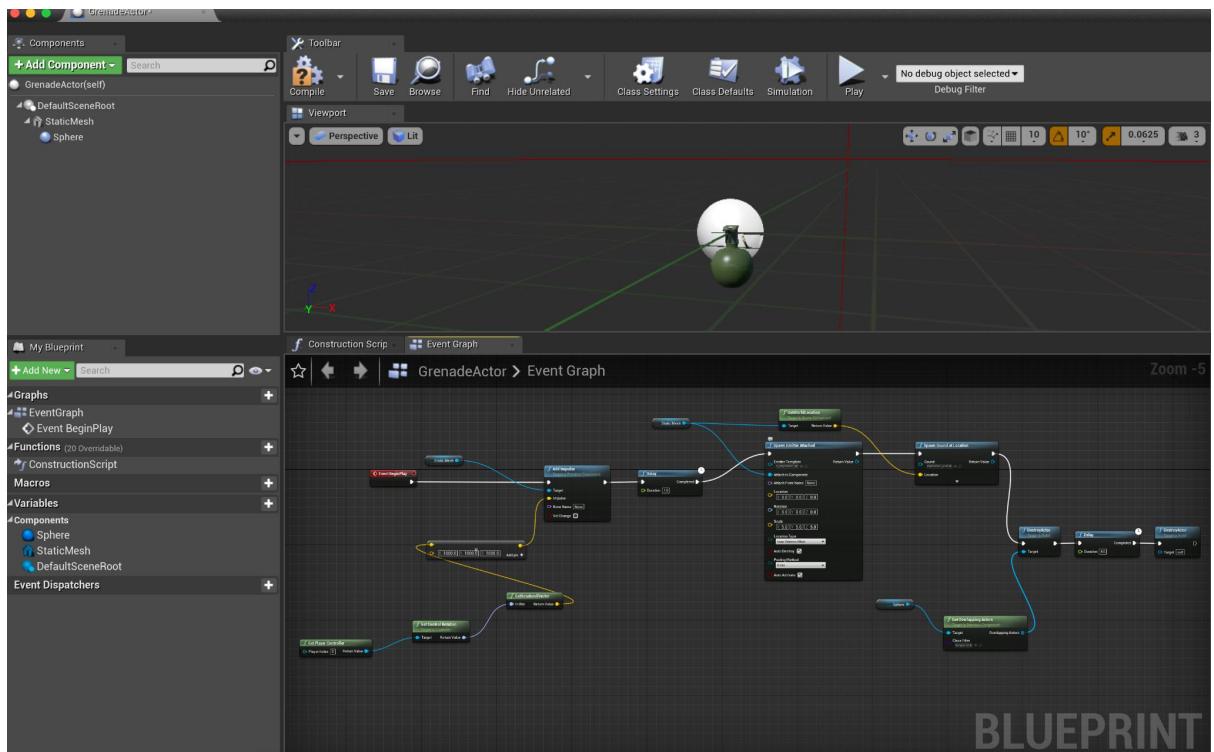
- Use the function of Switch2weapon to make the visibility of M4A1, then set the AK47 to invisible.



3.2.4 Grenade

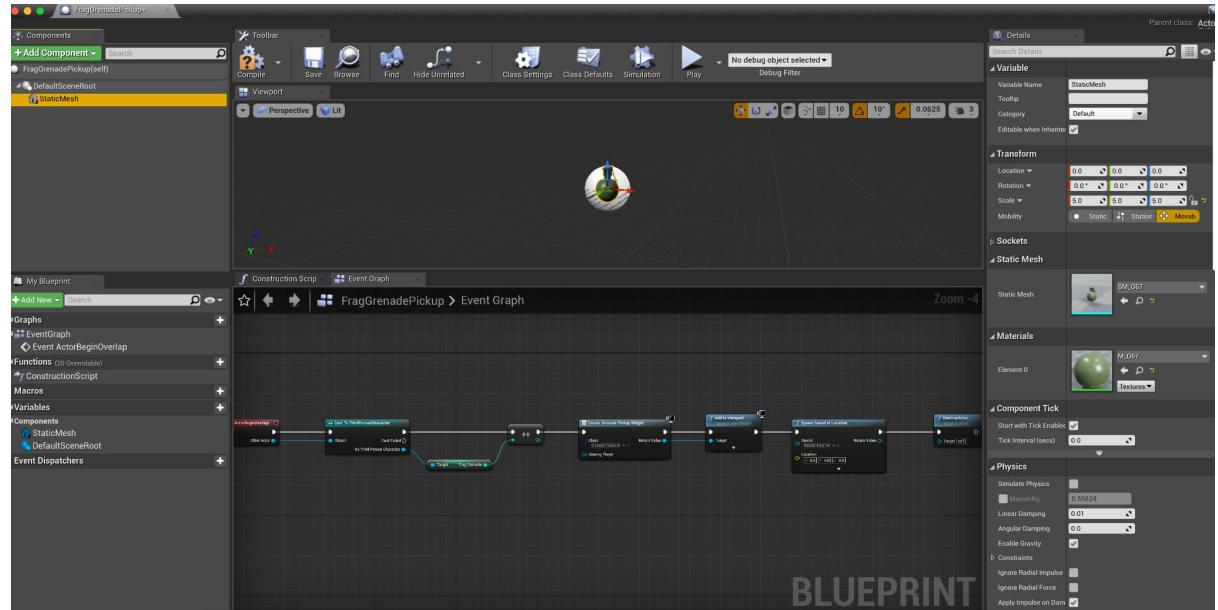
1) Grenade Actor

- Use the grenade model and use sphere collision to simulate the explosion range, and the enemies within the range will be destroyed. Get the impulse from the position of the character.



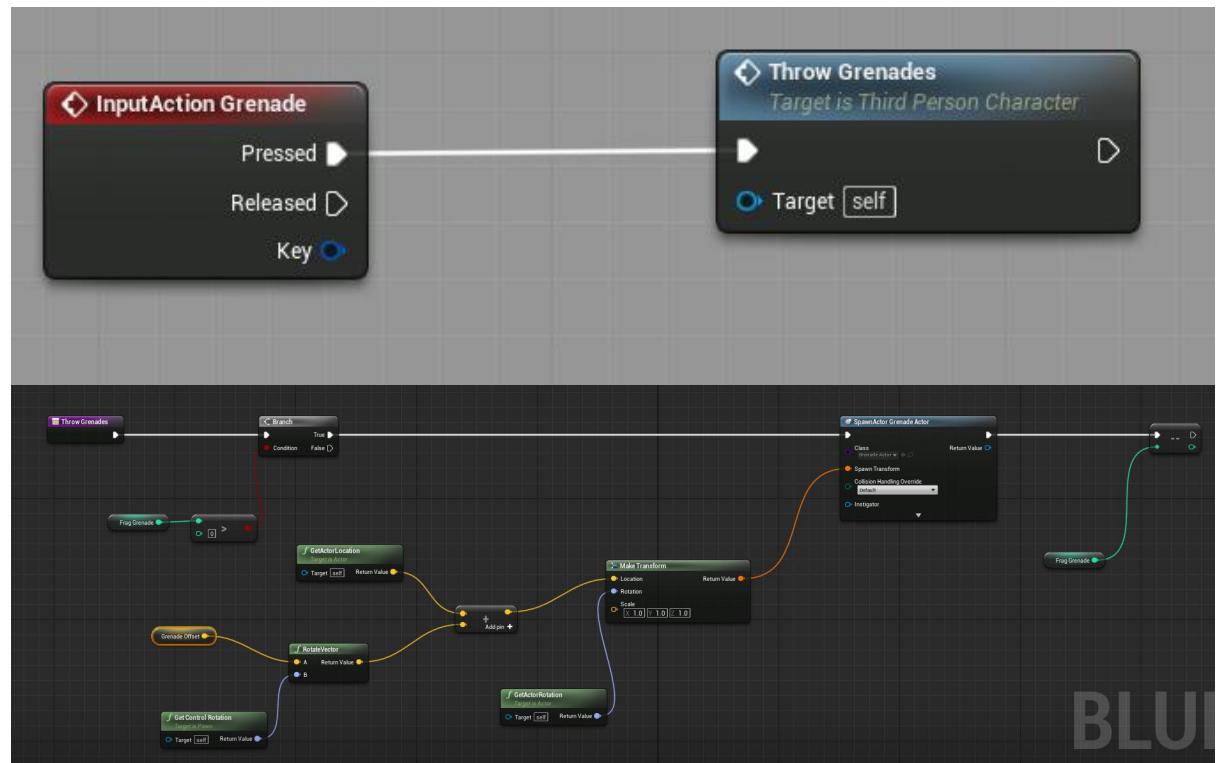
2) Grenade Pickup

- When the character collides with the grenade, the number of grenades increases by 1.



3) Throw Grenades

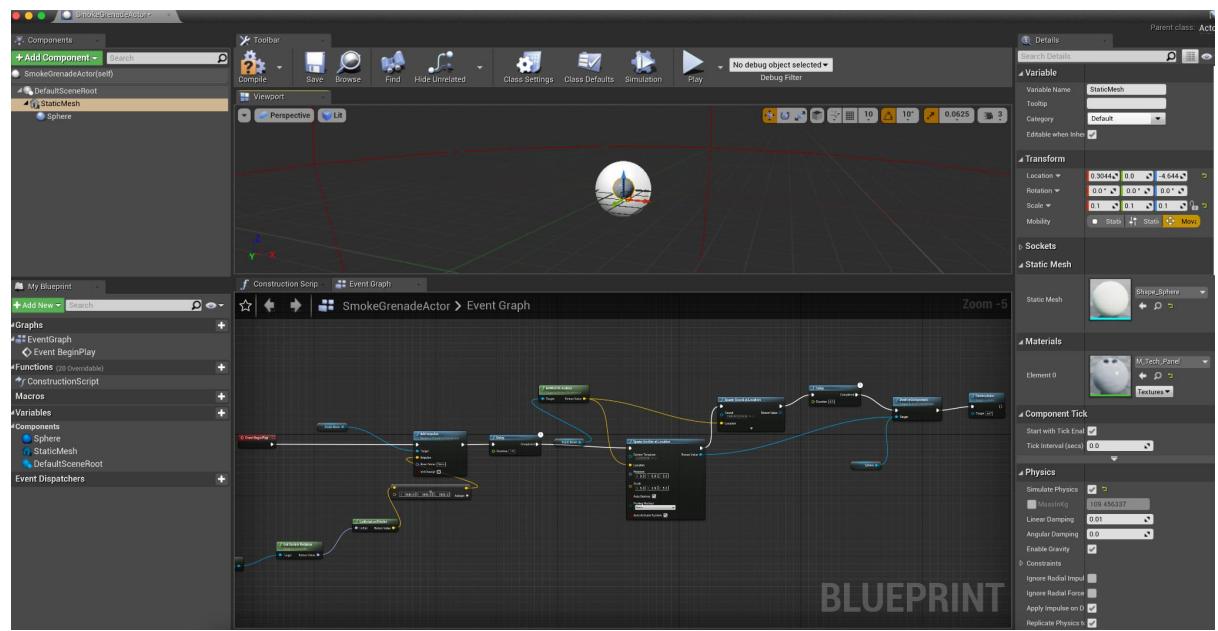
- Create input F key to throw grenades, need to judge the number of grenades firstly, if the number of grenades greater than 0, then use the grenade offset to set the spawn transform, minus the number of grenades at last.



3.2.5 Smoke Grenade

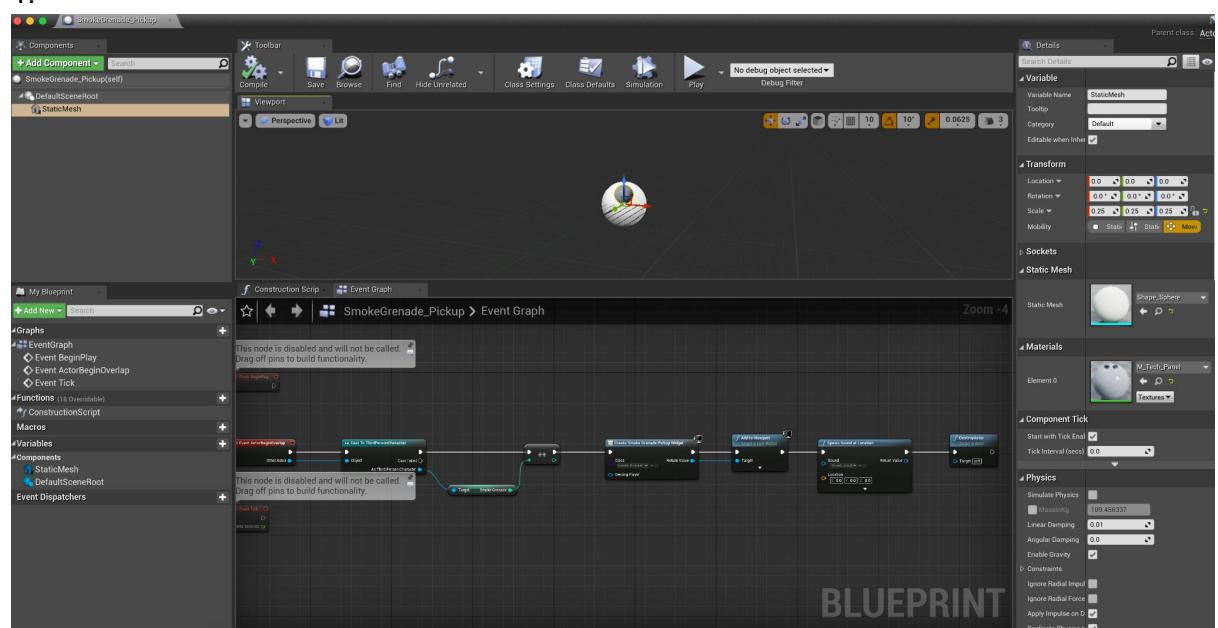
1) SmokeGrenade Actor

- Copy Grenade's blueprint for SmokeGrenade. Delete the blueprint after SpawnSound, change Spawn Emitter to smoke effect. Change Spawn Emitter Attach to Spawn Emitter Location otherwise the smoke will rotate, adjust scale.



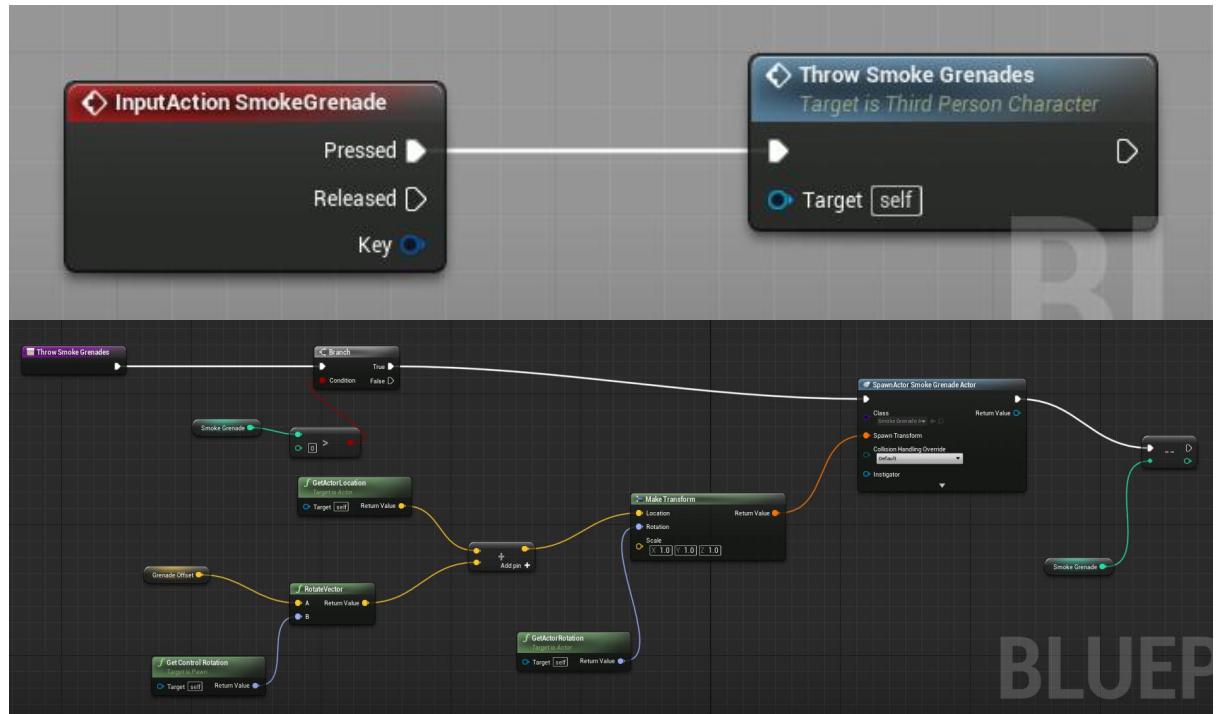
2) SmokeGrenade Pickup

- When the character collides with the smoke grenade, the number of smoke grenades increases by
1.

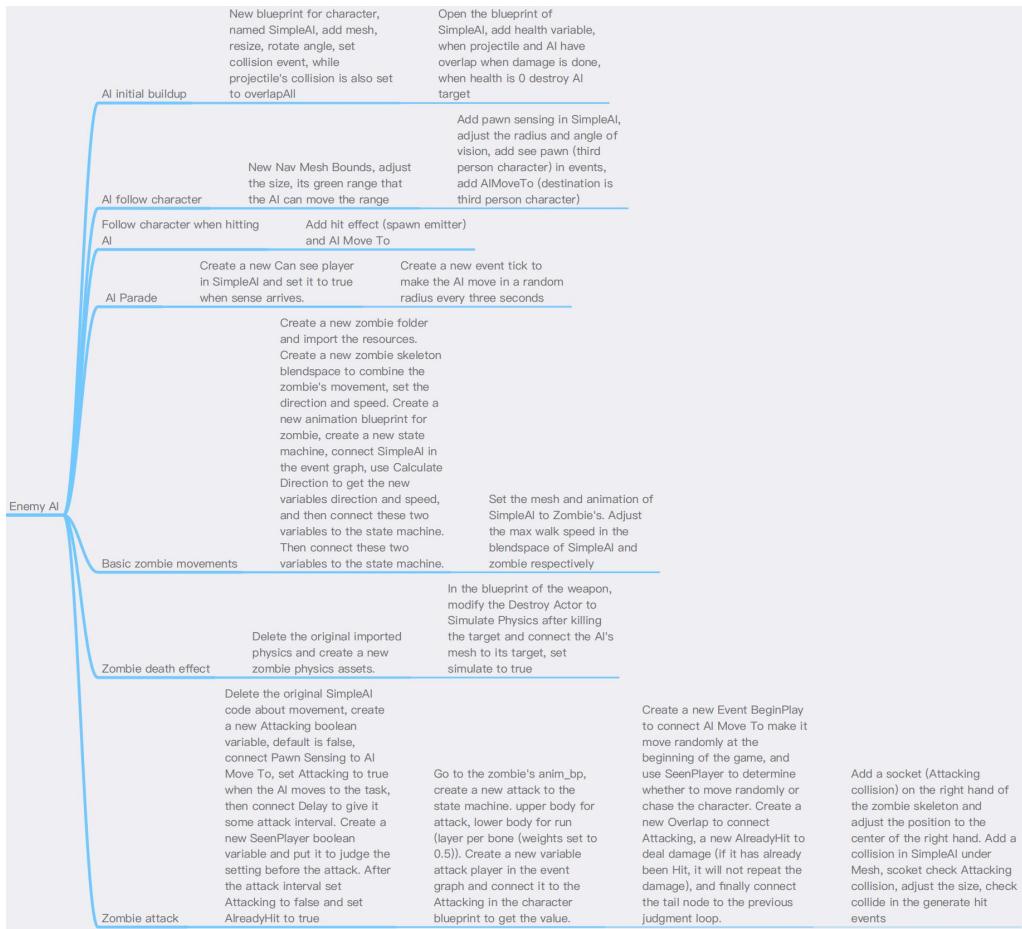


3) Throw Smoke Grenades

- > Create input G key to throw smoke grenades, need to judge the number of smoke grenades firstly, if the number of smoke grenades greater than 0, then use the grenade offset to set the spawn transform, minus the number of smoke grenades at last.



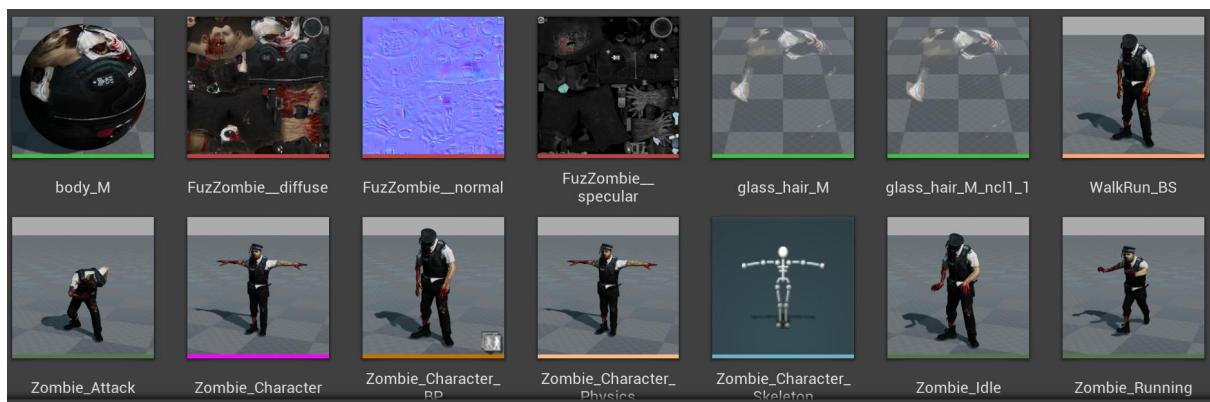
3.3 Enemy System

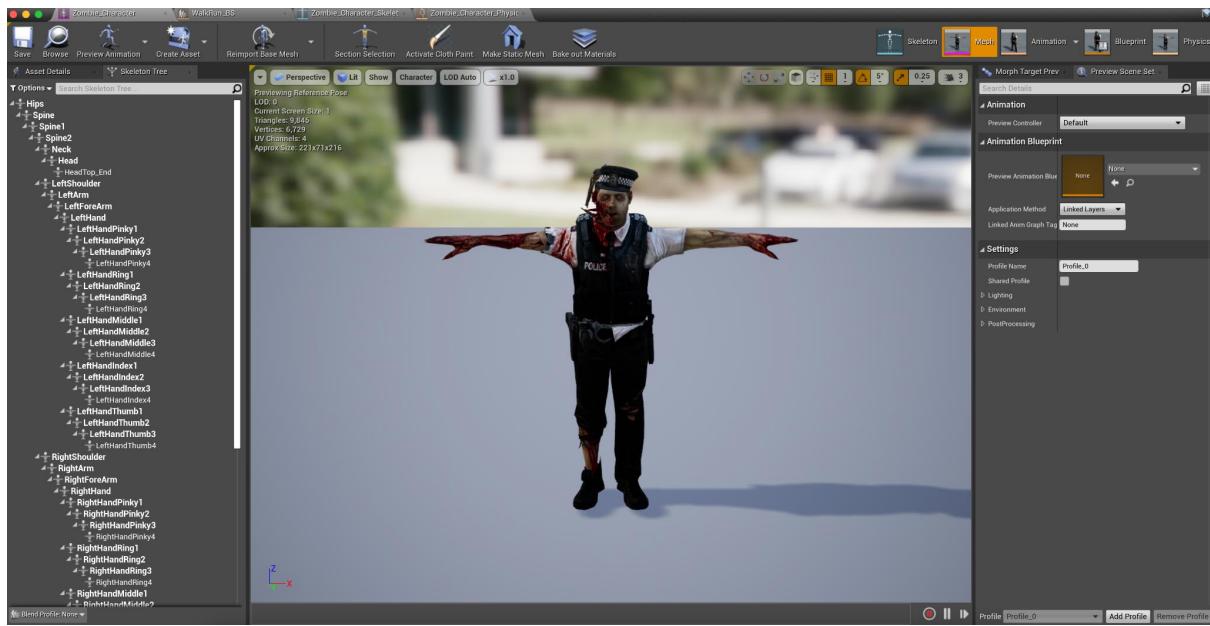


3.3 work flow chart (enemy)

3.3.1 Model

We use zombie assets from resources.

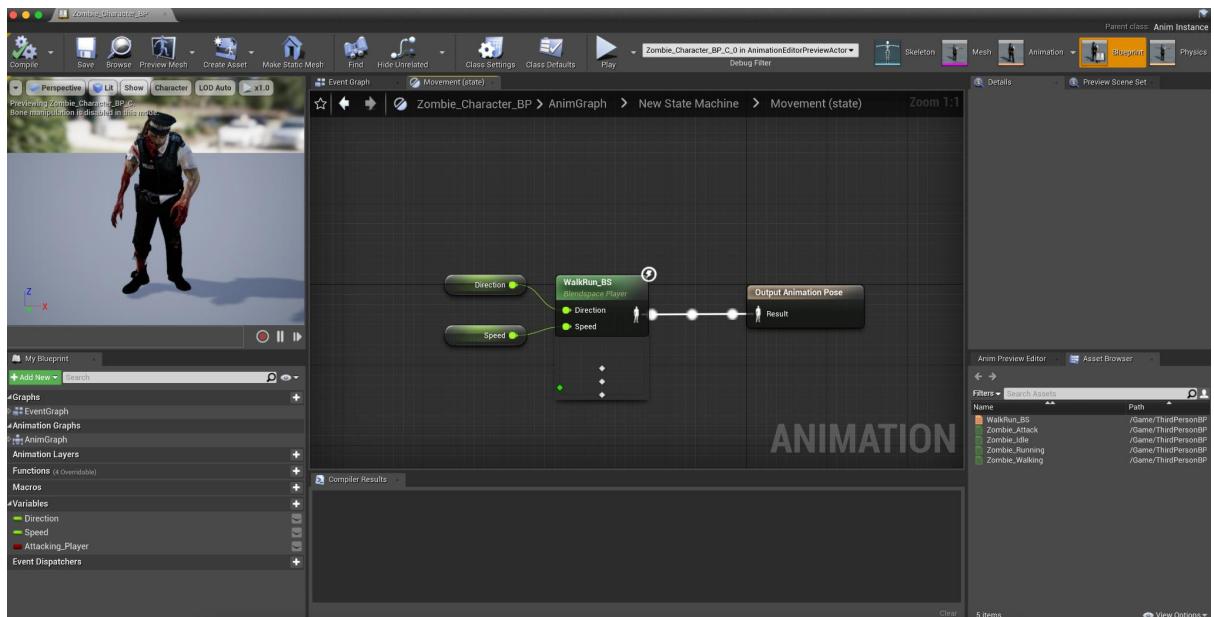




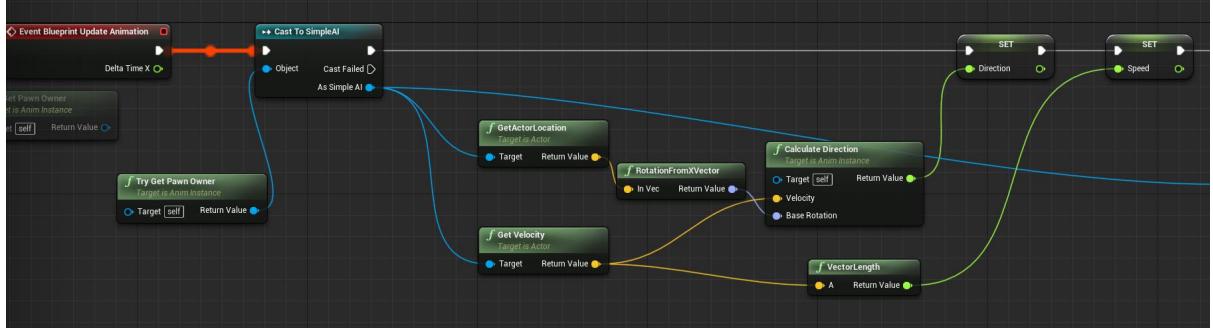
3.3.2 Animation

1) Movement

- We use variables of direction and speed to control the movement of zombies.

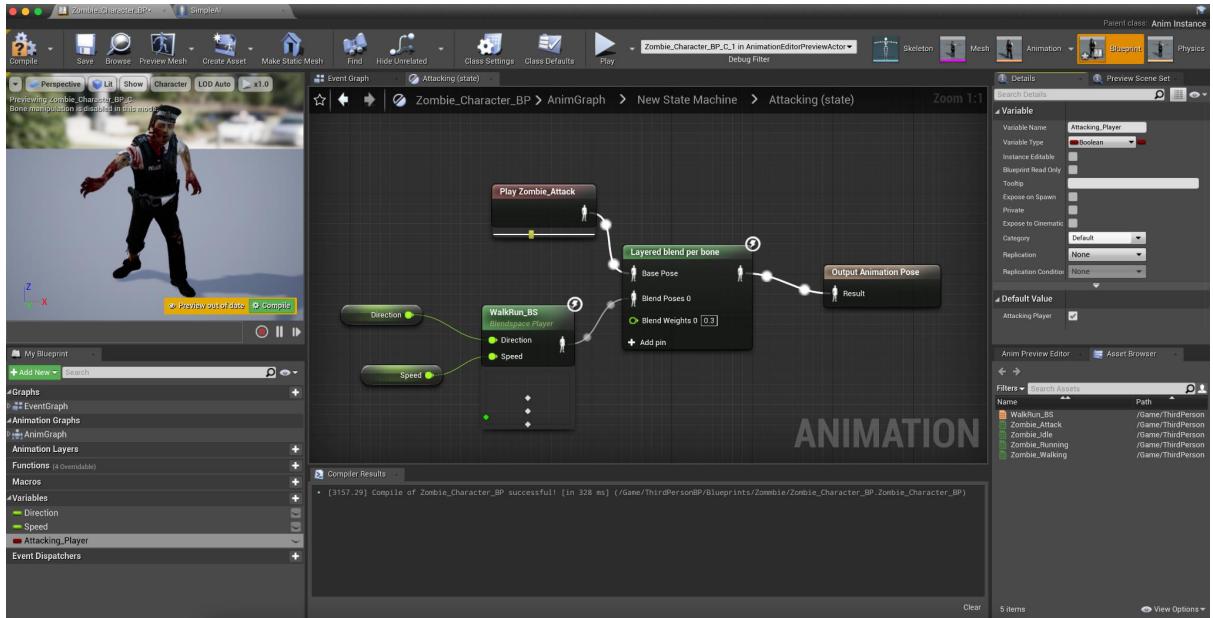


- > We get the value of direction and speed from the blueprint of SimpleAI.

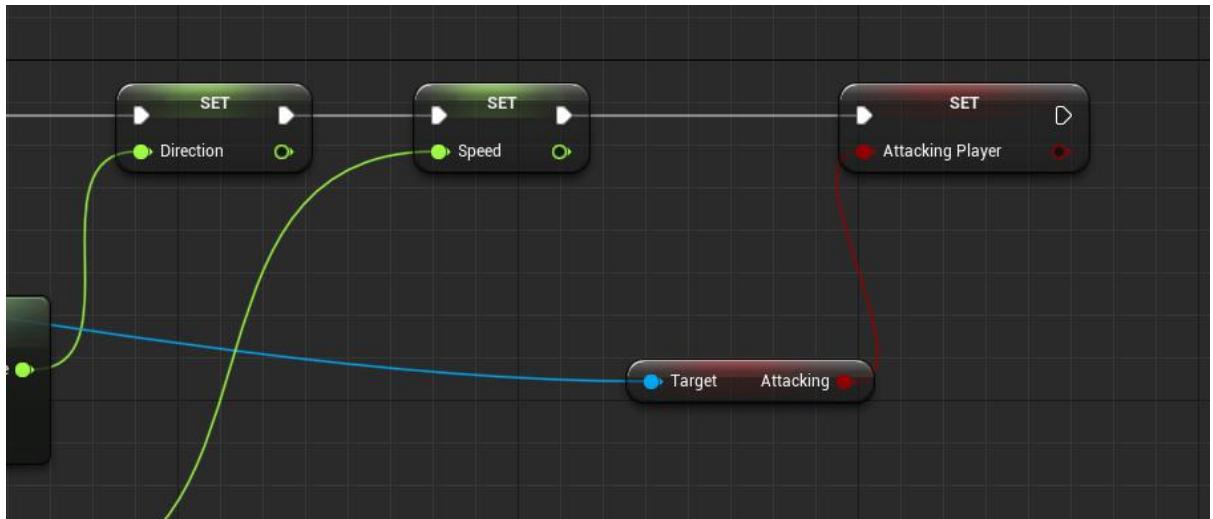


2) Attack

- > Go to the anim_bp of the zombie, and create a new attack to the state machine. The upper body is attacking, and the lower body is running (layer per bone (weights is set to 0.5)).



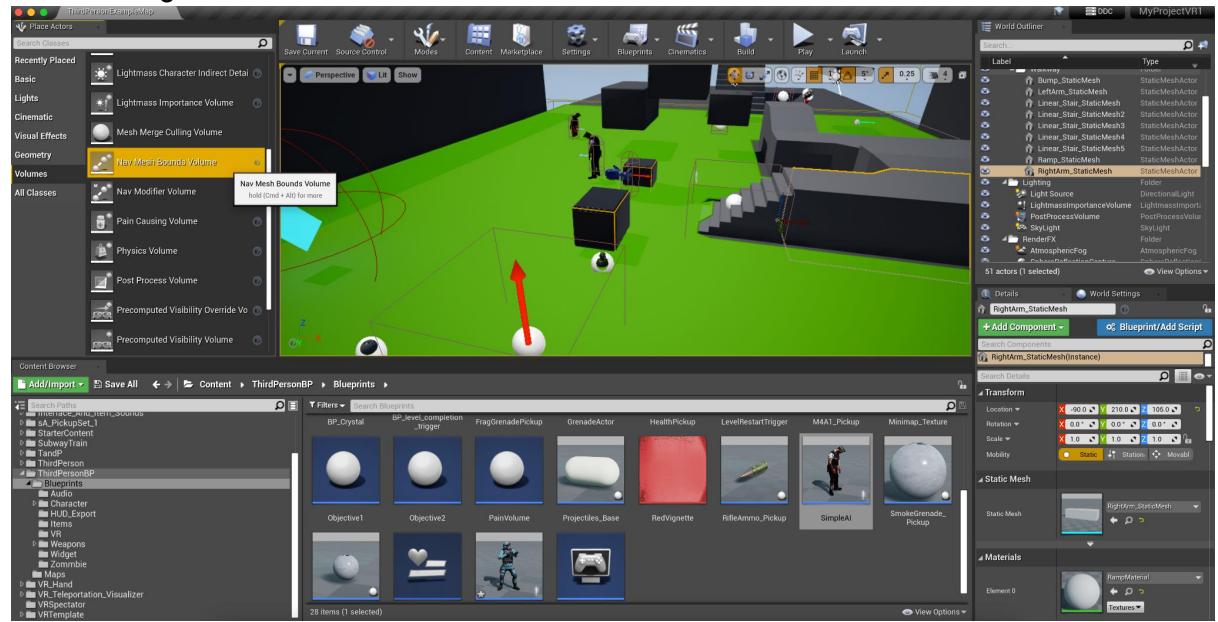
- > Use the Attacking variable to determine whether to attack the player character.



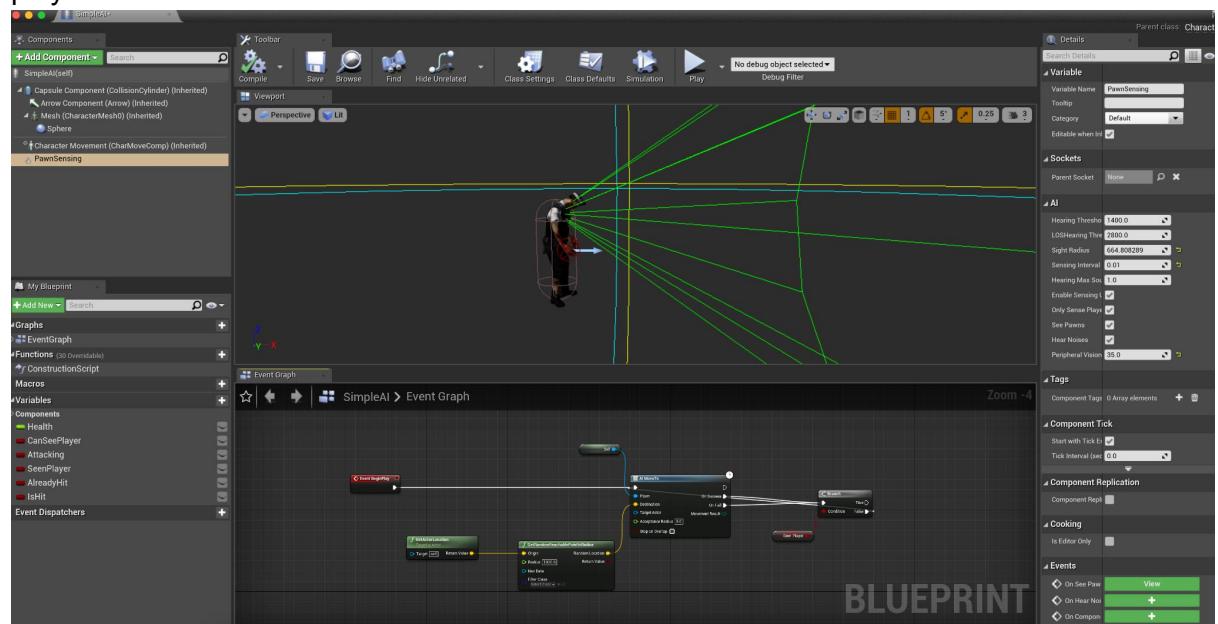
3.3.3 Interaction

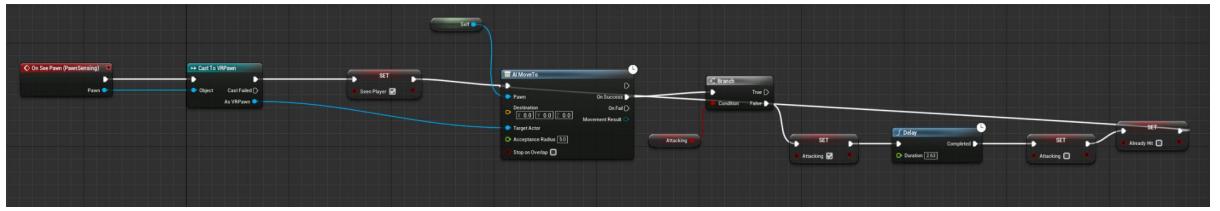
1) AI parade

- > We use Nav Mesh Bounds Volume to make the zombie move within the green marked range.



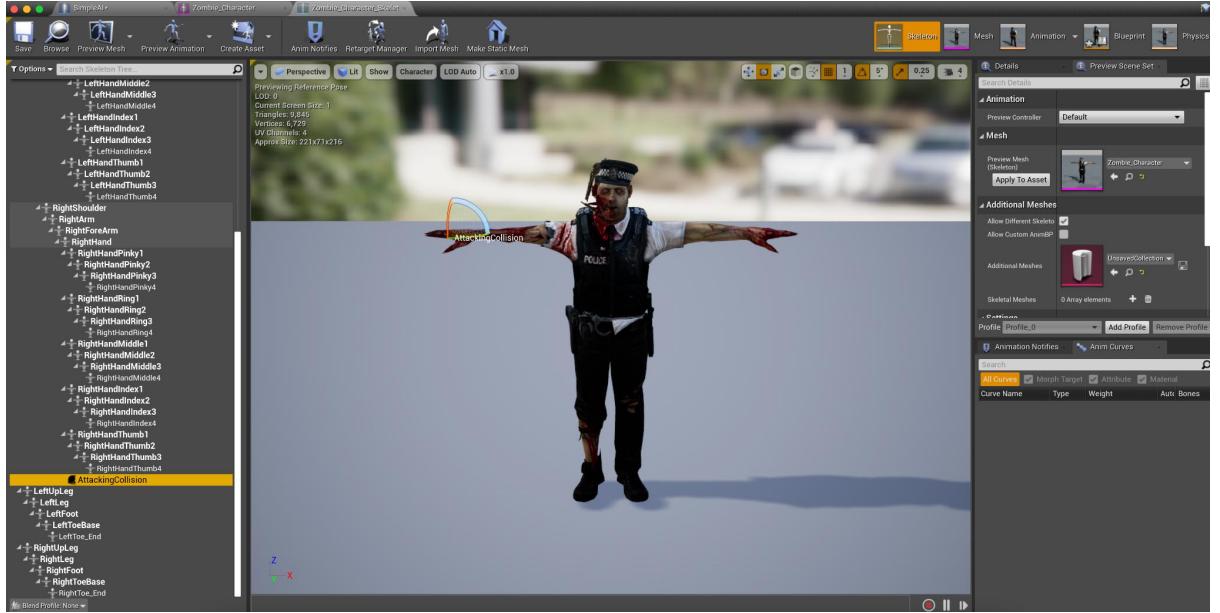
- > We give AI a random radius at first, and he can follow the character when the pawn sensing sees the player.



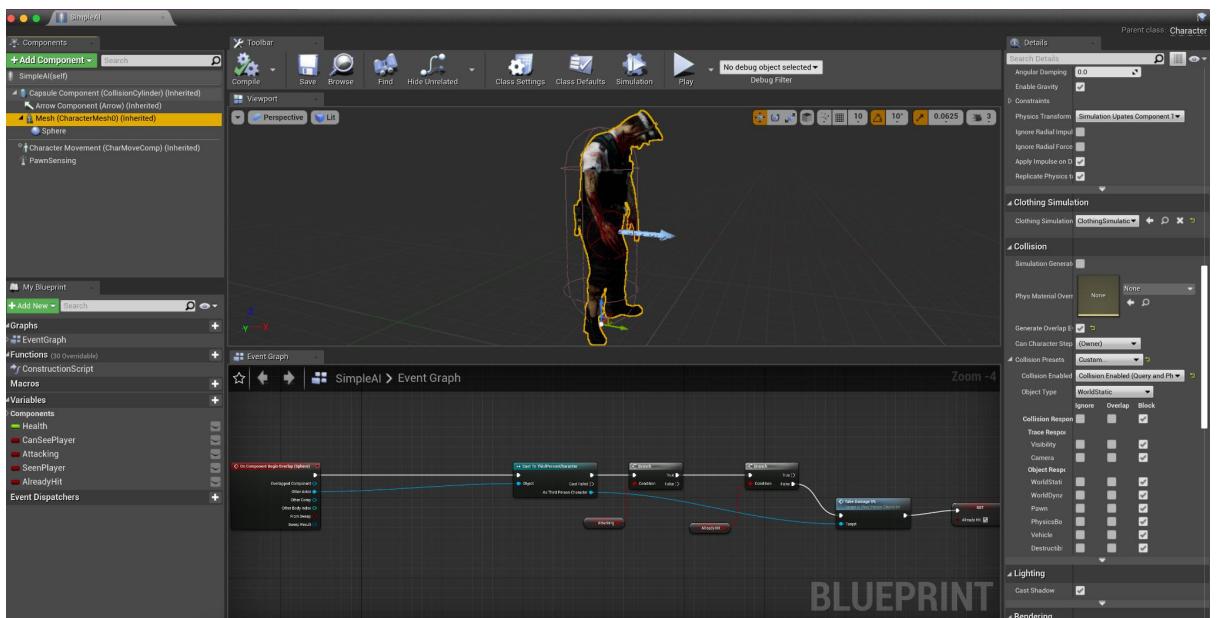


2) Attack Player

- At first, we add a socket on the right hand of the zombie in the zombie's skeleton.

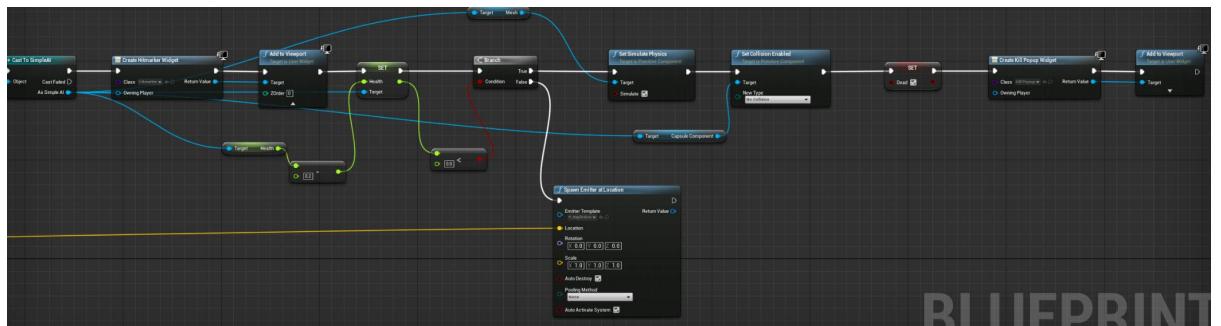


- Add a collision in SimpleAI under Mesh, select Attacking collision in socket, adjust the size, and check generate hit events in collision. So, when the sphere collision overlaps with the character, the function of Take Damage will be called, then cause damage to the player character.

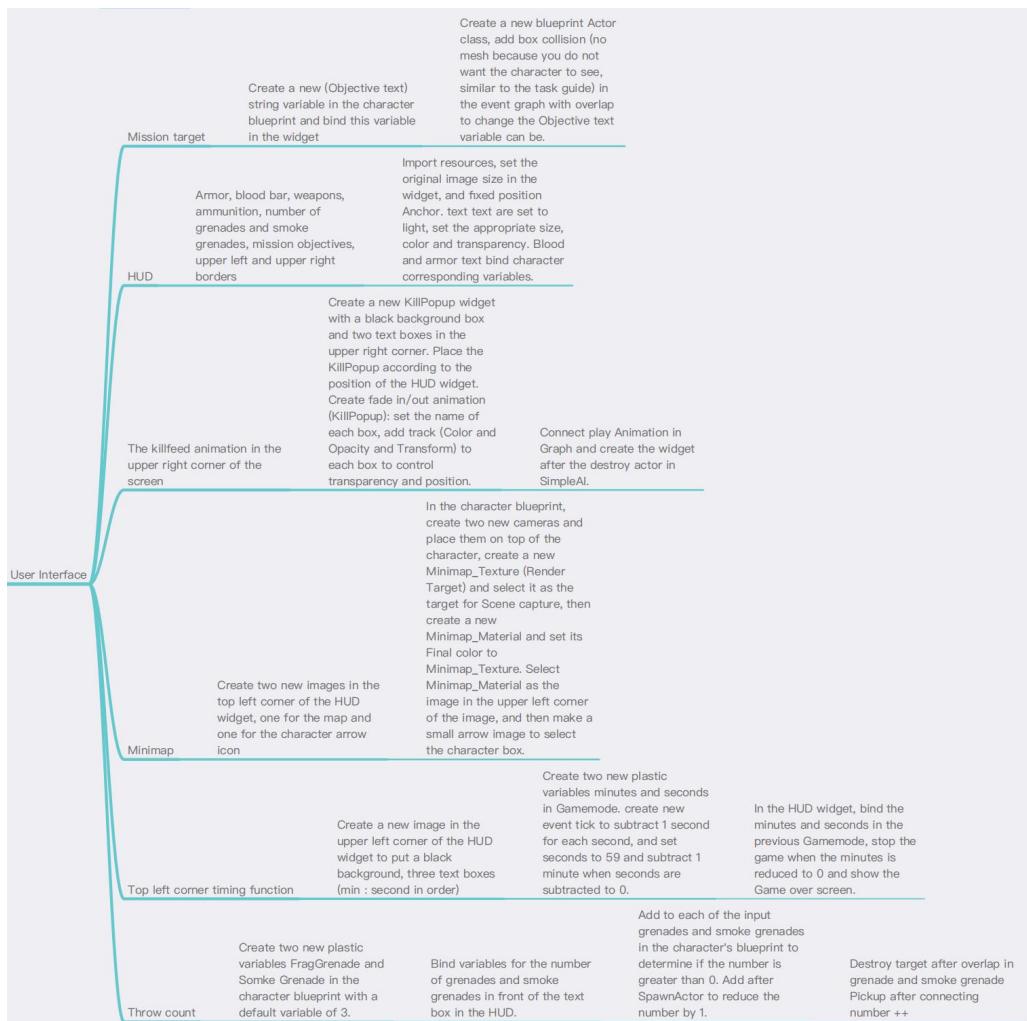


3) Attacked By Player

- > If the zombie is hit by the bullet fired by the player, the health value will be reduced by 0.2, which is 20% of the life value. If the zombie dies, it will physically simulate the falling effect. Here we also set the hit marker of the zombie hit by bullets and the kill popup after death



3.4 User Interface

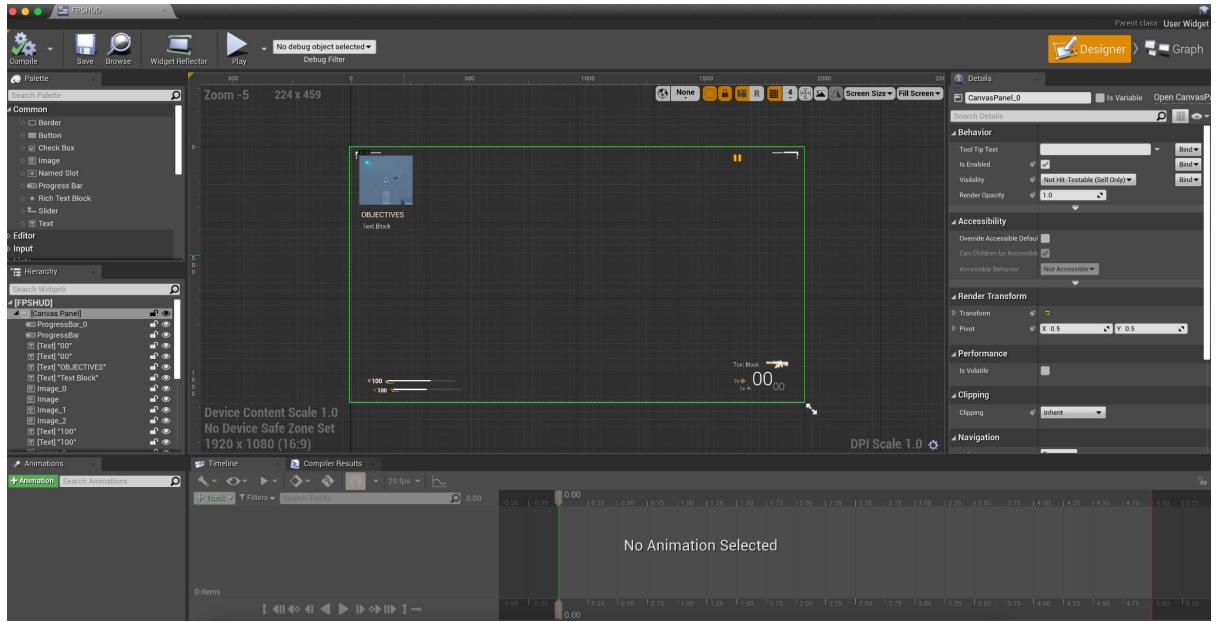


3.4 work flow chart (UI)

3.4.1 Display of HUD

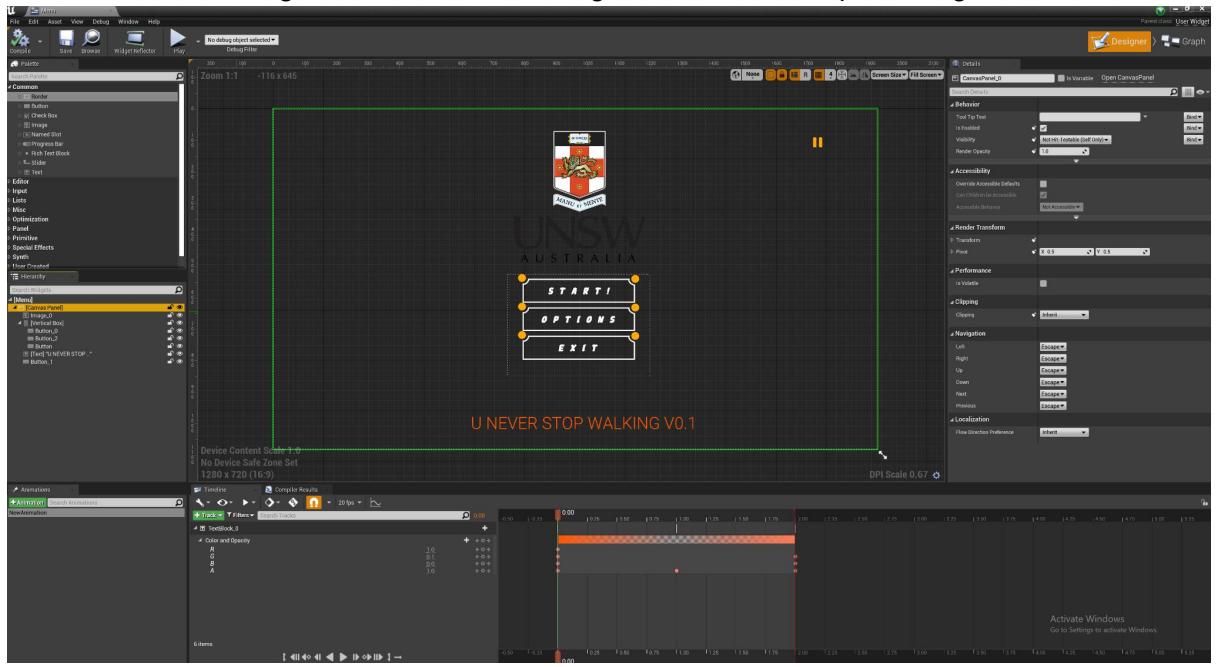
- Upper left corner: timer, minimap, mission objectives.
- Upper right corner: pause button, kill popup.
- Lower left corner: armor bar and health bar.
- Lower right corner: weapon icon, number of grenades, number of smoke grenades, clip

size.



3.4.2 Start Menu

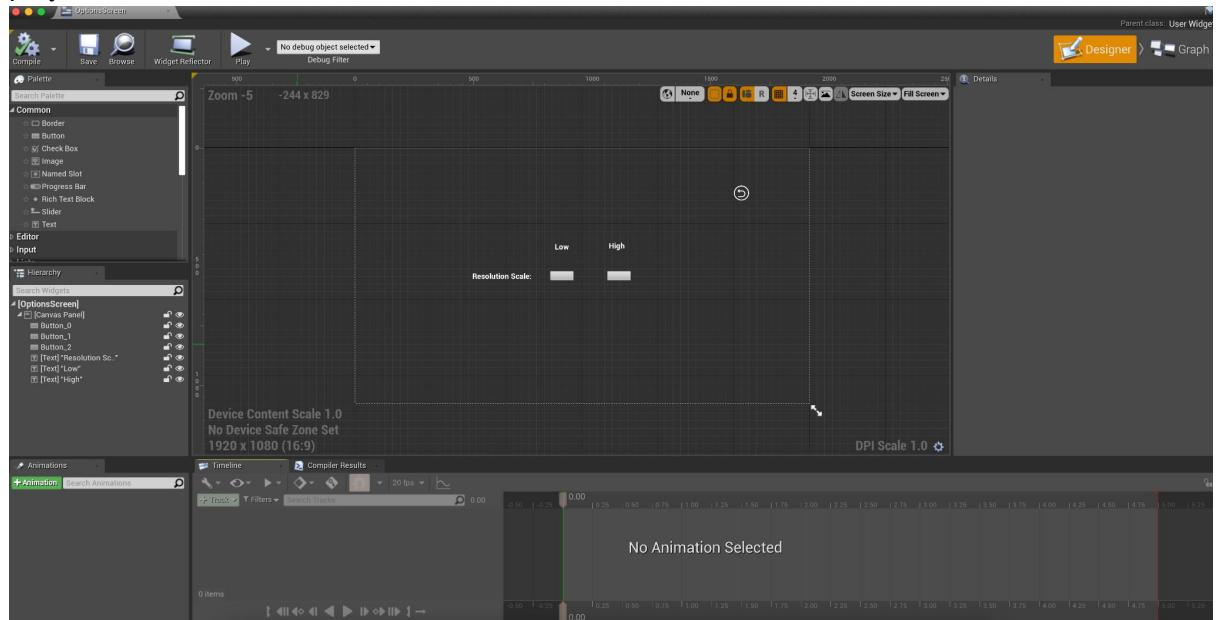
- > Has the school's badge and the name of our game: U Never Stop Walking



3.4.3 Option Menu

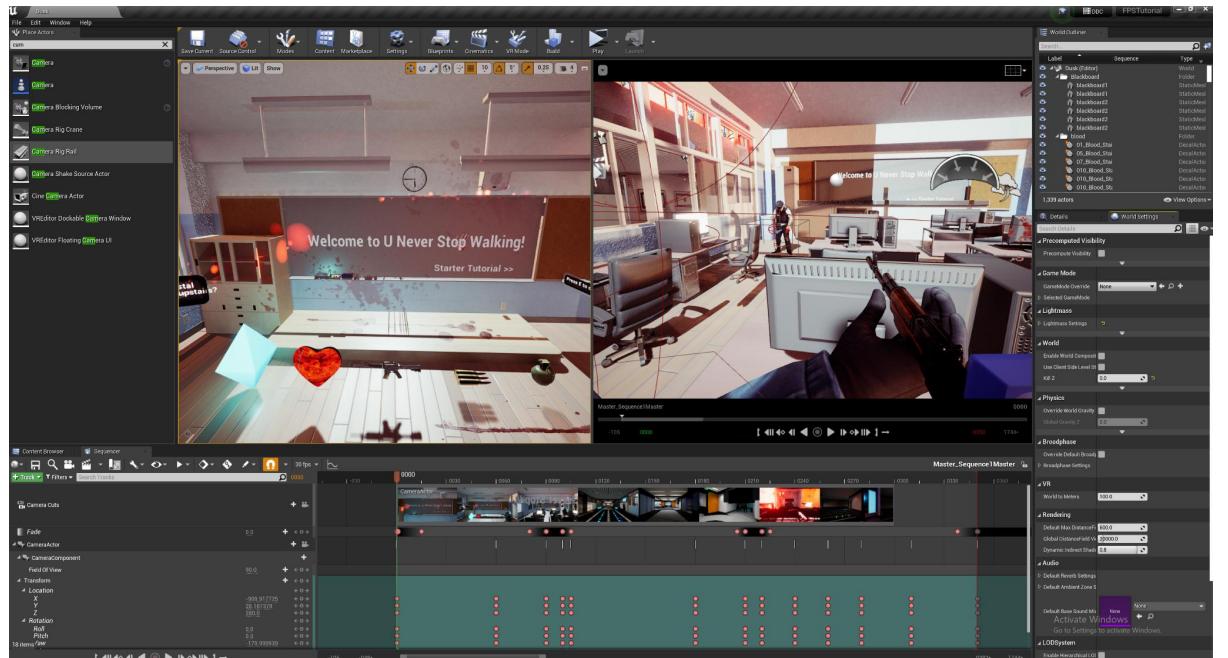
- > For the time being, only the option to adjust the image quality is released, which is convenient for users with low computer configuration to

play.



3.4.4 Interlude animation

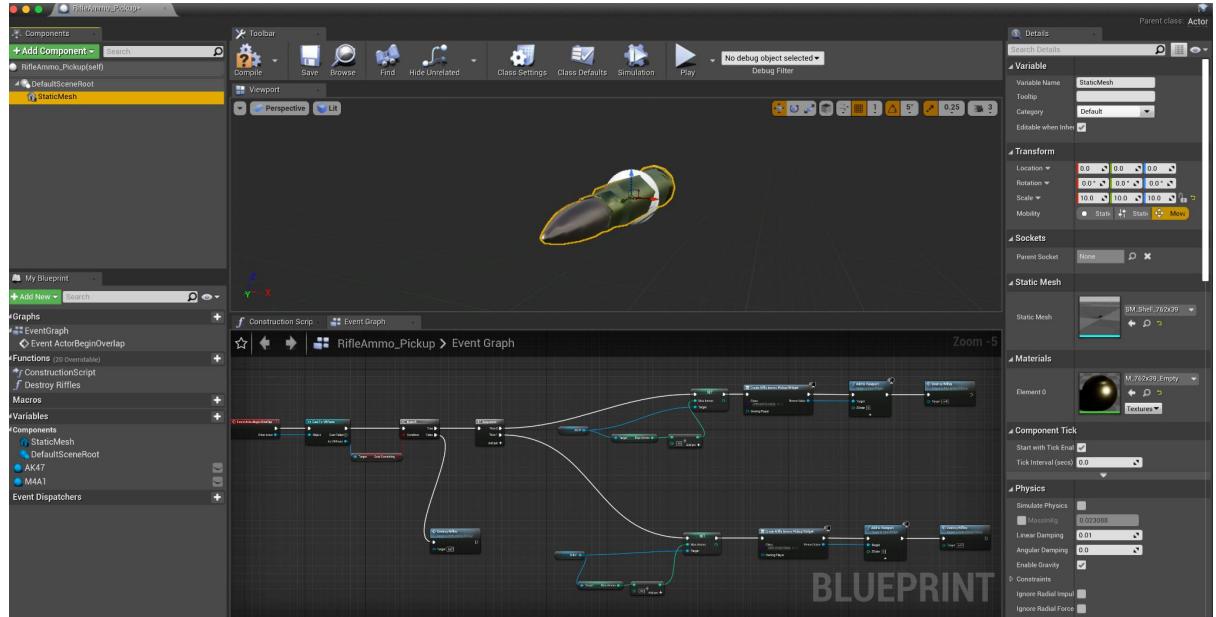
- For the start of each mission, there is an interlude animation displayed for the player. This will give the player an overview of level landscape and make the game flow more coherent.



3.5 Props

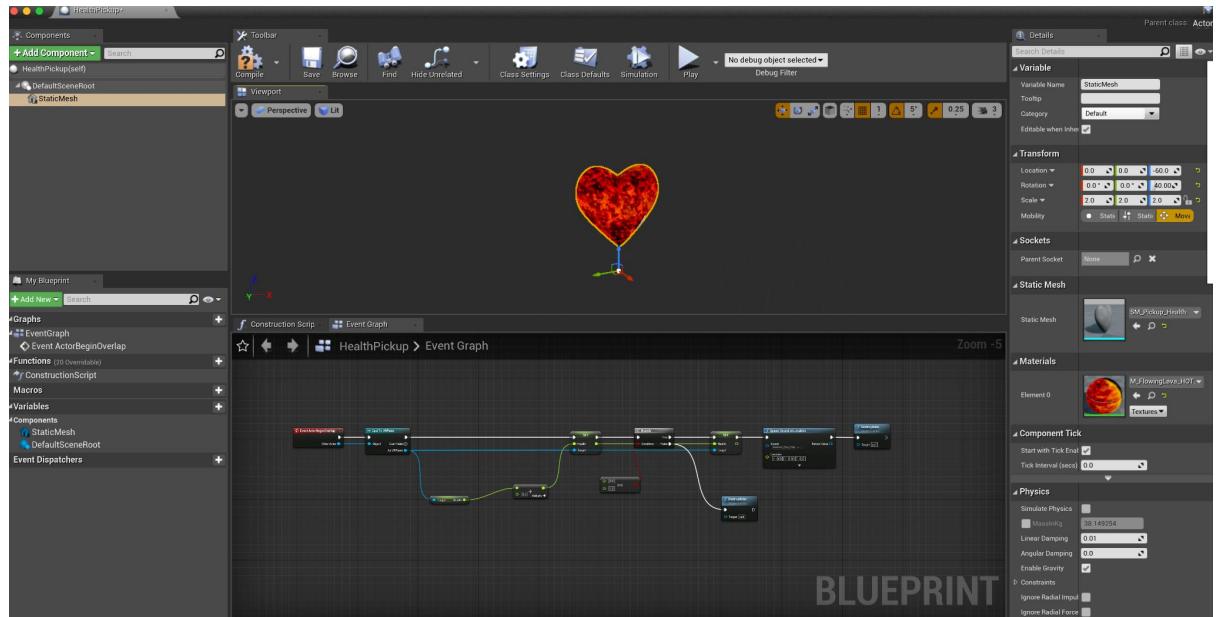
3.5.1 Ammo Pickup

- When player character overlaps with the rifle ammo pickup, the amount of ammunition for the weapon held by the character at this time will increase.



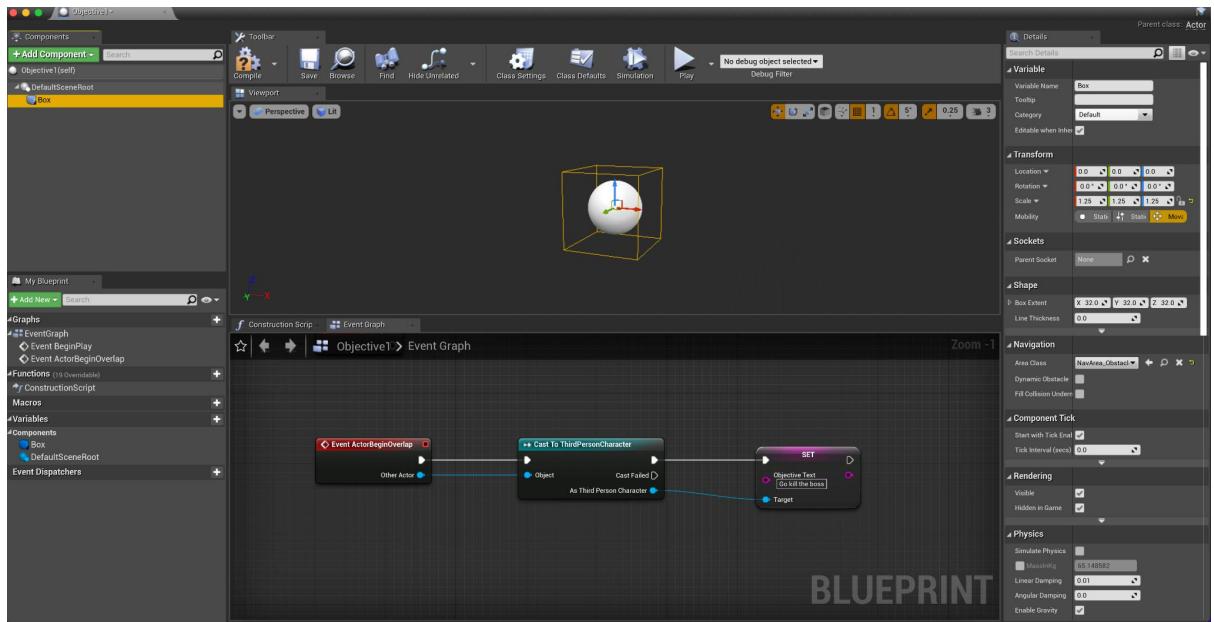
3.5.2 Health Pickup

- When player character overlaps with the health pickup, it will first judge whether the health value is full, if not, increase the health value of the character.



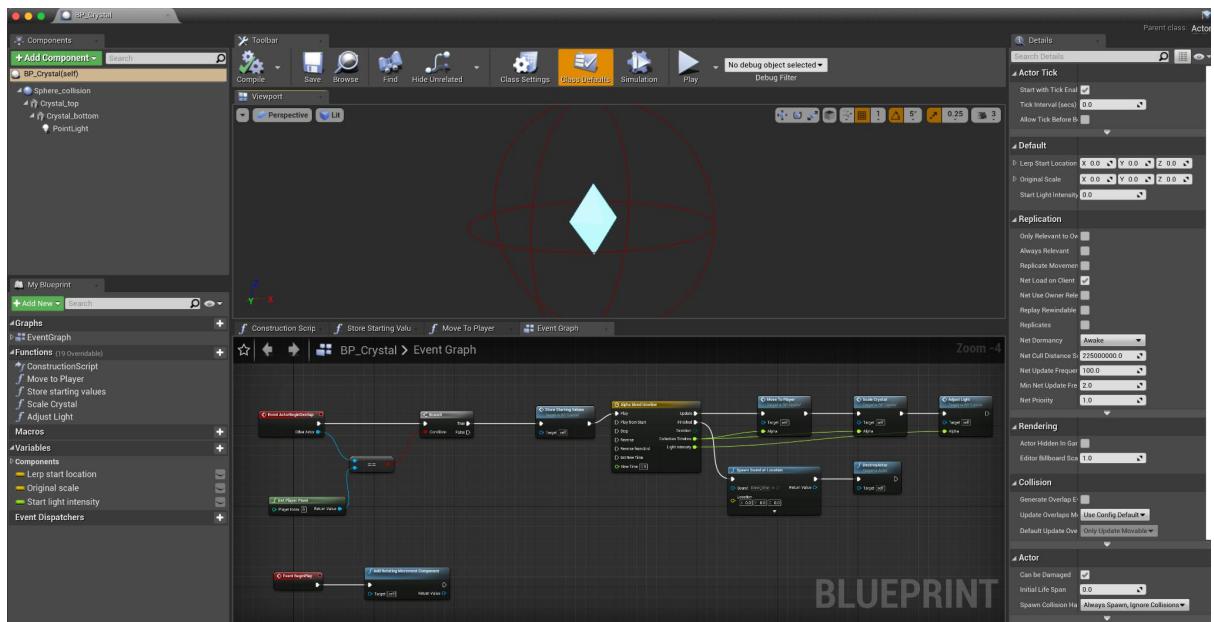
3.5.3 Objectives

- We use the objectives to set the mission for the player. When the player character overlaps with the collision of the objective, the mission text will be changed in the HUD. We placed different objectives in each level.



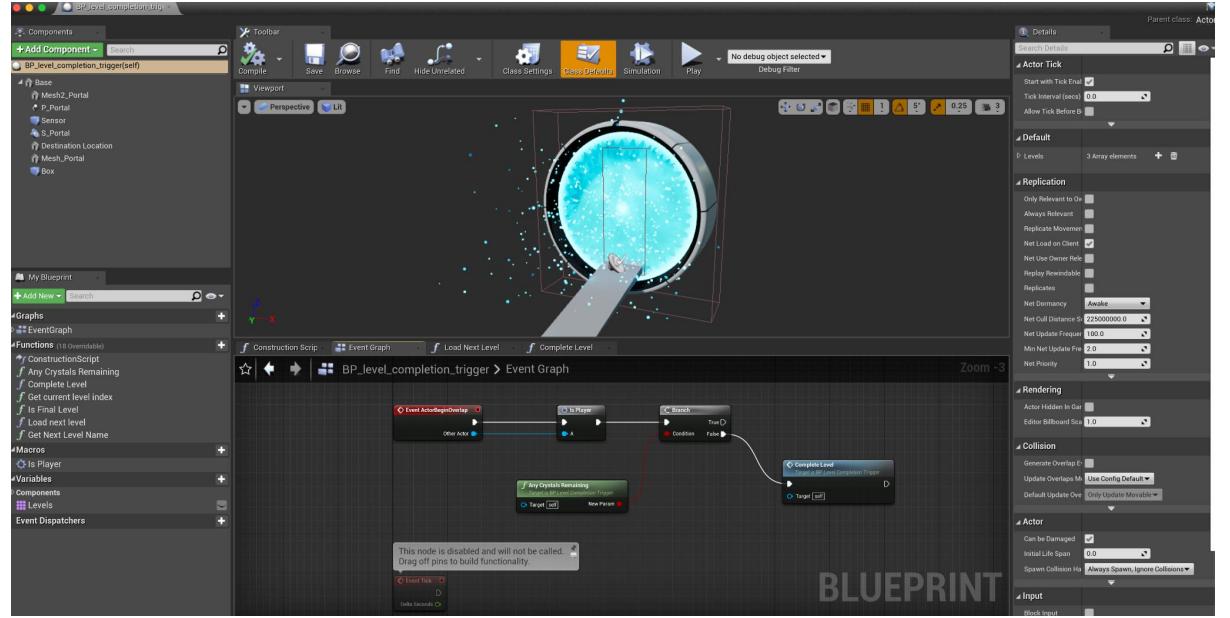
3.5.4 Collection

- We reused the diamond blueprint in the lecture here, only when the level where the character is in has no diamonds, the character can trigger the trigger of the portal and then transfer to the next level.



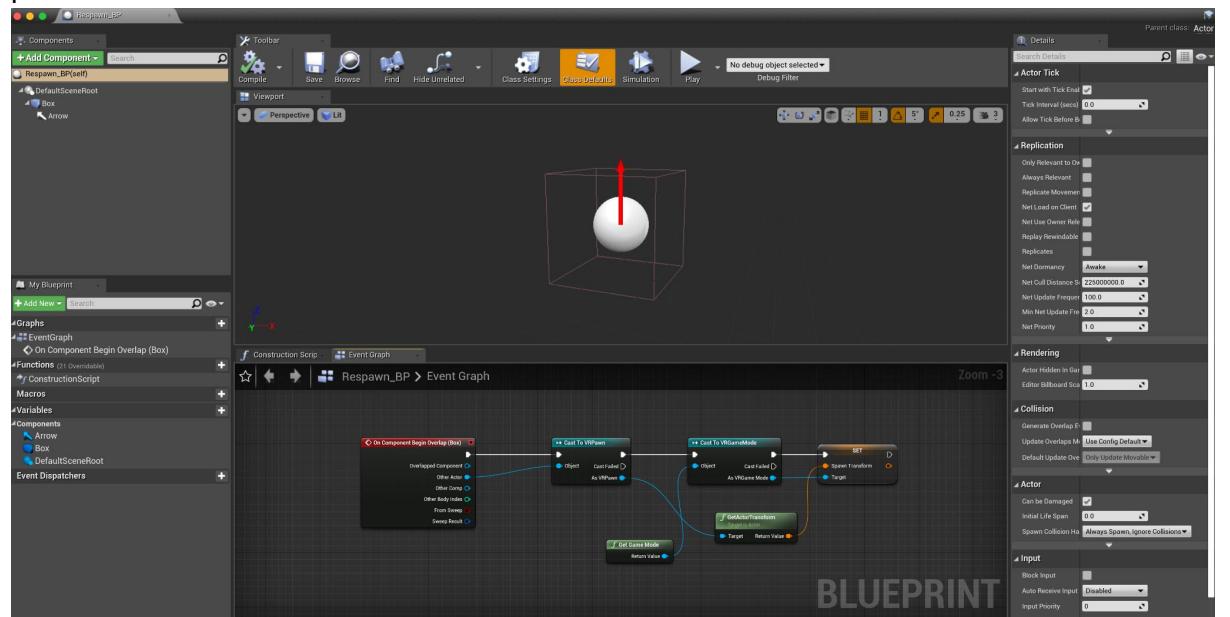
3.5.5 Portal

- We set up a birth point portal and a portal to the next level in each level. In addition, portals at both ends are set up for a long road to enhance the player's game experience.



3.5.6 Respawn Checkpoint

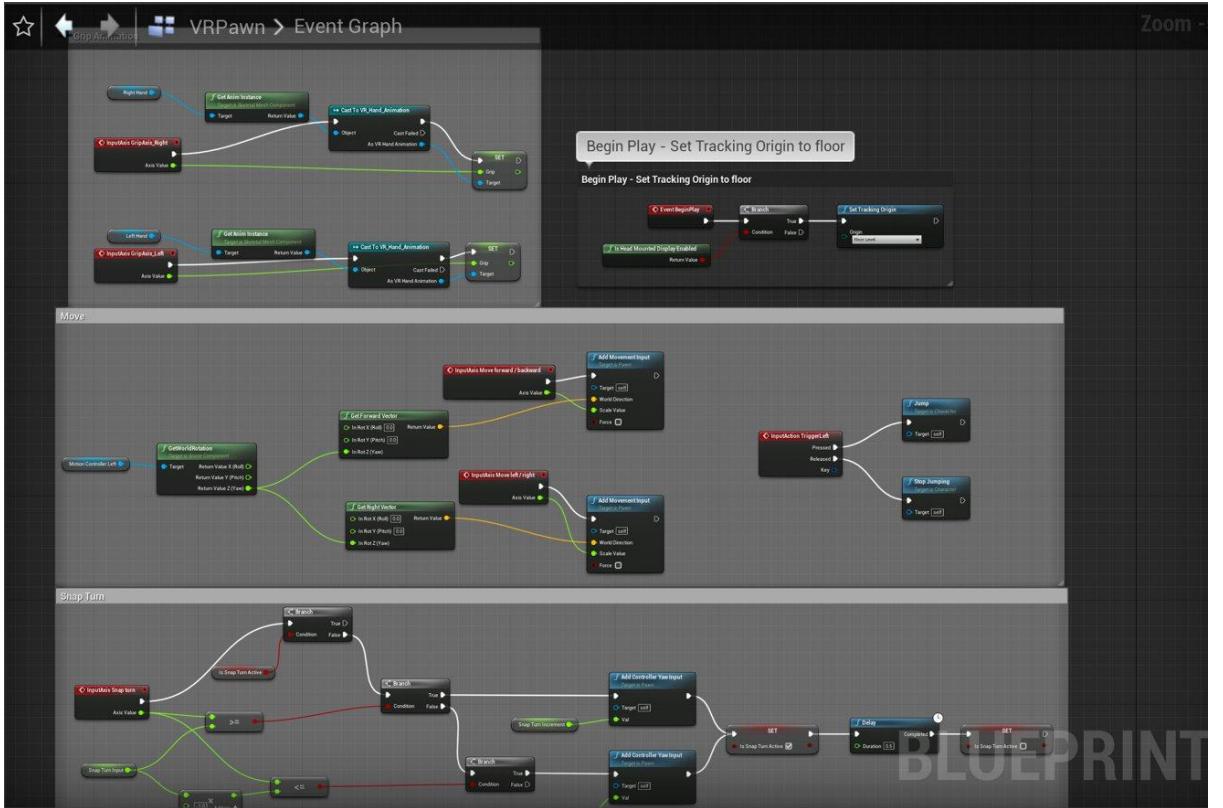
- We also considerably set up different respawn points for each level for players. When the player passes the respawn's collider position, the position is recorded. When they die in difficult places, they will be resurrected at the record point.



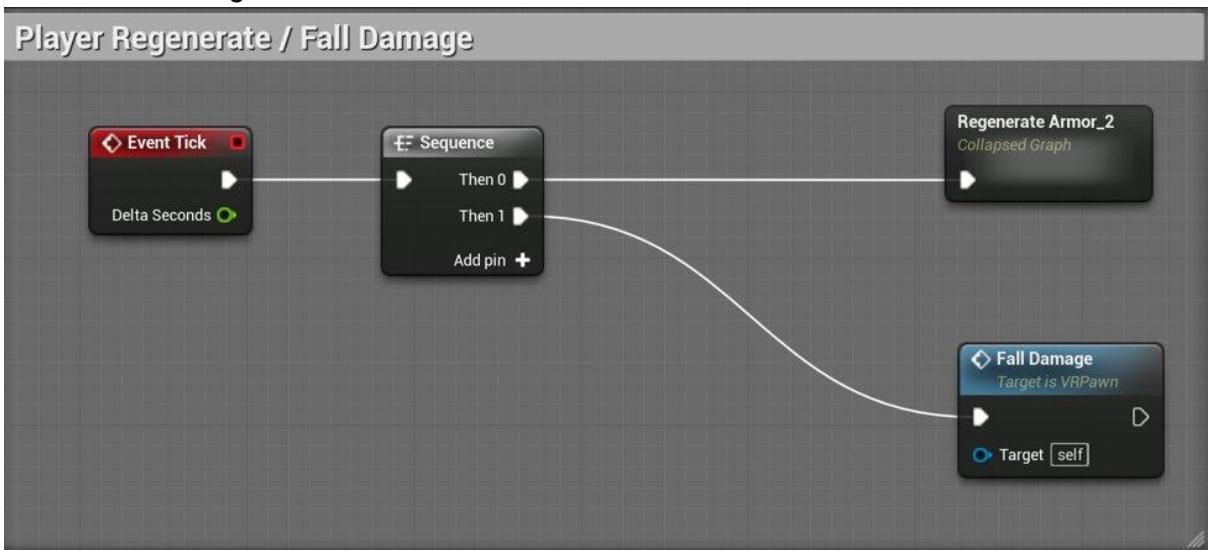
3.6 VR

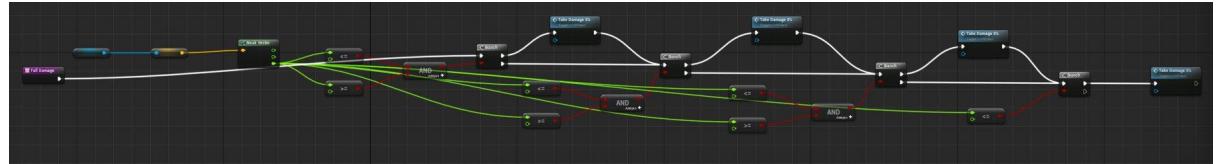
3.6.1 VR Pawn

- For the movement of character, we reuse the blueprints from the lecture. And change the jump key to left trigger for motion controller.

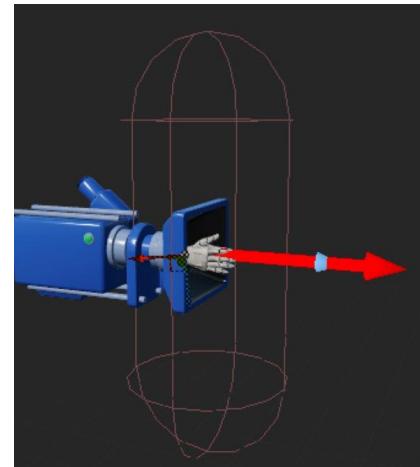
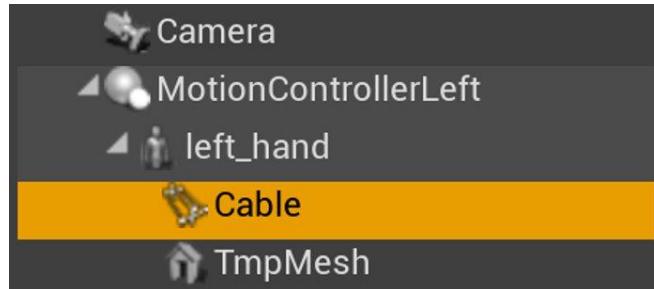
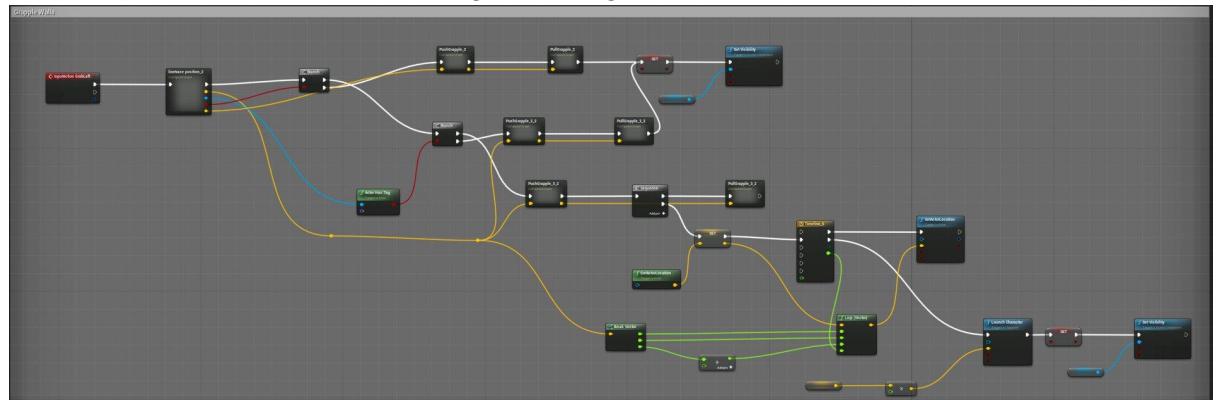


- We changed the value of the character's falling distance, because VR characters have different height differences from 3D characters.

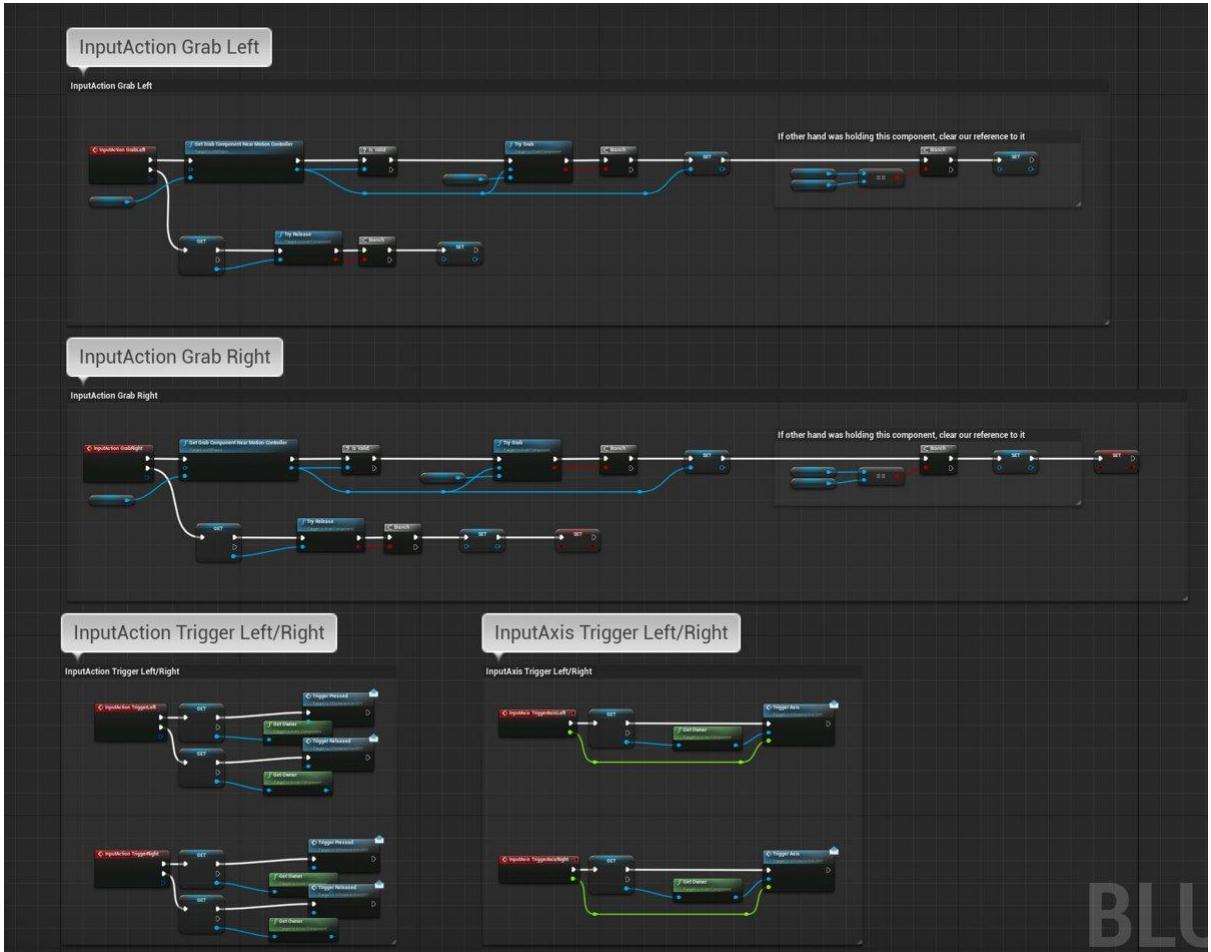




- For the rope function of the VR character, we bound the cable to the left hand and replaced it with a VR camera for target tracking.

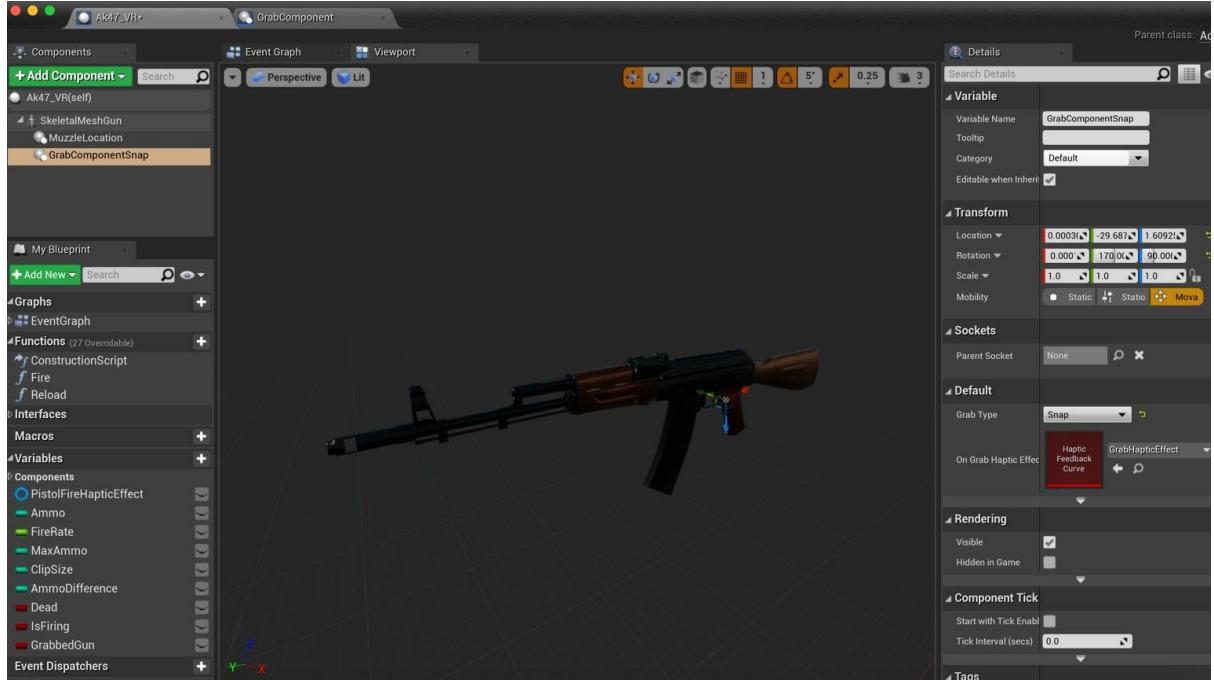


- We also reuse the blueprints in the VR template to grab and trigger.



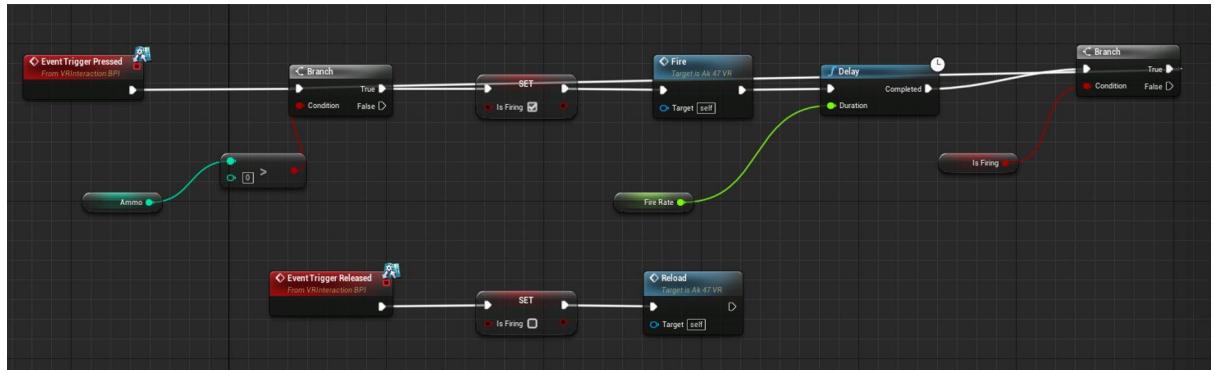
3.6.2 Grab

- We copy the cube in the VR template and change its skeletal mesh to AK47, and place GrabComponentSnap on the gun handle to simulate the effect of holding a gun.



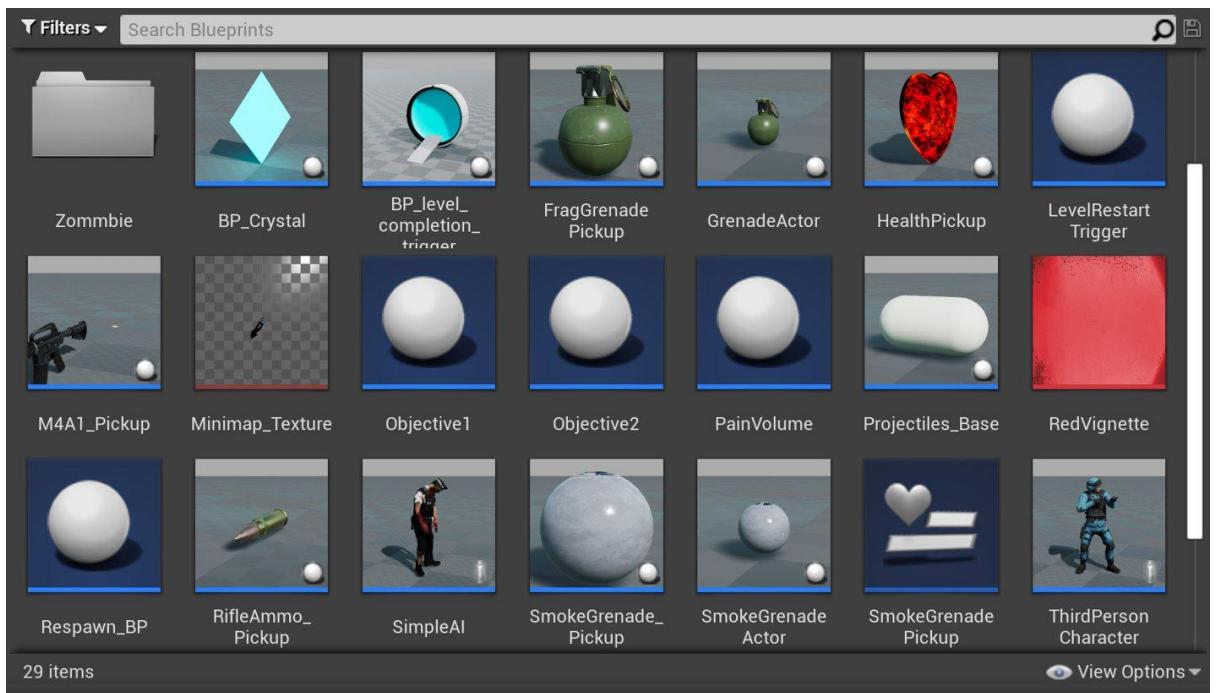
3.6.3 Fire Trigger

- We reuse the VRInteraction BPI in the VR template to trigger. Put the Fire function and Reload function from the 3D version to here. When pressing the trigger, the gun can fire and when releasing the trigger, the gun can reload automatically.



3.6.4 Props

- We need to change all the props from cast to third person character to cast to VR pawn.



3.7 Incomplete features

3.7.1 More advanced Parkour moves

In the proposal, we stated that we would like to build an advanced parkour movement system. Actions that can be completed include long-distance jumping, hitting a door, shoveling, swinging, climbing, climbing a water pipe, rolling forward, running a wall, etc. The various actions in the game are mainly controlled by two buttons: "Up" controls actions such as jumping, climbing, and grasping, and "Down" controls shoveling, crouching, and disengaging from objects. Due to time constraints, we haven't completed shoveling, climbing a water pipe, rolling forward, and running a wall. For future improvements, these advanced parkour movements could be implemented.

3.7.2 Speed Runs mode

In the proposal, we stated that we would like to build another game mode called Speed runs mode. Unlike the usual missions mode, Speed runs mode is all about finding shortcuts and leaving the competition behind. The HUD for this mode is supposed to be different from the Story mode containing 5 missions. There should also be no zombies and obstacles such that the player could concentrate fully on running through an entire level with the clock ticking. The players must unlock the level by completing the mission before they can speed-run it.

Due to time constraints, we haven't fully completed this mode, as it requires great changes of the map environment as well as UI. For future improvements, speed runs mode could be implemented.

3.7.3 Hidden packages

In the proposal, we stated that we would like to have hidden packages on the map. If the players collect all the packages, they can unlock achievements and get extra score rewards. There will be corresponding prompts, such as the school logo, which is basically on the road that must be passed, such as a stairwell, a ventilation duct on the roof, or on a car in the parking lot.

We decided to go forward with picking up pumpkins hidden in the Law library map, instead of hidden packages in the end.

4. Levels

4.1 Tutorial

4.1.1 the Ground floor

The tutorial level provides the player an environment to get familiar with various basic techniques, including the usage of the weaponry system, props, as well as how to interact with objects and the AI enemies. The initial design of the player's birth point was inspired by the VR Lab at the K17 building,

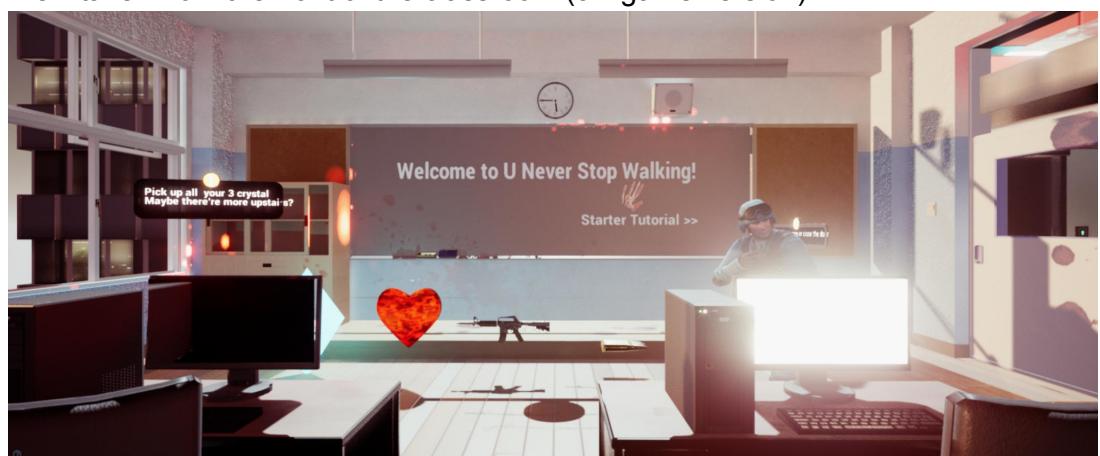


UNSW.

Photo taken from the real VR Lab



View taken from the front of the classroom (3D game version)



View taken from the middle of the classroom, facing front (3D game version)

As we observed from the actual CSE Virtual Reality Lab, the main features of the lab environment include:

- White and blue wallpaper
- Computer monitors, keyboards
- Desks and office chairs
- Windows and doors
- Whiteboard at the front of the room
- Chalks, pens, and board runner
- White ceiling lamps

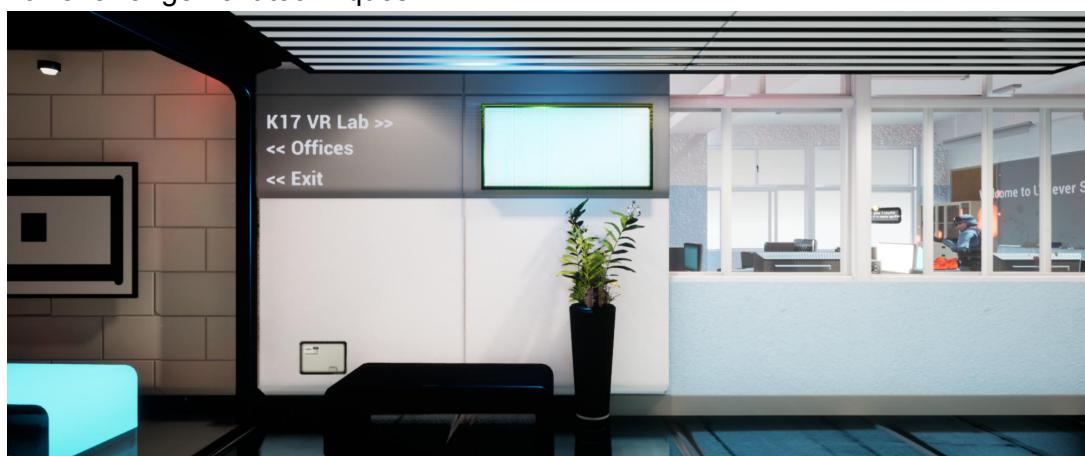
After building the above-mentioned features in our tutorial VR room, we incorporated our own creativity into transforming the room to fit the storyline background of the game – a viral zombie outbreak on campus. These innovative changes include:

- Adding decals of blood splatters and stains
- Changing the floor material to wood instead of carpet to emphasize the visual effect of blood stains on the floor
- Using the whiteboard for displaying the game title and giving instructions
- Placing all props at the front of room
- Placing a zombie at the back of room
- Adding window views as if the K17 building is floating to make it more futuristic

After leaving the birthplace (VR lab), the player would walk in a corridor as shown below.



The blue arrows lead the player to another office room in the K17 building. The highlight here is the directional guide on the wall as well as the pot plant we designed with brilliant flower arrangement techniques.



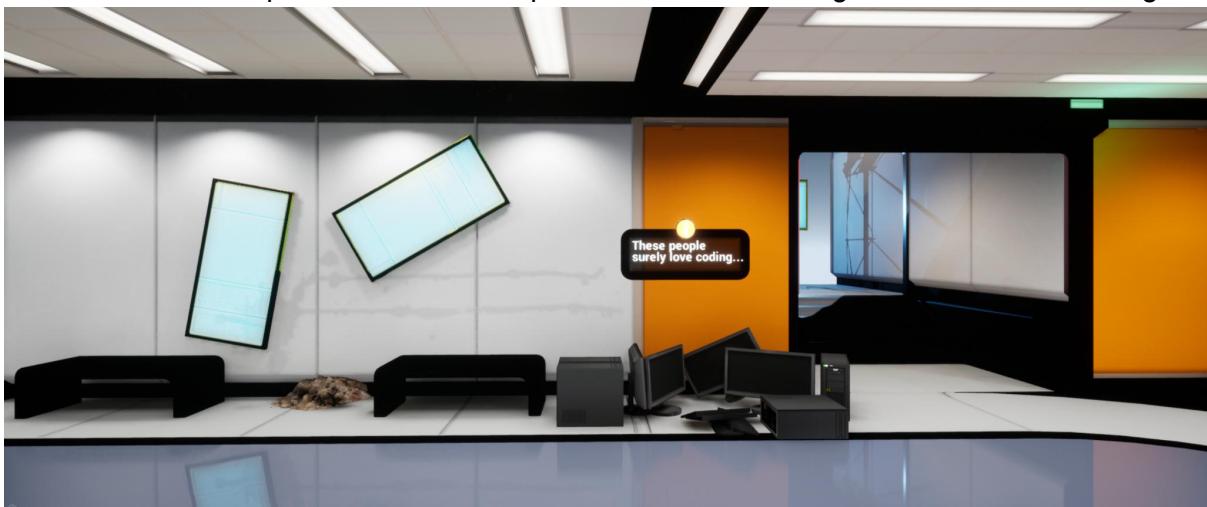
The highlight of this tutorial room would be the monitor screen displaying an *Intro to UNSW Campus* video, and bullets placed on the table for the player to pick up before encountering the zombies.



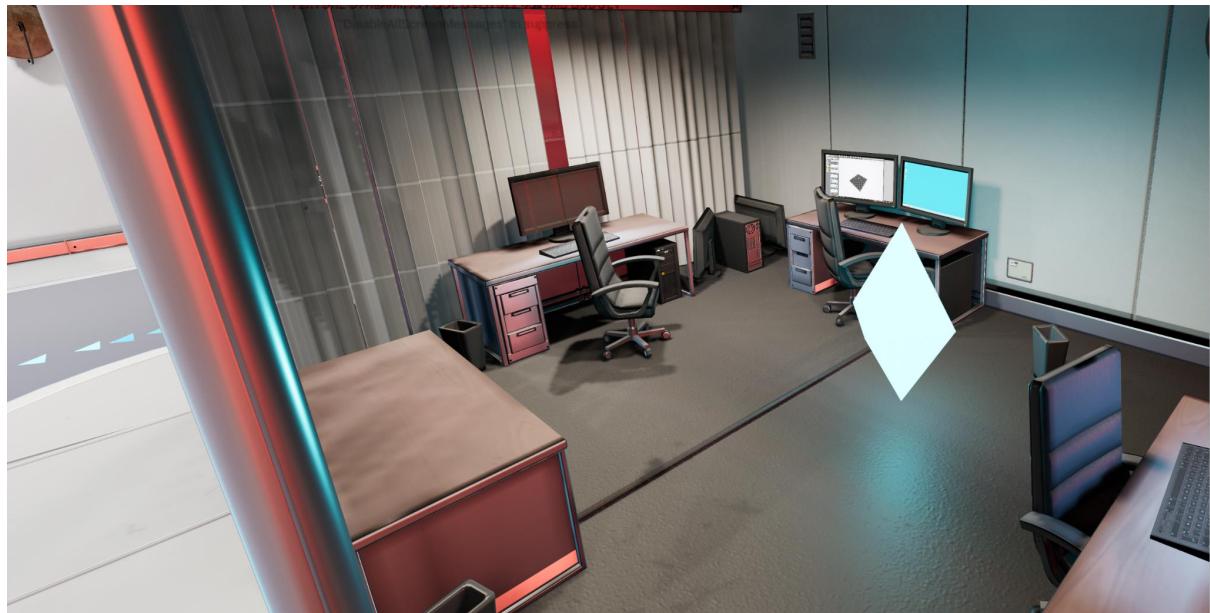
At the corner of the corridor, an assembly of zombies was placed and will be automatically triggered (released by the opening gate) when the player gets to the front of the stairs.



Tilted monitors, stains on the wall, debris of bricks, and dust were placed. A commentary box was added above a pile of deserted computers for demonstrating this is the CSE building.



To the left of the corridor, there is another office room where a crystal awaits for the player to pick it up.



We used and modified the following assets from Unreal Engine Marketplace while building the Tutorial level. The background buildings, materials, commentary boxes and office appliances are obtained and modified from the *UE4 Office Environment Modular Kit*.

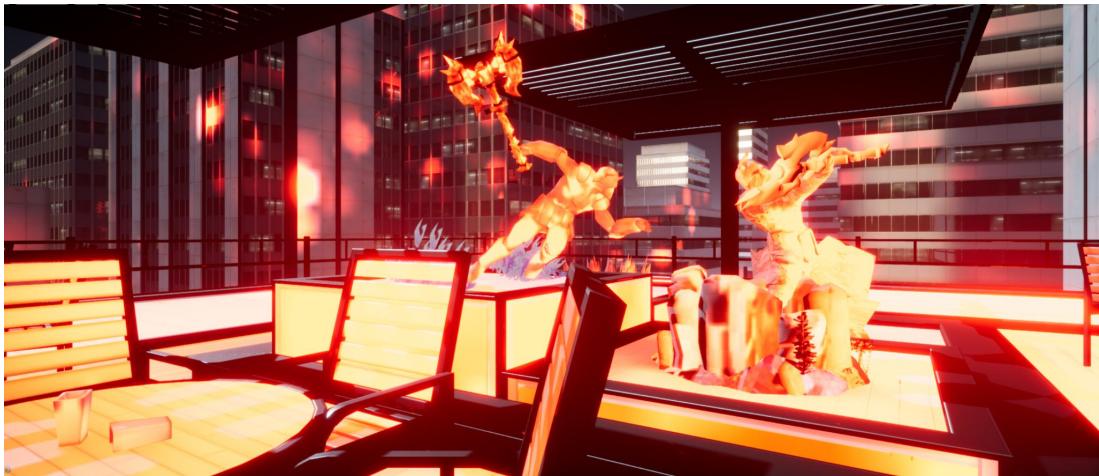
The overall layout of player birthplace – Virtual Reality Lab – is demonstrated below.



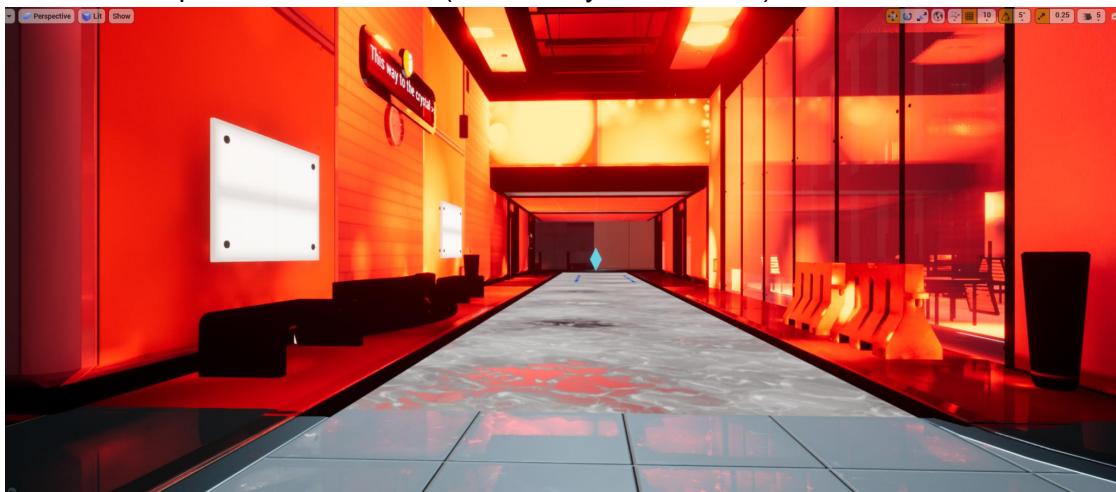
4.1.2 the First floor

Going from the ground floor to the first floor through the stairs, there are several highlights of the environment that are worth mentioning:

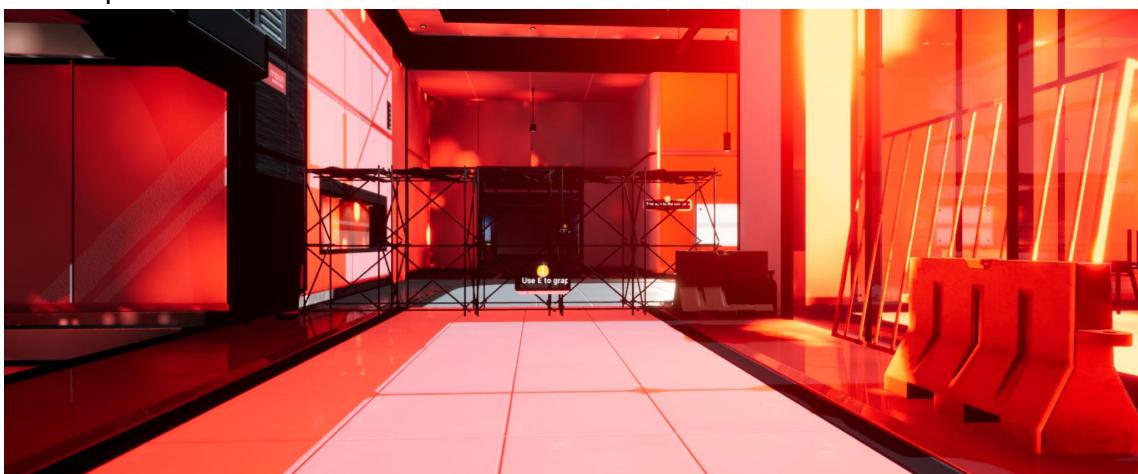
- The unique ‘bloody sunset’ lighting
- The hanging garden and statues



- The bookshelves placed with funny commentary box to entertain the player
- The transparent corridor floor (with watery visual effect)



- Glass walls which give users a view of floating city buildings
- Gripable obstacles on the corridor



- Hidden portal which transports users to the map of the second mission

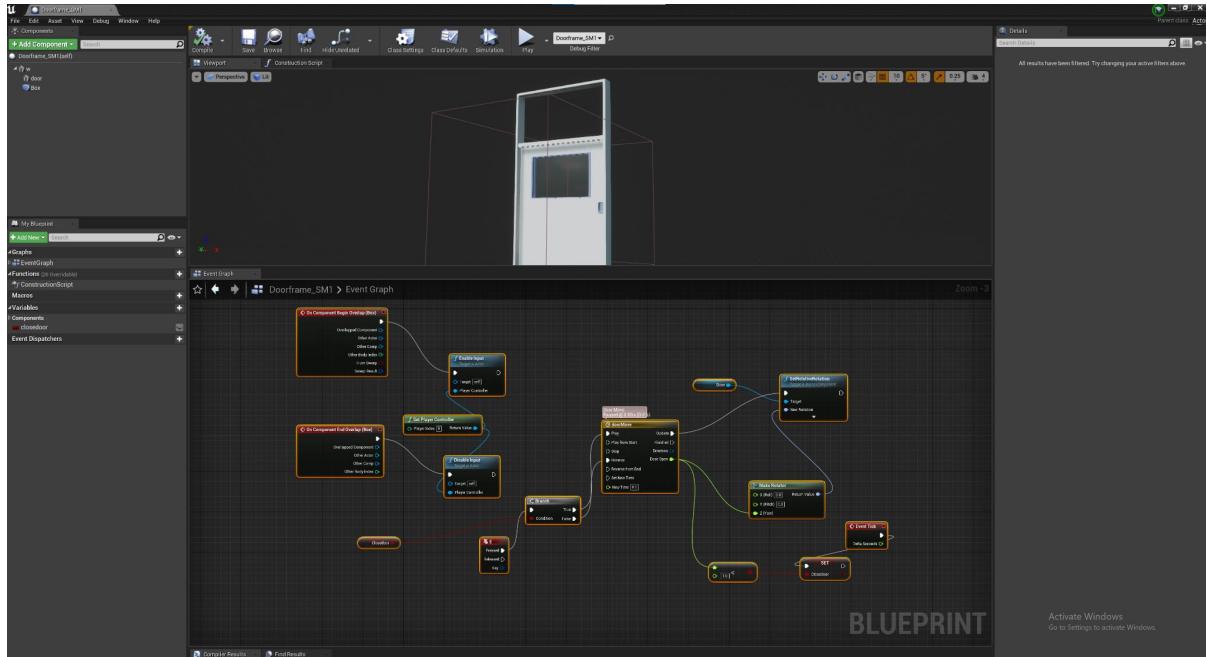
- Zombies placed around the portal



The first floor serves as a venue for the player to collect the rest of the hidden crystals by utilising the newly acquired parkour (especially gripping) and shooting techniques. A portal guided by zombies is placed at a secluded corner. To go through the portal, the player must meet the level objective of collecting all crystals.

4.1.3 Function in map

The front door of the VR lab room could be opened and closed by pressing 'E'. When player walks in the range of the box, and press E, the blueprint checks if the door is closed, if it is, then the door would be opened by rotation 90 degrees. Otherwise, if the door is opened, pressing 'E' would close the door, by rotating the door back to its original position. The door and door frame assets are from *UE4 Office Environment Modular Kit*. We modified it by scaling it, removing the glass window at top and binding the blueprint to door frame.



4.2 UNSW Higher Campus Map

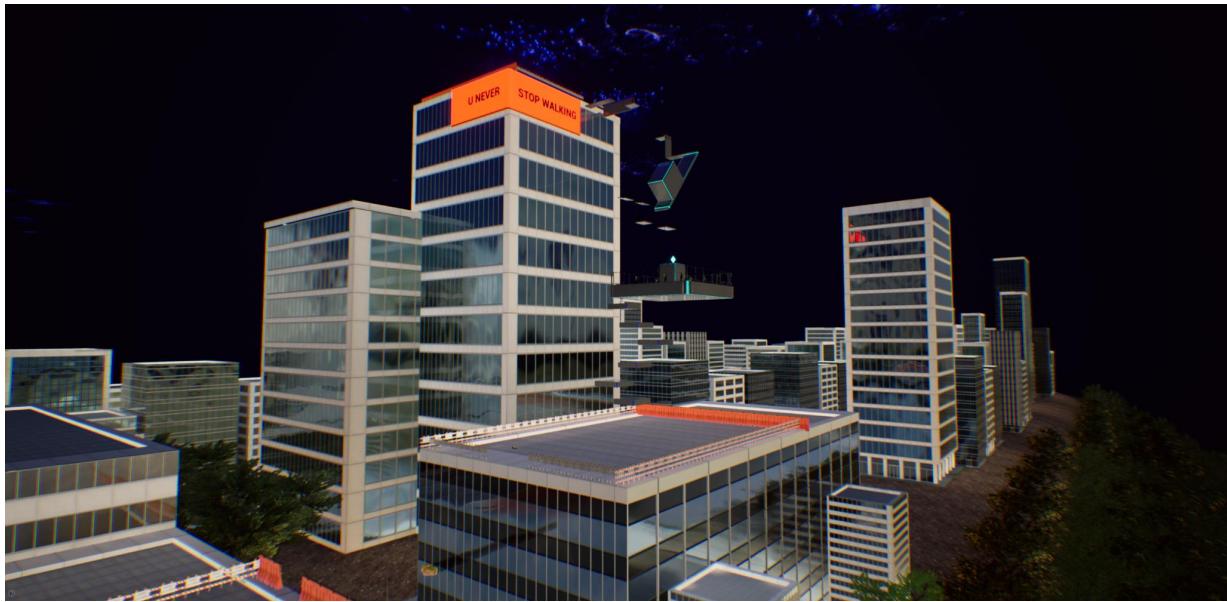
4.2.1 Design of map

The UNSW map is mainly created for players to exercise their parkour tools and develop their parkour skills by overcoming obstacles and challenges that different sections of the map have to offer. The UNSW map was made by modifying the landscape with the ramp tool. This simulated an upper and lower campus similar to UNSW.

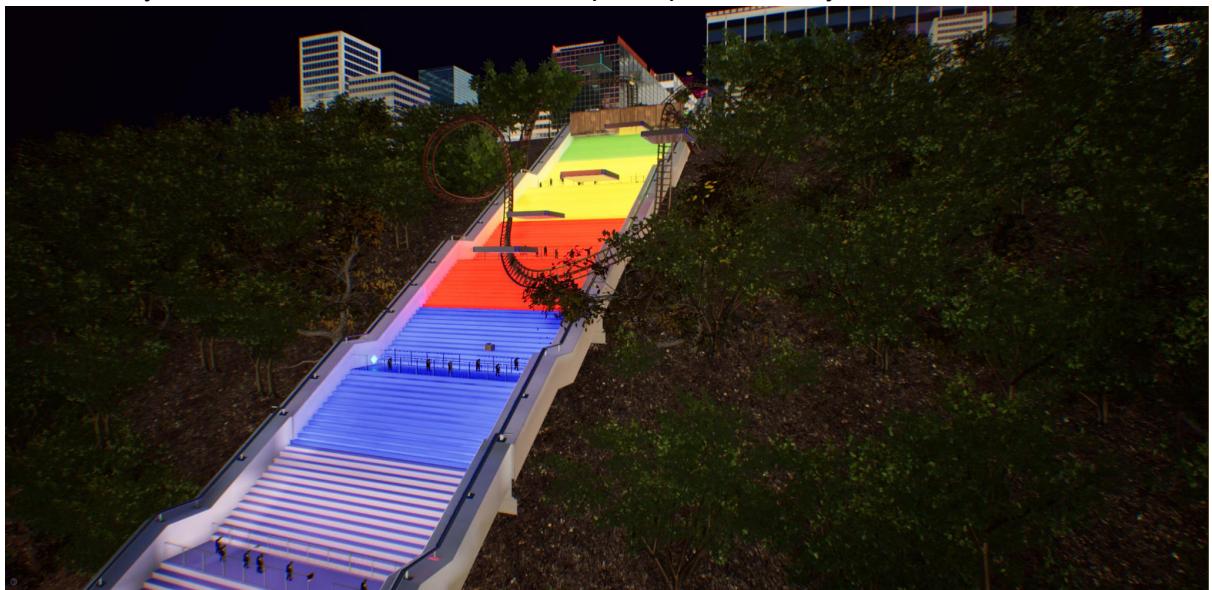


The buildings, roads, and sidewalks were pulled from the ModernCityBundle where each asset was resized, rotated, and fit together to represent UNSW as closely as possible. Decals such as white lines in the village green area were used to add detail to the map. Grass textures were obtained from Quixel bridge similar to the foliage and trees and shrubs seen in the map. The large staircase was taken from ModernLibrary and enlarged to represent the base steps at UNSW.

- The first part of the UNSW high map is designed for players to experience the excitement of Parkour. Players can start from the roof of the main library to the top of the rainbow stair, enjoy parkour on different platforms, capture the crystal from zombies, and jump between two buildings by using a trampoline.



- The second part of the UNSW high map is the rainbow stairs. We add a roller coaster to the upper part of the rainbow stair so that players will enjoy a real roller coaster experience.
Players also need to kill zombies and pick up another crystal.



- The third part is on the roof of the quadrangle lawn. Players can choose to take sky wheels while appreciating beautiful campus scenery, UNSW advertising video ,or taking a pathway to a portal.

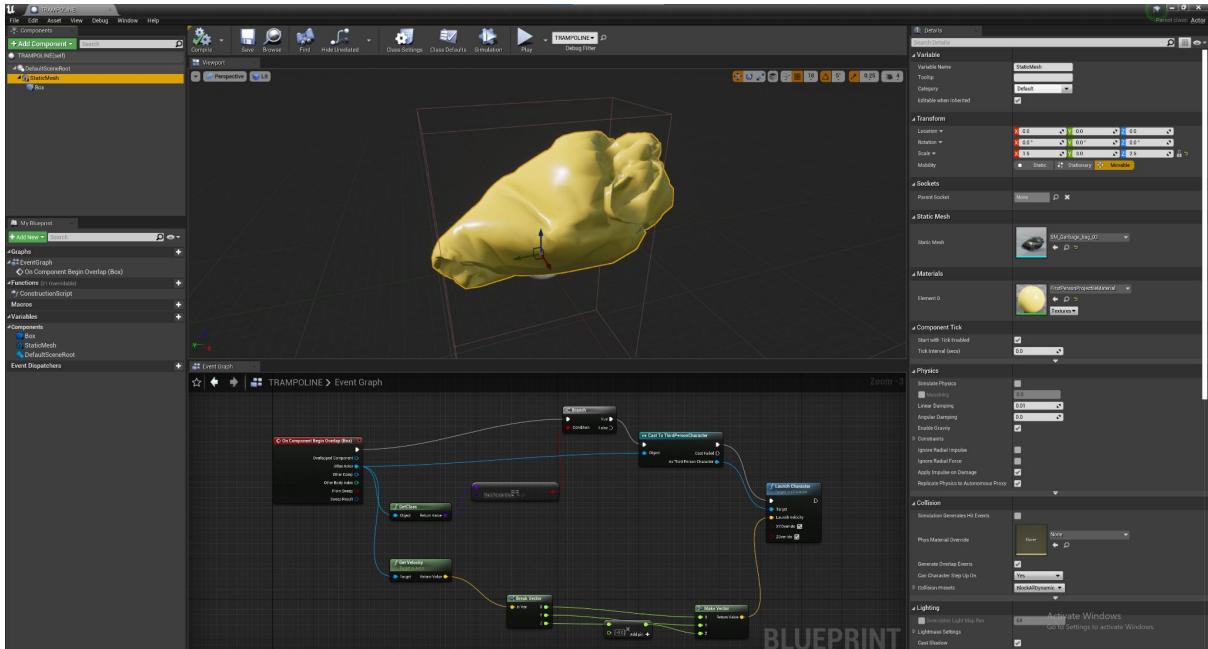


We used a weather system plugin in this map to assist in creating a day night cycle. The nebulas were added in the end to make the night sky more visually appealing. The stars particle materials are from UE4 StarCluster Pack. We built a combination of various particle materials to decorate the night sky.

4.2.2 Function in map

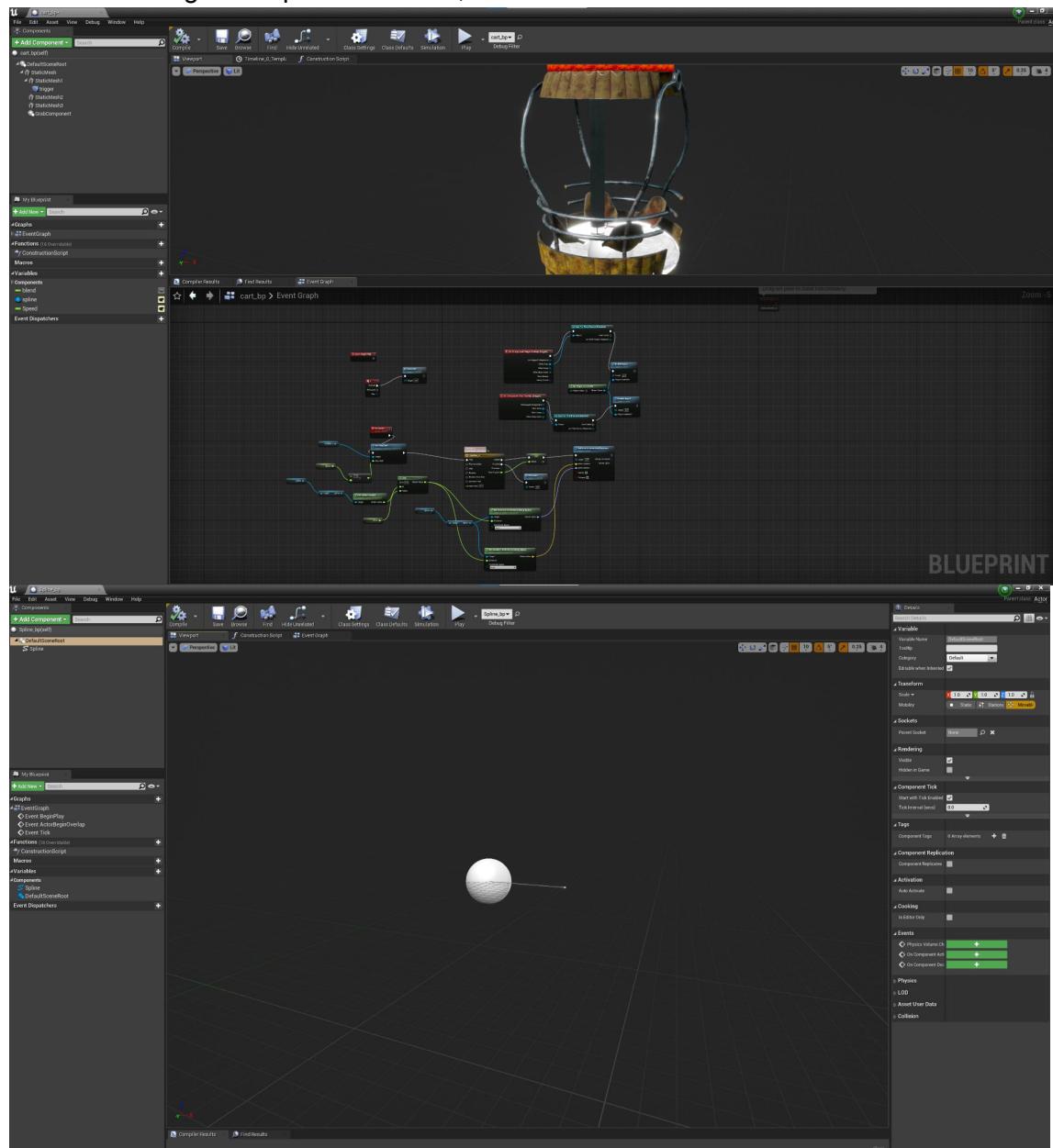
1) Trampoline

- Trampoline is used for players to jump between two tops of buildings. Players will jump higher and further if they jump from higher take-off points. So we adjust the location and the box volume of the trampoline, hoping players to enjoy a better jumping experience.



2) Roller coaster

- Implemented in the UNSW campus map, above the long rainbow stairs to provide the player with exhilarating commute options
- Player could jump into the cart, then press Left Grip on VR motion controller to activate the movement of cart
- The cart follows the trajectory of a spline I drew, fitting the rail of the roller coaster, it stops at the bottom of rainbow stairs
- The player could view the beautiful campus landscape and the nearby maple forest we planted while riding the roller coaster
- There is a trigger on the roller coaster car so that players can press F to start the roller coaster carriage and it will follow the spline we have made.
- The Roller Coaster rail asset is from the Abandoned Amusement Park bundle obtained from UE Marketplace. We modified it by adding spline to it, scaling it, combining it with parkour blocks, as well as stairs.



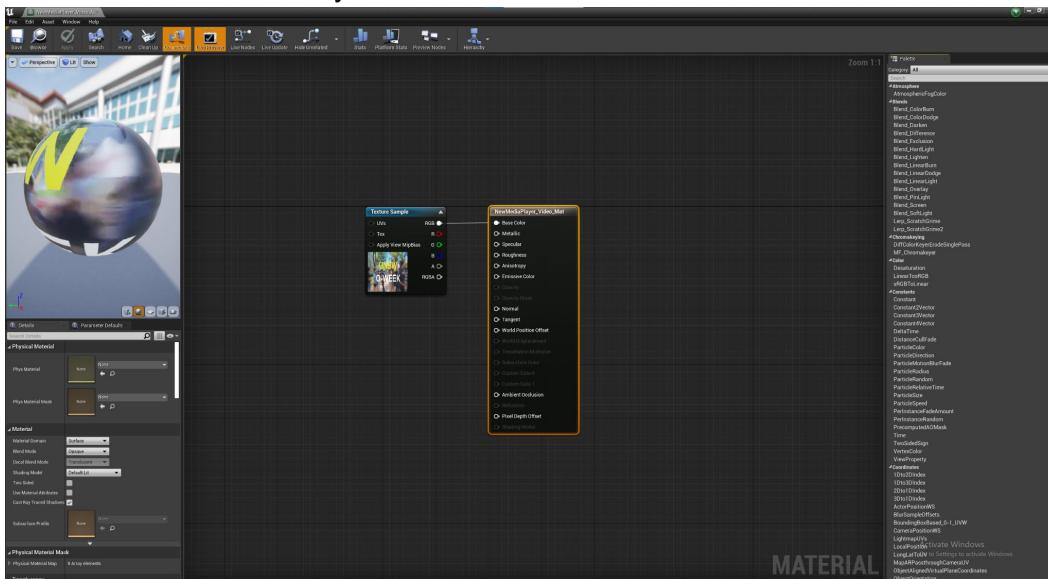
3) Interactive billboard

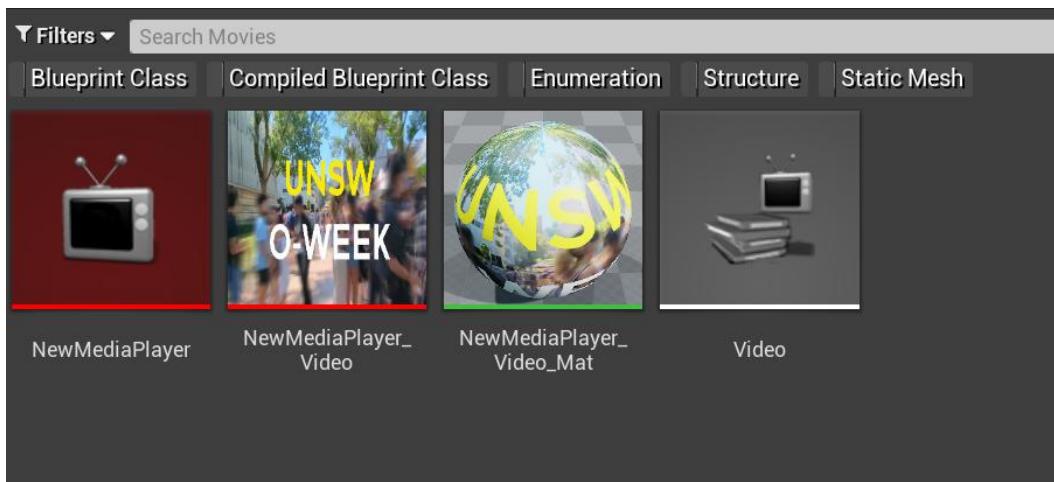
The billboard is built as an entertainment for the player while they are riding the Ferris Wheel, it is inspired by one UNSW Arc activity – movie after dawn. The video is from UNSW YouTube. The billboard asset is from Modern City Bundle, we scaled it and added extra decorations like lanterns to it, before placing a plane on it to display the video.

Features of billboard include:



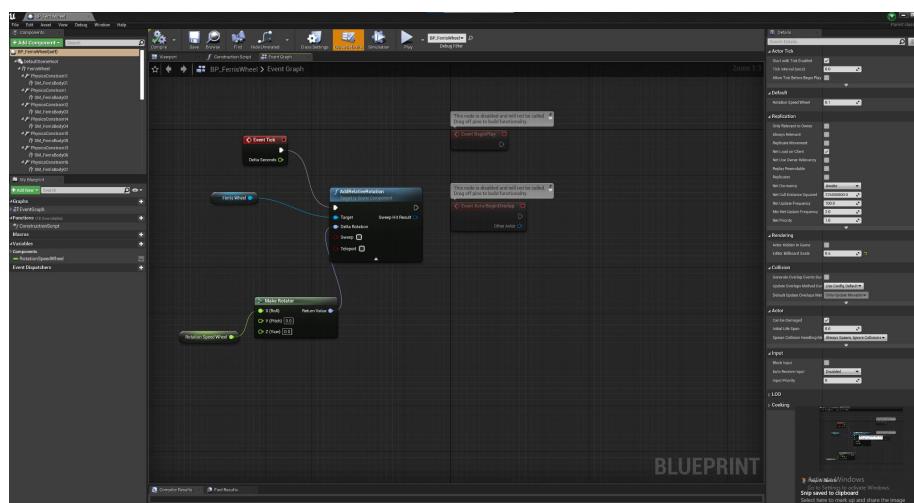
- Placed on Quadrangle lawn
 - With warm-toned spotlights for lighting
 - Looped auto-play video – one we downloaded from UNSW official Youtube channel – 2022 Oweek
 - Corresponds with one of our targeted player group - people who want to learn more about UNSW
 - provides an engaging and exciting way for current/future students, teachers, and staff members to learn the layout of UNSW





4) Ferris wheel

The Ferris wheel is implemented in the UNSW campus map, on the rooftop of quadrangle building, in combination with various parkour tracks and blocks. Initially we would like to provide player a bird's eye view of the entire lower campus, thus Ferris wheel immediately came to our mind. Automated rotation, with relatively slow speed gives player a relaxing time, slow down from previous parkour mission and the tiring combat with zombies. The Ferris Wheel asset is from the Abandoned Amusement Park bundle obtained from UE Marketplace. We modified it by scaling and rotating it, combining it with parkour blocks, as well as stairs.



4.3 Law Library

4.3.1 Design of map

The law library level design was inspired by the Law Library at UNSW. As we observed from the actual Law Library, the main features of the level include:

- 2-level building
- Bookshelves and books
- Green armchairs
- Round and rectangular tables
- Stairs
- Shelf lights
- Computer monitors
- Green carpet and white walls
- Marble-textured pillars

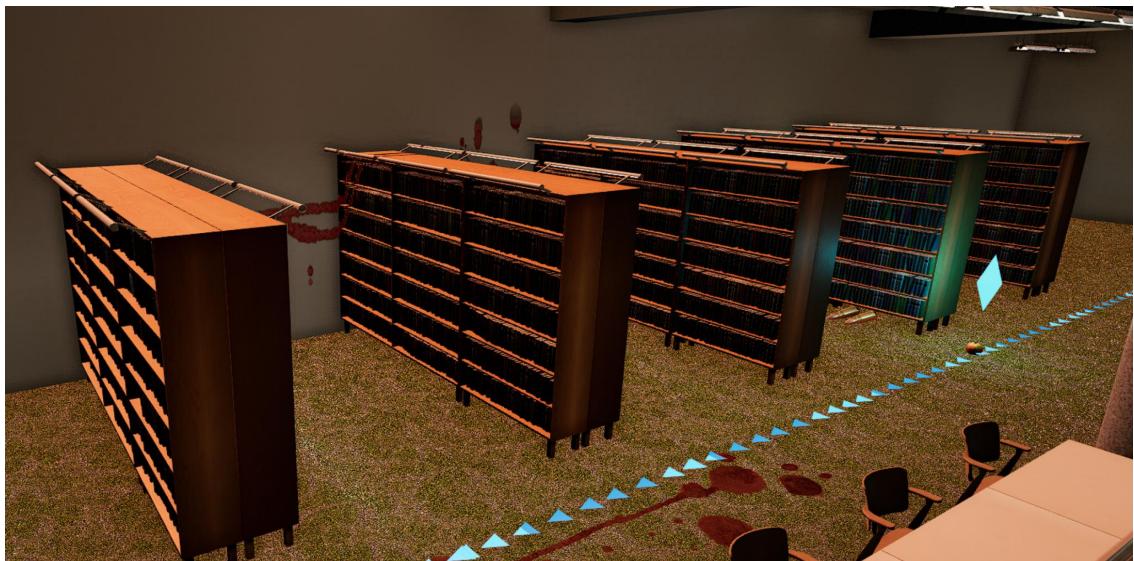


We started by modifying some assets from *UE4 Modern Library - Scene & Assets* in Marketplace. After building the above-mentioned features in our Law Library level, we incorporated our own creativity into transforming the level. These innovative changes include:

- Adding decals of blood splatters and stains



- Changing the floor material to green grass instead of carpet to emphasize the visual effect of blood stains on the floor



- Placing props and parkour blocks



- Placing zombies, especially at every expected place, e.g. behind the shelves, ligering at the dark corner, in order to give the player a 'jump scare' experience
- Adding pickable Halloween pumpkins to make it more futuristic



- Dark and spooky lighting
- Runner vision – floating blue arrows

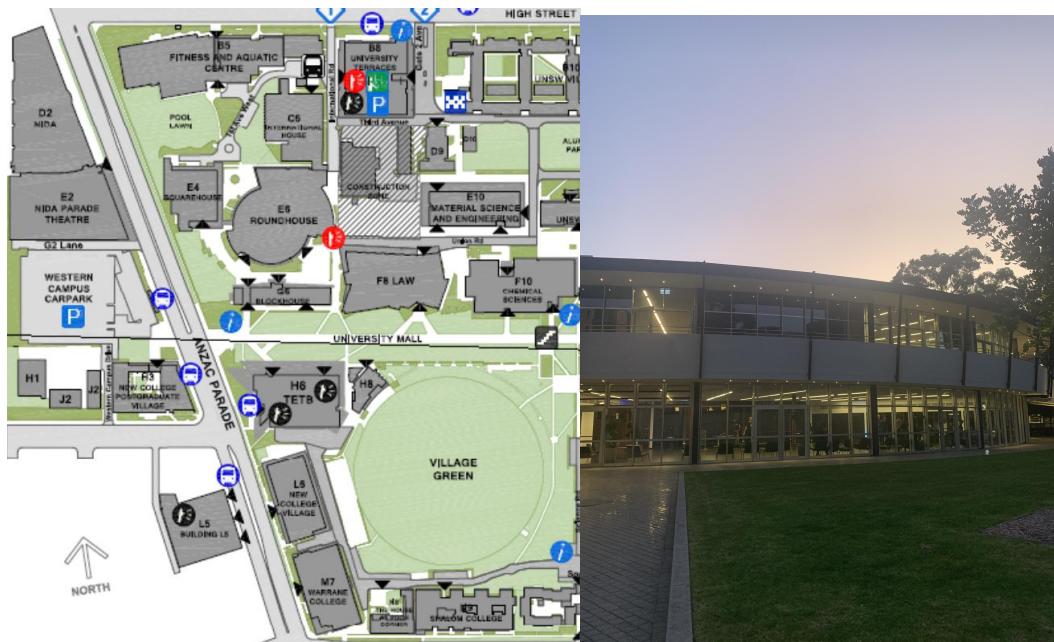
The portal is blocked by multiple book shelves and silver obstacle. We placed the portal in such a way that the player could only follow certain parkour route and approach the portal from above.



4.4 UNSW Lower Campus Map

4.4.1 Design of Map

The UNSW low map also refers to the real scene of the UNSW campus, so there are the same buildings like the Law Library, RoundHouse, and Village Green Playground. Users will travel from the law library to the top of the Parkour route, experiencing the short-distance portal and picking up both guns to shoot at zombies.



As we observed from the lower campus of UNSW, the main features include:

- The layout of several signature building, e.g. roundhouse and law library
- The newly constructed Village Green Playground
- Roads and trees



After building the above-mentioned features, we made the innovative changes include:

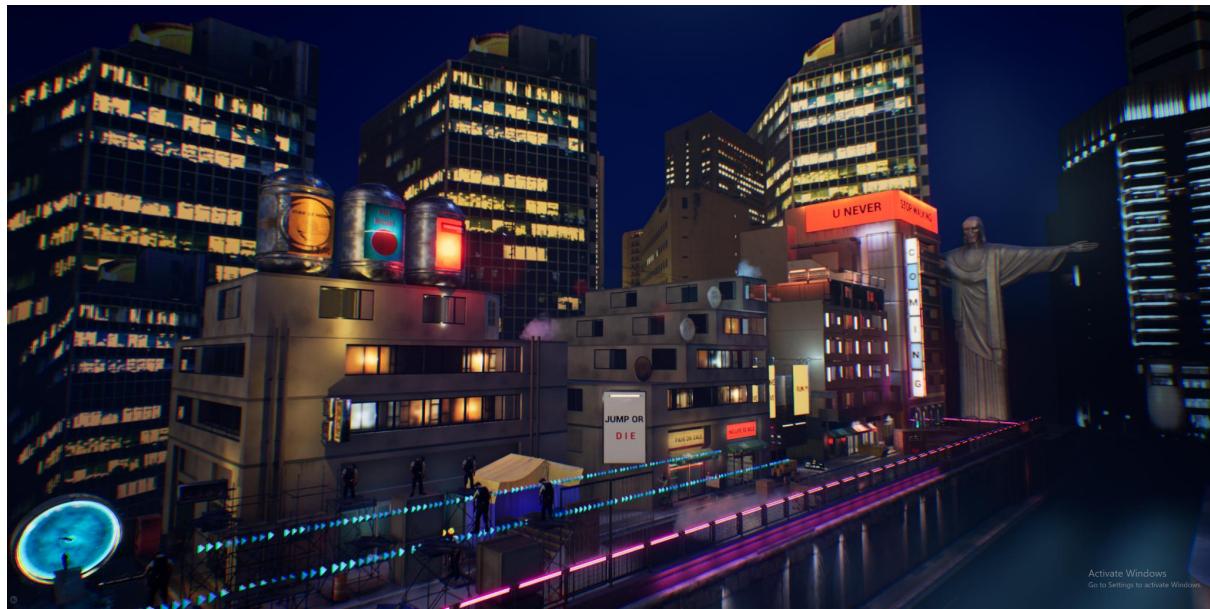
- Placing zombie army at Village Green playground
- Adding a short distance teleporting Portal to reduce travel time of the player and make the parkour experience more coherent
- Placing weaponry at Village Green playground and unlocking ‘dual wielding’ for the player in this battle
- Adding a swimming pool to the left of the RoundHouse



4.5 Cyberpunk Map

4.5.1 Design of map

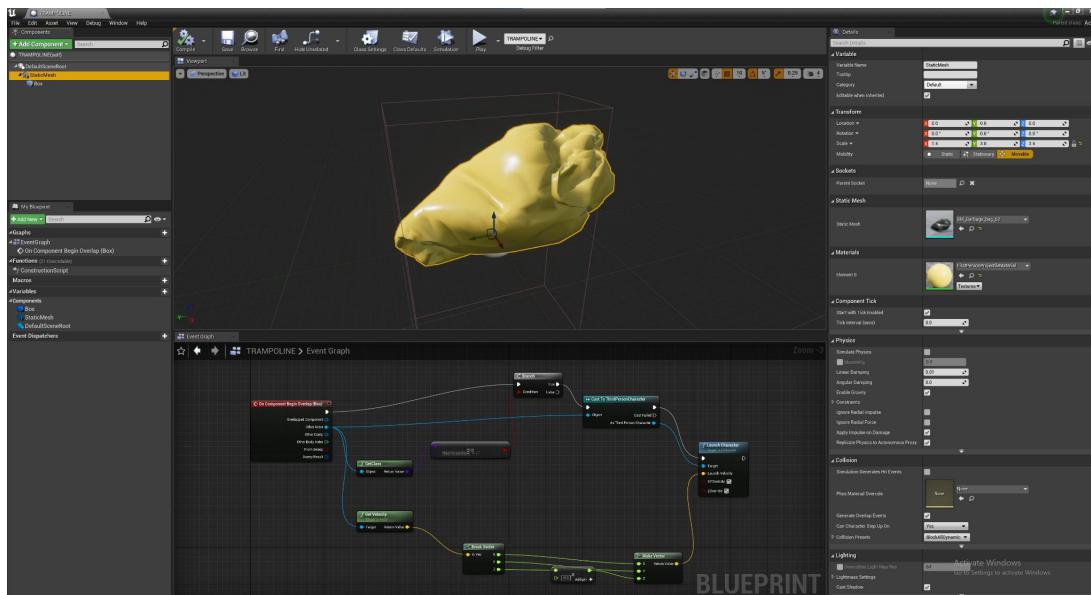
Cyberpunk map is designed for players to search for the antidote and return back to the laboratory. It is a wonderful map for users to experience cyberpunk style with neon lights, billboards in various colours, and some interesting slogans. Players can also experience exciting parkour on clouds, being chased by a crowd of zombies and find the antidote in a room with lasers.



4.5.2 Function in map

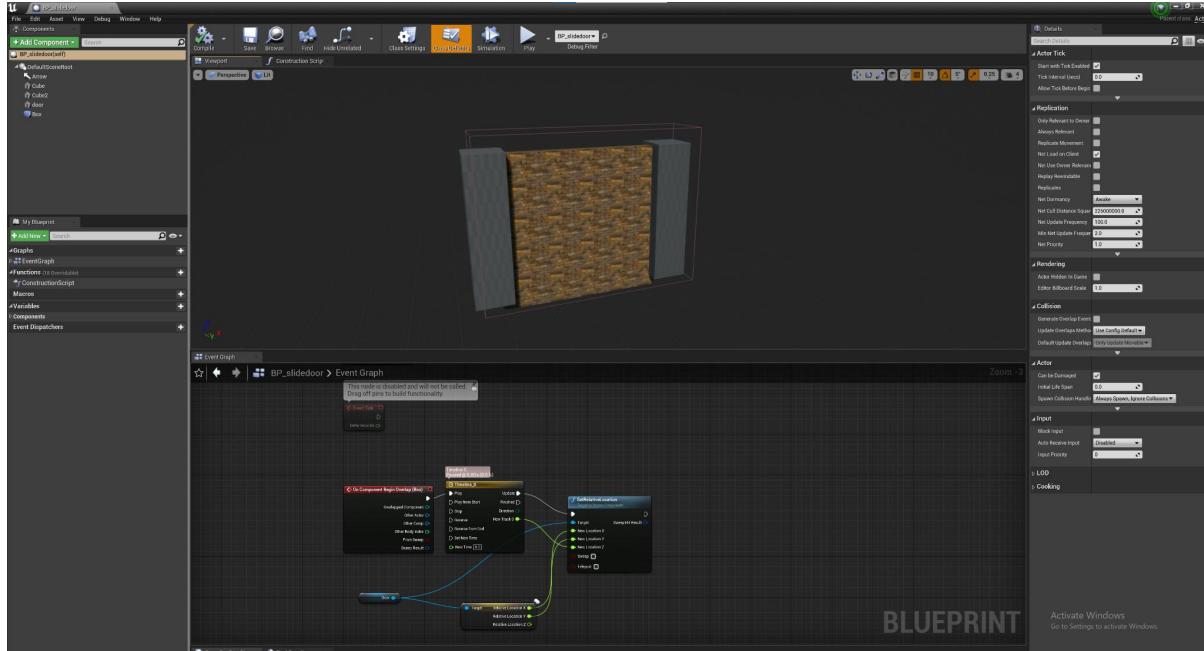
1) Trampoline

- > Same as the trampoline in 4.2.2, it is used for people to jump from parkour area to zombie area.



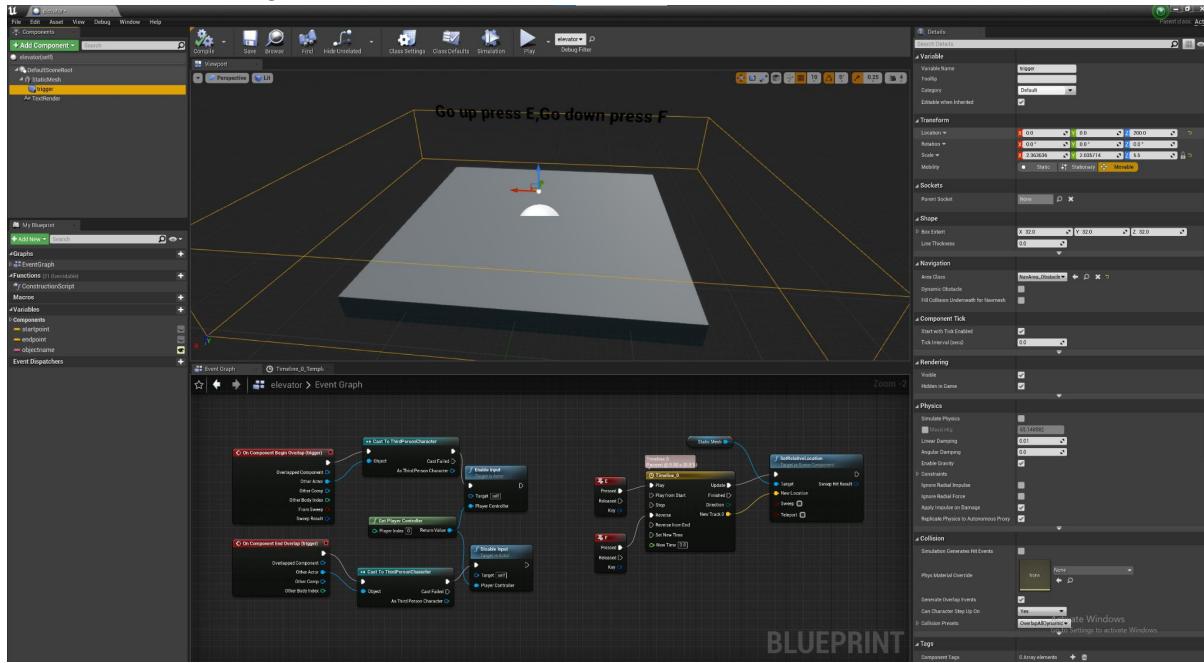
2) Slide door

- > The slide door is constructed by three cubes as the door frame, a door with a box. We put the box on the edge of the door, if players touch the box, the slide door will open and zombies will rush out.



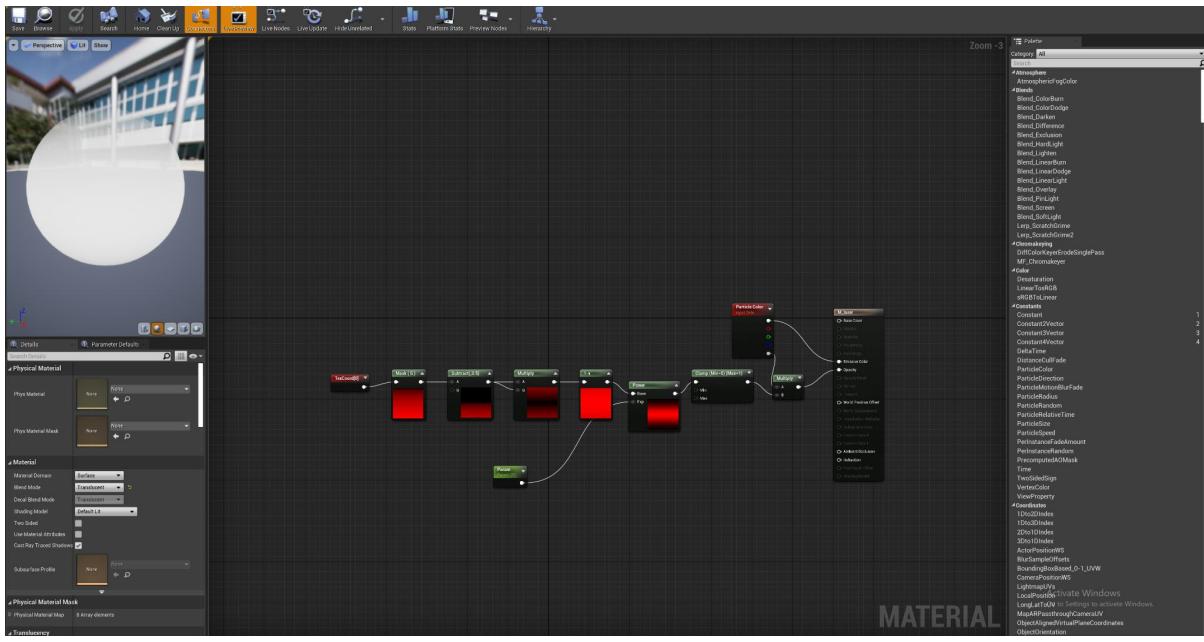
3) Elevator

- > Elevator is used for players to get to the room of the antidote. We put a trigger on the elevator so that when users press E, the elevator will go up. Or pressing F, the elevator will go down.

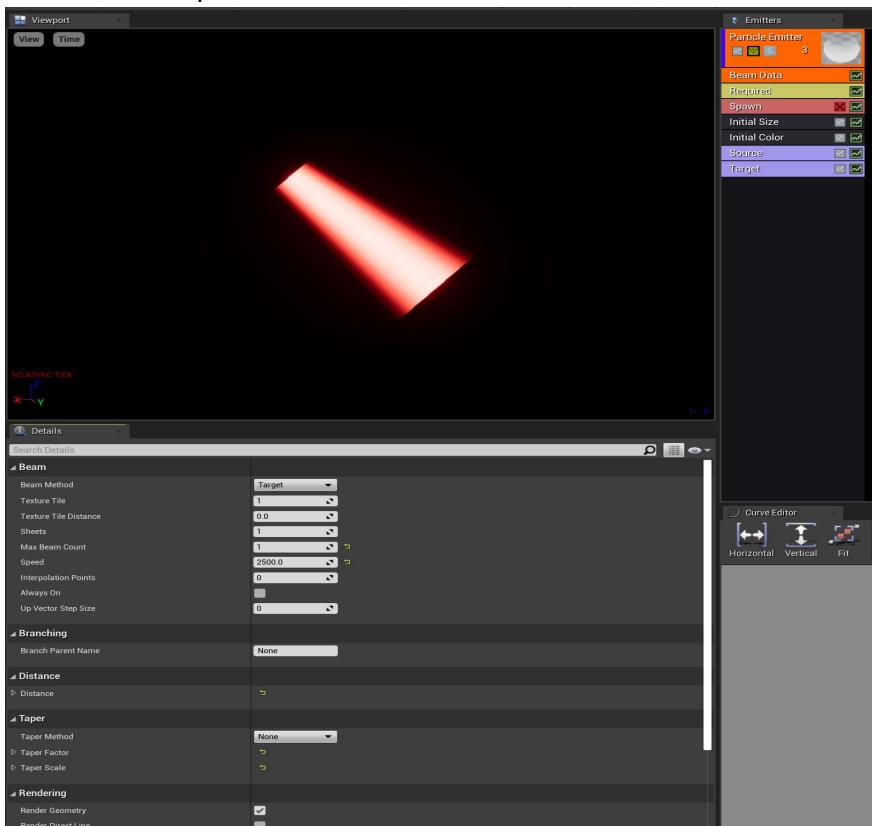


4) Laser

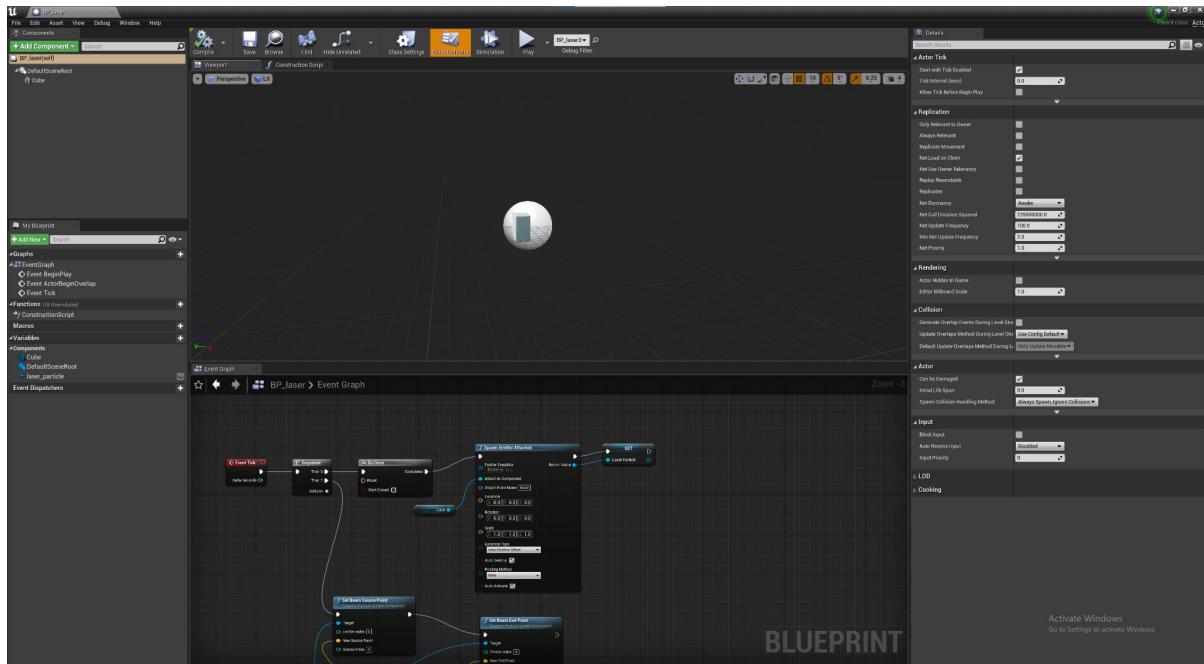
- > Create the material to apply to the particle. Use a text coord node and a component mask node with 0.5 subtraction, multiplying, 1-x processing, powering, clamping , another multiplying with particle colour.



- Create a particle system. Deactivate the spawn and add beam data with source and target. Then change some values like colour constant to make red laser shine. The most important thing is to set 0 to initialise the target position value. Now you can see the shape of red laser.



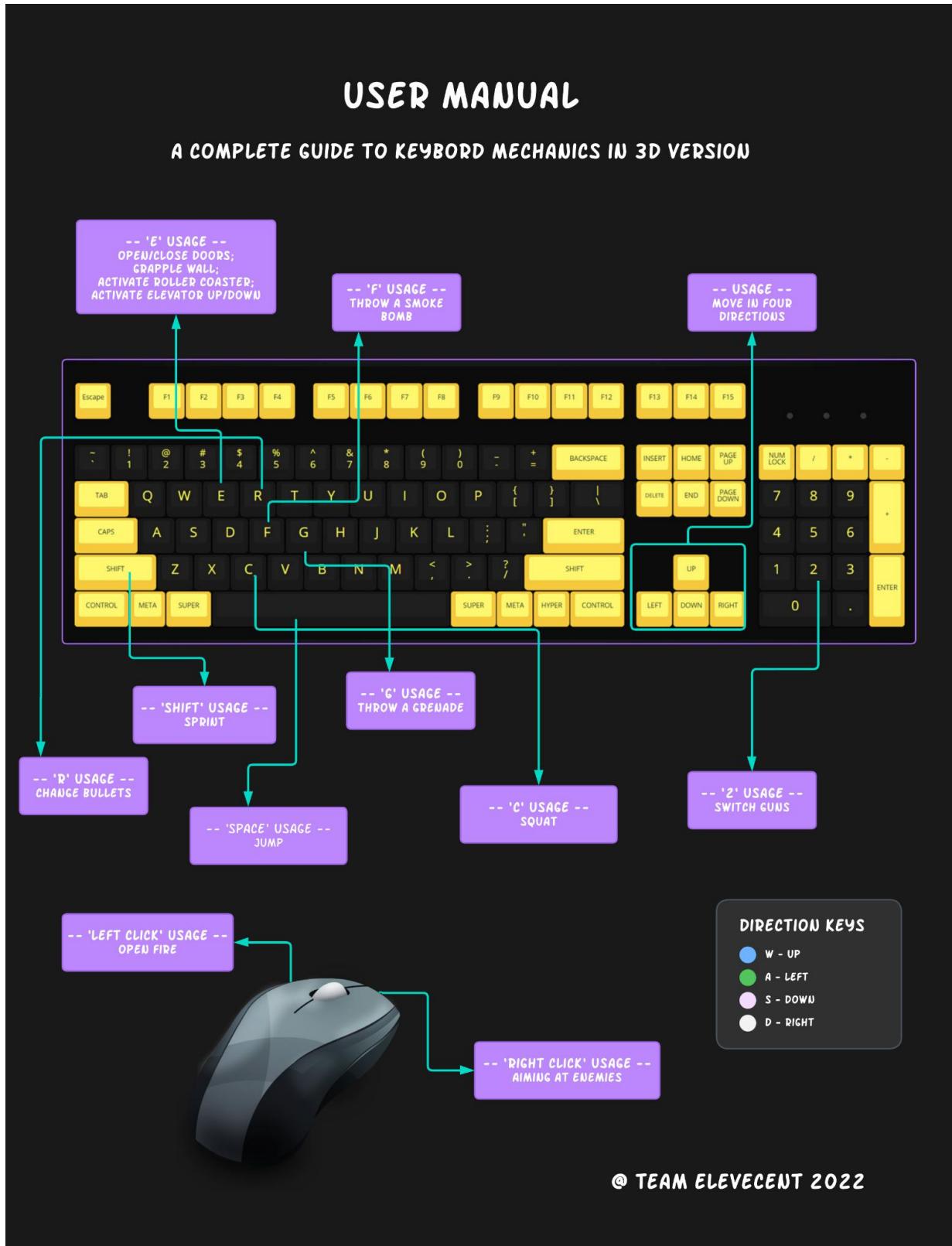
- Create a blueprint about the laser. We use the “spawn emitter Attached” to emit the laser and combine the laser particle with the cube. Now there is a laser emitting from the cube.



5. User Manual

5.1 3D Version

5.1.1 A guide to keyboard mechanics



5.1.2 A comprehensive game manual

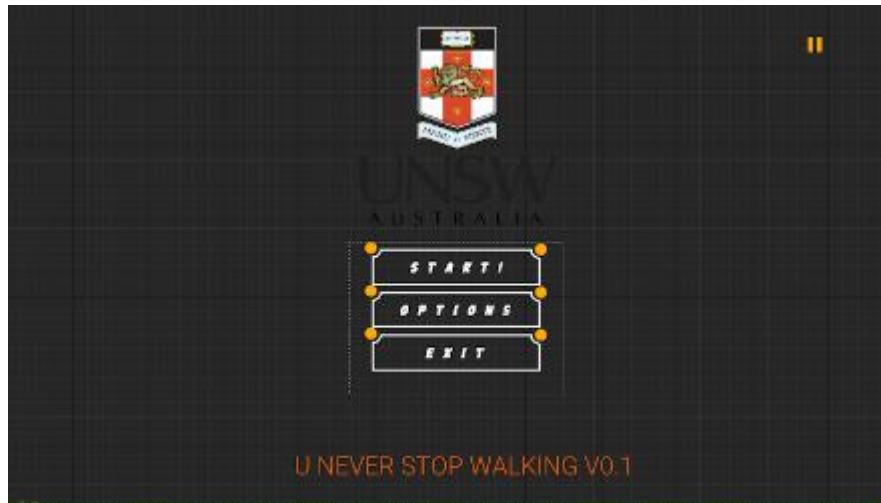
‘Hard times don’t create heroes.

It is during the hard times when the “hero” within us is revealed...’

In the near future, UNSW is ravaged by the destructive virus that has strangled the world. The old marks of peace and civility between students and staff have been covered over by the stench of blood and the destruction of roads and buildings. Few people remain in the world and UNSW has become one of the last places of refuge. Our protagonist, Rory, is one of these survivors who was previously a tutor of UNSW and must now defend against zombies that have taken over UNSW. He must parkour around his environment using his skilled movement, grappling hook, and athleticism. He must use the new tools he finds to defeat the zombies he encounters, either facing them head-on with a gun or by avoiding them. Rory must obtain the crystals scattered around UNSW to open portals that take him one step closer to the antidote that might save the world from this madness. Follow Rory as he tries to create some hope in this bleak world.

Setting up the Game

Before you start your first run, set up your game configuration at the starter menu by clicking ‘options’. Then, click ‘start game’ to experience this parkour and FPS adventure!



Playing the Game

In You Never Stop Walking you play *Rory*, a skilled shooter and runner who uses speed, agility, and marksmanship to traverse a dangerous world. Read your surroundings, reach your destination alive, and keep moving. Timing and skill make the difference between success and failure. There is HUD while playing in missions mode, displaying mission objectives, map thumbnail, life bar, armour bar, pause button, and kill popup. All information is provided visually from *Rory*'s point of view.

Navigating the Campus & Cyberpunk

Where others see obstacles, a runner/UNSW student sees opportunities. The game environment provides everything you need to traverse the campus and cityscape. A few helpful items include:

- *Parkour blocks, platforms, ropes, and handy objects* that are easy to shimmy up: Just run or jump into them to grab on, or use the grappling hook to pull you from one to another block within a distance limit.
- *In-map portals*: Use portals to teleport within maps or travel to other maps to make your trip more efficient.
- *Guiding arrows*: The fastest, safest way to travel. Follow the guiding blue arrows floating around to jump, climb, and sprint around.

There's more than one way to cover distance, so pay attention and look for shortcuts around, over, and through obstacles.

A TIP FOR YOU: Not sure where to go? The way forward might be behind you. Get a hint by looking at floating commentary boxes.

Moves

A skilled runner is at ease in the urban maze of the cyberpunk metropolis and can spot road signs that nobody else can. A skilled runner can navigate those secret paths in an astonishingly short amount of time by combining a variety of acrobatic manoeuvres.

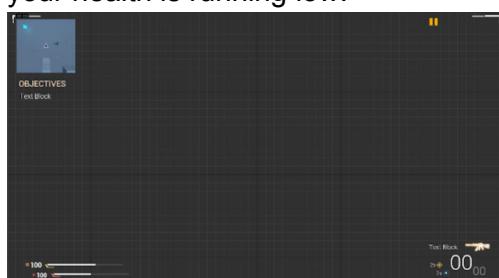
A TIP FOR YOU: Use your best advantages against any opponent, which include speed and agility. Anyone who solely relies on equipment like guns and bombs to go around the campus quickly dies.

Health and Damage

You Never Stop Walking uses a regenerative health system. When the player is injured from fighting zombies or big drops, the screen flashes red and color starts draining from its field of vision. The player heals up completely just by avoiding trouble for a few seconds. If the player keeps taking damage or falls from a great height, it will die.

A TIP FOR YOU:

Picking up the red heart (health pickup) will boost your health bar, so don't miss them when your health is running low!



Weaponry

You will come across everything from smoke bombs, grenades to assault rifles on the missions. When using sniper rifles, use 'right click' to zoom and focus. There are two sniper gun models: AK47 and the other is M4A1, which are configured with different damage values and ammunition systems.



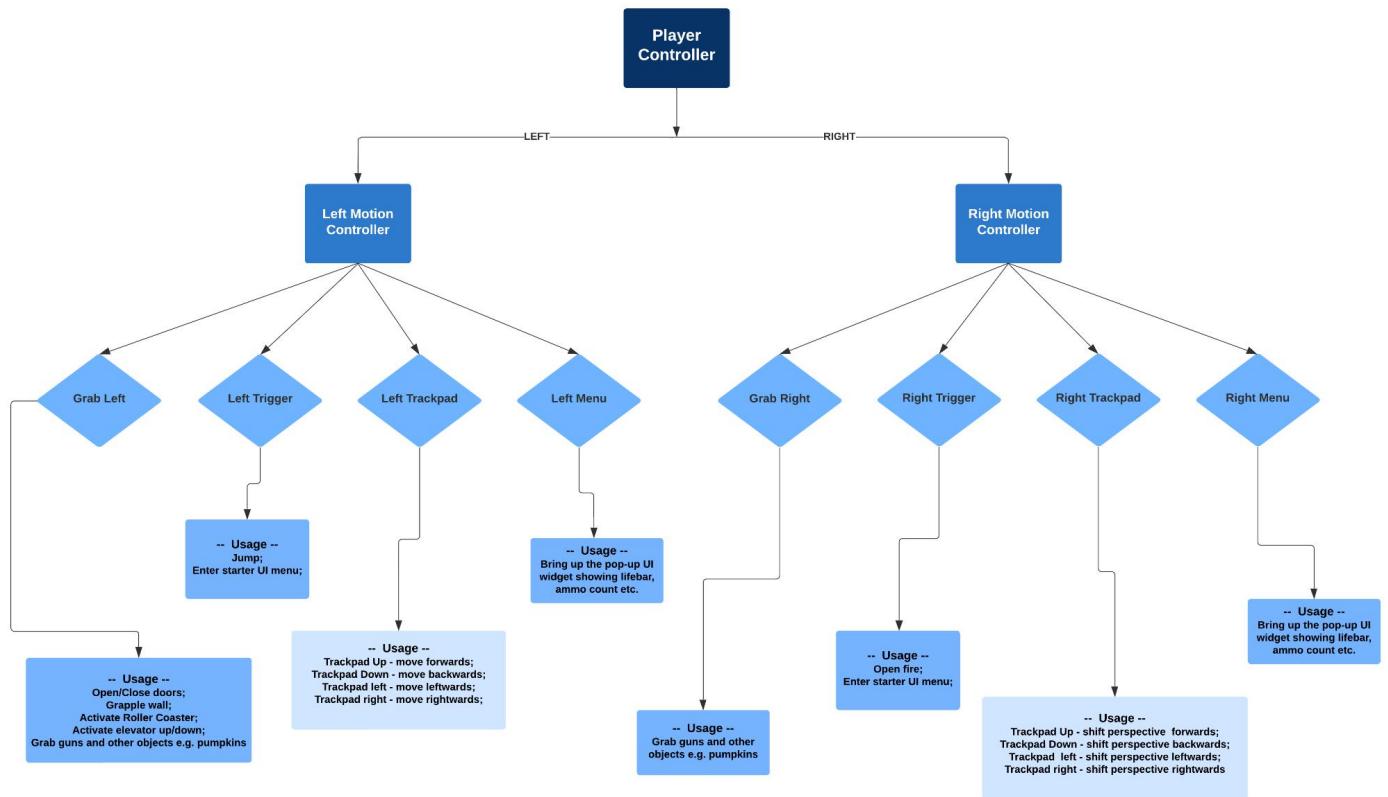
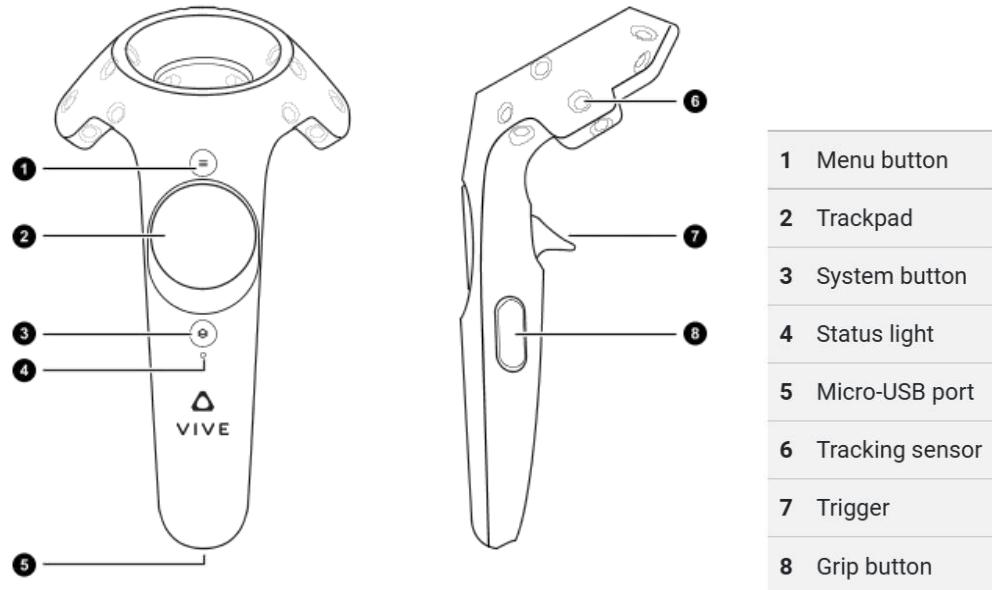
Pausing and Respawning

Before exiting a game where progress has been made, be sure to pause and save your progress by clicking the pause button at the top right corner. All unsaved information may be lost otherwise.

You can respawn from various 'resurrection points' if you unfortunately have a sharp fall or get badly injured by the zombies.

5.2 Additional User Manual for VR Version

5.2.1 Controller Mappings



5.2.2 A comprehensive guide for playing VR version

Note this is an additional guide built upon the 3D version guide, and it mainly acts as complementary instructions for users to excel in the VR game environment.

Setting up the Game

Before you start your first run, interact with the floating starter menu. Press ‘start game’ by moving your motion controller cursor onto the button to experience this realistic parkour and FPS adventure!

Playing the Game

Moves

A skilled runner is at ease in the urban maze of the cyberpunk metropolis and can spot road signs that nobody else can. A skilled runner can navigate those secret paths in an astonishingly short amount of time by combining a variety of acrobatic maneuvers. In VR, use your *trackpad on the left motion controller* to move in various directions and your *trackpad on the left motion controller* to switch perspectives.

A TIP FOR YOU: Moving fast in VR games might be dizzying, using portals and grappling hooks to assist your journey.

Weaponry - Removed: smoke bomb, grenade; Added: Dual wielding

When using sniper rifles, use left and/or right grip buttons to pick up and hold them in your hands. There are two sniper gun models: AK47 and the other is M4A1, which are configured with different damage values and ammunition systems. Note that differing from the 3D version, the smoke bombs and grenades are disabled in VR. However, try dual wielding by picking up two guns at a time, and you’ll love the experience, feeling the recoil vibration of motion controllers, and enjoying being a shooting prodigy.

Map navigation

Afraid of getting lost in our huge campus map? You do not have to worry as the Runner Vision gets your back. The game employs a navigation system called Runner Vision that prompts which route the player should choose to go forward. Such a mechanism enhances the player experience by making the moves more seamless. We modified and customized it

to better fit our game theme, using floating arrows resembling conveyer belt to give player directions, leading the way with optimized routes.

Trace the blue floating arrows and read the instructions in commentary boxes, and you'll quickly find the best path to go forward.

Pop-up menu

Want to check on your health, ammo or timer while playing? Bring up the pop-up menu tied to your wrists by pressing the 'menu' button on either left or right motion controller!



Interact with the environment

Interacting with objects in the VR environment could be an entirely novel experience, and let us guide your way. To *trigger elevators, doors, and the roller coaster*, you need to press the left grip button. Press once to open doors and ride the elevator up, press again to close doors and ride the elevator down.

Collect objects

Your mission is to collect crystals around each map, but there are more objects for you to pick up if you wish. Pumpkins are placed on the Law Library map and the V sign is placed on the final victory map. Try picking these up by using either the left or right grip button.

5.3 Full gameplay video

For complete gameplay, check out this video we made:

[U Never Stop Walking: Gameplay - YouTube](#)

6. Reference

6.1 Assets

From Marketplace on Unreal Engine:

[1] City Environment Megapack Vol 02

<https://www.unrealengine.com/marketplace/en-US/product/city-environment-megapack-vol>

[2] Construction Site VOL.1-Supply and Material Props

<https://www.unrealengine.com/marketplace/en-US/product/construction-site-vol-1-supply-and-material-props>

[3] Soul: City

<https://www.unrealengine.com/marketplace/en-US/product/soul-city>

[4] UE4 Office Environment Modular Kit

[5] UE4 Modern Library - Scene & Assets

<https://www.unrealengine.com/marketplace/en-US/product/modern-library-scene-assets>

[6] UE4 StarCluster Pack

<https://www.unrealengine.com/marketplace/en-US/product/starcluster-pack>

[7] Flow Generator

<https://www.unrealengine.com/marketplace/en-US/product/flow-generator>

[8] Weather System Plugin

<https://www.unrealengine.com/marketplace/en-US/product/weather-system-01>

[9] Abandoned Amusement Park

<https://www.unrealengine.com/marketplace/en-US/product/abandoned-amusement-park>

[10] Modern City Bundle

<https://www.unrealengine.com/marketplace/en-US/product/modern-city-bundle>

[11] Blood Decals

[12] Halloween pumpkins

6.2 Function

[1] VirtusHub, <https://virtushub.com/p/resources>

6.3 Music and video

6.3.1 Music

- [1]Anger.AshamaluevMusic.<https://soundcloud.com/ashamaluevmusic/anger?in=ashamaluevmusic/sets/music-for-gaming-videos>
- [2]Hardy.AshamaluevMusic.<https://soundcloud.com/ashamaluevmusic/hardy?in=ashamaluevmusic/sets/music-for-gaming-videos>
- [3]Victory.AshamaluevMusic.<https://soundcloud.com/ashamaluevmusic/victory?in=ashamaluevmusic/sets/music-for-gaming-videos>
- [4]Virtual World.AshamaluevMusic.
<https://soundcloud.com/ashamaluevmusic/virtual-world?in=ashamaluevmusic/sets/music-for-gaming-videos>
- [5]Energetic.AshamaluevMusic.<https://soundcloud.com/ashamaluevmusic/energetic?in=ashamaluevmusic/sets/music-for-gaming-videos>

6.3.2 Video

- [1]O-Week 2022 at UNSW Sydney.UNSW Community.https://www.youtube.com/watch?v=Yd8_YJpJ_I

7. Appendix - Game Flow

7.1 Start Menu

At the beginning of our game you are presented with the menu. If you click the “Start Game”, you will start the “U never Stop Walking” and play in the tutorial map, or click “Exit” to exit the game.



7.2 Tutorial Map

When you click start game you are dropped into a VR computer science classroom, that is a futuristic representation of the VR classroom at UNSW. In this room, lies an ensemble of pickup items you will encounter during the play time of your game which includes:

- Heart - used for restoring health
- Gun - used for shooting enemies
- Ammo - used for replenishing ammo the gun needs to shoot
- Crystal - are objectives needed to capture before moving onto the next level

Here you can test the gun and shooting mechanics such as aiming down sights. There is a zombie behind you in the room for you to shoot. Take the first crystal of the game by walking over it. Crystals are important since they all need to be collected in a level before the portal opens up to the next level.



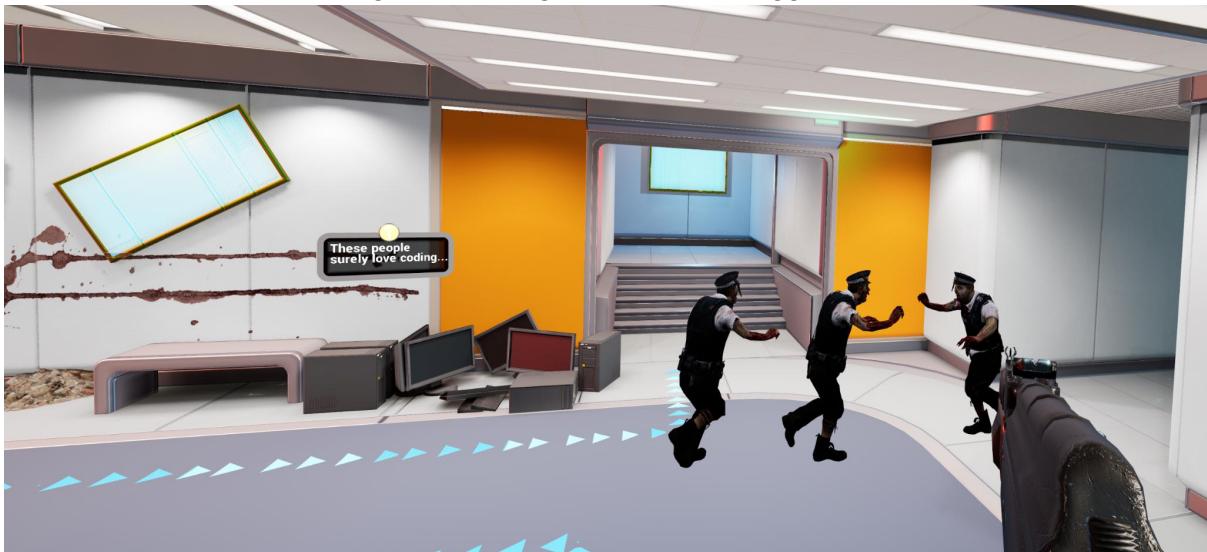
You are also able to open the HUD that is attached to your wrist. This shows the game time, your replenishing shield and health and which gun you are holding. This HUD can be opened up at any time using the menu.



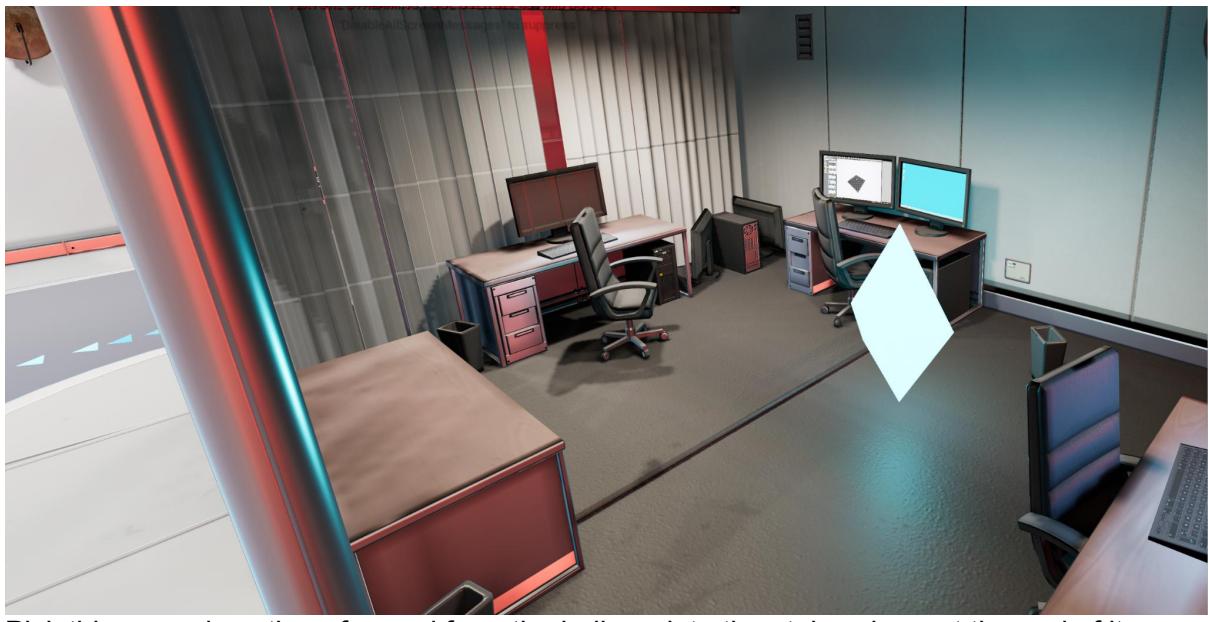
To your right, open the door using the left motion control trigger and enter the hallway. You can see the blue arrows on the floor. This combined with the in-game messages exist at every point in the game giving guidance on your mission objective and suggested path if you don't know where to go or how to approach a parkour challenge.



You follow this hallway until you encounter a group of enemies and a gun. Pick up the gun with either motion controller grab(left or right) and use its trigger to shoot the zombies.



Then to your left there is a room containing a crystal.

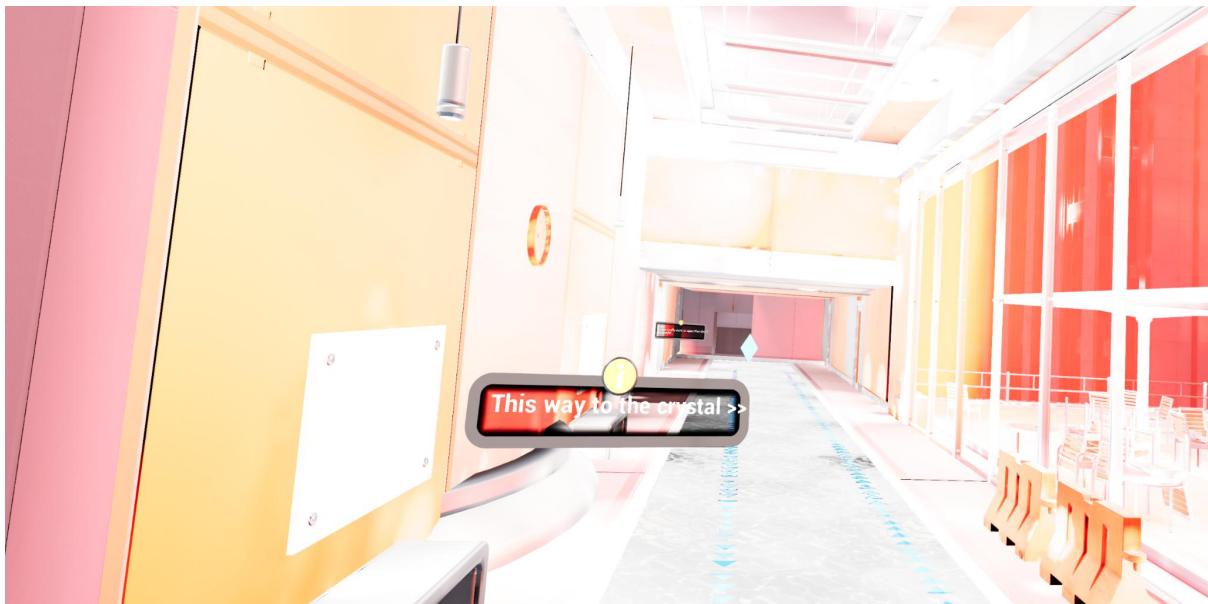


Pick this up and continue forward from the hallway into the stairs where at the end of it you will see scaffolding to your left. Use your hand's motion controller grab left to grab the scaffolding and climb the obstacle.

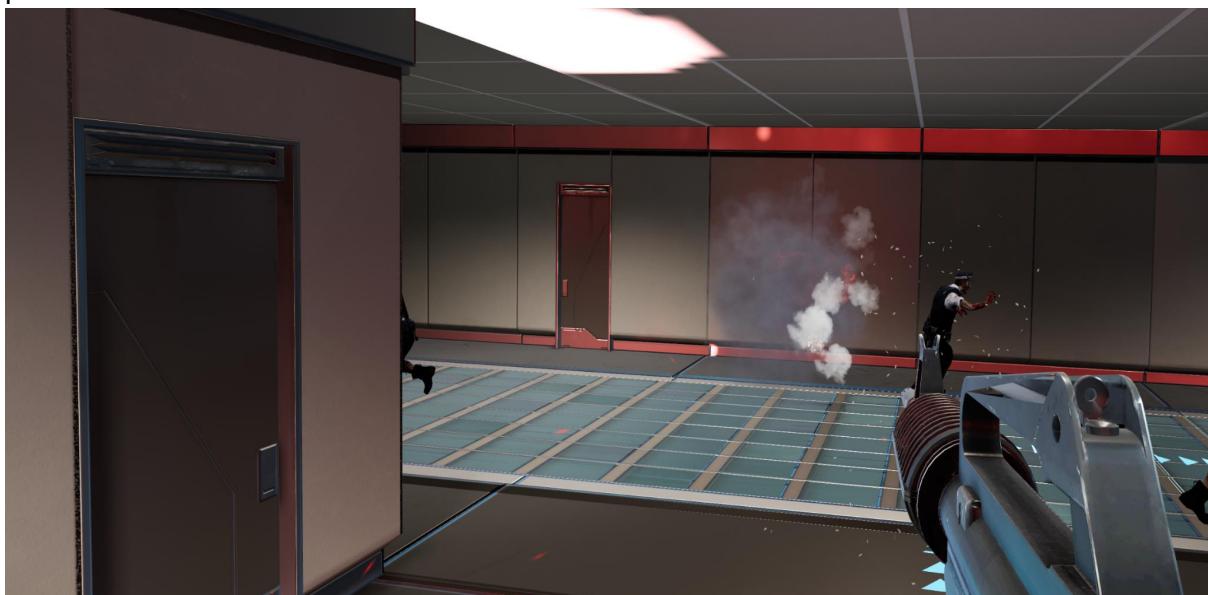


Then turn to your right where there is another crystal for you to take and come

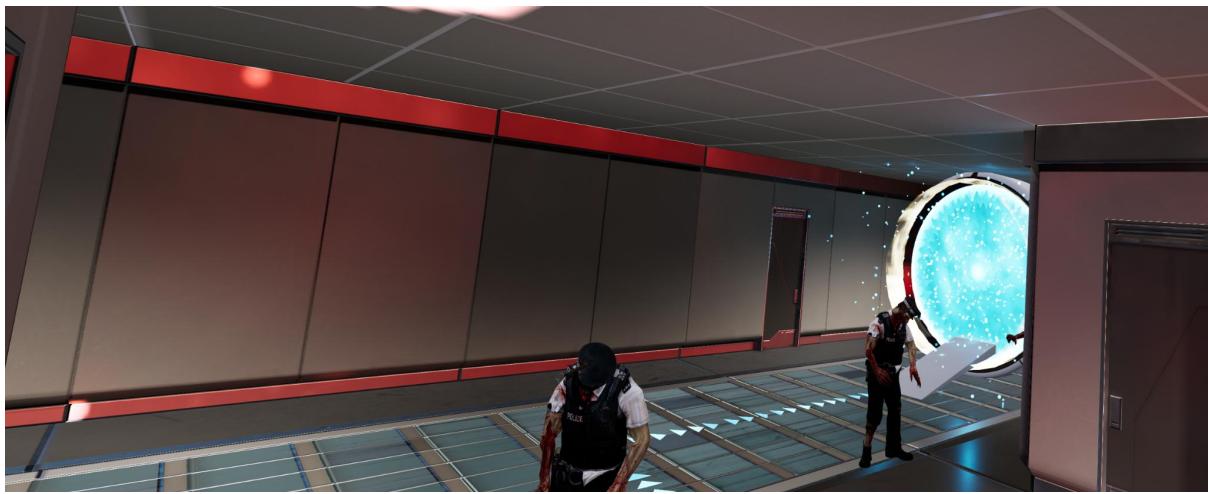
back.



Go forward into the next room where you are presented with a new type of gun that is more powerful.



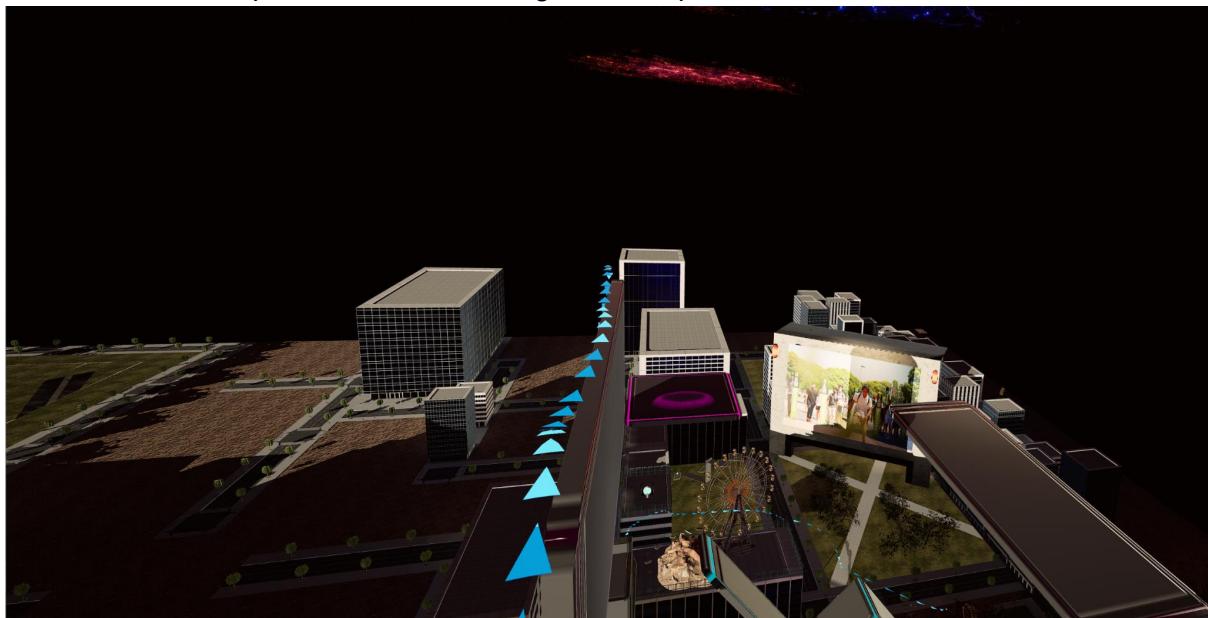
Mow down these enemies using the gun and enter the portal to your right to enter the next level.

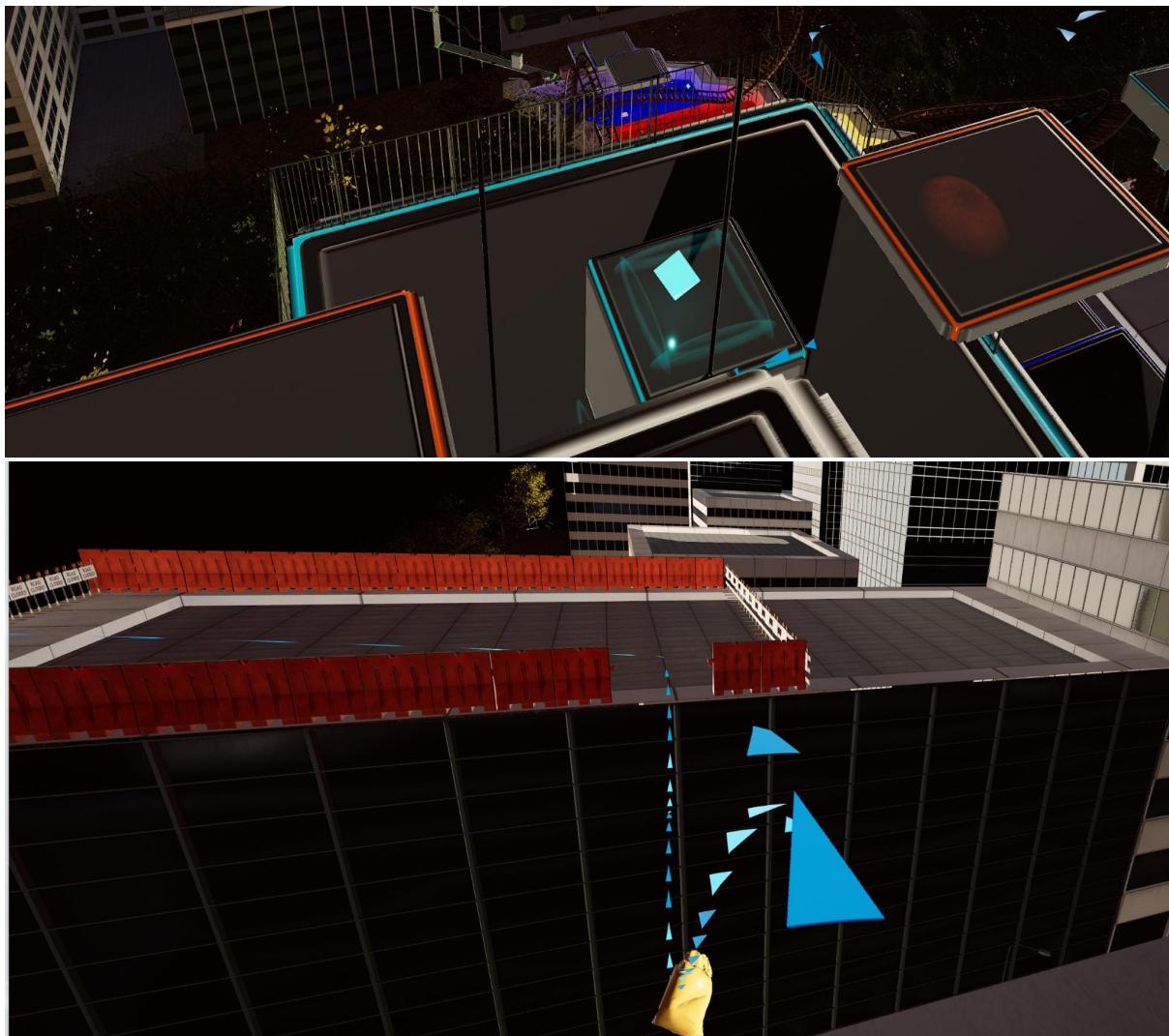


This ends the first level.

7.3 UNSW High Map

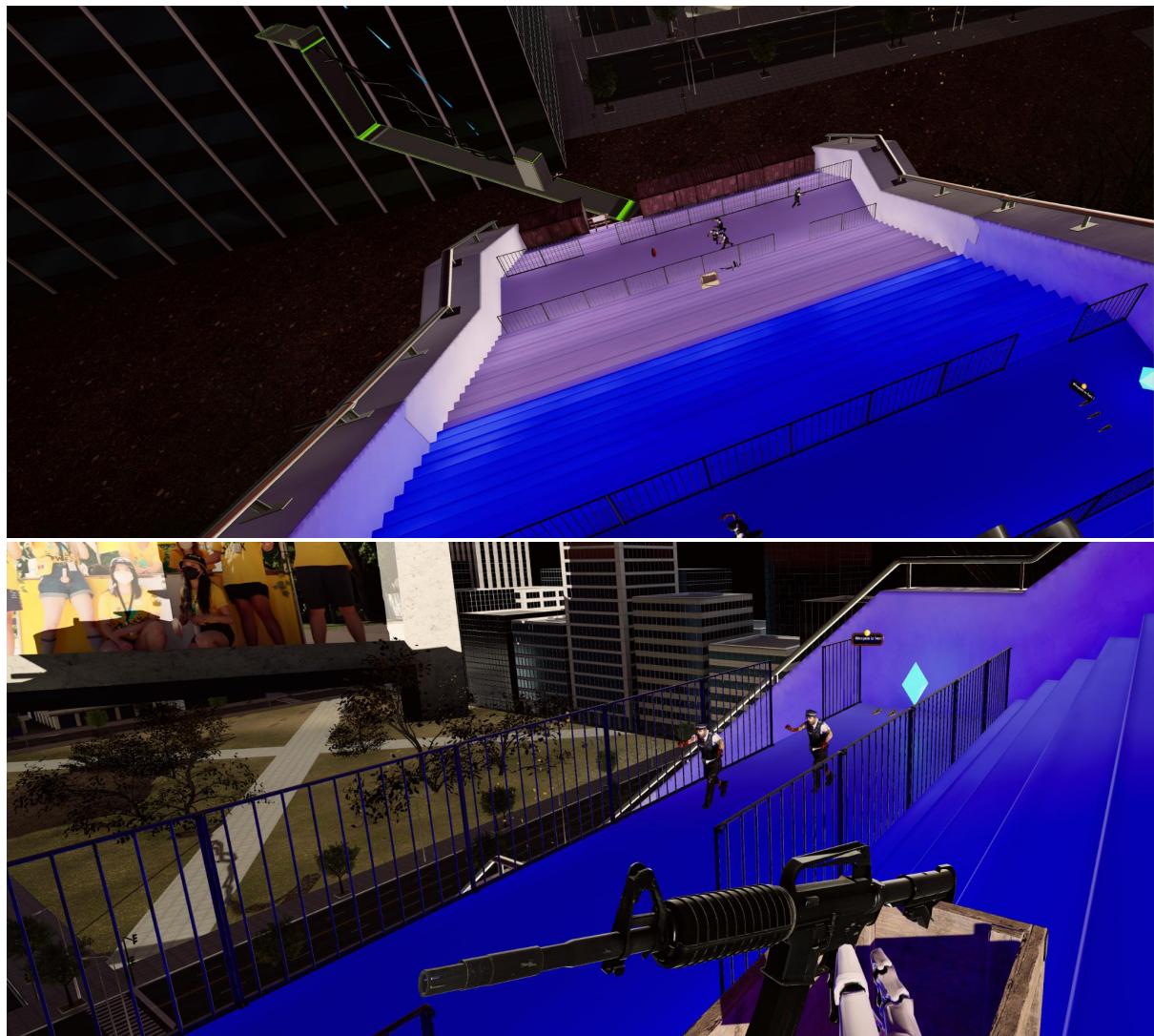
- There are three parts for the UNSW High map. At the first part, You need to go forward with the blue arrows from the top of the main library to the upper part of the rainbow stairs. You will encounter these interesting barriers:
- Parkour on different high platforms
 - Capture the crystal on the top of one blue platform
 - Jump between two buildings via trampoline





- The second part is the rainbow stair. Try to go from the top of the stairs to the bottom, and these barriers are waiting for you:
- Take the roller coaster by pressing grab left
 - Pick up weapons and shoot at zombies

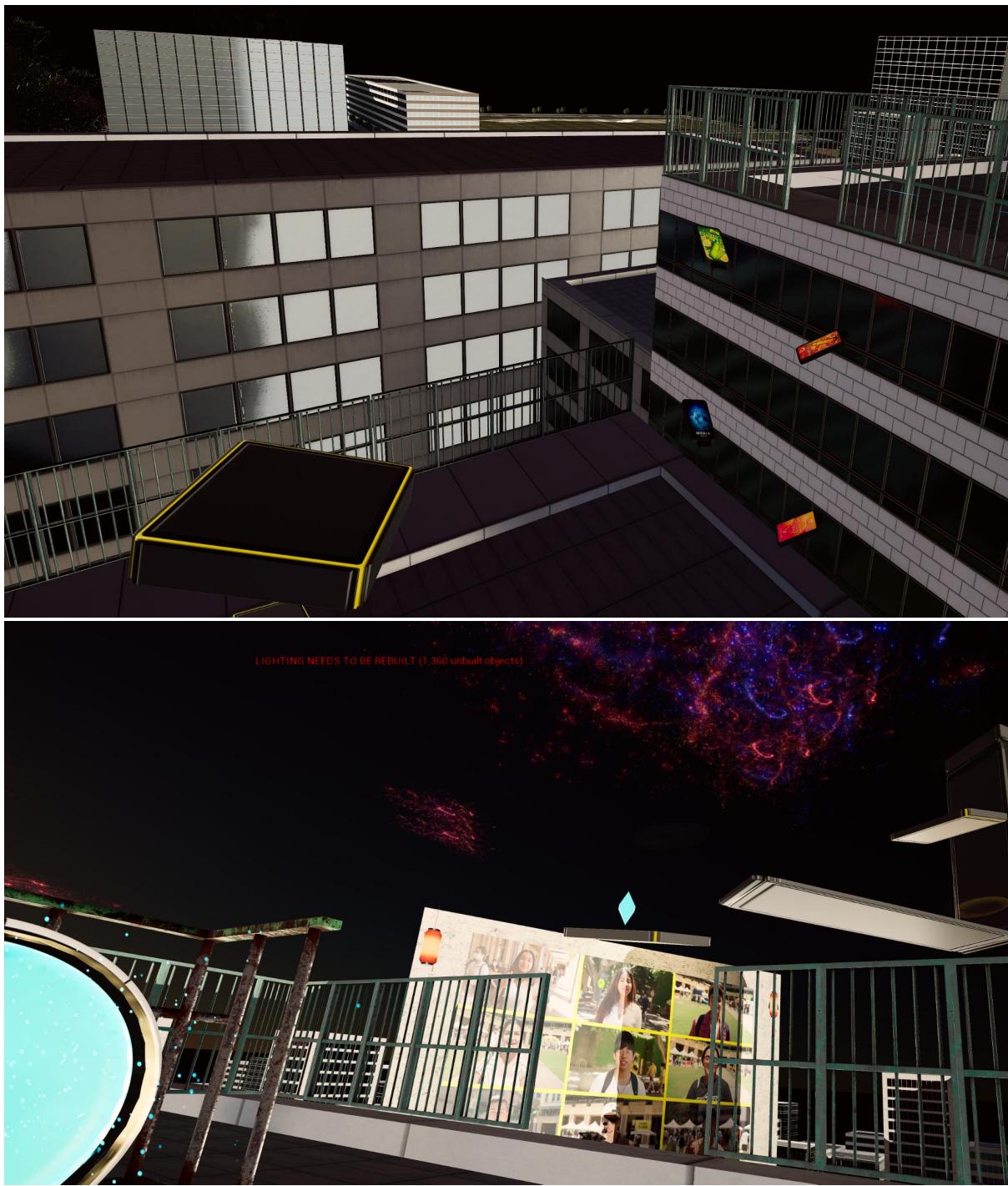




- There are two paths on the third part(on the roof of the quadrangle lawn).
 - The first path, you can take the sky wheels while watching the UNSW advertising video. When you reach the top platform ,go directly to the portal.

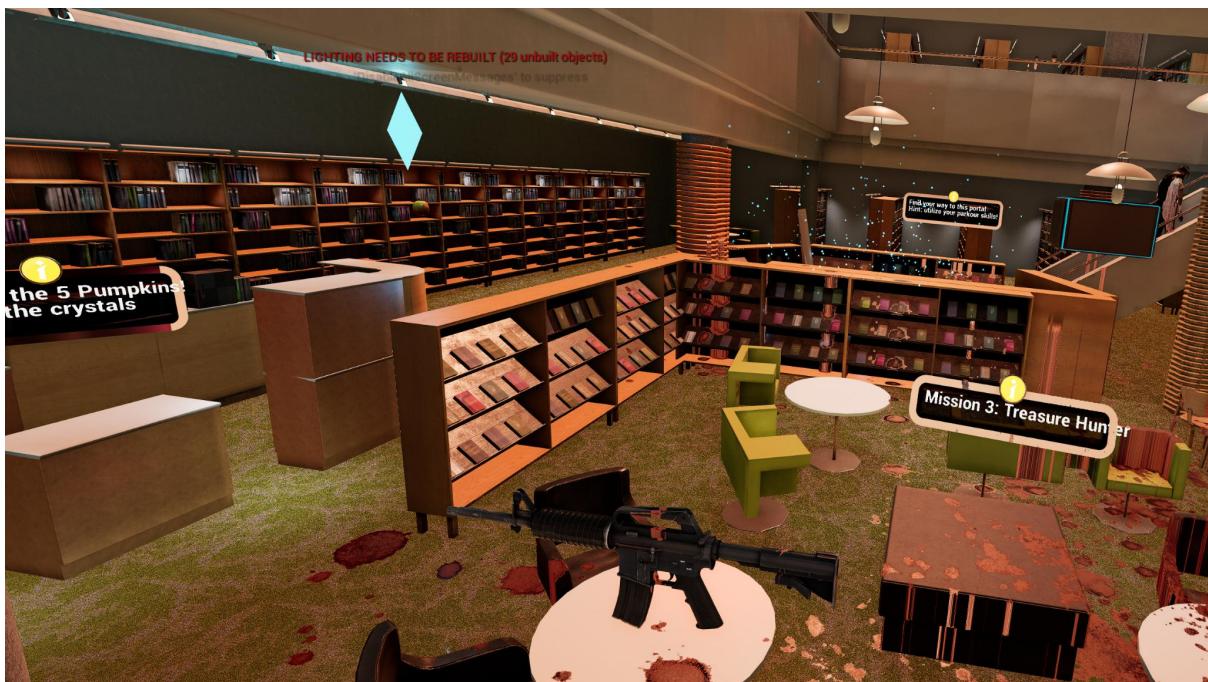


- You can also go through the second path to the portal,it is easier and quicker than the first path but with less fun.Don't forget to pick up the third crystal,or you cannot use the portal.

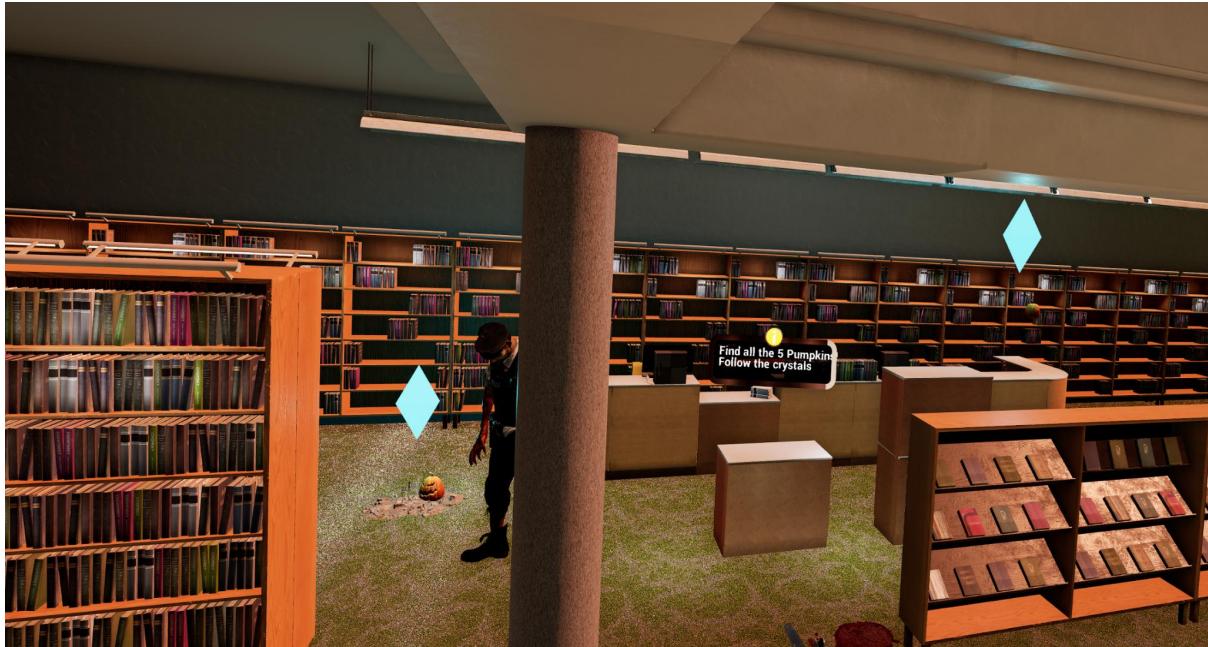


7.4 Law Library

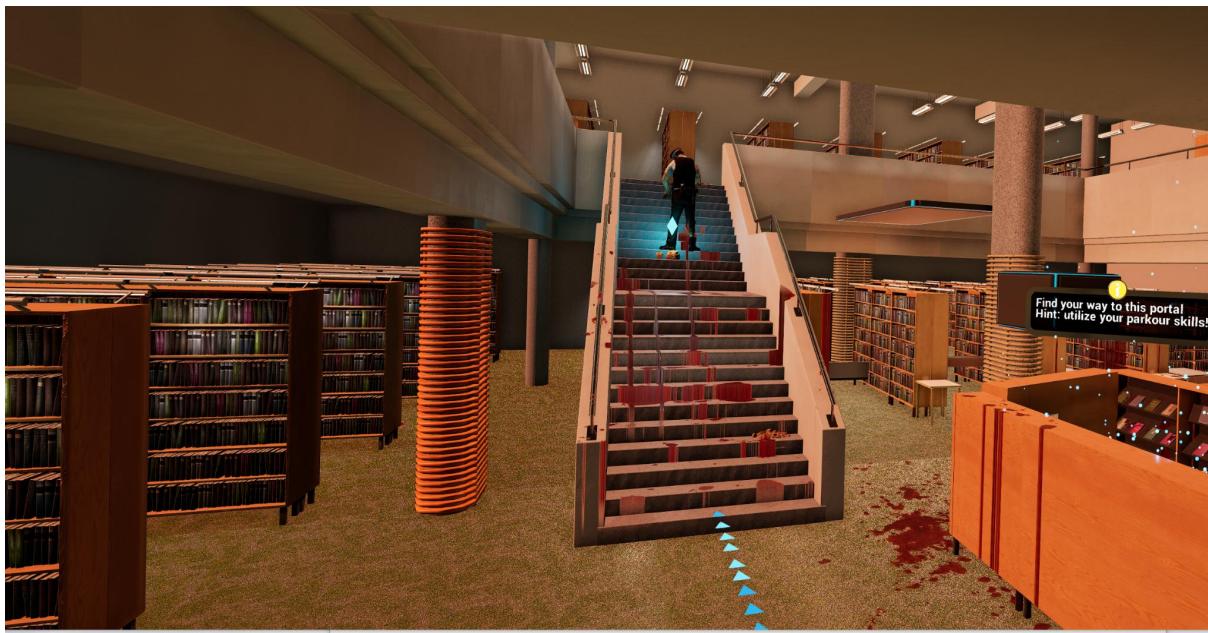
When you arrive at the law library you are greeted with a gun on the table in front of you. Use this gun to kill any zombies you see.



Pick up this gun and look to your left to see two crystals you should pick up.



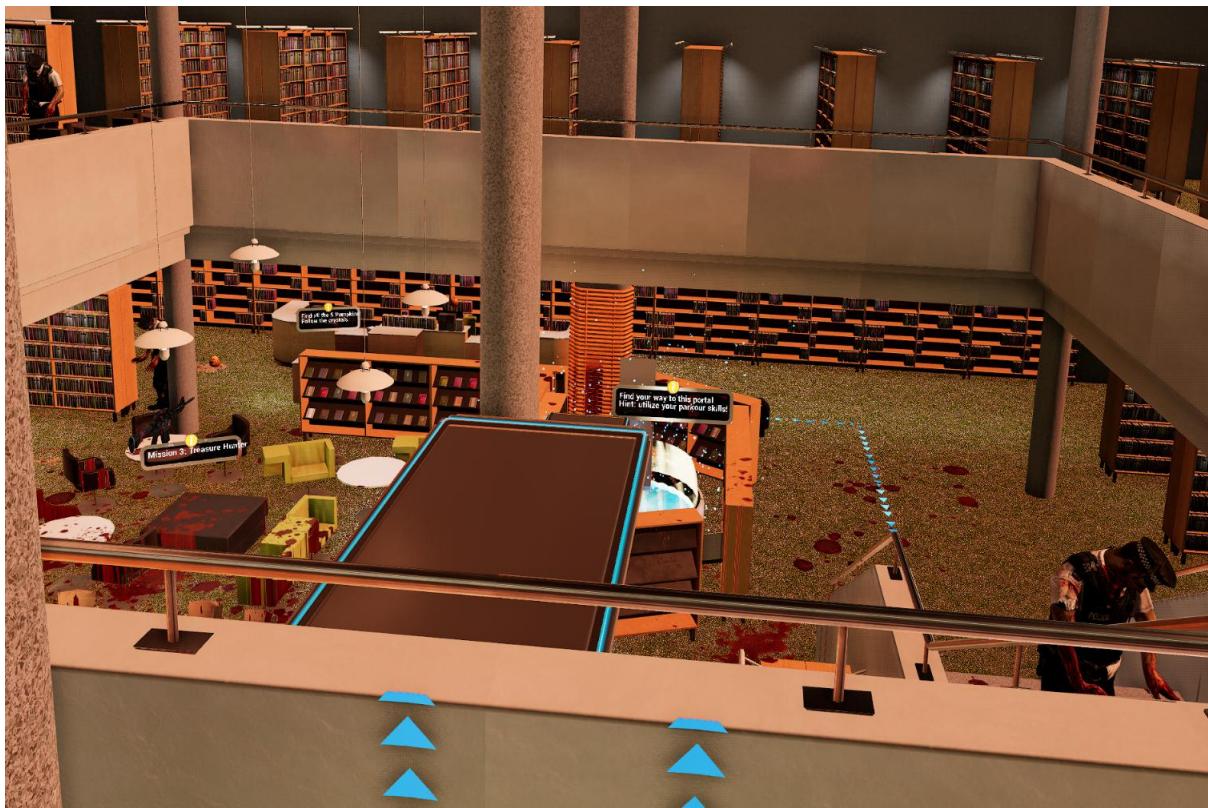
Then make your way to the bottom of the stairs, where you should see another crystal guarded by a zombie.



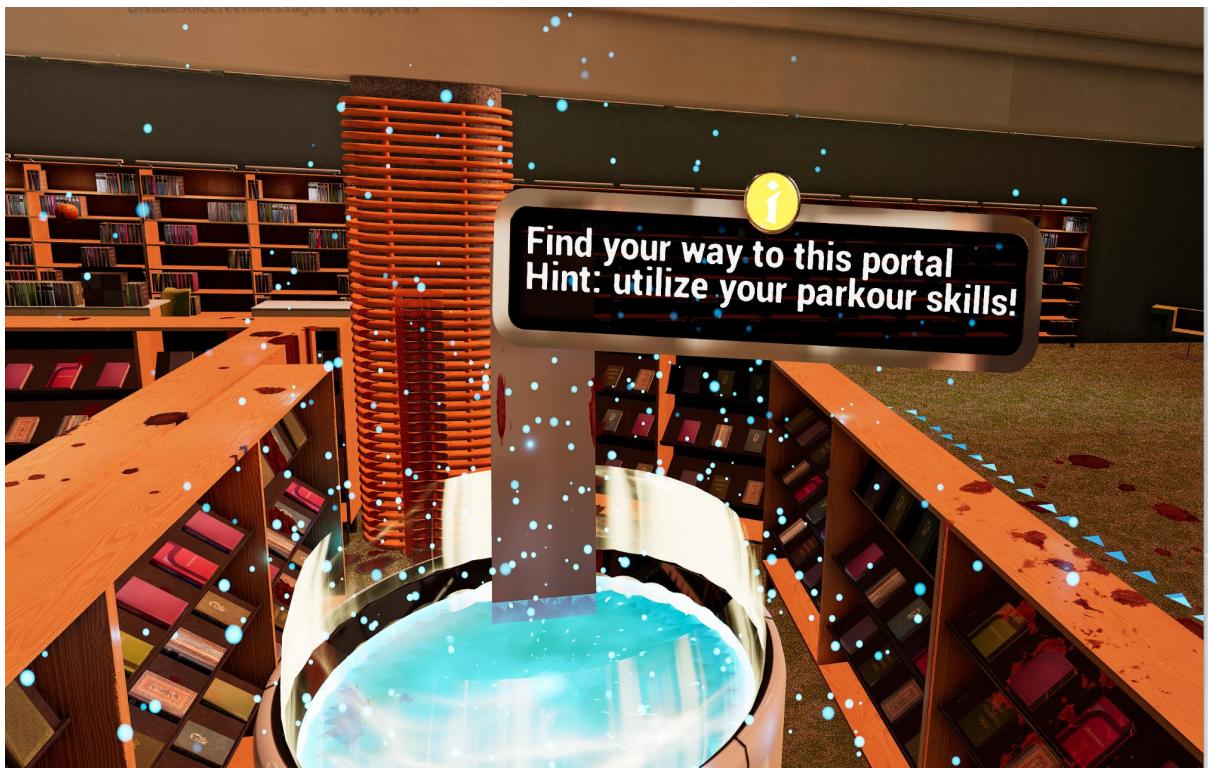
Climb up the stairs and look to your left to see two more crystals. Collect these crystals.



Make your way around the second floor until you reach the stairs again where you should be able to see a platform for you to jump on.



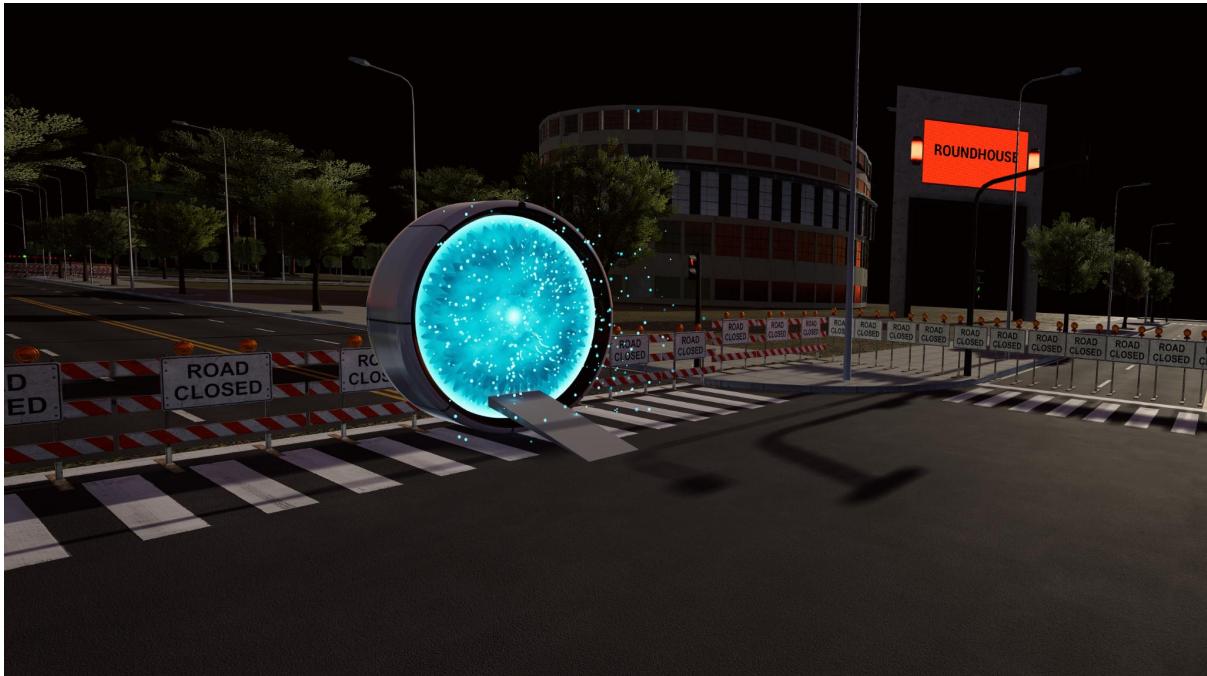
This leads to a portal at the end of the platform section. This portal will take you to the next level.

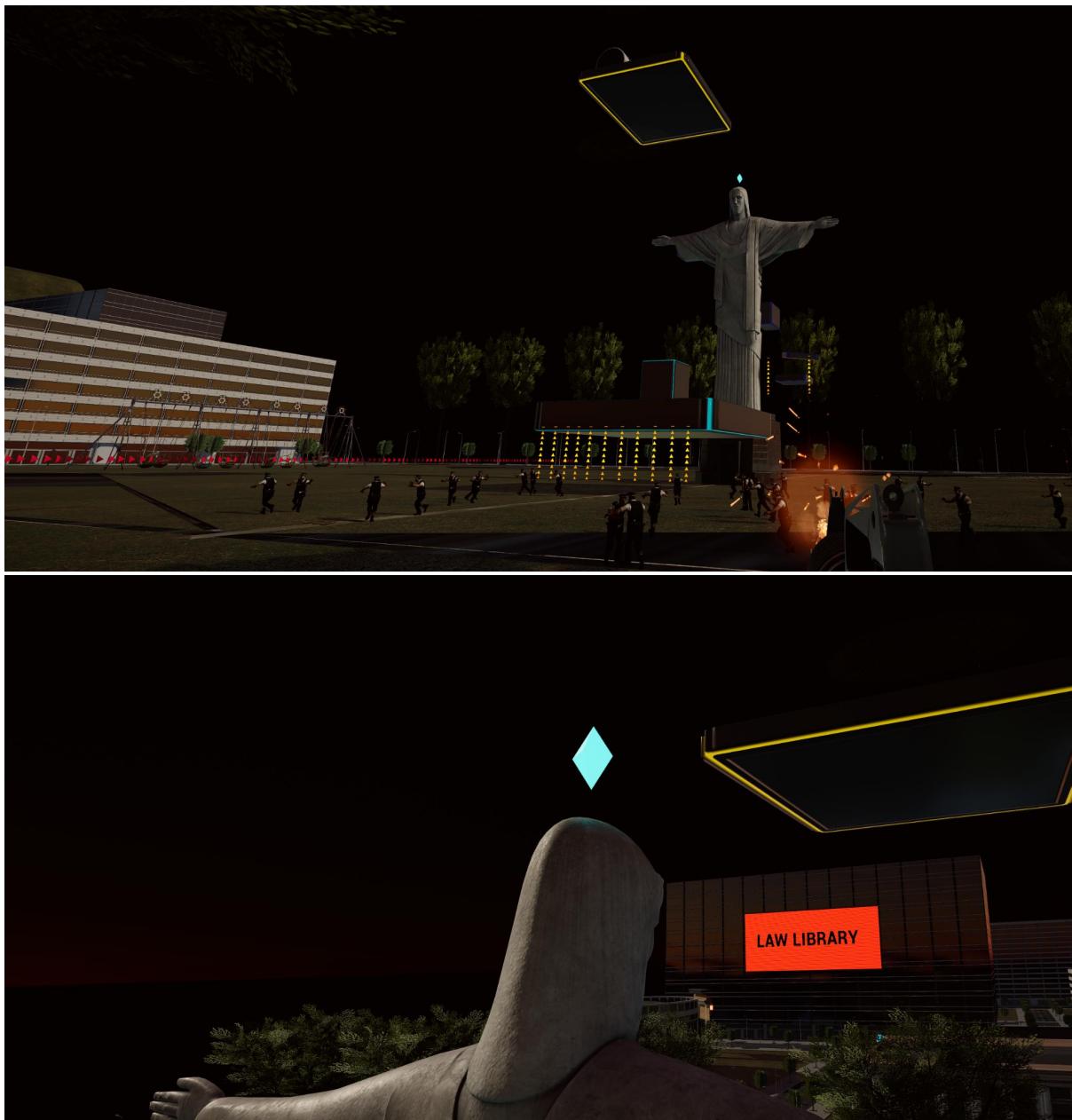


7.5 UNSW Low Map

After coming out from law library, you need to run to the playground and try to find the way to the top of the top of the Christ the Redeemer. There are some barriers you will meet:

- Use short distance portal to cross the road quickly
- Pick up AK47 and M4A1 to shoot at a crowd of zombies
- Parkour to the top of the Christ the Redeemer





7.6 Cyberpunk Map

When you arrive at the final level, head straight to the platform ahead of you by jumping on it.



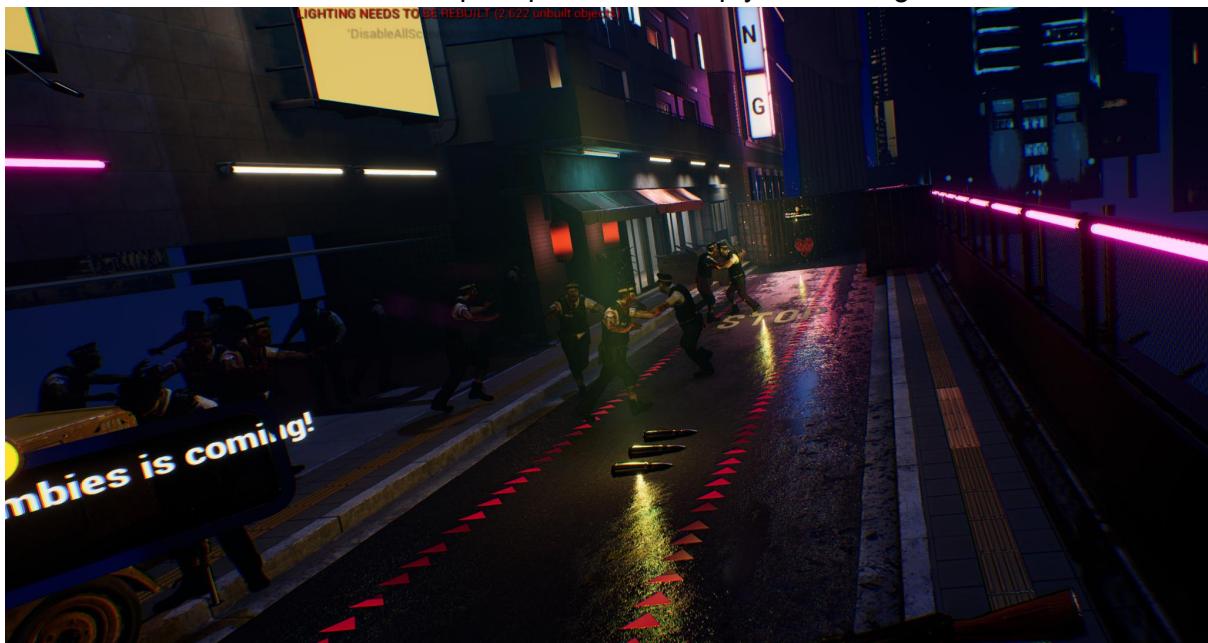
Look to your left and jump on the stairs to the next platform.



At the edge of the platform look down to see a trampoline you should land on to jump to the next platform.



Here you will be given a gun to mow down the horde of enemies hiding in the garage to your left. You will see ammo and health pickups that can help you in the fight.



Continue forward until you see an open door to the building on your left. In this building, on the left there is an elevator for you to take to reach the upper floors.



Press the grab button on the left motion controller to activate the elevator to take you to the next floor.



At the next floor exit the elevator and you will see a crystal.

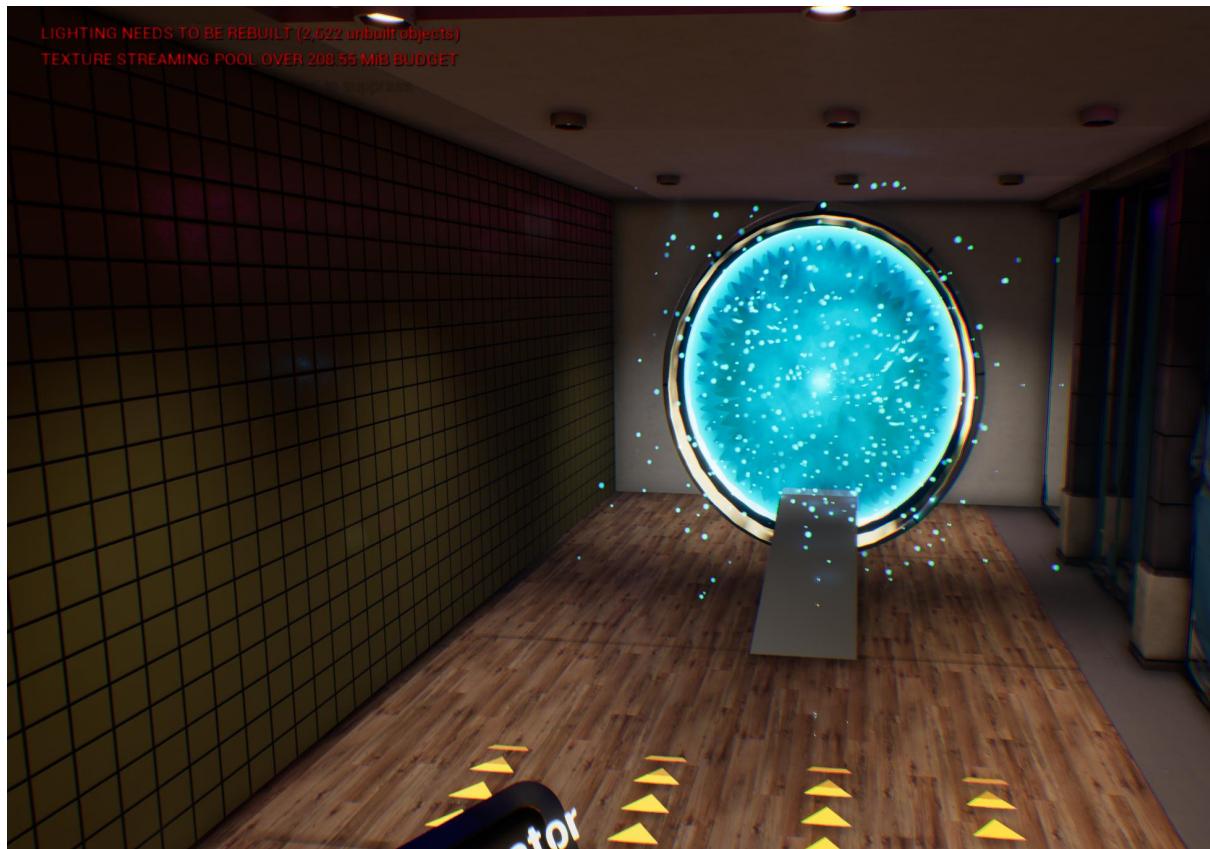


Going past the crystal you will find a room full of lasers. Avoid these lasers to reach the green antidote on the table.



Once you have picked up the antidote, make your way back down to the bottom floor of the building, avoiding the lasers and using the elevator similarly to how you used it to get up. Once you exit the elevator on the bottom floor you will see a portal ahead of you that you can

take.



7.7 Victory Map

After coming back from the Cyberpunk Map with antidote,you are in the VR lab and save the world.Congratulation!

