

Euphoria System

Unreal Engine 5
Documented by TenTen Studios
More in next updates!
Discord - <https://discord.com/invite/8VXGdcz7AS>

Introduction

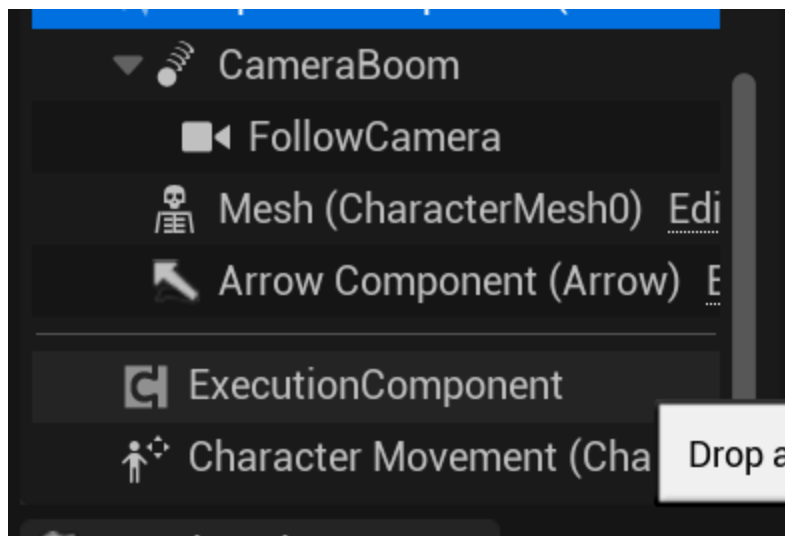
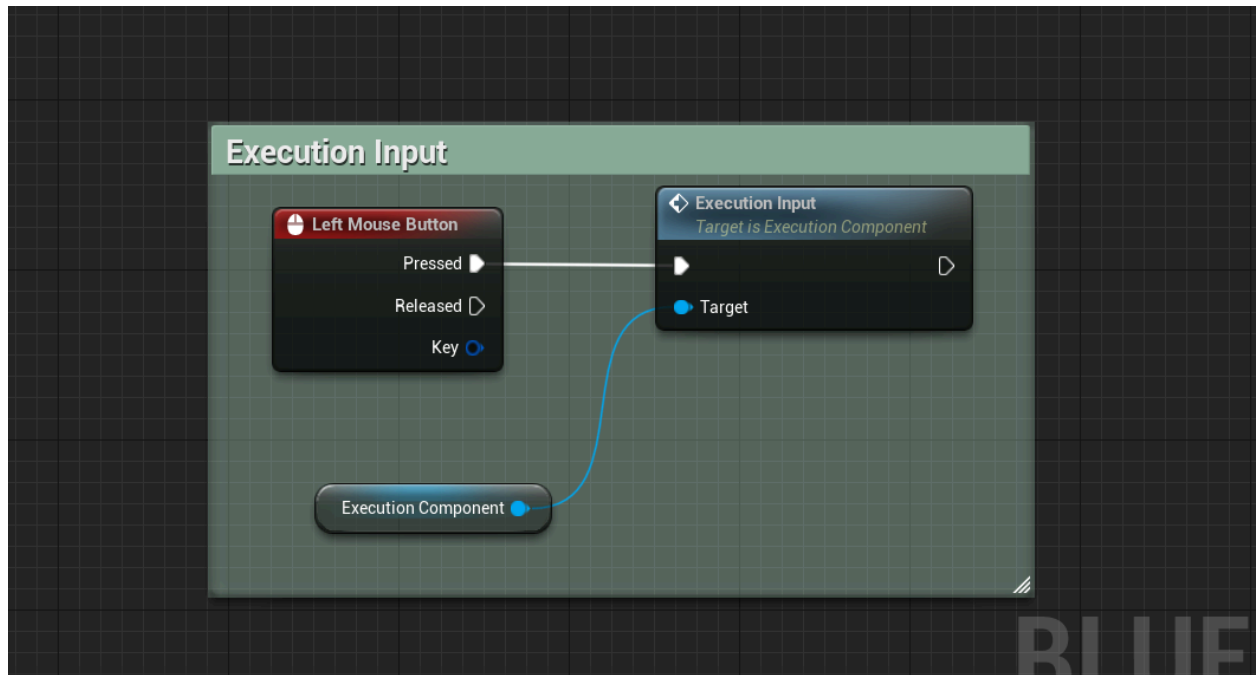
08.06.2023

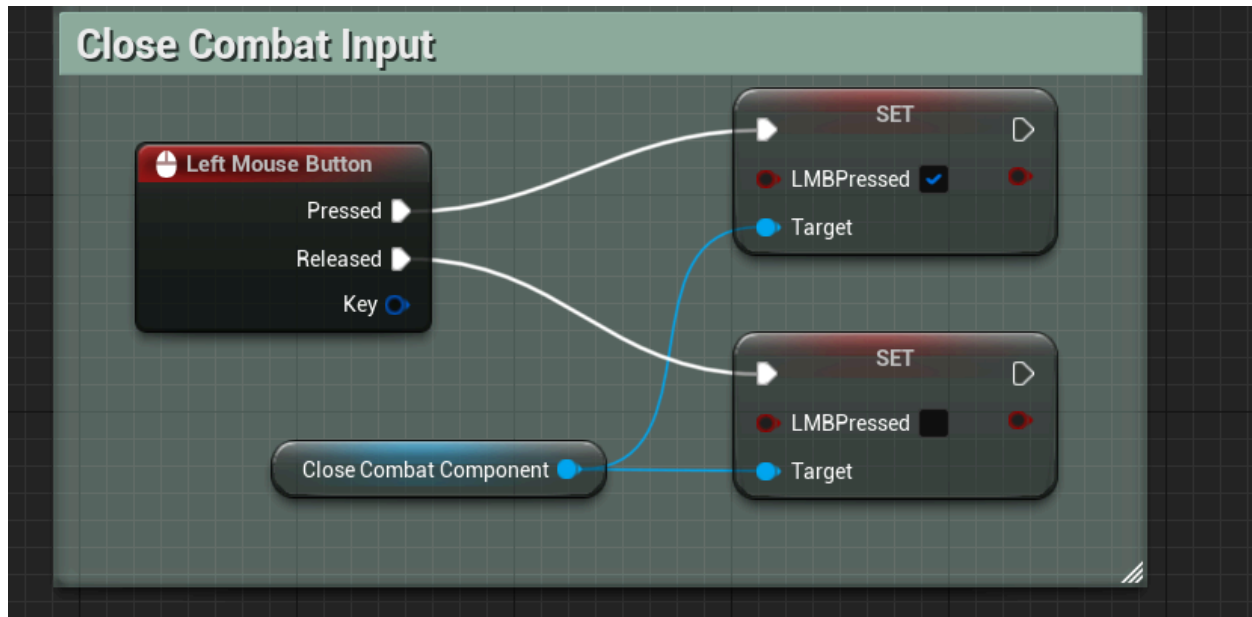
Getting Started

Euphoria Execution System Is based on the Root Motion and Animation Transform, as well as Motion Warping System. It correctly calculates the position and rotation of the characters depending on the animation.

To start using the Execution system you only need to add an Execution Component to your character and assign an Execution Input to any button or action.

To start using the Close Combat system you only need to add a CloseCombat Component to your character and let the system know if a button is pressed. Also you need enable the “Motion Warping” plugin if it new project

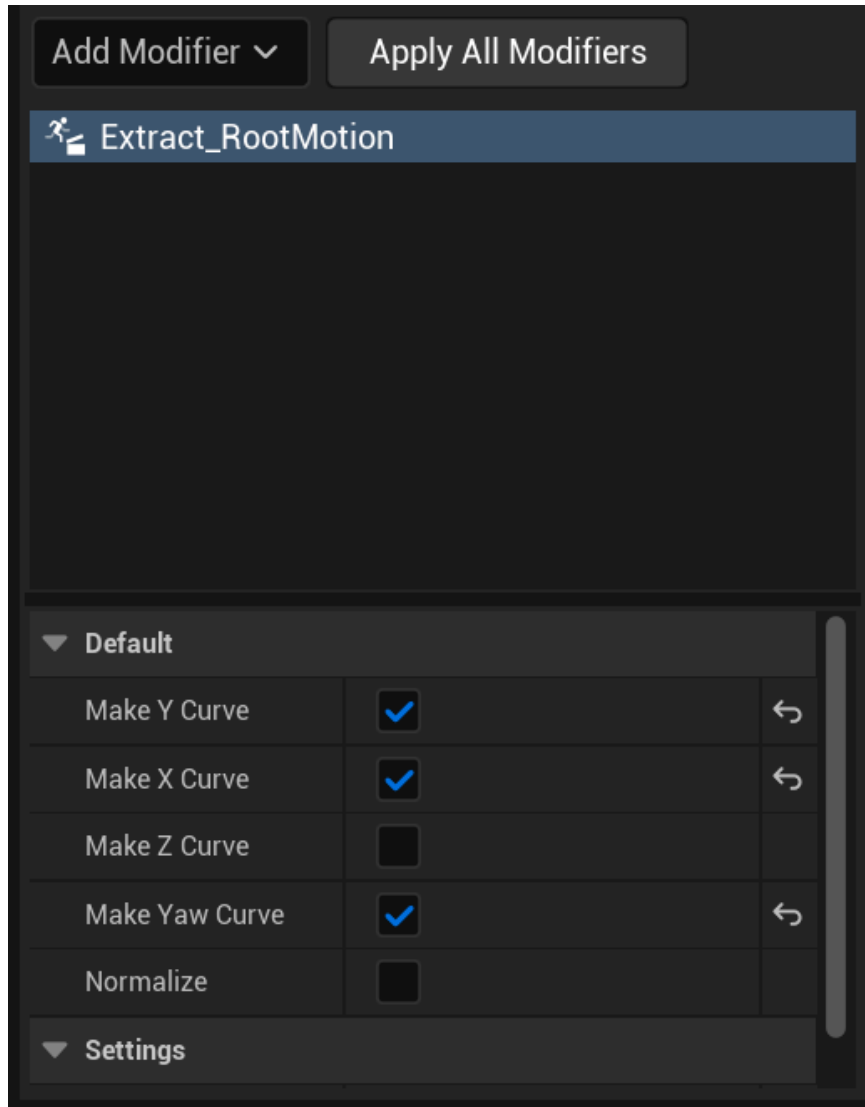




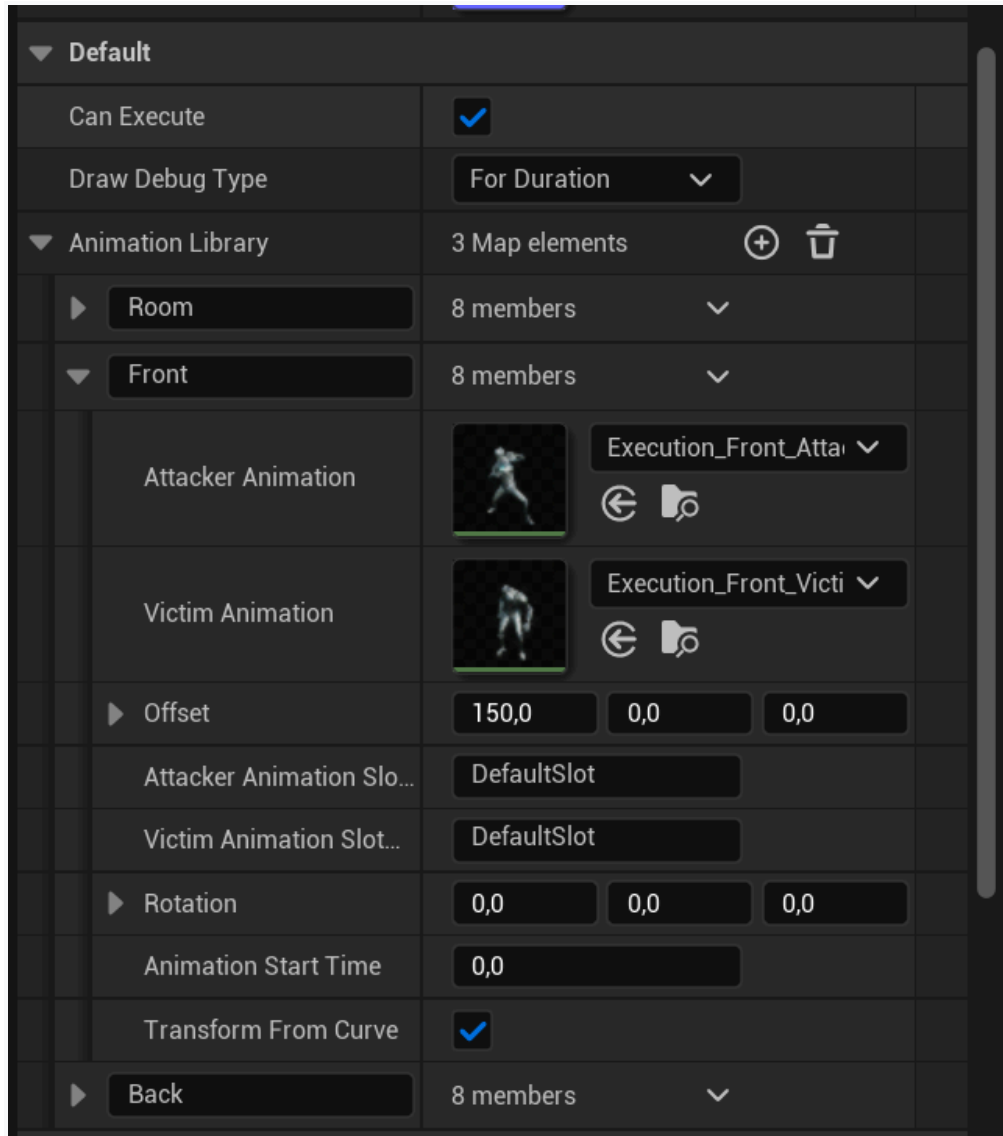
Setting Up Animations(Execution)

The next thing you need to do is extract the **Root Motion Data** from the desired animation. To do this > In an open animation window, go to Window > Animation Data Modifiers. Next, in the window that appears, click Add Modifier and select Extract_RootMotion.

Choose the Make Y, Make X and Make Yaw Curve options. Then click Apply All Modifiers. Done, now you can use these animations.



In order to change animations or add new ones, you just need to change the Animation Library variable in the Execution Component

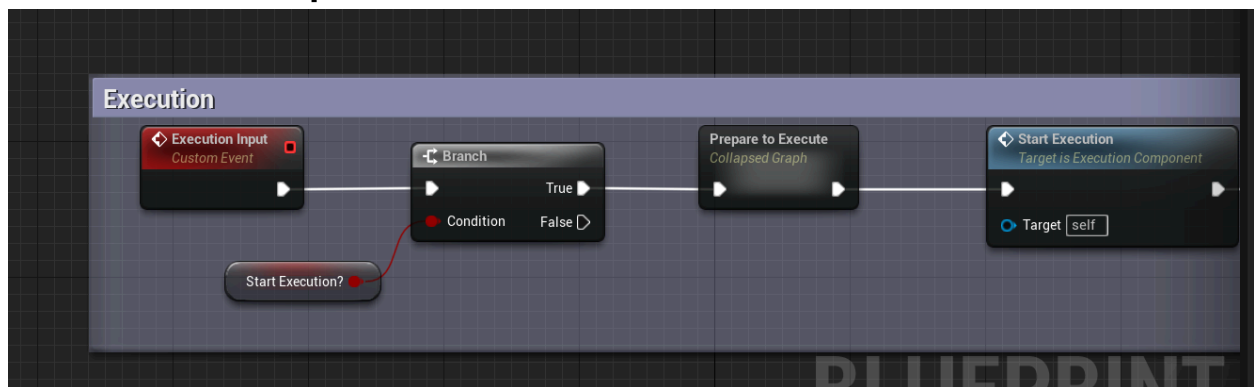


If your animations are not in sync, you should change the Offset variable. In most cases, you only need to change the X position, to a value from 100-200

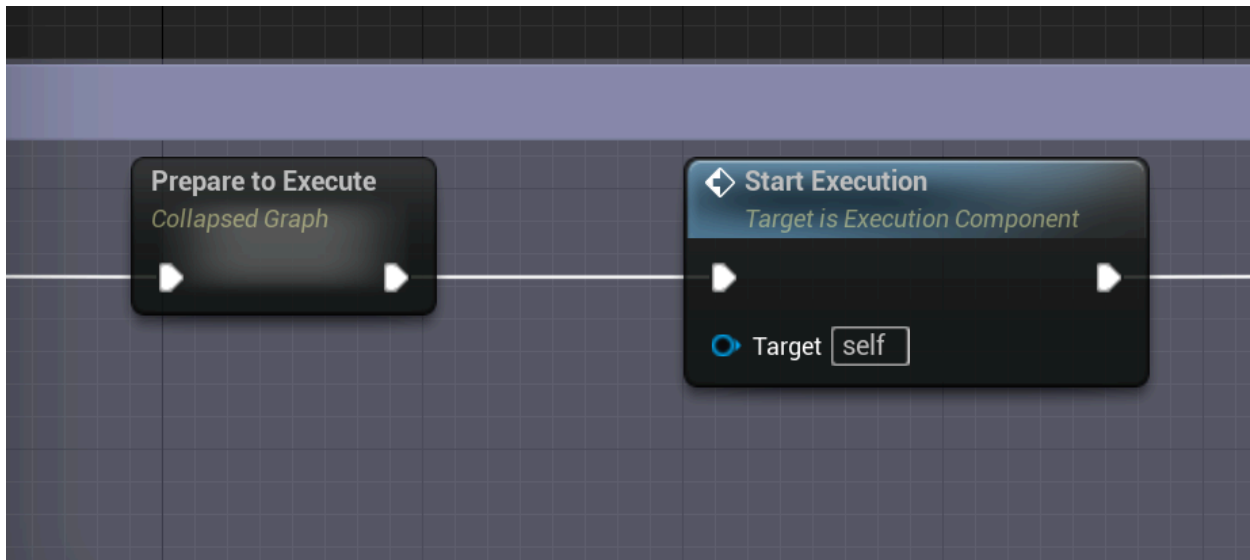
The rest of the settings are up to you. However, the Transform From Curve setting currently has no alternative, so it must be enabled.

Main Functions

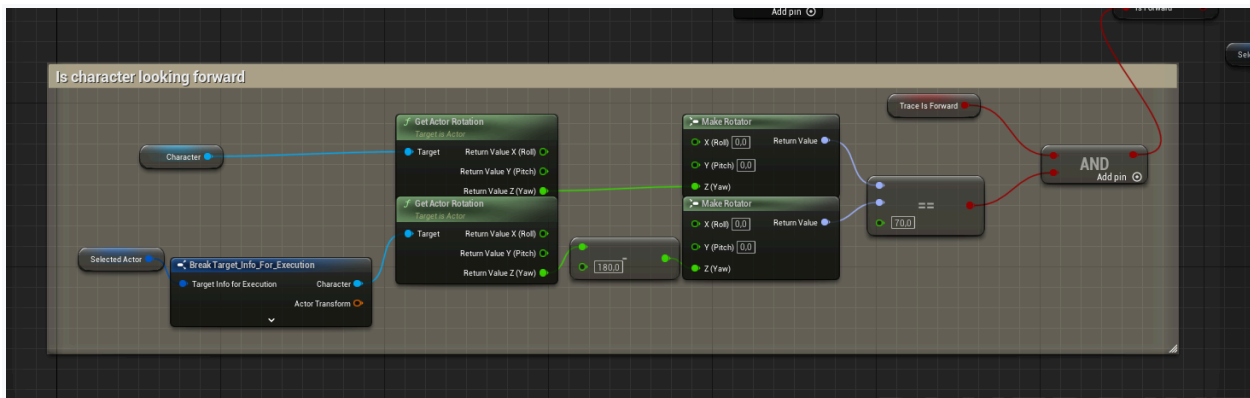
Execution Input -



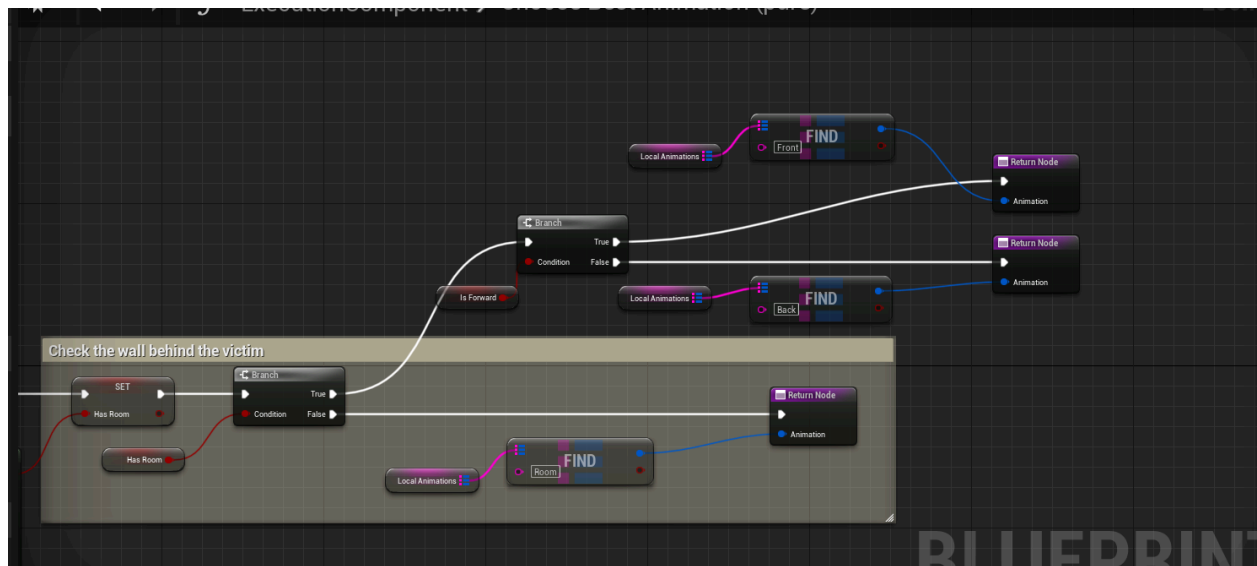
The main function that runs the logic. It can be used both in the character and in Animation Notifies.



Before starting an execution, the system checks whether there are possible targets, the position of the victim, and the ability to perform an action. In most cases, you will have to extend the logic for triggering the last hit by checking the current state and so on.



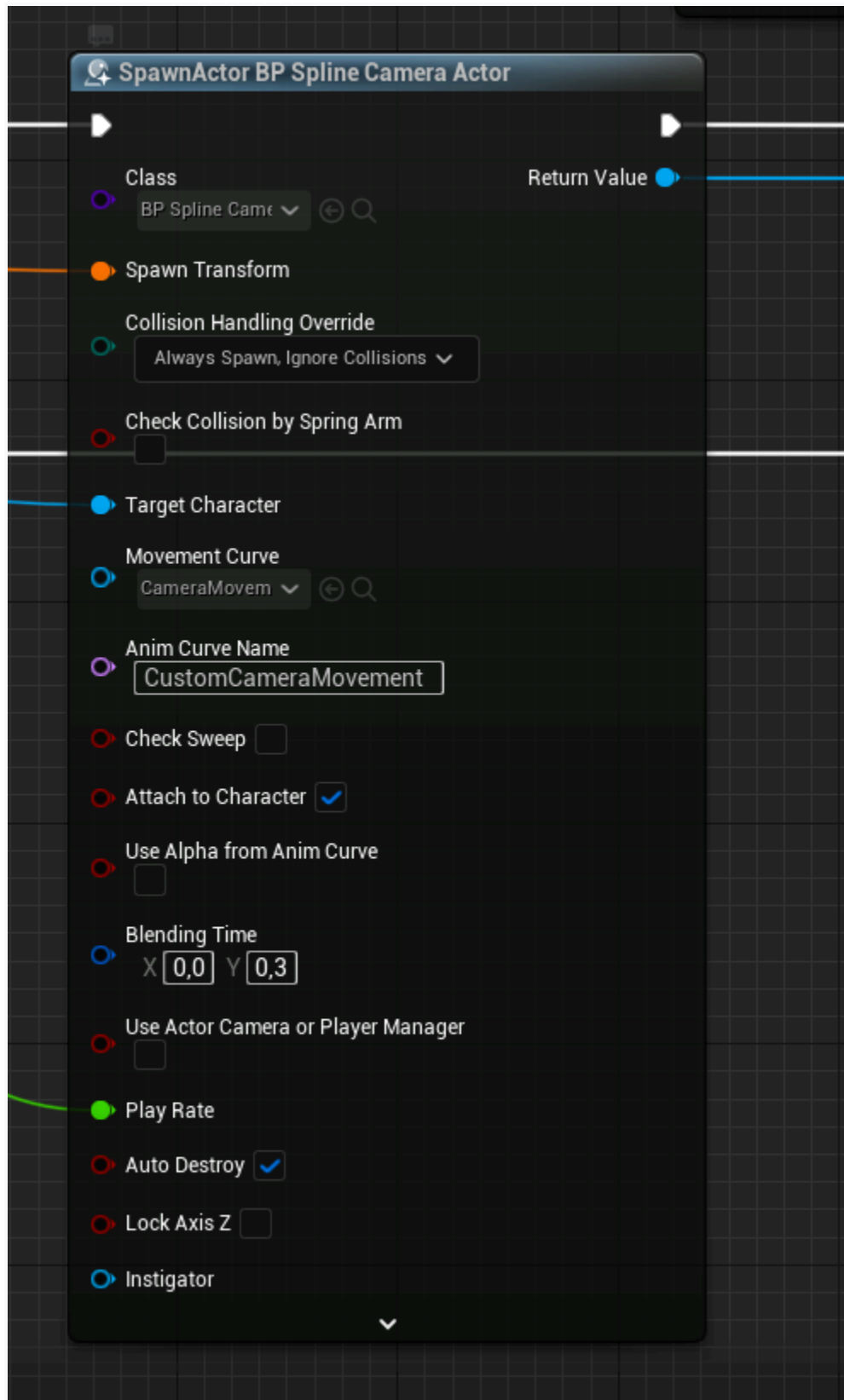
In the **Prepare To Execute** function, you can change the degree to determine the side of execution. Also add new options.



This function also checks if there is an object near the character.

You can add and change the animation selection in the **Choose Best Animation** function

You can also change the parameters of the camera that appears when you start execution. **Start Execution** function > **Camera Spawn** collapsed nodes

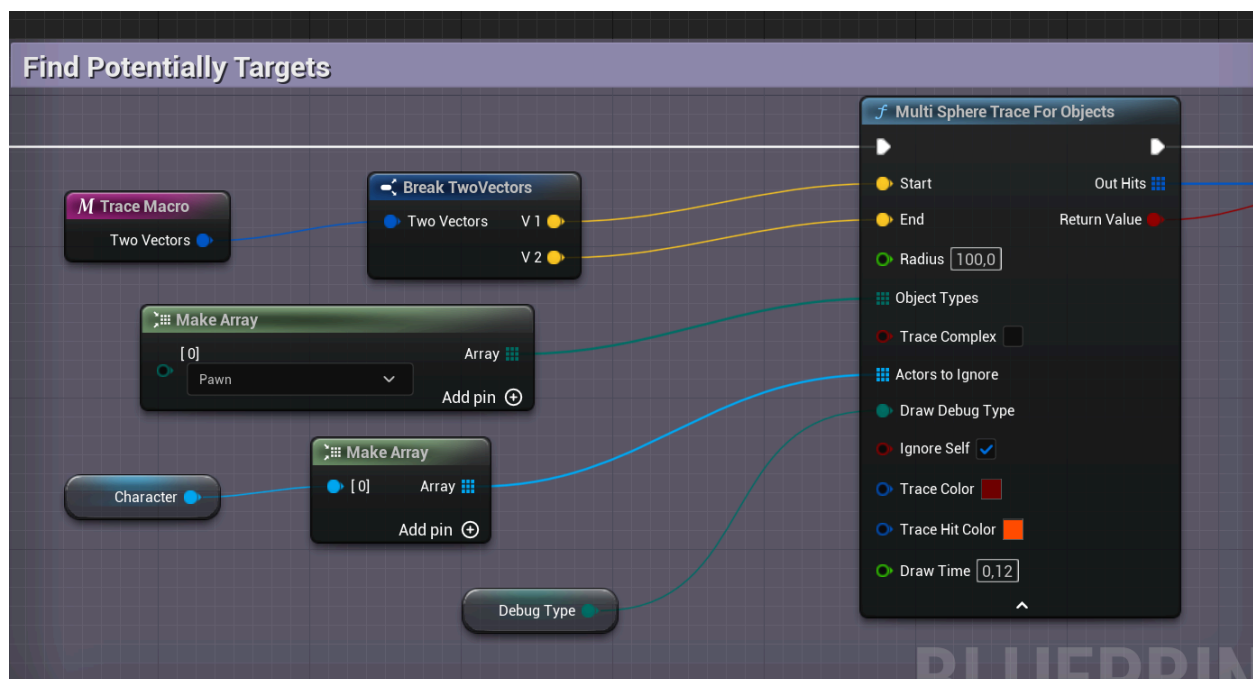


Execution

Many calculations were written in the comments of the functions.

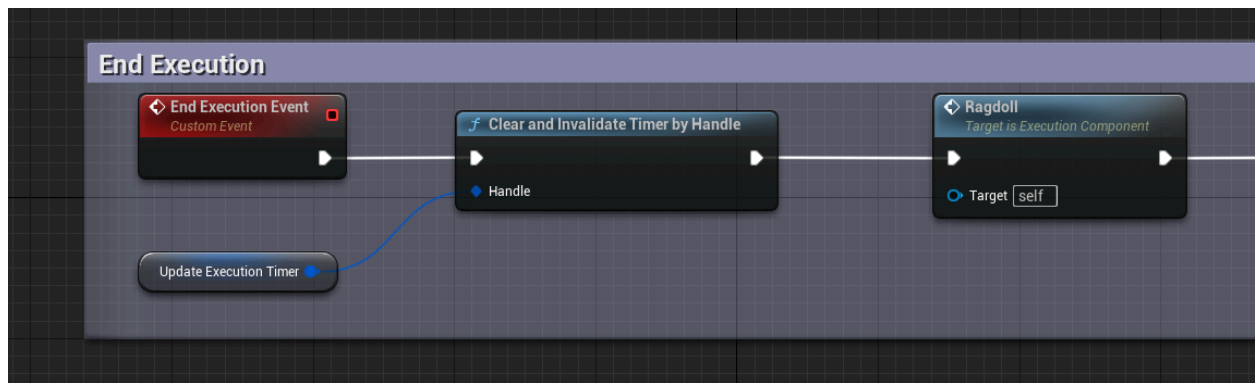
FindPotentiallyTargets and GetSelectedActorFromArray functions are needed to determine the character who is in the finishing radius. Radius can be changed in these functions

The function applies to the targets of all objects of class Character, this can also be changed in these functions.

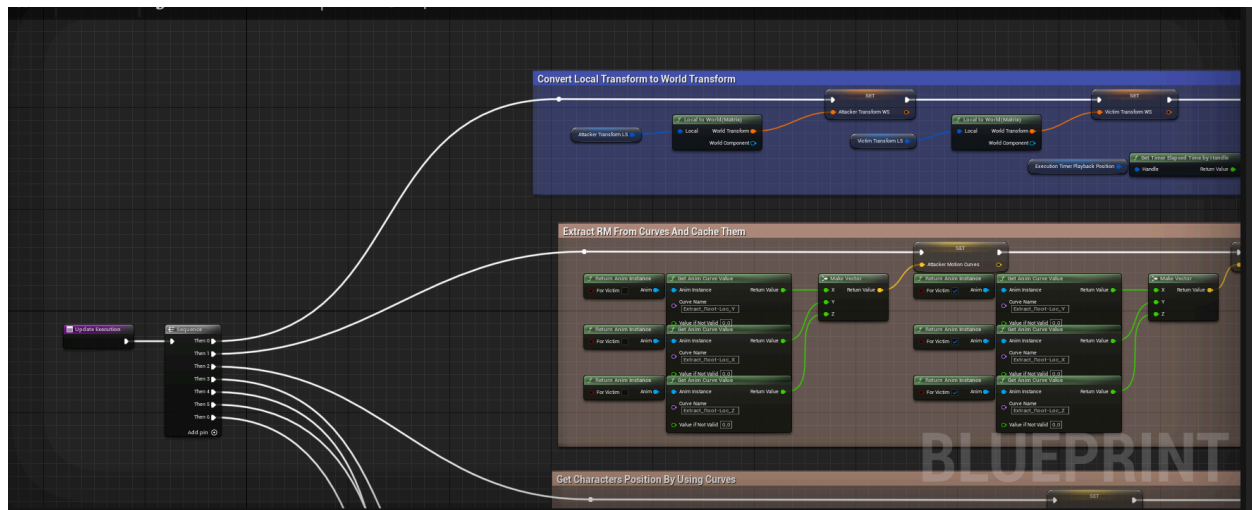


End Execution Event stops the process completely. This function automatically fires after the animation ends and also returns the camera to its original position.

Ragdoll is one of the experimental features that allows you to determine the death of a character. You can replace this function with your death function.



All the character movement and rotation logic happens in `UpdateExecution`, it is triggered automatically by a Timer Event and runs until the animation ends.

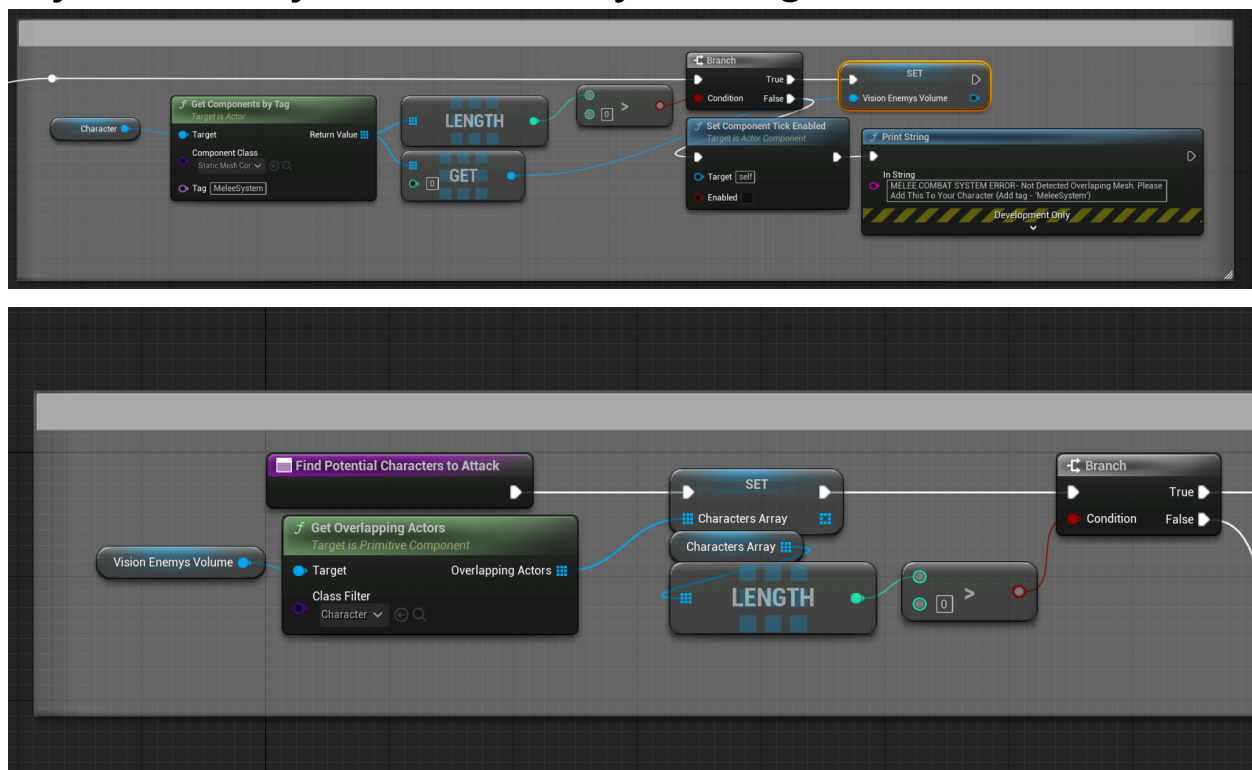


Attention

You need to call the Ragdoll function before returning to the starting position. So you can add Anim Notify to the end of the victim animation and call Ragdoll

Close Combat

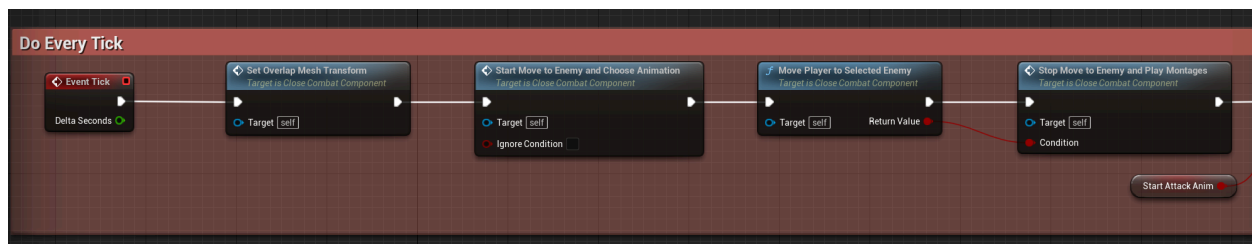
Close Combat also need to find potentially targets, but instead of sphere it uses OverlapEnemy Mesh component in the character, if you want you can easily change the method



Because of this, the system requires a mesh in the character with a "MeleeSystem" tag that overlaps the pawn. You can copy these mesh from BP_ThirdPersonCharacter or add it by yourself, if something went wrong the system will occur to you through Print String.

Moreover, it tracks the targets with Weight, weight gives the opportunity to take the most relevant target, based on the objects between characters, character location, rotation etc.

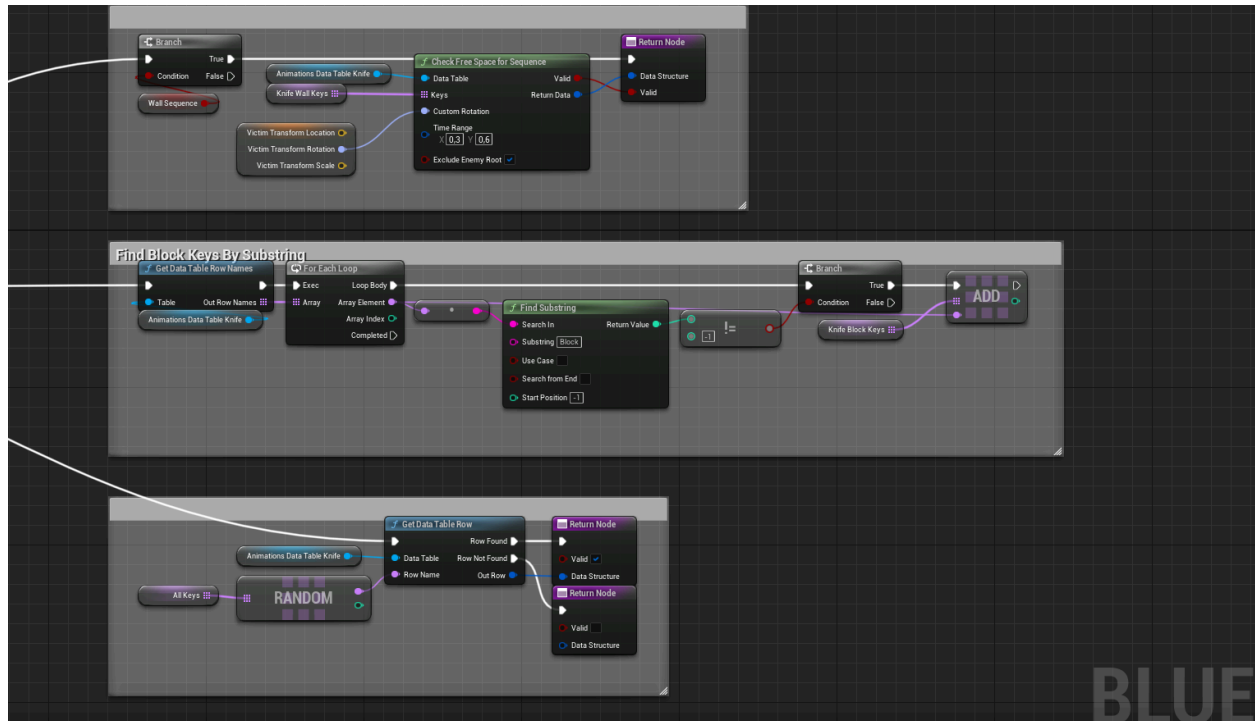
If the variables and conditions are True, Event Tick starts working and therefore, moves character and adapts their positions as much as possible.



Right now it uses Motion Warping to help perform realistic quality, but you can change this method manually.

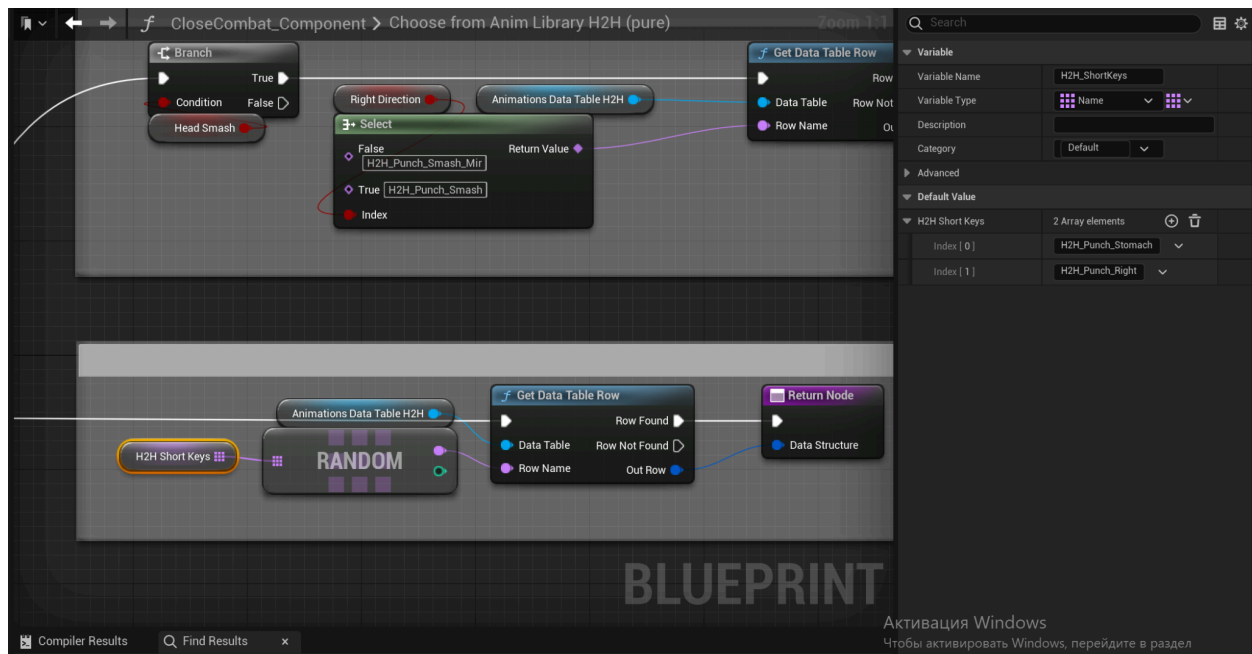
Set Up Attack Sequences return the animations based on the current situation. In the first version of the system, it checks wall behind the target for Neck Slash and Table on both side for Head Smash

If any of these conditions are false, function returns random key from function



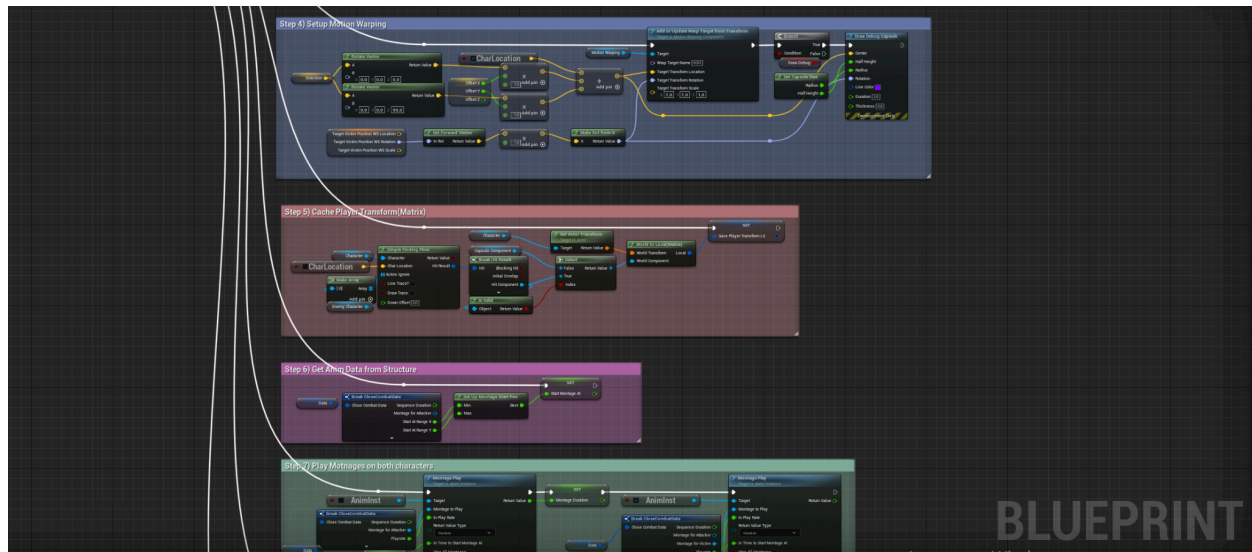
Also the system allows to Move Component a little bit to adjust it for further Motion Warping.

You can change or add keys for Data Tables in “Choose From Anim Library” functions



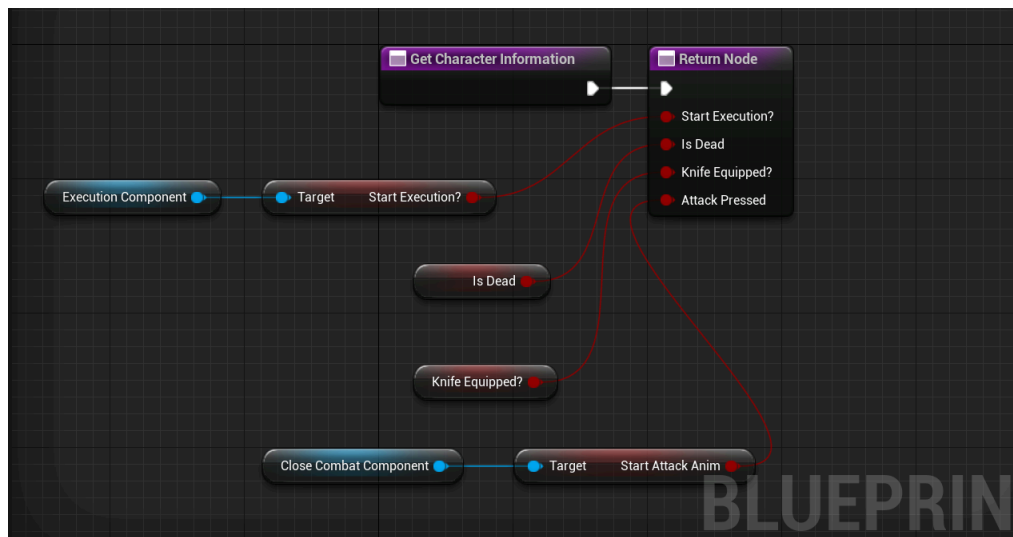
After the animation is set up we can start to “Try Start Attack Sequence” and change the variables to True, so now all the Tick Functions are enabled.

Systems uses a custom events to track current time elapsed and then play Adaptive Montages on both characters.

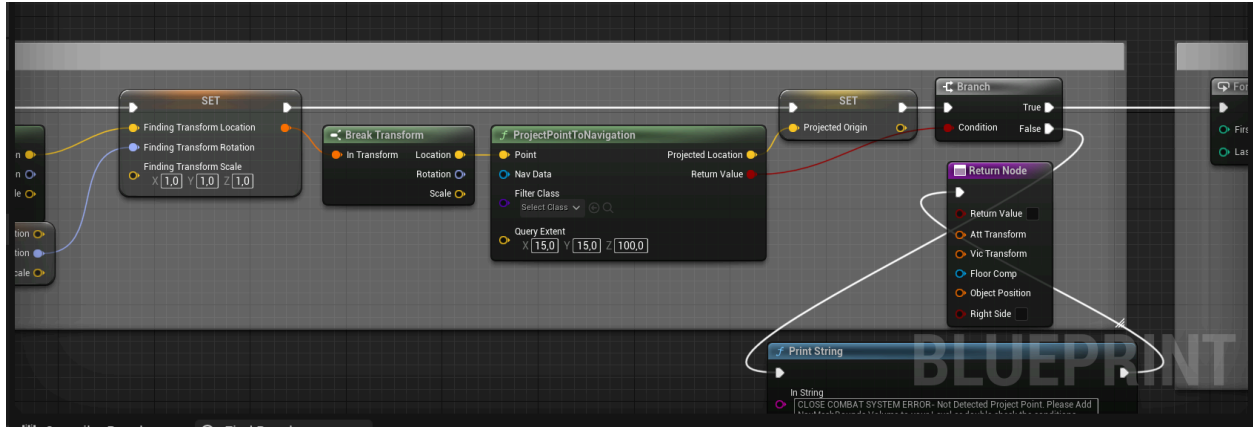


Important Things to Do

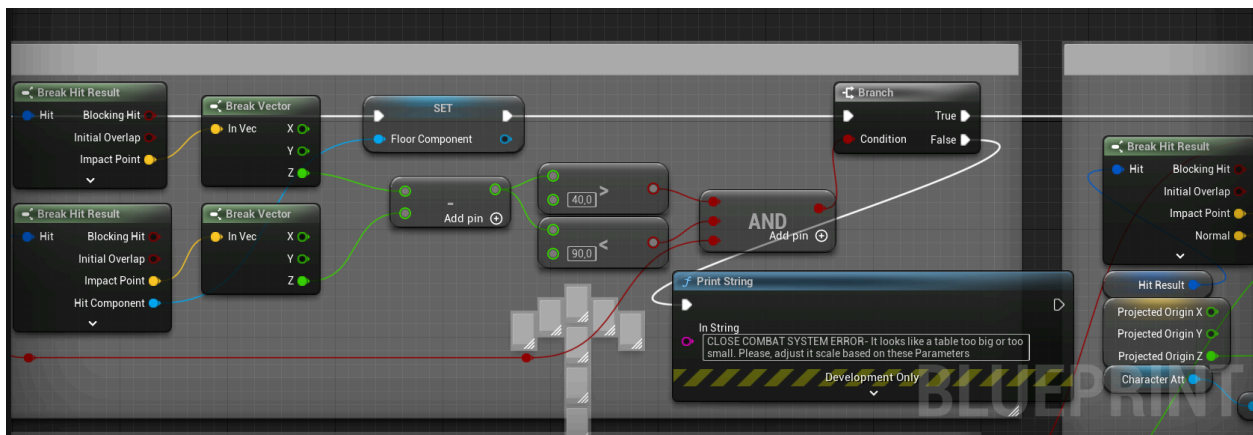
You need to add to your character some sort of Information Obtain, so the system can know necessary information. Please, add EPH_CharacterBPI interface to your character and make it like this



TryFindWallForAnimation and TryFindTableForHeadSmash functions uses NavMeshBounds Volume to locate the Point Location on the level, so you need to add it to your level (assumes that it will be on level anyway)



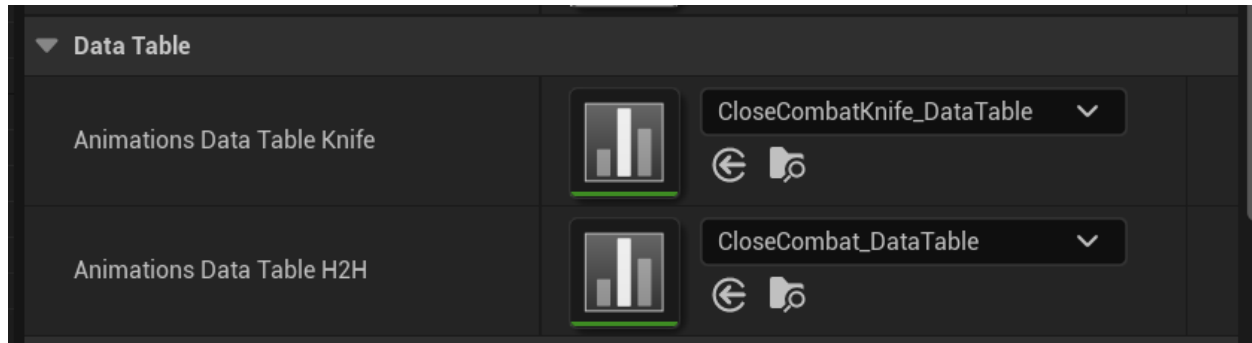
Right now the system checks objects for $>40<90$. You can change Table Height parameter inside the function here:



Any animations that will use Motion Warping requires Motion Warping Anim Notify State with the following settings:

▼ Anim Notify		
Notify State Class		
▼ Root Motion Modifier	 Skew Warp ▼	↩
Warp Target Name	H2H	↩
Warp Point Anim...	None ▼	
▶ Warp Point Anim...		
Warp Point Anim...	None	
Warp Translation	☒	
Ignore ZAxis	☐	↩
Warp Rotation	☒	
Rotation Type	Default ▼	
Warp Rotation Ti...	0,5	↩

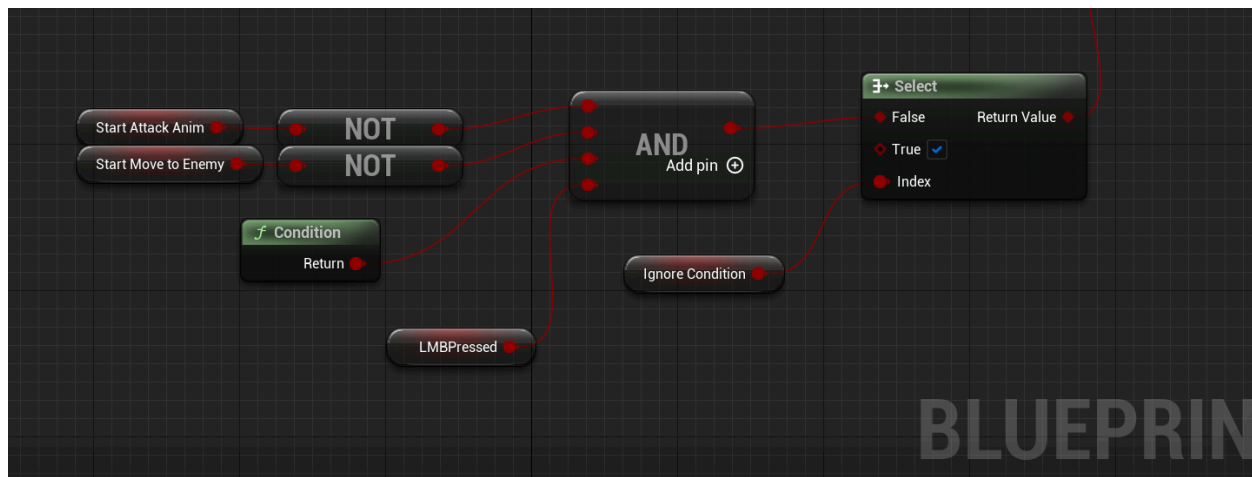
Animation Data Tables can be changed here:



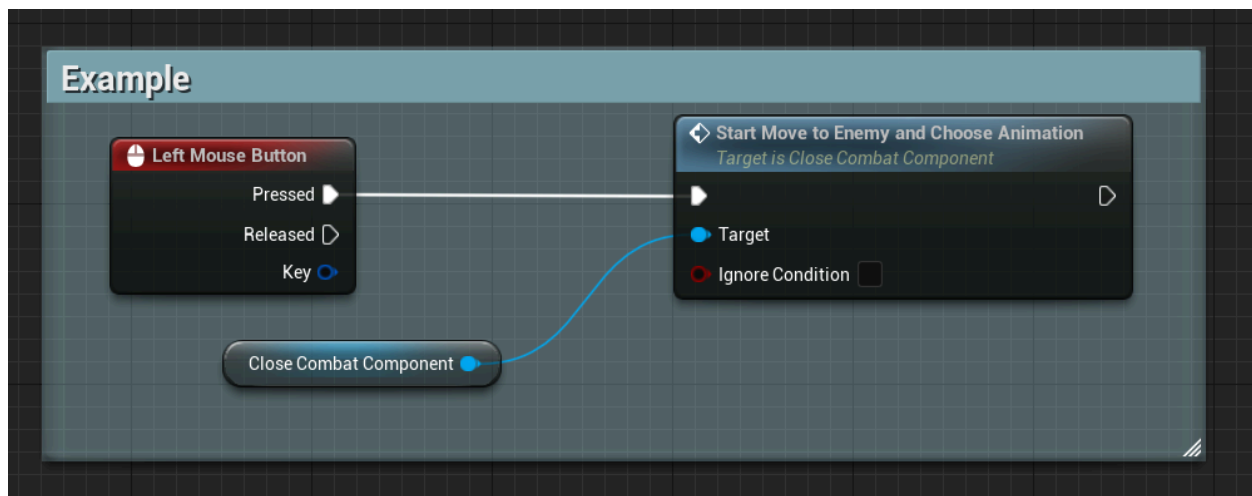
Please do not touch private variables!

For Demo purposes

Main functionality will be triggered when certain conditions match, as in the demo this is a LMB pressed.



You can trigger the “Start Move to Enemy and Choose Animation” function manually with the button as well. So it will be as



“Restart Sequence States” will refresh all the functionality, signifying the end of the logic.

