

Sound Design Document

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Changelog

Author	Date	Change
Cristian Neufuss	17.01.2019	Added Basic Document Structure
Liudongnan Yang	21.01.2019	documenting the footsteps
Liudongnan Yang	26.01.2019	Finish documentation of footsteps
Maximilian Birkel	27.01.19	Added documentation for music, mood and style
Cristian Neufuss	27.01.19	Edited Assetlist
Cristian Neufuss	29.01.19	Edited Sound Effect section

Game Summary

The game takes place in a desolated place at the coast. The player finds an abandoned village that by the looks of it reminds of an old Viking village. The player is free to explore the area.

Plattform

The platform that were worked on are Windows Pc's and a Macbook.

Hardware & Software

Operating Systems used were: Windows 10 and Mac OS.

Software used for music composition: Guitar Pro

Software used for Game Development: Unity 2018.3 (64-bit)

Software used for Project management: Unity cloud VCS

Style, Mood and Music

The main goal was to make the music fit the scene of an abandoned village. Just the player, the wind and waves.

The key was to keep the score simple. Too much melody or harmony would have given the player something to latch on to and a pattern that would have been familiar after some time.

So we decided for another approach.

The foundation for the background music is a simple drum track. Drums have something primal and connotations depending on their sound. A higher drum reminds of fast rhythms and upbeat music while lower drums seem graver and every beat seems important.

So we decided for low drums with few beats in the pattern. We made two patterns and wrote a script that would alternate between them semi-randomly.

But this still felt somewhat grounded and not as unnerving as planned. It still somewhat felt like there was some order in the chaos.

So we doubled the number of tracks. Two versions of both tracks. One with some acoustic guitar on top and the other left untouched.

The result is now this kind of ambient track that makes you think there might actually be some structure in it once the guitar sets in but as soon as it's gone again the player is left alone with the drums again as much as they are alone in this village.

Sound Effects

Player Footsteps

We firstly focus on the footsteps of the player character.

Our first approach was to add a step sound and toggling it on and off using a script.

Unfortunately, this approach performed bad on Computers with lesser hardware: it didn't synchronize well with the footsteps. Sometimes it would sound pretty weird or just collapse.

To deal with that we've figured out a solution by using Animation Events:

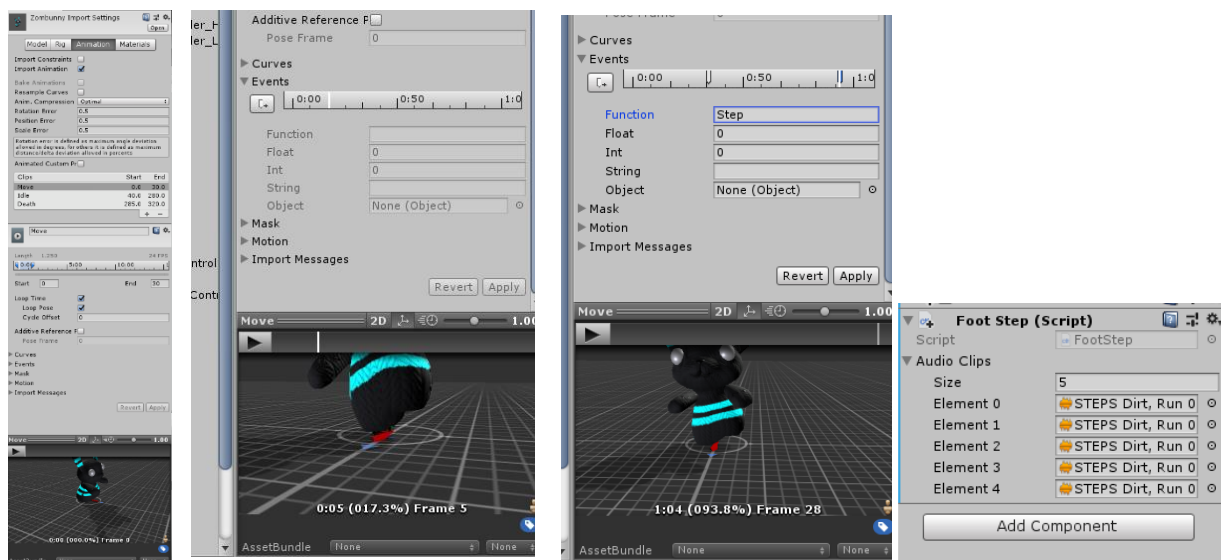


Figure 1-3: Animation Event Controller

Figure 4: Footstep sounds

By adding the foot step, we need to firstly synchronize the step sound playing just at the right moment of the player's foot landing to the ground. Then add a whole bunch of audio clips from which the script can choose to play.

Tested, sounds nice, without any synchronized problem anymore. And in the case, we also used Pooling method as well.

It is also necessary to know when the player is in the air and step sounds should be played and when not.

Our first approach was to use the method `Physics.OverlapCapsule()`, but unfortunately it didn't work well for our project, so our second approach is using `Physics.Raycast()`.



Figure 5: No ground contact

With that we are successfully able to determine whether the player is currently on ground or not and trigger step sound accordingly in the animation phase.

Footstep sounds depend on surface

The sounds you produce when walking depends on the material of the surface, that's why we need to detect what surface we are currently walking on. The two walkable surfaces are dirt and wood.

By assigning different tags to the terrains and using Raycast in each frame we can determine the current surface and play the appropriate sound effect.

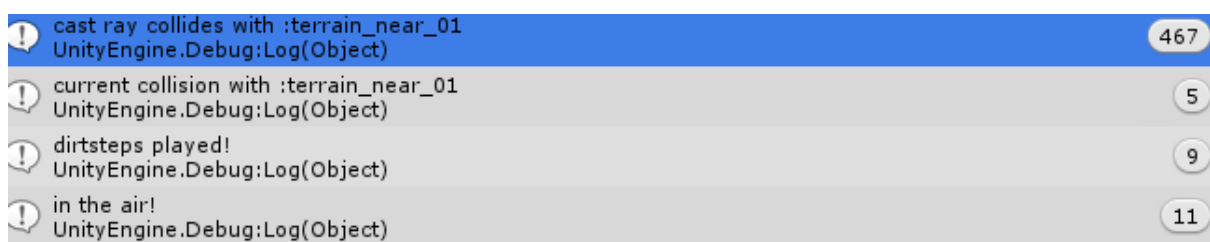


Figure 6: terrain detection with Raycast

Environment Sounds and Effects

There are 3 main environment sounds sources in the Viking village.

The wind howling through the village, the torches along the pathways and the sea.



Fig 7: torches producing sound



Figure 8: the sea

Each of them is equipped with 3D Audio Settings to simulate a realistic range of the sound. It should be mentioned that the max range of the respective sounds is a notch greater than what intuition would make you think. This is due to the fact that the Audio Listener is attached to the camera that follows the player from a certain distance.

Reverb Zone

There is exactly one enterable, complete house in the village. We provided it with a Reverb Zone to simulate how the exterior sounds are heard when you're indoors. We use Unity's preset "Room" for the Reverb Zone. Adding to that, we wrote a script that as soon as the player enters an Interior, switches from the normal Sound effect channel in the Master Mixer to the Sound effects Dampened channel.

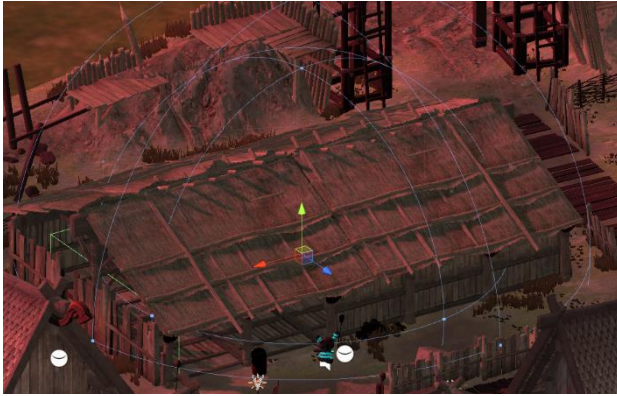


Figure 9: House with Reverb Zone

Asset List

Ressource/Audio/Sounds:

Filename	Source
SeaWaves.mp3	Soundbible.com/885-Sea-Waves.html
Wind.mp3	Soundbible.com/1810-Wind.html
/High Quality footsteps	Yun.baidu.com
Torch.mp3	retired.sounddogs.com