

AudioWalker ofzo

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Map Generator Tool

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Table of contents

Table of contents	1
Log	2
Inspirations	3
Concept	4
Main mechanics	4

Log

14-11-2018:

Mild brainstorming

17-11-2018:

Reference Research and Concept

Research

Fast Fourier Transform

Digital Signal Processing (DSP) Tutorial - DSP with the fast fourier transform Algorithm

https://www.youtube.com/watch?v=HJ_-5mqUZ70

Beat Detection

[Unity Engine] Beat Detection

<https://www.youtube.com/watch?v=0i9hi9k1K10>

Tempo and Beat Tracking

<https://www.youtube.com/watch?v=FmwpkdcAXl0>

How to do FFT in Unity

<https://answers.unity.com/questions/974565/how-to-do-a-fft-in-unity.html>

Inspirations

Melody's Escape - Procedurally Generated Platformer

Melody's Escape is a music based procedurally generated platformer which is what the tool is supposed to do. It has a handful of actions (jump, slide, attack) that are placed based on the music. There is also platform height and the balls that you pick up. Based on the title and video i would say Melody's Escape looks at a lot more info than just rhythm like pitch and volume.

Slayer - Angel of Death on Melody's Escape

<https://www.youtube.com/watch?v=OhOAXXIsvfw>

Audiosurf 2 - Procedurally Generated Racer

Audiosurf 2 is much simpler than Melody's Escape in many ways, it only generates notes on a three lane track. The yellow ones have to be hit and the grey ones avoided. This system is more akin to guitar hero.

Pantera - Death Rattle on Audiosurf 2

<https://www.youtube.com/watch?v=VM7kQFOHI2Q>

TERRORHYTHM - Procedurally Generated Beat 'em Up

TERRORHYTHM once again has a number of actions (attacks, different kinds of enemies etc.) that are done by the player based on the music. However this game has a strong focus on rhythm and the beat not being as concerned with melody so tempo and rhythm are most important here.

Metallica - Through The Never on TERRORHYTHM

<https://www.youtube.com/watch?v=BKkB4vOOfWI&t=43s>

Concept

A music based level generator for a platformer.

The concept is to make a tool that takes any audio file and turns it into a platformer level. We will do this mostly through Beat and Frequency Detection along with general volume. Based on this data we will generate a platformer level which is made up of a few basic actions the player has that can differ in length such as jumps and slides.

Main mechanics

Player Actions:

Jump:

A jump used to jump over high objects. The jump button can be held longer for a higher jump that also takes longer. This will be linked to rhythm.

Slide:

A powerslide used to slide under low ceilings. The slide button can be held to slide for longer. This will be linked to low frequencies/long notes.

Attack:

An attack that destroys obstacles and enemies. This will be linked to low frequencies

Level:

Floor:

Height:

The height of the floor will be linked to volume.

Gaps:

Gaps in the floor or long stretches without floor can be generated with high frequencies.

Platforms:

If the overall frequency is very high the floor falls away and platforms will be generated instead based on the height of the frequency.

NOTE: A lot of testing will be needed to establish additional rules to ensure playability. Things like floor without reachable platforms and attacks too fast to perform must be ironed out.