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Individual Game Design document

RAVE RUNNER

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Game name

Rave runner

Game overview

Game concept

Rave runner is a 2D music based endless runner. The goal is to survive running till the end of the song while trying to obtain as many power-ups as possible. The game uses music as an input for procedural generation. All the game obstacles and power-ups are procedurally generated using sample data from an audio source. The game encompasses a significant level of emergence, because the whole flow and rhythm changes when the music input does.

Genre

Music based endless runner side-scroller

Target audience

16 – 40-year-old people who are familiar with the rave culture.

Game flow summary

At the start, the player must select a song he wants to play to. After a brief countdown, the music starts playing and the character starts running. Obstacles appear corresponding to the beats. There is a high score meter that keeps track of the player's progress. If the player fails to overcome an obstacle the game is over. If the song finishes and the player is still alive it is considered a win.

Look and feel

The game tries to communicate the atmosphere of typical techno orientated club. A dark environment with neon lights. Crowded space filled with smoke. Fast paced hard electronic music. All the procedurally generated elements are familiar props you see in nightclubs – disco balls, loudspeakers, tables overflowing with alcohol etc.

However, any type of music can be input by the user. This means with every song the game will have different dynamics. For instance, a piece of techno will create fast-paced and rhythmic dynamics and will perfectly cohere with the visuals. On the hand though, using a piece of classical music will create a slower, more prolonged dynamic, which creates an interesting contrast with the game aesthetics.

Gameplay

The gameplay simple and straightforward. The player controls the character using the movement mechanics. The game world (the path the character follows) is procedurally generated using the music the user chose beforehand. This leads to a different level of flow with each different song.

Mechanics

Movement and controls.

The game uses the WASD and the arrow keys plus the space bar to get input from the user

Space bar/W/Up arrow key

By pressing one of these keys the user activates the jumping mechanic. The game applies force to the player character in upwards direction. The character reaches a certain height, depending

on the applied force, after that it falls back on the ground. There are two restrictions to this mechanic. First, to be executed the character must be touching the ground. Second, the amount of force that is applied to the character. There are minimum and the maximum amount of force set in the code of the game. When one of the above-mentioned keys is pressed down, the program takes the minimum amount and it starts increasing it incrementally until the key is released or the maximum amount is reached.

D/Right arrow key

For the duration of time, when one of the keys is being pressed, the character is being moved forward on the screen at a constant speed. When the key is released the movement stops.

A/Left arrow key

For the duration of time, when one of the keys is being pressed, the character is being moved backward on the screen at a constant speed. When the key is released the movement stops.

S/Down arrow key

These keys are used to activate two mechanics. First, if the character is not touching the ground a force in a downward direction is applied. The reason for this is to add more depth to interaction and to add a snappier feel to the game. Second, if the character is touching the ground the character “squats” for the duration of time when the key is held down. This means a frame from the sprite sheet, where the character is drawn in a squatting pose. Moreover, the collider of the character is moved lower, so the player can avoid obstacles, by going underneath them.

Audio processing and procedural generation

The game processes the given audio file and divides it into 8 audio bands. Each audio band represents a different frequency range. In the game code, each audio band has a value between 0 and 1. Those values are used to modify the position and the scale of the procedurally generated elements, also, the rate at which these elements are generated. Furthermore, those values also determine how big the impact of the power-ups/debuffs will be on the player.

0 – 86 Hz



This audio band generates a debuff. It is visually represented by a pint of beer. It decreases the player score and increases the character movement speed, making it harder for the player to avoid obstacles. Furthermore, if the player “drinks” 20 beers the game will end and will display a message saying he died of alcohol poisoning. The motivation behind this is to raise awareness about the harms of excessive alcohol consumption.

87 – 258 Hz



This audio band generates an obstacle. It is visually represented by a disco ball. If the player hits it the game is over. The score is not affected.

259 – 602 Hz



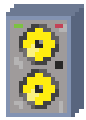
This audio band generates a power-up. It is visually represented by a coin. It increases the player's score.

603 – 1290 Hz



This audio band generates a power-up. It is visually represented by a musical note. It increases the player's score. Every different instance has a random overlay color.

1291- 2666 Hz



This audio band generates an obstacle. It is visually represented by a loudspeaker. It is always generated at floor level, but the scale is modified according to the audio band. When the player hits it the game is over.

2667 – 5418 Hz



This audio band generates a power-up. It is visually represented by the rock/heavy metal hand sign. It increases the player's score and the character maximum jump force.

5419 – 10922 Hz



This audio band generates an obstacle. It is visually represented by a table overflowing with alcohol. It is always generated at floor level.

10923 – 21930 Hz



This audio band generates a debuff. It is visually represented by a pack of cigarettes. It decreases the player's score. It also decreases the character's jump force making it harder for the player to avoid obstacles/debuffs. When the player "smokes" 15 packs, the game will end and will display a message saying he died of lung cancer. The motivation behind this is to raise awareness about the severe harm of smoking.

Player goal

The main objective for the player is to remain alive and running till the end of the song. The secondary objective is to collect as many power-ups as possible, to boost the score, and to avoid as many debuffs as possible.

Interface

The interface will be non-diegetic. There will be a start screen where the player will select the song. During the game, there will be a layer with a high score meter and progress bar.

Audio effects

Mainly the music was chosen by the player. Furthermore, sounds to provide feedback when the player collides with an obstacle/power-up will be added to provide feedback.

Scalability and future potential

The game has great scalability because it has a rock-solid base mechanic, that can be applied to different levels with different themes. For example, there can be a level for every major music genre. Each different level will have aesthetics themed to the specific genre. Furthermore, the

character can be made to be customizable. This will give each user the ability to express themselves through their virtual avatar. Taking everything into consideration, this game can achieve mainstream appeal if enough resources are invested development and production process.