Computer Games Development
Games Design Document
Year IV

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Game Overview

This Game is a 2D Platformer centered around the idea of a leveling up system where each stat will affect some aspect of the game, where the player will have many different builds dependent on what they chose to level up.

Feature Set

General Features

Unique levels.

A stat based level system.

Plaformer movement.

Gameplay

Platformer based movement.

Different Trap types.

Collectable coins used to level up.

Three Levels/Stages.

The Game World

Overview

The game world is comprised of three levels each one offering their own unique challenge , each one containing traps and some containing coins used to level up ,everything else is a menu used to navigate options, in the main menu you can switch the players colors or you can start a new game or continue from the start of the last level played(this Resets every time you launch the game) ,

Level 1

This level follows the traditional platformer formula you have a start area and there is an ending you need to find and reach, this is the easiest level and is meant to introduce some key concepts to the player the main one being leveling up, the player starts on the middle right of the level and the goal is at the far left.

Level 2

This level is made to catch the player off guard, it has many small platforms to jump on, but there are three huge saws coming from the right side of the screen all the way to the left , if the player is fast enough they can escape without getting hit or they can risk getting hit and focus on leveling up more as there are a lot of coins in this level

Level 3

The final level is both the most challenging and potentially the easiest depending on the players level and what stats they chose , the level is filled with many saws coming from all sides the goal is to survive until the door on the left side opens and then the player can complete the game,

The Physical World

Overview

The physical world in this game is the levels, Each one has a trophy at the end which is the goal the player needs to reach the first level is the largest the second level is more of a reaction/ build test given its small size and the location the third level is the trickiest as this is a test of survival, the player must dodge saws from all directions, with no extra level ups in this level meaning whatever they have there is the final build they have and they have. The physical world is made of platforms , spikes and saws and most importantly coins which the player collects to level up , well maybe the most important thing is actually the end point.

Key Locations

The Key locations Are the coins they are dotted around the first and second level as the player needs them to level up each one.

The most important location is the end point as it is what allows the player to head to the end of the game and the next level.

Travel

The player has three main ways of traveling Horizontally using arrows or wasd to go left and right . a jump using the spacebar and a wall jump where the p;ayer can jump when against a wall to be pushed off it.

Scale

The scale of the world is well spikes are smaller than the players the blocks must be rectangular and be able to fit the player onto them, and saws are varied in size overall the scale is a single average block is 46 by 46 pixels the player is 32 by 32 pixels

Objects

The objects are the coins and the traps. Each level has a set of coins predetermined and preplaced and the traps are also predetermined and placed, each level has its own amount of traps and coins that are reflective of the level's difficulty.

Time

There is no time limit for the levels , the only time when time is relevant to the game is the final level where the player has to survive till the final door opens. Other than this as stated the player has no time limits, each saw has a time it takes to get from its start point to the end point.

Rendering System

Overview

This game is 2D and rendered from the side in Godots renderer which uses OpenGL

2D/3D Rendering

Godot will be used for the game so it will use its game engine rendering system which is OpenGL 3.3.

Camera

Overview

The way I'll have the camera works is that it will follow the player around and the area visible to the player will be 832 pixels to each side horizontally and 384 pixels vertically.

Overview

Godot is completely free and open-source under the very permissive MIT license

Game Engine Use

The game engine handles the specifics of the collisions, I will be using collision masks and layers to control what objects can collide.

Collision Detection

The game supports multiple collision types for the different shapes, I use both kinematic body collisions and area2D collisions in this game.

The World Layout

Overview

Once again there are three levels, each one different from the previous. The first is a more traditional 2d stage while the second is more of a level to test the players reactions and build and the final is a survival stage. Each level has their own layout of traps and coins.

Game Characters

Overview

The Player character is a 32x32 man in a white costume 2D sprite that is controlled via horizontal movement using arrows and wasd, and a jump using gravity based physics.

The player levels up from collecting the coins and has five stats to choose from, each one affects the game in a unique way.

Enemies and Monsters

2 Trap types

- Spikes are dotted around the level, they do not move, they are there to cause the player to be careful with their jumps and movements.
- Saws are a speedy trap that follows a path and then goes back to the start of said path, the player can see the path that it follows so they know where to go to avoid it.

User Interface

Overview

The game uses arrow keys to navigate the menus and the enter button to select an option. The audio options use a slider to determine where the level of sound is. The player gets a label to pop in when they get enough coins to level up. There is a H.U.D(heads up display) showing the players level, their health and how many coins in the level.

Weapons and Utility

Overview

There are no weapons in the game the player has a level up system as a utility,

Strength

This stat increases how high the player can jump.

Speed

This stat increases how fast the player moves

Dexterity

This stat affects the jump amount every 2 levels after the first level in it increases the amount of jumps by 1

Skill

This stat affects the wall jump distance.

Body

The stat is used to increase the health of the player

Audio

Overview

The audio in this game is 4 pieces of music: a level up theme , the stage theme, the main menu theme and the game over theme. as well as the sound effects being a jump sound, a level up sound, a hit sound, a coin collect sound and a saw sound effect.

Single-Player Game

Overview

The player must complete level after level, until they reach the final one, they collect coins to level up and must reach the goal to advance to the next level, each level has its own unique theme and design.

Hours of Gameplay

The first level is the longest potentially the player has to explore to find the end of the level this can take between 1 -3 minutes in total not including deaths, while the second one can take between 1-2 minutes depending on if they can find the exit again not including deaths, the last level is 45 seconds - 1 minute long not including deaths.

The game could be cleared in 3 minutes if they were good enough and rushed to the end of the game.

The game has replayability as each time they can level up and choose a different build.

References

[1] Godot: [Godot Docs](#)