

Assignment 4

Justin Clark

April 21, 2021

For this assignment, I used a copy of Assignment 1. However, instead of simply using all of the same data, I heavily modified the levels. I scrapped the level 2 scene that was in the original Assignment 1 copy due to its bad level design and made the level 3 scene the level 2 in this assignment. Then, I added a boss level that should add some interesting surprises. I also added some music for flavor. I hope they're enjoyable for whomever plays this, as they're 8 bit remixes from some of my favorite bands.

For my new weapons, I chose to add a plasma gun and a super shotgun. The plasma gun is a heavily modified version of the blaster. It shoots way more bullets per shot and has a super quick firing rate, giving it a very oppressive and powerful feel. The super shotgun is a heavily modified version of the original shot gun, but it also shoots more than twice the number of bullets per shot as the shotgun. However, to balance out the super shotgun, I made it only capable of firing once per 2 seconds. In addition to these changes, I changed the blaster to be a single shot, once every second. I also changed the shotgun to be a little less powerful than before, making the gap between the regular shotgun and the super shotgun significant. I also added a grenade that uses physics to propel it from the player once it is thrown by the player. When the grenade comes in direct contact with an enemy, or after 5 seconds, the grenade explodes immediately killing anything within its blast radius, except for the final boss.

The AI drone I have has a propeller attached to it to simulate "spinning wings." The propeller rotates constantly. The drone is ONLY available on level 1, but while the player is traversing level 1, by pressing the Z key, the player can spawn the drone to their current location. When the game starts, the drone will follow a set path of waypoints in the first area of the level. If the drone encounters an enemy while travelling along the path, it will automatically initiate a battle.

For additional AI, I created a script to allow the boss to spawn in more enemies as the boss battle progresses, giving an increased sense of difficulty for the player. However, this can also work to the player's advantage, as spawned enemies can drop health items which allow the player to sustain themselves.

For physics changes, I changed the amount of travel distance the player can go with the dash mechanism and increased the gravity slightly to make dashing a little less overpowered. Additionally, as mentioned with the grenades, the grenade throwing is done by using physics based propulsion. In addition, bouncing physics have been added to the grenades so that any time a grenade hits any surface, it will bounce off into another direction. Any other attempt at physics in this game was a dead end, as neither the player nor the enemies like the use of rigidbodies, as applying rigidbodies to these prevents them from moving or jumping.

Added scripts:

Automove // This script controls the AI drone, telling it where to go next.

DirectDrone // This brings the drone to the player if the player presses the Z key

Explode // This script controls the propulsion of the grenade when thrown, as well as what the grenade does when it explodes.

GetGrenade // This spawns the grenade when the player presses the G key

PickupGrenade // This script handles adding a grenade to the player's "inventory" of grenades.

Spin // This script controls the propeller attached to the drone

ReturntoMenu // This script tells the credits scene to end at 28 seconds and return to the main menu.