Graviton: Outlaws of Gravity

A gravity-defying, time-bending adventure.

Created by:

Ryan Kennedy

Conor Heanue

Toeray McClain

Eugene Thomas

Daniel Kitchen

Table of Contents

1. Game Overview

      Graviton: Outlaws of Gravity is a physics based puzzler where the player must manipulate the effects of time and gravity on various objects in order to complete puzzles. As the game progresses, the player will be introduced to new combinations of hazards that they have to find their way around.

1.1. Genre:

Puzzle Platformer

1.2. Target Audience:

Ages 13+

1.3. Game Flow Summary:

      The game will transition from the main title screen where the player can start a new game or continue their previous one and enter the main hub. From the main hub, the player can pick a section of the game that will display the test the player have done or need to do. Each section will be unlocked once the player has completed enough tests from the previous section. Each section will have puzzles that will become gradually more complex as the player progresses the game. The base goal of each section is just to reach the end, to unlock the next. The overall goal is for the player to search for an escape vessel to leave the station. The only way to search is to unlock each section by completing the test.

1.4. Look and Feel:

Graviton will set in a sci-fi futuristic space station (otherwise known as Test Facility 5) that performs live tests on the world's most devious prisoners who they feel if something happened to one of them (such as death) no one would object. Those convicts who "volunteer" are promised their freedom if they succeed in the tests. The prison space station is very simple in art style that resembles a prison that could exist on earth. However, the color scheme will be a lot more vibrant and bright in contrast within everything in the scene, so that the player can tell everything apart.

2. Gameplay and Mechanics

2.1. Gameplay:

Use your abilities in order to make your way to the exit of the level. By editing the physical properties of various objects in order to make it pass obstacles and safely navigate around hazards. There will be periodic check points so the player is not set back too far for failures as

the game should reward the player for thinking outside the box and experimenting on new ways to solve the puzzles that our team may not have thought of.

2.1.1. Game Progression:

From the hub area, the player can access various testing chambers that focus on puzzles relating to different aspects of the gravity manipulation glove and the player's ability to problem solve with it. As the player completes the tests, more chambers will unlock. Once all the tests have been completed, the section of the station that houses an escape pod will unlock, allowing the player to escape the space station.

2.1.2. Puzzle Structure:

The puzzle structure for Graviton is based off of gravity and time. There is platforming, but most of the puzzle elements will come from the player's ability to effectively alter the gravity on objects in order to solve the puzzles. The player will have a starting position at the beginning of each test, and their only goal at that point is to find a way to reach the end.

2.1.3. Objectives:

Main Objective: Complete the Graviton trials to earn your freedom
How to accomplish that objective: Do enough tests in each section of the station to progress to the next, unlocking the escape vessel after all the tests have been completed.

2.2. Mechanics:

- Movement: The player moves with the WASD keys, and looks around with the mouse
- Object Selection: Left clicking on an object will set it as the active object, allowing the player to manipulate its gravity and timescale.
- Timescale Manipulation: By using the scroll wheel with timescale manipulation selected, the player can speed up and slow down time on individual objects.
- Gravity Manipulation: Using the scroll wheel with gravity manipulation selected will allow the player to alter gravity levels on individual objects and the player character.
- Time and gravity reset: Pressing R will reset objects back to their original timescale and gravity levels.
- Death: Players can die from a variety of hazards. If a player gets hit by fire too much, collides with spike tiles, or falls out of the map, they will die and have to restart from the beginning of the level.

2.2.1. Physics

The game utilizes most of Unity's default physics, but is modified to allow for the customization of individual objects' gravity and time levels.

2.2.2. Movement in the game

The game utilizes the standard FPScontroller modified to allow the player to change how they are affected by gravity. WASD is used for movement, and the mouse moves the camera around.

2.2.3. Objects

Various small objects like boxes are placed in levels for players to interact with. They can be picked up by holding the E key while looking at the object. When the E key is released, the object is dropped.

2.2.4. Interactions

Doors: Exit points for levels. Unlocks the next test for the player.
Spikes: An easy to see tile-based trap. Impales the player if they come into contact with it.
Flamethrowers: Mounted traps that swivel around and spray flames at careless players. Contact with a flamethrower isn't immediately lethal, but it will kill the player if they stay near it for too long.
The Void: The icy void of space awaits players that fail certain jumping puzzles.

2.2.5. Combat

The player will not have any conventional weapons to deal with turrets. However, they can manipulate the timescale and gravity of objects to obstruct potential threats.

2.2.6. Screen Flow

Main Menu: The gateway to everything in the game. From the main menu, players can start the game, view the credits, and close out of the game.
Credits: Displays the names of everyone that worked on the game. Clicking a button or pressing escape will return the player to the main menu.
Game Screen: Once the player is in game, they will have a HUD and can open up an options menu by pressing escape. From this menu, the player can return to the main menu.

2.3. Game Options

Screen resolution can be changed, along with options to use either fullscreen or windowed mode. These options should not affect gameplay in any incredibly major way besides an expected potential for slightly reduced visibility.

2.4. Replaying and Saving

A checkpoint system will allow the player to retry levels after dying, and the game will save which levels the player has completed.

3. Story, Setting and Character

3.1. Story and Narrative:

Backstory:
The player character is a former convict that has volunteered to test out a prototype gravity and time manipulation glove in exchange for their freedom at the end of the testing period. However, failure to complete the Graviton trials will result in death.

3.2. Game World

The game takes place on a space station testing facility where you, the prisoner are being used to test a new high tech gravity glove as you try to escape from the facility.

3.2.1. General look and feel of world

Sci Fi minimalist style in order to clearly communicate the setting to the player without over saturating and making clear what the play spaces are. This helps keep the player from thinking there is an object for them to jump to when it would just be a set piece. It will give a "white room" vibe as to reinforce the purpose of the facility is that of scientific tests.

3.3. Characters.

The Ex Convict: The main playable character of the game. He is a former convict that volunteered to test out a prototype gravity and time manipulation glove to be freed from prison once the test are completed.

Testing Facility Staff: The staff will occasionally communicate with the player over the course of the tests.

4. Levels

4.1. Levels.

Switch levels: These types of levels will require the player to solve a specific switch puzzle using different switches with their gravity and sometimes time manipulating abilities.

Time levels: These levels require players to complete the puzzle using their ability to control time and space.

Gravity levels: These levels can be either low gravity or high gravity areas that the player must utilize their ability to manipulate gravity to complete
Platforming levels: These levels require the player to have mastery of their platforming skills using their ability to control both gravity and time.

Puzzle levels: These levels combine all the elements of the other levels into one truly test the player's skills, testing the player's knowledge of all previous levels.

5. Interface

5.1. Visual System.

HUD: The HUD displays your current health, what location you're in, which mode your glove is set to affect, and the current selected object.
A pause/options menu is opened by pressing escape. This menu allows the player to return to the main menu.
The game uses a first person perspective.

5.2. Audio, music, sound effects

The manipulation glove will have sci-fi sound effects for changing between gravity and timescale manipulation, along with various sounds when interacting with objects.
Flamethrowers will have sound for when they're active, and for when the player is being burned by one.

Reaching the end of the level will play a short victory sound.

5.3. Help System

No hints will be given on how to solve puzzles, but the player can check which levels they've completed from a terminal in the hub area.

6. Artificial Intelligence

6.1. Enemy AI:

Mounted flamethrowers rotate back and forth spewing flames, so no AI is required for them. Instead, they will continuously rotate until slowed down by the player.

7. Technical

7.1. Target Hardware

This game is intended for computers running Windows.

7.2. Development hardware and software

The game is being developed in Unity 2017. 3DS Max will be used for modeling the game assets, and photoshop will be used for creating the assets' textures.

8. Game Art

The game features a stylized sci-fi aesthetic that focuses on clarity over realism. Objects will have bright, vibrant colors to help with visual identification during gameplay.

8.1 Assets:

- Crates: These crates will have a number of different textures due to cut down on repetitiveness as the player uses them to help solve puzzles.
- Spikes: Standard hazard
- Flamethrower: Uses fire particles and can rotate

- First-Person Glove: The glove will feature lights that change color based on what type of manipulation the player is using.
- Level tiles: Levels will be built primarily from tiles, allowing for quick and efficient level creation.