**­**

**Design Document for:**

# Parker & Holt

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Name of Game 1

Design History 5

Version 1.10 5

Game Overview 6

Common Questions 6

What is the game? 6

Where does the game take place? 6

What do I control? 6

What’s different? 7

Feature Set 8

General Features 8

Multiplayer Features 8

Game play 8

The Game World 9

Overview 9

The Physical World 9

Key Locations 9

Travel 9

Scale 9

Objects 9

Rendering System 10

Overview 10

Camera 10

Overview 10

Camera Detail #1 10

Camera Detail #2 10

Game Engine 10

Overview 10

Game Engine Detail #1 10

Collision Detection 10

The World Layout 12

Overview 12

World Layout Detail #1 12

World Layout Detail #2 12

Game Characters 13

Overview 13

Creating a Character 13

Enemies and Monsters 13

User Interface 14

Overview 14

Weapons AND ITEMS 15

Overview 15

Weapons Details #1 15

Weapons Details #2 15

Musical Scores and Sound Effects 16

Overview 16

3D Sound 16

Sound Design 16

Single-Player Game 17

Overview 17

Story 17

Hours of Gameplay 17

Victory Conditions 17

Losing Conditions 17

Saving and Loading 17

Multiplayer Game 18

Overview 18

Max Players 18

Servers 18

Internet 18

Saving and Loading 18

Character Rendering 19

Overview 19

Character Rendering Detail #1 19

Character Rendering Detail #2 19

World Editing 20

Overview 20

World Editing Detail #1 20

World Editing Detail #2 20

Extra Miscellaneous Stuff 21

Overview 21

Junk I am working on… 21

XYZ Appendix 22

Objects Appendix 22

User Interface Appendix 22

Networking Appendix 22

Character Rendering and Animation Appendix 22

Story Appendix 22

# Design History

First Version – 09/20/2009

Version 1.01 – 10/2/09

* Added story background

Version 1.02 – 10/20/09

* Fixed some engine information
* Added the document to the subversion repository

# Game Overview

## Common Questions

### What is the game?

The game is a 3D sidescroller locked to a side view. You play as two characters which you can switch between at almost any point in the game. The characters skill sets are very different. Parker is a fast moving, agile character and has items such as grappling hooks to help him traverse the level. Holt is a slower moving character who creates mechanical devices such as springs, boxes and platforms to traverse the levels. In addition to mechanical devices Holt also uses supernatural devices to manipulate time and gravity.

They are trapped between universes and must get home.

### Where does the game take place?

It takes place in a dream world in another universe. This Universe is not a parallel but perpendicular Universe, with several odd properties and bits of other Universes stuffed inside it.

### What do I control?

The two characters Parker and Holt.

### What’s different about your game?

There are no new, unique concepts in this game. It is a conglomerate of other game mechanics.

# Feature Set

## General Features

Detailed level designs

3D graphics

Realistic 2D Physics

Physics puzzles

Structure creation

Temporal distortion

## Multiplayer Features

There will be 2 player modes. A Single character controlling two character in which he can switch between them and a 2 player mode in which each player controls one of the characters.

## Gameplay

Structure Creation

* Simple structures like spring boards and boxes
* Simple intuitive mouse interface

Interactive Physics Puzzles

* Each level will consist of traversing some physics puzzles using each characters’ unique abilities
* Puzzle components
  + Mass, friction, momentum, lever arms, pulleys and motors
  + Platforms, doors, locks, conveyer belts, elevators, control switches
  + Spikes, electricity, fire, projectiles, pits, falling objects

Movement

* Parker
  + Running, jumping, crouching, sliding, wall-jumps, grappling hook, swinging, run along walls, climb ledges
* Holt
  + Running (slower), jumping (lower), crouching

Death

The characters “die” when they experience too much trauma at one time. Trauma builds over a small out of time and will go back to a normal level when no trauma is experienced for a period of time.

When characters die they either start at the beginning of the level or at a continue point in the level.

# The Game World

## Overview

## The Physical World

### Key Locations

* Spawn points
* Continue locations
* Item pedestal
* Level entrances and exits

### Travel

Characters travel between levels using doors that connect back and forth from the level select screen known as the Lobby.

### Scale

Individual levels are small but numerous. Individual levels will vary in length. Levels will be linked by a single level that will allow you to select other levels.

### Objects

See the “Objects Appendix” for a list of all the objects found in the world.

## Rendering System

### Overview

This will be done with the OGRE3d graphics engine and will use the NxOgre PhysX wrapper for the physics engine.

## Camera

### Overview

The view will be 3D side view of the level that will pan for the characters position. Depending on the velocity of the character the camera will pan so that the player can see more of the world the direction the character is travelling in.

### Camera Panning

It will be possible to pan around the level.

### Camera Panning

At the beginning of a level the camera will pan around showing particularly important parts of the level.

## Game Engine

### Overview

The game engine will be a mix of OGRE3D and NxOgre. Currently the engine is using a state based approach. All states inherit from a base virtual class that supports entering, leaving, pausing the state. As well the base class handles input, drawing and updating the game logic. The states are popped onto a deque.

### Collision Detection

The physics engine does collision detection. The wrapper allows direct usage of PhysX commands and callbacks.

# The World Layout

## Overview

There is a main level, called the “Lobby”, where the character can move between other levels using doors in the Lobby. The character can also choose the items they are carrying in the Lobby.

Actions in levels will affect the Lobby, such as opening doors or platforms in a level could move a platform in the Lobby.

## World Layout Detail #1

## World Layout Detail #2

# Game Characters

## Overview

The main character will be able to switch between two characters throughout the game; Parker and Holt. The player can switch between either character at any point, unless restricted by the levels design.

Both Characters

Each character does not have a health bar but a trauma indicator, when the character experiences too much damage at once the character dies.

Each character also has a certain amount of items they can carry with them at one time. In the lobby the characters can choose which items they take with them into the level.

Parker

Parker is a fast moving light weight character. He can jump much high and farther than Holt. He can:

* Run up (or along) walls a short distance
* Jump off walls
* Grab onto ledges
* Slide along the ground
* Climb beams
* Slide down beams

Parker can get upgrades for his movement:

* Climbing gloves so he can grip walls and come to a complete stop while sliding down objects
* Grappling Hook
* Sticky Bombs that can launch Parker or other objects
* Oil slick reduces friction on surfaces

**Holt**

Holt is a slower moving character. Holt can throw Contraption Cubes that can turn into other objects:

* Springs
* Boxes
* Planks

Holt can get upgrades for his Contraption Cubes:

* Teleporters
* Bombs
* Local Gravity Distortion Orb
* Temporal Distortion Orb

Holt can also get a bolt gun, to attach objects to other objects.

## Enemies and Monsters

There are no enemies.

# User Interface

## Overview

There is very little interface. There will be three slots for each characters items they have on them.  
  
 There also is a trauma indicator that flashes on the screen when the character is hurt. The trauma indicator tints the screen edges red and intensifies as the damage accumulates.

## Mouse Interaction

The mouse is used for several different things:

* Controlling Parker’s grappling hook shots
* Setting parameters on Holt’s devices
* Panning around the level

**Weapons and Items**

There are no real weapons in this game but the characters do have items they use to help solve puzzles and move around levels.

See appendix for character items.

# Musical Scores and Sound Effects (No Changes Yet)

## Overview

This should probably be broken down into two sections but I think you get the point.

## Sound Design

# Take a shot at what you’re going to do for sound design at this early stage. Hey, good to let your reader know what you’re thinking.

# Single-Player Game

## Overview

The point of the game is to escape the fractured reality by completing the levels’ puzzles and collecting special objects. In each level the player will collect special objects that will let them get to more stages in the Lobby. In levels there are special “events” that change the Lobby in some meaningful way, furthering the game.

You play as both characters but only use one character at a time. You can switch between either character at any time in the game unless it is restricted by the level design.

## Story

**Introduction**

The story begins with Holt working in his private lab as he has for the last few months. He has been working on his new idea of a device that can shift matter to a parallel universe. Tonight is the night that he will finally test the device.

Meanwhile, Parker has entered a free running (parkour) race to traverse the city building tops as fast as possible. Since free running is illegal in the city the race must happen at night.

Under some sort of weird coincidence just as Holt is starting his new device Parker has just landed on top of Holt’s roof. A blinding light shines out of a skylight distracting Parker and he falls into the skylight!.The light was from Holt activating the device. Parker just happens to fall on Holt when he starts to shift universes.

Holt wakes up in a new universe and looks around to see no one else there. He is very confused as he thought someone had just fallen on him. He tries to activate the device again to get back home. A bright light appears but Holt does not move. He hears a loud thud and an “Ow” come from behind him. Parker has just appeared out of nowhere.

They talk for a bit and Holt explains what just happened to the both of them. He tries the device again and Parker disappears again. He activates it another time and Parker appears once more. This time Holt makes a few changes to the devices parameters and tries one more time. Holt disappears and Parker instantaneously takes the exact same position Holt was in, and is now holding the device. Parker hits some buttons until another light appears and now Holt is exactly where Parker was standing.

They both realize that they’re missing things that they had on them when they shifted universes. Holt notices that the bag he had on him is now 30 feet away. Suddenly it clicks. The device has a fail-safe that doesn’t allow you to shift unless you have the same matter as you had when you first shifted. This was so Holt didn’t somehow interfere with another universe by leaving matter from his universe there.

Holt tells Parker that they must collect everything that was on them when they shifted. They go off into this universe looking for the things they lost.

**First Level Plot**

Parker and Holt have to collect all the items they see in the level that are theirs. As a way to let the player know what the items are, they glow and sparkle. There are several obstacles and puzzles that prevent them from easily obtaining the items.

## Hours of Gameplay

There is no real good way to estimate this without play testing levels. Levels will have an average time for completion attached to them. As for the entire games hours of play, it will be based upon how good the player is at solving problems. The total of levels and their average play times will be the hours of game play.

## Victory Conditions

The player does not win a level but accomplishes goals in each level that affect the Lobby level. There are different goals per level which can affect the Lobby in different ways. Some goals will be obtaining a new item.

## Losing Conditions

The player does not lose but experiences too much trauma and “dies” and must return to the beginning of a level or to a continue point. When the character dies they have the choice of leaving the level and losing all progress in the level, this returns them to the Lobby.

## Saving and Loading

You cannot save at just any point in the game, the game automatically saves at any continue point or when you leave a level. There will be several profiles for the overall game so you can have different people playing on the same computer.

# Multiplayer Game

## Overview

You will play the single player campaign cooperatively, one player will be Holt and the other player will be Parker. The players can switch which character they are playing as if they both agree to.

## Max Players

There will be two players at the most.

## Servers

The multiplayer would be peer to peer.

## Internet

They will connect either through IP direct connection, or through some sort of lobby system.

# Character Rendering

## Overview

Characters are 3D models.

# World Editing

## Overview

For now the world will be created by hand in XML files and then loaded into the game using the NxOgre PhysX wrapper, hopefully.

**Extra Miscellaneous Stuff**

## Overview

Drop anything you’re working on and don’t have a good home for here.

## Junk I am working on…

# Appendix

# Objects Appendix (To Be Expanded)

### **Holt’s Items**

* Planks
  + Planks are fairly thin and are of a set length
  + They have two modes
    - One mode has when the plank cube is thrown at a surface the plank forms perpendicular to the surface
    - The other mode the plank is formed not connected to anything
* Boxes
  + Boxes have mass and friction and can be stacked
* Springs
  + Trampoline style springs that can be attached to objects
* Time Distortion Device
  + This has a circular area of effect that slows down time for only objects inside this area
* Gravity Distortion Device
  + This has a circular area of effect that changes the direction of gravity inside the area
  + Once the device is deployed you right click and drag in a direction and that is the direction gravity will be in or the device
  + The gravitational force vector for the device is added to the force vector of regular gravity

### **Parker’s Items**

* Climbing gloves
  + Climbing gloves allow Parker to slide down walls and slopes at a much slower speed and even come to a complete stop on a wall
* Grappling Hook
  + The grappling hook fires a rope with a hook / arrow on the end of it that allows it to attach to objects, walls and roofs.
  + Parker cannot climb the grappling hook but can use it to pull objects that are lighter than him to him
  + He can also use it swing.
  + Once the grappling hook is shot the rope length stays the same length as it is when it hits an object
* Sticky Bombs
  + Sticky bombs can be thrown or placed and will launch Parker or other objects
* Oil slick
  + Oil slick is thrown and reduces the friction on surfaces

Level Obstacles

# User Interface Appendix

# Networking Appendix

# Character Rendering and Animation Appendix

# Story Appendix