

# Gravitas

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*Design Document - Delta Force (Jackson Luff, Iain Dowling and Andrew Giannopoulos)*

## Introduction

**Blast off into Gravitas**, a unique gravity-manipulating platformer designed for ages 12+ for the **PlayStation Vita™** as well as **PC**. Built using the *Farseer Physics Engine* and written in *monogame*, Gravitas will gravitate you towards your Vita, begging for more! Explore a universe riddled with mind-boggling puzzles and unleash the full power of gravity!

## Background

Gravitas will be created with a custom game engine, built around the Farseer physics engine:

<https://farseerphysics.codeplex.com/>

Certain game mechanics and features are influenced/inspired by other game titles, most notably 'VVVVV' (<http://thelettersixtim.es/>) and 'Fez' (<http://fezgame.com/>).

## Description

As the player character, you will inhabit an abstract world of glowing multicoloured polygons. The tutorial will familiarize you with the controls, as well as introduce the main gameplay mechanic, gravity shifting. At almost any point, you will be able to change the direction and strength of gravity in 360° using either the right analog stick to change it on the go, or by holding down the left trigger to slow down/pause the game and receive fine control over the direction and strength of gravity.

As you progress through a series of gravity-based physics puzzles, enemies will begin to appear who will attempt to shoot or hit you. You can use gravity to turn their projectiles back on them, drop enemies off ledges, or avoid both entirely.

Introduced to you is the ability to grip the floor magnetically. This will allow you to be unaffected by gravity for a short period of time, however you will be completely immobile during that time. As you progress through the levels, you will notice that the abstract environment is beginning to collapse and break apart.

As you progress, the tunnels that connect levels become more damaged, and the enemies become more dangerous and threatening. Lights are flickering, particles are being emitted, and everything appears to be falling apart. The game will end with the realization that you have been playing the role of a representation of Alzheimer's disease, and that the enemies you have been defeating and the levels you have been damaging are representations of memories and neutrons inside a human brain.

## Key Features

- Advanced gravity manipulation: Gravitas will implement the Farseer Physics Engine to allow the player to have real-time control over the force and direction of gravity that will affect all physics objects in the game.
- “Adaptive” AI: enemies that try to shoot the player will be able to adapt to the direction of gravity in order to shoot more accurately.
- Abstract story: there will be hints throughout the game as to the true nature of the player and the area, however it will most likely never be explicitly told.
- Large, open map: All levels will likely be contiguous and connected by long tunnels.

## Key Programming Challenges

- Coding enemies that move and don’t just commit suicide.
- Sliding down sloped surfaces in physically accurate ways.
- Ensuring the player can only walk on surfaces that are at a suitable angle relative to gravity.

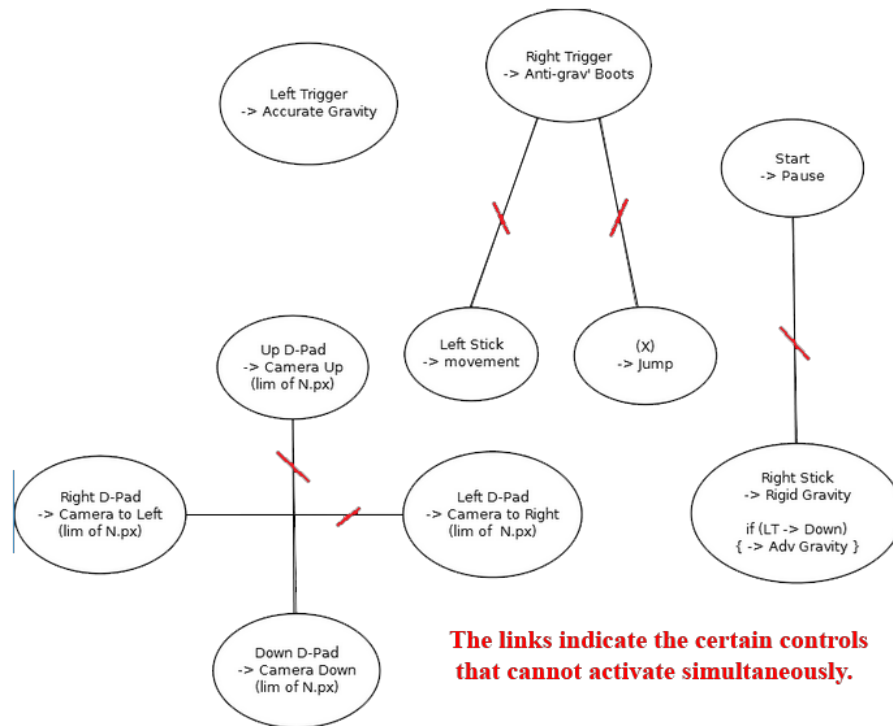
## Key Art Challenges

- Finalizing an art style and main character design.
- How much glow to give things?
- Obtaining and using appropriate music/sounds.
- Conversion of pixelation to smooth lines.
- Glowing effects on objects - shaders?

## Platforms

Gravitas will be released on the hand-held PlayStation device; the PlayStation Vita, and will run on Microsoft Windows (Windows XP and up) on PC. This game is a purely single-player experience (no multi-player capability).

## Controls

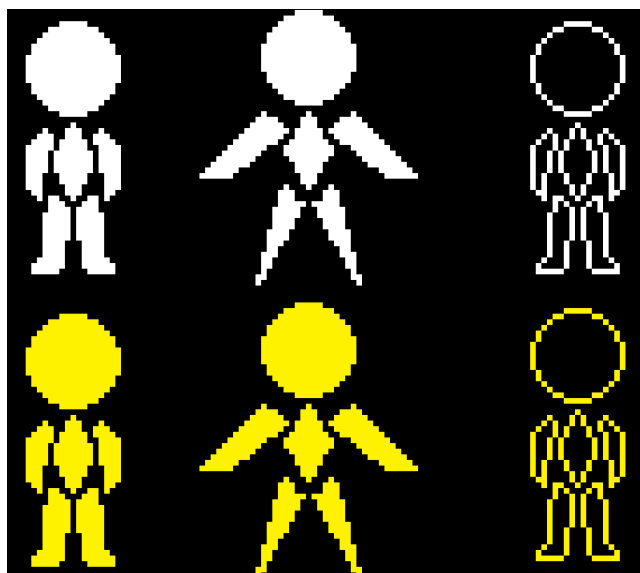


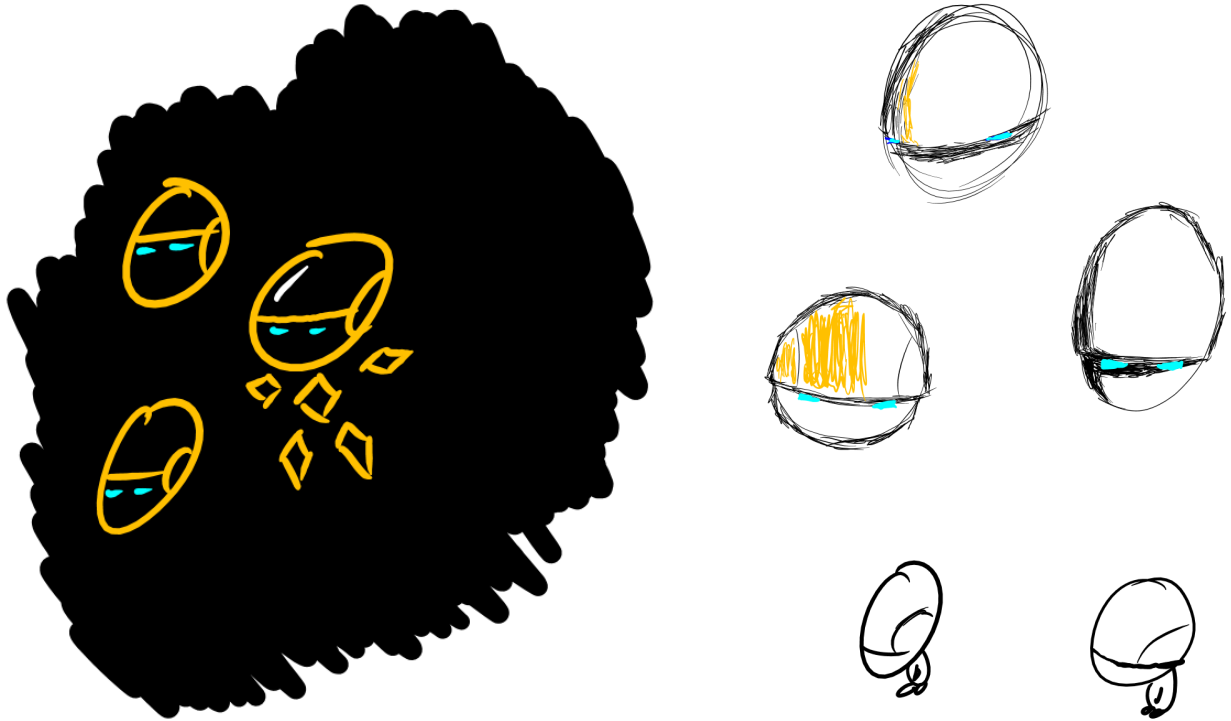
## Game player statistics

As the player, you are taking on the role of a representation of the Alzheimers disease. Any sort of damage will instantly kill the player, allowing you to respawn at the last safe piece of land you stood on. Enemies will attempt to kill the player by shooting bullets at them. On touching a bullet, the player will die. The player will also die upon collision with an object while moving at high speeds (fall damage). There will be no score to track, however number of deaths and time played will be recorded in a binary file for display in the Options screen.

## Concept art

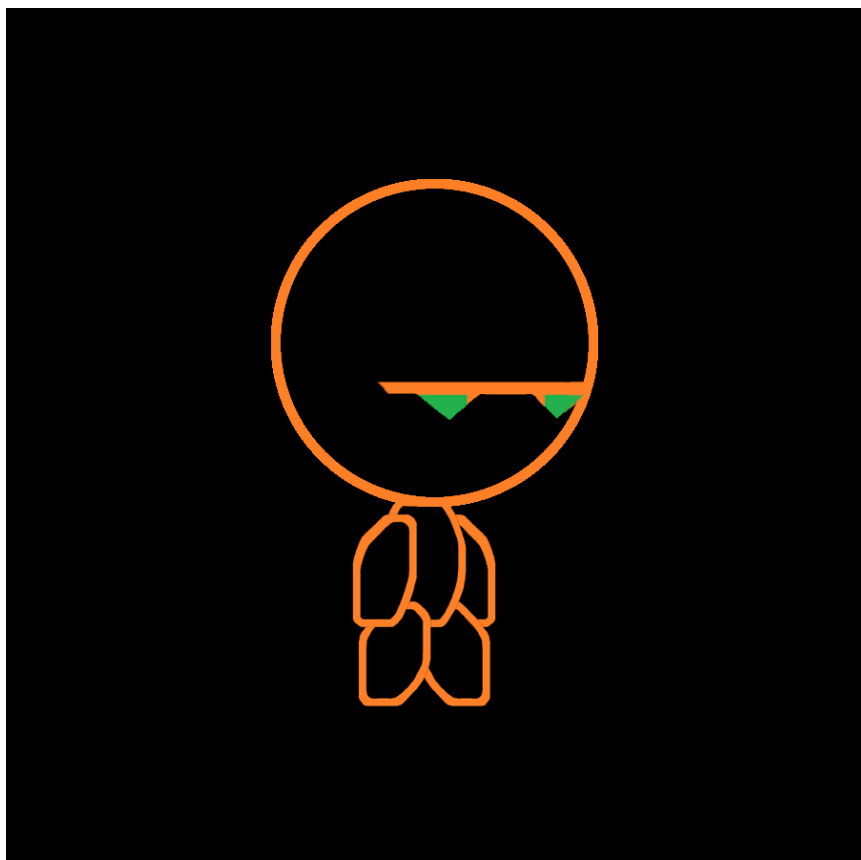
Player concept art:





The goal for the player is to create a neon coloured, human-like figure to take the role of the Alzheimer's. It must be a neon colour to fit in with the rest of the world we are creating.

Following these designs, we settled on a design that was non-pixelated and cartoonish, but still fit in with the rest of the world we created:

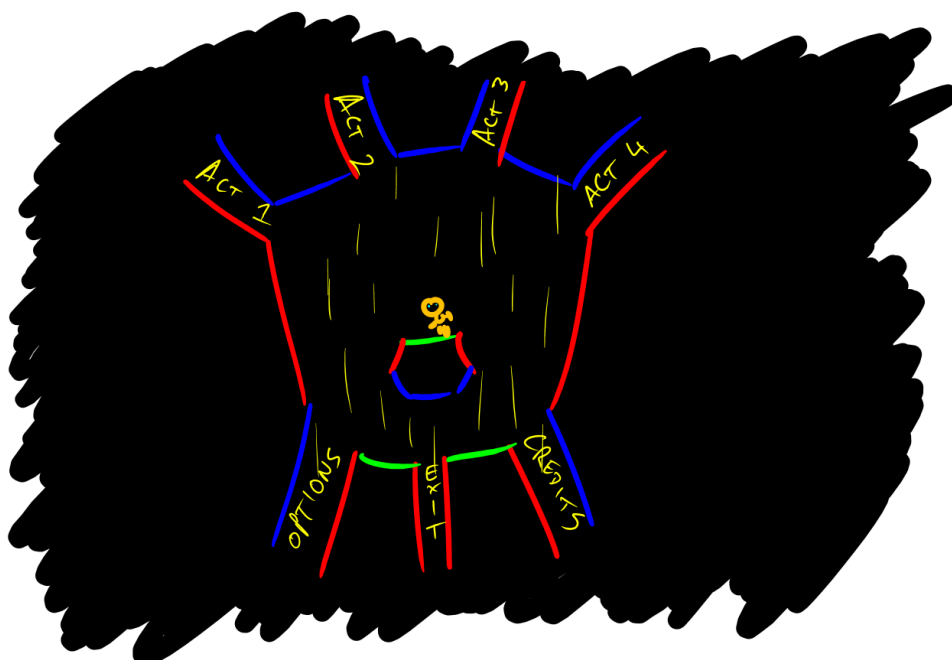


## Concept screenshots



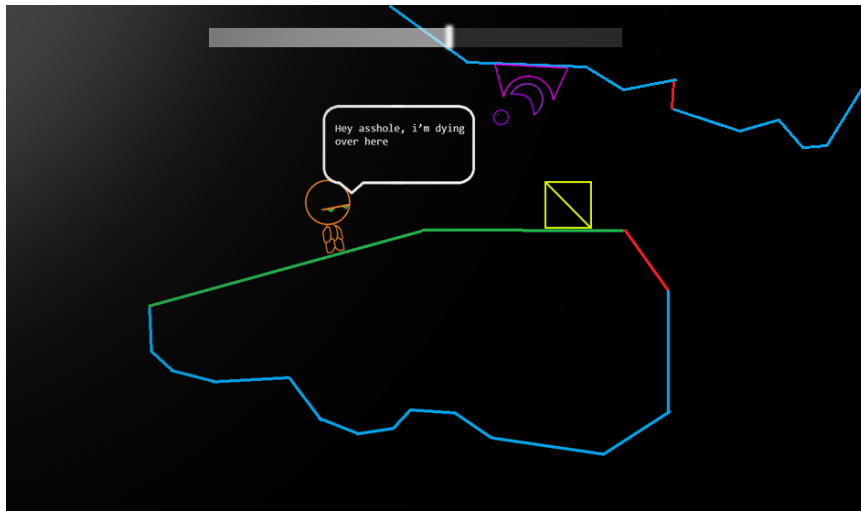
## Menu style

We are aiming to create an intuitive menu system that plays much like the levels, making use of the gravity changing feature to allow the player to select levels or options. The player will be able to move around freely in the menu room, and will be required to change gravity to drop down certain holes to choose levels, enter the options screen or exit the game. There will also be a shortcut button (back button on the PS Vita or escape for the computer) to exit the game.



## GUI Mock-Up

The following concept contains a some-what content replica of the game. The GUI purely consists of the energy bar on the top-center of the screen. As shown:



## Credits Mock-Up

For the 'credits' screen, it will seem the player is falling from the top of the screen flailing about. He can collide with random objects, our names and other credentials. All objects (excluding the player) will form with a glass-like particle effect.



## Milestones:

