

Game Design Document for:

GRAVINAVI

Steer through space using gravity. Oh, and there's cute aliens.

© 2013 Kelley Hecker

Written by Kelley Hecker

All work © 2013 Kelley Hecker

TABLE OF CONTENTS

1. Overview	3
1.1 High Concept	3
1.2 Features	3
2. Setting	3
2.1 Story	3
2.2 Levels	4
3. Gameplay	4
3.1 Goals	5
3.2 Challenges	5
3.3 Navigation	6
3.4 Aliens	6
3.5 Special Items	7
3.6 Level Actions	7
4. Market Analysis	7
4.1 Target Audience	7
4.2 Replay Value	8
4.3 Brand Analysis	8
5. Competitive Analysis	8
5.1 Puzzle Games	8
5.2 Gravity Games	9
6. Summary	10

© 2013 Kelley Hecker

1. OVERVIEW

1.1 HIGH CONCEPT

What do you do when you're stranded in space? Play puzzle games, of course! GraviNavi is a top-down single-player puzzle game for mobile devices. Position aliens in space and, relying only on their gravitational pull, steer your stalled spaceship around asteroids and black holes to reach the space station.

1.2 FEATURES

- Easy for anyone to pick up and immediately begin playing
- Unique gameplay based on gravitational forces
- Multiple potential solutions to each level
- Unlock new aliens with different attributes
- Avoid obstacles while trying to collect bonus items

2. SETTING

2.1 STORY

Your spaceship has run out of fuel and become stranded in space. Luckily, this sector of space happens to be home to some friendly aliens. These aliens are known for their distinctive round shape. Not only does it make these aliens cute, but you can use the gravity generated by their rotund bodies to get home! Using gravity and your new alien friends you must make it back to your space station while avoiding crashing into obstacles.



Fig 1. Sketches of aliens (Disclaimer: I am not an artist).

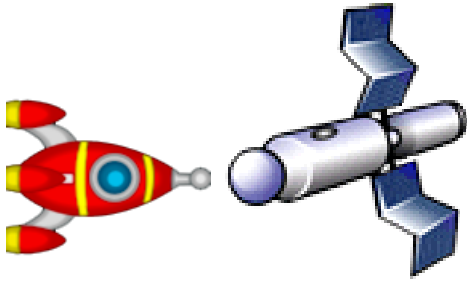


Fig 2. The space ship and space station.

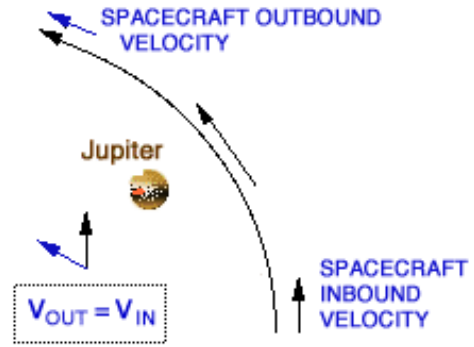


Fig 3. Illustration of the gravity assist concept.

2.2 LEVELS

Every level begins with the spaceship and the space station. These will be at different locations on different levels. The player will also initially be given a specific number and types of aliens that they can use.

Some levels will contain obstacles. These include objects like asteroids and space debris which the player must maneuver around. Levels might also have special items the player can pick up to gain a bonus.

Levels are shown in a top-down point of view. The entirety of the level fits onto the screen, which allows the player to plan out the path of their ship around the aliens.

3. GAMEPLAY

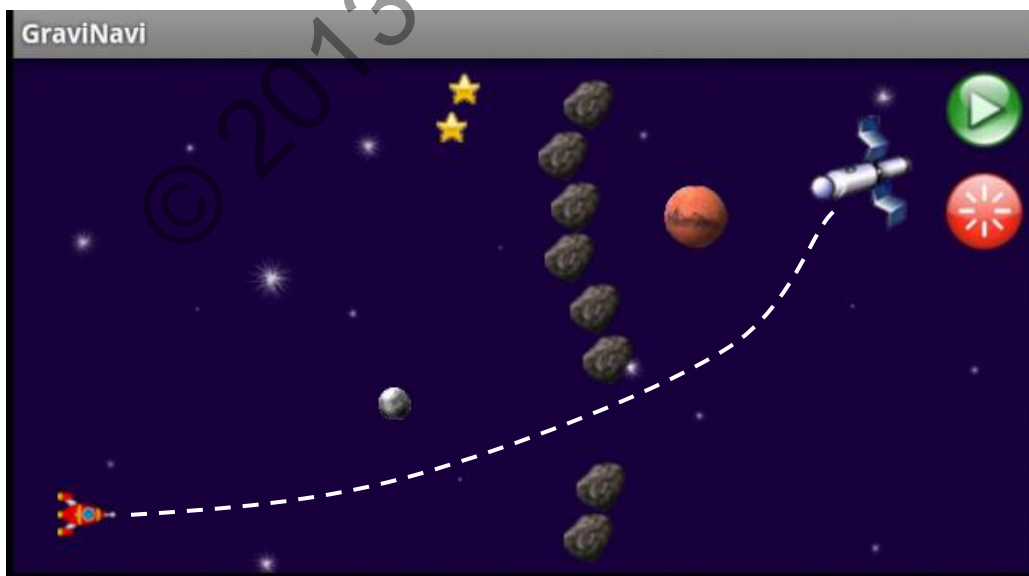


Fig 4. A mock-up of a potential level in *GraviNavi*. The white dotted line represents the trajectory of the ship. Here planets are used instead of aliens.

3.1 GOALS

The player's goal is to steer their spaceship from the starting position to the space station. However, on its own the ship can only drift forward. It's up to the player to place aliens on the field to steer and move their ship. The gravity of the aliens acting on the ship pulls it toward and around the alien, ideally sending the ship towards the space station.

Certain levels may also have special items which benefit the player. To get these items the player may need to take a less direct path to the space station. At the end of each level the player will receive a ranking of their performance based on how many retries they used, how many aliens they used and the number of special items they were able to collect. The player can replay the level to try and attain a higher ranking.

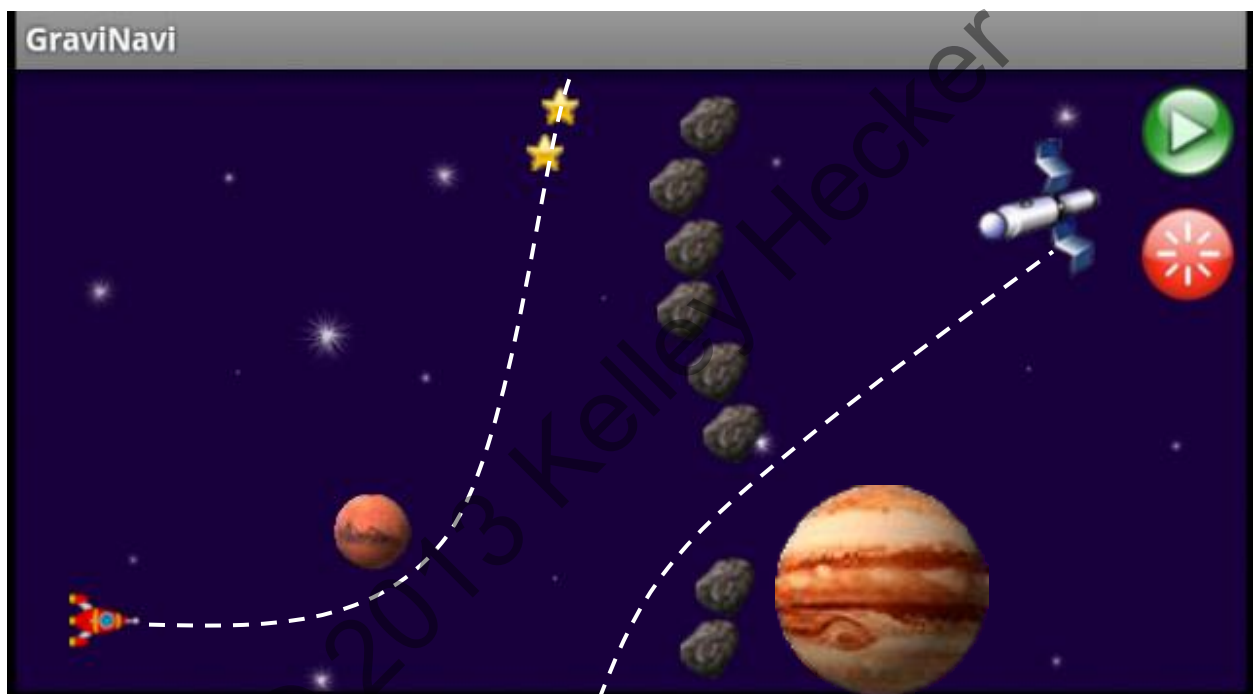


Fig 5. Another possible solution to the same level from Fig 3. This solution allows the player to collect bonus items. Here planets are used instead of aliens.

3.2 CHALLENGES

The player must decide how best to place the aliens to reach the spaceship and collect bonus items. They will also have to choose which aliens to use out of the types available to them. If the gravitational force of an alien is too large the ship may end up orbiting it infinitely or crash into it and explode. If the force is too little it won't have enough pull to move the ship to the space station. Some levels have obstacles which block the path of the ship, and the player must find a way to maneuver around them.

3.3 NAVIGATION

Navigating the spaceship is done by placing aliens on the field. Depending on the location and size of the alien used the spaceship will experience different gravitational forces. Closer and larger aliens will exert stronger forces than small and far away aliens.

3.4 ALIENS





Aliens can be placed and moved around the field. The player will be given different numbers and types of aliens on each level. They can only use the aliens provided, although they do not have to use all of them.

The player begins with only one type of alien of average size. As the player completes levels they can unlock new aliens. These aliens have different gravitational properties than the default alien and different graphics. Below is a table of the different aliens available.

Name	Properties	Level Unlocked
Average Alien	An alien with average gravity.	Game Start
Large Alien	An alien with very strong gravity.	5
Small Alien	An alien with very weak gravity.	15
Inverted Alien	An alien with reversed gravity. It will repel your spaceship instead of attracting it.	25
Twin Aliens (Black Hole Alien)	These alien siblings can create a wormhole between them. The ship is sucked in one end and comes out the other. These aliens disappear once the ship has gone through.	35

3.5 SPECIAL ITEMS

The player can find the following special items in some levels:

Image	Name	Properties
	Rocket Fuel	Allows the player to propel and steer their ship for a short period of time.
	Low-Power Laser	Allows the player to fire one shot. Can destroy asteroids.
	High-Power Laser	Allows the player to fire three shots. Can destroy asteroids.
	Stardust	Bonus points that add to the player's final ranking.

3.6 LEVEL ACTIONS

The player is given three commands to control the level: start, retry and reset level. Once the player has placed the aliens to their liking they can start the level. The gravitational forces will begin acting on the spaceship and move it through the field. This will continue until the space station is reached, the space ship crashes or the player manually retries or resets the level. The player can reset or retry the level at any time during the game.

4. MARKET ANALYSIS

4.1 TARGET AUDIENCE

The target audience of *GraviNavi* is the casual gamer. It will appeal to children, teens and players in their twenties and thirties. The graphics are colorful and fun to attract younger players, but not to the point where they will discourage more mature people from playing. Young players will enjoy the characters and the simple gameplay, while older players will enjoy trying to achieve the high score and finding new ways to complete levels.

The cell phone platform will allow the game to reach many people who do not consider themselves "gamers" and are looking for an easy to play, fun experience. The extremely simple interface and controls make it easy for anyone to begin playing. The player can spend as little or as much time as they want on each level, and they can quit and resume back on the level they left off at. This grab-and-go, low-commitment gameplay style is ideal for mobile device use.

GraviNavi will also appeal to competitive gamers. By grading the performance of the player after they complete a level it encourages the player to try again to achieve a better score. Attempting to get the highest ranking on each level will attract more advanced gamers. In addition, they may enjoy replaying levels and finding different ways to complete them.

4.2 REPLAY VALUE

By having multiple possible solutions to each level players are encouraged to replay the levels and find new and novel ways to complete them. Giving the player a score at the end of each level will incite them to replay the level until they achieve the highest possible score.

4.3 BRAND ANALYSIS

The *GraviNavi* brand is embodied by the alien characters. Having unique characters will make them easily recognizable as part of the *GraviNavi* brand. Past games like *Angry Birds* have shown that characters can be extremely marketable. The *GraviNavi* aliens can even be expanded to markets like toys and apparel.

5. COMPETITIVE ANALYSIS

5.1 PUZZLE GAMES

There are already several successful puzzle games for mobile platforms. The most well-known and lucrative example is *Angry Birds*. *GraviNavi* contains many of the same attributes that make *Angry Birds* successful. Both have very simple controls (a dragging motion in *Angry Birds*, and either pressing or dragging in *GraviNavi*) and ask the player to perform a simple task. However, in order to succeed at that task may require several attempts, especially to achieve a high score. This keeps the player coming back and continuing to play the game. Both games allow the player to easily start and quit the game. The use of unique characters, in this case aliens, allows for marketability outside of the game. *Angry Birds* has extended its characters to plush toys, apparel, room decorations, and more. Because *GraviNavi* has many of the same qualities that make *Angry Birds* so successful, it should also perform well in the mobile puzzle game market.

While *GraviNavi* shares many features similar to other puzzle games, there is currently no game for mobile devices which involves similar gravity-based gameplay. This makes *GraviNavi* a unique addition to the mobile marketplace.

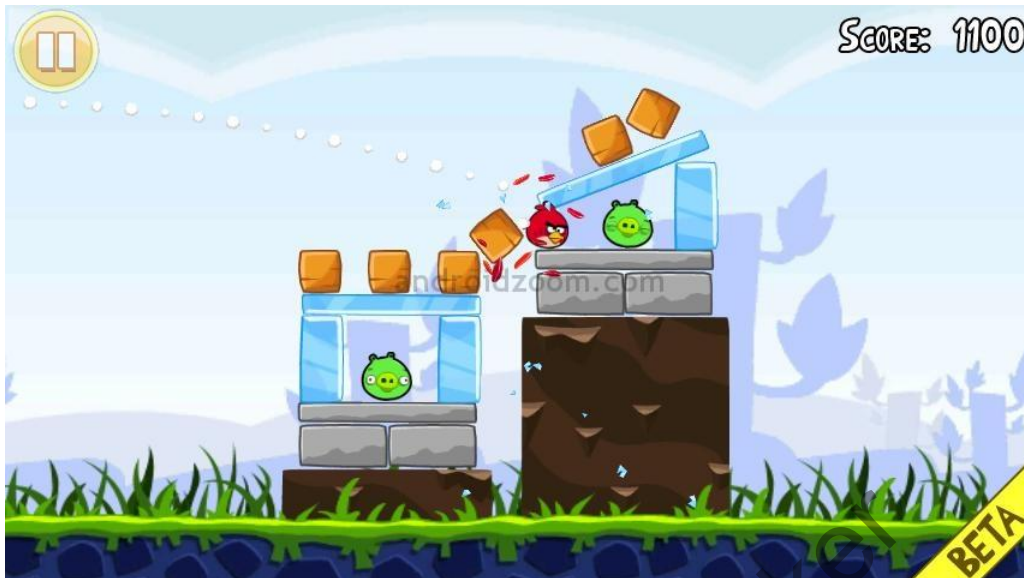


Fig 6. A screenshot from the popular puzzle game *Angry Birds*.

5.2 GRAVITY GAMES

Gravity Sling for the iPhone also uses planetary gravity to steer an object (an astronaut) to a goal (a space shuttle).



Fig 7. A screenshot from the gravity-based puzzle game *Gravity Sling*.

However, in *Gravity Sling* planets are already placed on the field and the player's only job is to give the astronaut a push in some direction to get him moving. Because *GraviNavi* allows the player to position the aliens themselves it provides more opportunities for unique and interesting solutions to levels. *GraviNavi* also includes obstacles the player must maneuver around, adding another layer of gameplay

which *Gravity Sling* does not have. Lastly, the addition of characters makes *GraviNavi* more marketable than a generic space game.

6. SUMMARY

GraviNavi uses gravity-based gameplay which is unique while still being intuitive for the average player. It uses unique alien characters to build a marketable brand. The levels are open and allow for many potential solutions, some of which are more difficult than others. This makes the game appealing to both beginner and advanced players as they can make each level more or less difficult. *GraviNavi's* unique gameplay and extensive replay value make it addictive and fun for both casual and hardcore gamers.

© 2013 Kelley Hecker