OrbTail

Design Document

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Indice

1 Vision statement

1.1 Game logline

Guide your ship into the arena to collect as many orbs as possible. Collide with opponents in order to detach theirs orbs.

1.2 Game synopsis

Drive your ship inside different arenas to gather orbs left there. The more the orbs collected the better. Be aware because there are other players in the arena which have the same goal as yours and will do anything to prevent doing the same.

In addition you can drive your ship towards those opponents in order to detach and spread some of their orbs. The effectiveness of the bash determines the amount of orbs detached.

The orbs that your ship has collected become its tail and it can be used to disrupt other's game but it can be an impairment for you as well.

As a player you can choose among different kind of ships, each of which has its own pros and cons, and allows you to play the game as you desire.

The arena is filled with special objects which can be collected as they give your ship different power-ups.

Each area has its own very mechanic which will bring various challenges to the players as they will slightly change the gameplay.

The style of the game will be plain 2D with neon effects. The HUD will be clean and minimal as well. The scene will be framed from above.

2 Audience, platform and marketing

2.1 Target audience

The target for this game will be as broad as possible, so, the main audience, will be the casual gamers. To reach our audience, the gameplay will be fast and each match shouldn't take more than a couple of minutes. The player will be put through the action as soon as the game begins.

The game will be immediate to understand and play as there won't be meaningless complications whatsoever.

To make the game as easy to understand as possible a tutorial will be provided.

2.2 Platform

We think that the game will be better suited for mobile devices, but desktop and notebook will be targeted as well.

2.3   System requirements

We have no particular minimum requirements to suggest as the game it's well suited even for lower end devices.

By the way a basic wireless connection is required.

2.4   Top performers

- Geometry wars: very different gameplay but the design will be similar.

- Snake: the idea of touching an orb which gets attached to the tail resembles snake game. But the gameplay and the goal is very different.

3   Gameplay

3.1   Overview

Before starting a match the player should accord on which arena it will take place.

The player can choose among different kind of arenas, each of which will provide different challenges to him or her and one of the different game modes.

Each player will choose one of the several ship at his or her disposal.

3.2   Game modes

There are different game modes:

3.2.1   Arcade

The goal for this game mode is to get the highest score at the and of 5 minutes.

There are different ways to increase your score:

- Detaching orbs from other players: 10 points.

  - Combo: the more orbs you detach from opponents without taking any damage, increase the amout of points gained by 10 for each additional detached orb.

- Gathering an orb: 25 points.

- Every 10 seconds, each orb in your tail provides X points: 10 points.

  - Upon the game ending this effect is triggered again but provides 30 points for each orb in your tail.

3.2.2 Elimination

Each player starts the game with 7 orbs and the arena provides none. Whenever a player runs out of orbs in his or hers own tail, he or she is eliminated from the game. Be aware that every 30 seconds all players lose one orb form their tails.

The last player standing is the winner.

3.2.3 Longest tail

The goal of this game mode is to reach the end of the game with the longest tail. The game ends when the time is over (3 minutes).

3.3 Ships

Each player can choose one of different types of ships to drive.

Each ship has different characteristics, that are:

- **Speed**: indicates the acceleration of the ship. The maximum speed achieved by each ship is fixed and equal for each ship. This parameter just influences the amount of time required to achieve the maximum speed.

- **Steering**: indicates how agile is the ship while steering. A ship with a high steering can change direction more fluently, on the other hand, ships with a low one need to perform a wider curve to reach the desired direction.

- **Defence**: indicates how hard is for an enemy to detach an orb from the ship.

- **Offence**: this parameters is a measure of how many orbs the ship can detach from opponents during a collision. This number is influenced by both the offense parameter, the current speed of the ship and the direction of the impact.

Each parameter is a discrete amount ranging from 1 to 5 (maximum).

3.3.1 Formulas

- Damage is calculated according to the following formula

$$\begin{cases} Dmg\left[1 - (Def_b - Off_a) \cdot 12.5\%\right] & Off_a < Def_b \\ Dmg\left[1 - (Off_a - Def_b) \cdot 25\%\right] & Off_a \geq Def_b \end{cases}$$

where
$$\begin{aligned} Off_a &= & \text{Offence of the attacker} \\ Def_b &= & \text{Defence of the defender} \\ Dmg &= & \text{Base damage caused by the collision} \end{aligned}$$

the Dmg is calculated according to the relative velocity of the ships involved on the collision. A ship is considered an *attacker* if the ship it is colliding with is in its field of view. The other ship is considered the *defender*. Ships which are facing each other trigger two different collision events.

3.4   Power-ups

Arenas are filled with special objects which can grant a power-up to whoever gets them.

The power-ups can be sustained (they have an effect for a fixed duration and they fade out) or fire-and-forget (the ship can use the power once and it immediately fades).

These power-ups are:

- **Magnet**: for a short duration the free orbs near the ship are attracted to it.

- **Shield**: for a short duration the ship is immune to any sort of damage and orbs cannot detached from it.

- **Steal**: for a short duration, whenever your ship detaches orbs from an opponent, those orbs are added to your tail instead.

- **Swap**: next time your ship collides with an opponent your and his tail are swapped. This effect fades immediately after the swap of after some seconds.

- **Rocket**: fire a rocket against an opponent. The rocket will search for it. If it gets to the opponent it explodes detaching some orbs from this one.

- **Blast**: place a trap into the arena. The first ship which steps into it, is affected by 'blast' and will explode in a couple of seconds losing its entire tail. Whenever a ship under the effect of 'charge' collides with another ship this effect is transferred.

- **Jam:** place a trap into the arena. The first ship which steps into it is affected by 'jam' for a short duration. While under this effect, the owner of the ship have to deal with inverted driving commands as well as a disrupted vision of the field.

- **Grounding**: place a trap into the arena. This first ship which steps into it is affected by 'grounding' for a short duration. While under this effect, the ship will move much slower than its proper speed.

- **Discharge**: place a trap into the arena. The first ship which steps into it is affected by 'discharge' effect and cannot gather orbs from the arena for a short duration.

- **Blind**: place a trap into the arena. The first ship which steps into it is affected by 'blind' for a short duration and suffers from reduced visibility.

3.4.1   Passive power

Every ship has one passive power which can be activated once and then enters a cooldown state for 10 seconds, during this period the power cannot be activated anymore.

When activated, this power generate an impulse which makes the ship momentarily faster. This power can be used either to increase the damage output of the ship or to escape from incoming opponents.

3.5   Arena

There are different arenas the ships can fight into. Each arena is a bounded 2D plane which have its own mechanics.

In order to balance the gameplay the drop chance for each bonus depends on the arena.

3.5.1   Hyperplane

The arena has no bounds and behaves like a torus (going up makes your ship reappear from the bottom and so on).

3.5.2   Blackout

The arena is completely dark but each object into it (ships, orbs and power-ups) produce some light around it.

As long as a ship doesn't have any orbs in its tail, the ship does not produce any light and becomes effectively invisible to the others players.

3.5.3   Borderline

The arena has some clear border. Whenever a ship trespass those borders the ship falls losing all the orbs in its tail and reappearing back into the arena in one predefined spot.

3.5.4   Overload

(Whenever a ship has more than 5 orbs in its tail it overloads. If a ship is overloaded for more than 10 seconds it explodes losing its tail. Having less than 6 orbs clears the ship from the 'overloaded' effect.)

3.5.5   Mirror

The ship with shortest tail has the power to change his ship with another by touching it. When there are more than one ship with the same tail length which is the shortest one, a random ship will be chosen.

3.6   Controls

3.6.1   PC

- Directional arrows / WASD: to change the ship's direction.

- Spacebar: to activate power-ups.

- Double-tap W: push.

3.6.2   Touch

- Accelerometer: to change ship's direction.

- Virtual button: to activate power-up.

- Jerk: activate ship's passive power.