

Supernova (Design Document)

Tagline

An intergalactic racing game, where players must compete against each other to outrun the shock-wave of an exploding supernova.

Genre

Two-dimensional, vertical scrolling, survival racing game.

Setting

Supernova takes place in the far reaches of outer space in a subtly dystopian future.

Detailed Description

Hundreds of years in the future, when amazing technological advances has allowed humans to spread throughout the galaxy, there is an extreme sport known as **Supernova**. Thrill seekers and adrenaline junkies from across the cosmos gather to participate in the ultimate thrill ride: a blazing fast race away from the centre of a stellar explosion.

Piloting highly advanced spacecraft, these reckless souls ride the fringes of a shock wave emanating from the supernova. They must navigate asteroid fields, avoid planetary rubble and fight off the other racers in order to stay one step ahead of the impending destruction. Falling too far behind is a death sentence, as ships are quickly overwhelmed by the heat and radiation of the detonating supernova.

Unlike most traditional races, **Supernova** does not have a designated track, finish line or even a finite distance to travel. Participants continue to race until all but one has succumbed to the destruction of the shock wave. The winner is hailed as a hero, while the losers are incinerated into space dust.

To add another danger into an already deadly sport, weapons are randomly distributed throughout the race area. Competitors can add these upgrades to their ships on the fly, allowing them to slow down other racers with a variety of missiles, bombs and power-ups. These boons are especially coveted in the later stages of the race, where two ships may be neck-and-neck with a shock wave scarcely a moment behind them.

Gameplay

Player Character

Before each race, the player has a the choice of controlling one of many pre-created starships. Each ship has its own strengths and weaknesses; where one ship may have excellent acceleration, another may turn quicker and handle tighter. Each ship represents a different style of play, and is controlled by a pilot that physically reflects that style.

The following characteristics are used to judge starships:

- **ACCELERATION:** How quickly a ship reaches its top speed.
- **TOP SPEED:** The maximum velocity a ship can reach.
- **STRUCTURE:** The vulnerability a ship has to obstacles and weaponry.
- **HANDLING:** How agile a ship is; how well it can make quick turns.

Ships do not have a damage meter, as death in **Supernova** is binary. You are either alive or incinerated and there is no middle ground. Weapons and obstacles that would be assumed to cause damage simply slow a starship down, pushing it ever closer to the oncoming shock wave.

Enemies

Once a player has selected a starship/pilot, all other ships become AI controlled competitors. They still possess the same strengths and weaknesses as they did before, and will use these abilities skillfully to attempt to win the race.

Enemies can use any weapons that the player can use, and will be quick to scoop up any of the many power-ups scattered about the race. As a general rule, AI controlled opponents will use these weapons skillfully but usually not in a timely manner. For example, an enemy with a missile may fire it off very early in the race rather than saving it for an opportune moment during the later stages.

The Race

Racetracks are procedurally generated; a necessity given that they must continue vertically for unpredictable, ever differing lengths of time. Although the racetracks can extend (theoretically) infinitely, the horizontal bounds are concrete. This forces players to stay in a relatively close proximity to each other.

Despite lacking a fixed structure, different tracks will have recurring elements and themes to them. For example, one track may feature an extremely large amount of space debris while another may be saturated with mini black holes.

Special set pieces may be added to specific tracks to create more unique experiences. Larger black holes, alien spacecraft or small planetoids are all good examples of set pieces that could be generated.

Regardless of the specific level, all races follow the same basic three phase system.

1. **PRELUDE:** Occurring before the detonation, this phase allows players to jockey for position without the threat of the shock wave riding their heels. This phase typically lasts 15 to 30 seconds and no players can be eliminated during this period of time.
2. **DETONATION:** The detonation phase begins suddenly, and is signalled by a flash of light and a low rumble. A shock wave appears behind the lowest ranked racer, who will quickly be enveloped unless he can move up in overall placement.

The shock wave will dog the racers for the rest of the race, slowly picking off the slowest racer until there are only two competitors left. It keeps a relatively constant pace, putting the onus on the racers to use weapons and obstacles to push each other towards destruction.

3. **END GAME:** When there are only two competitors left in the race, the shock wave picks up speed and the number of obstacles (space rocks, meteors, etc...) increases greatly. The remaining racers lose any room for error they may have possessed, and the slightest mistake can result in fiery destruction.

The last player standing is permitted to kick into “hyperdrive”, allowing them to escape the supernova and enjoy the spoils of their victory.

Obstacles

During the race, competitors will come across a wide variety of obstacles that will hamper their progress.

- **SPACE ROCKS:** Immobile chunks of planetary debris that litter the courses. Hitting one will result in the player losing speed. Can vary in size from very small to large enough to fill a good portion of the screen.
- **MINI BLACK HOLES:** Tiny areas of extreme gravity. Competitors will feel a slight pull on their spaceships towards these disturbances, and will be temporarily disoriented if they hit one.
- **SOLAR FLARES:** Emanating from the shock wave (especially during the end game), these tendril-like lashes of heat will instantly destroy any racer who touches them.
- **SHOOTING STARS:** High velocity space rocks that travel horizontally across the screen. They will slow down players who come in contact with them, and will remove any weapons they have installed on their ships.
- **GAMMA RAYS:** Small beams of light that shoot diagonally across the screen. Each time a player is hit with one their screen flashes white. Multiple hits will obstruct the player's view of the game.

Weapons and Power-ups

Weapons and power-ups are scattered randomly across the track during the race. A racer can possess a single weapon at any given time, which he can use once before it is expended or another one is obtained.

- **MISSILE:** Fires a projectile in a straight line, directly in front of the racer. Will slow down an enemy racer when it makes contact, knocking them in the opposite direction of the blast.
- **HOMING MISSILE:** Fires a projectile that homes in on the nearest moving target. Will slow down an enemy racer when it makes contact, knocking them in the opposite direction of the blast.
- **BLACK HOLE BOMB:** Drops a mini black hole (see above) directly behind the player.
- **REPULSOR:** Creates a ripple around the player that temporarily deflects small projectiles and hazards such as missiles, gamma rays and small space rocks.
- **TURBO:** Grants the player a sudden burst of speed. Hitting another racer while boosting will knock them aside, similar to a missile hit.

Controls

Supernova has very simple control scheme, using only three buttons and a directional pad.

- The **A BUTTON** is the accelerator and allows the player to speed up. If the player does not hold down this button, he will slow down to a crawl.
- The **B BUTTON** is the brake. Tapping the brake will allow the player to make tighter turns, while holding it will quickly bring him to a complete stop.

- The **C BUTTON** allows a player to fire a weapon if he has one equipped. All weapons are activated by a single button press.
- The **DIRECTIONAL PAD** moves the player's ship left and right across the screen, allowing him to dodge enemies and obstacles.

Aesthetic

The style for the game is fairly simplistic, hearkening back to 8 bit graphics and sounds. Ships are made from exaggerated pixels and basic colours, and their pilots are little more than scant collections of squares. The racetracks are formed from similarly simplistic graphics; a stark black background with pixelated stars and obstacles floating across the screen.

The music aims to match the retro-styled graphics, and is reminiscent of chip based tunes found on the NES or Commodore 64. Sound effects consist of simple bleeps, bleeps or oscillations that chime in to indicated fired shots, explosions and other game events.

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