

Astragenesis: Game Design Document

1. Game Overview

- **Title:** Astragenesis
- **Platform:** PC
- **Genre:** Simulation
- **Description:** Take control of a spaceship and begin your mining journey in the stars. Create and operate your own mining company. Fight pirates or even participate in illegal trade on the black market. You'll have to fight off the Port Sentries if you do that! It's your company, your future, choose your path!

2. Game Mechanics

- **Core Mechanics:**
 - Asteroid Targeting
 - Asteroid Mining
 - Space Combat
 - Ship Movement
 - Camera Movement
 - In-Game Shop (for upgrades)
- **Player Objectives:**
 - Create a mining company
 - Build a virtual space empire

3. Game World

- **Setting:**
 - Solar System: Gamma Luna
 - Planets: 12 planets (aesthetic purpose only)
 - Space Stations: 4 (names TBD)
 - Asteroid Belts: Several for mining activities
- **Environment:**
 - Realistic space environment with minimal sound in space
 - Occasional nebula fields posing environmental hazards

4. Characters and NPCs

- **Main Characters:**
 - The Player
 - Space Pirates
 - Cargo Ships
 - Port Sentries
 - Civilian Transport Ships

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5. Progression

- **Starting Point:**
 - Player starts with a medium-sized ship
- **Progression System:**
 - Mine asteroids for resources
 - Use resources to upgrade the ship or buy new ships

6. Challenges

- **Hostile Entities:**
 - Space Pirates attacking for resources
- **Environmental Hazards:**
 - Nebula fields depleting shields and causing damage
- **Port Sentries:**
 - Engaging the player if they attack civilian or cargo ships

7. Art and Sound

- **Art Style:**
 - Realistic visual style
- **Sound Design:**
 - Minimal sound effects in space, emphasizing realism
 - Music to fill the void of space
 - Normal foley sounds in space stations
 - Sound effects for UI interactions

8. Development Tools

- **Game Engine:** Unity
- **3D Modeling:** Blender
- **Textures:** Gimp
- **Music:** BoscaCeoil
- **Sound Effects:** Audacity, online resources

9. Current Development Status

- **Implemented Features:**
 - Player Ship Movement
 - Player Ship Inertia Dampener System
 - Player Armor (Health) and Shield System
 - Player Space Ship 3D Model
 - Asteroid Targeting
 - Asteroid Mining

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- Randomized Asteroid Spawning (around a single point)
- Rudimentary Cargo Ship AI
- Cargo Ship AI Armor (Health) and Shield System
- Main Menu:
 - Background shows spaceship flying at high rate of speed
 - New Game Button (Shows dialog for choosing company name before the scene switches)
 - Disabled Continue Button (Incomplete)
 - Options Menu Button
 - Exit Button
- Pause Menu:
 - Resume Button
 - Options Button
 - Save & Exit (Save Feature Not Complete)
 - Quit
- Loading Screen
- In-Game HUD:
 - Stats Display (Top-Left): Shows number of turrets, turret fire rate, turret aim speed
 - Shop Display (Top-Right): Shows buttons for upgrading spaceship turrets in terms of quantity, fire rate, and aim speed
 - Minerals Counter (Top-Center): Shows quantity of minerals the player has
 - Health Bar (Center-BottomMost): Shows current health of player ship relative to maximum amount
 - Shield Bar (Center-BottomMiddle): Shows current shield strength of player ship relative to maximum amount
 - Inertia Dampeners Display (Center-BottomTopMost): Shows whether or not the inertia dampeners are active
 - Targeting Icon and Healthbars: Hovers over selected asteroids or targets; shows current health for asteroids and health and shield strength for ships

10. Controls

- Ship Controls:
 - W, S - Forward Thrust, Reverse Thrust
 - Q, E - Aileron Left, Aileron Right
 - Z, C - Yaw Left, Yaw Right
 - R, F - Raise Pitch, Lower Pitch
 - Alt - Toggle Inertia Dampeners
 - Targeting:
 - Left Mouse Button - Target asteroid or ship

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11. Future Plans

- **Multiplayer Features:** Potential addition in the future
- **Next Steps:**
 - Complete the continue button functionality
 - Implement save feature
 - Enhance AI behaviors for cargo ships and add more NPCs
 - Develop more in-depth combat mechanics
 - Expand on the randomized asteroid spawning system
 - Add more interactive elements in the space stations

