Alien Blaster

Game Design Document

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# Concept

The game is a top-down, 3D space shooter similar in feel to such arcade games as Galaga. The player will assume control of the ship, and the goal is to clear all the waves of enemy aliens. Elements of fun include the ability to customize the ship in a shop format where the player can spend money gathered from enemy kills to upgrade their ship. Ship upgrades will come in different forms to allow many different styles of gameplay. The player could upgrade their offense, defense, or exotic abilities.

# Gameplay

## Elements of Fun

* Score is determined by number of enemies killed.
  + Tougher enemies are worth more points and money to spend on upgrades.
* Ship upgrade tech trees allow for many different play styles.
* Dodging enemies’ attacks while hitting as many enemies as possible is the high skill cap, low skill floor mechanic of the game.
* After the player wins the game, they can go into “deep space” mode.
  + Deep space mode is where the player takes their current ship and fights against endless levels of additional enemies to get a higher score.
  + There will not be any upgrade stations between levels, but the enemies will get progressively harder until the player’s lives have been exhausted.
  + This allows for replayability since the more upgraded the ship is by the end of the game, the higher score they can get.

## Perspective

* The game itself is 3D.
* Top-down only view.
* Movement restricted to a plane.
* Top of screen is the facing direction of the player.

## Controls

* Both WASD and arrow keys move the player ship in the plane.
* Spacebar is shoot.
* ESC is the pause menu.
* Shift: Activate Super

## Combat

* Unlike Galaga, the player ship will have health. This means the ship can be hit multiple times before dying.
* Stronger enemies will deal more damage and have more health.
* Holding down the fire key will shoot slowly, but automatically.
* The fire key will shoot as quickly as the player can press it if they’re not holding it down.
* Each enemy kill will charge the player’s super slightly.

## Enemies

* Enemies will be aliens. This means creepy-looking creatures, not ships.
  + Concept art TBD
* All enemy movement, attacks, and behaviors will be “scripted.”
  + Scripted, in this sense, means that it is entirely repeatable.
  + E.G. Every single shot from every enemy will be in the exact same place at a given time in the level.
  + E.G. If there is an opening in the shots that the ship can slip through, that opening will be present in every playthrough of the level.
* Enemies will fire their weapons in predictable patterns that will vary between enemy types.
  + Modes of firing:
    - Spirals of shots.
    - Circles of shots (all shots start from enemy and move radially outward).
    - No shots; the enemies are just there for the player to dodge.
    - Charge shots only in up/down direction.
      * Big AOE and damage, but has visual and audio indicators for when about to fire.
  + All modes of firing can be tweaked to get other desired effects.
    - E.G. A very slow-turning spiral looks like the enemy is looking at player and firing.
* Enemy movement is also predictable in patterns that vary between enemy types.
  + Patterns include (assume enemies can be firing at any point during these patterns):
    - Fly in and fly out without stopping.
      * Both curved and straight paths should be allowed.
    - Fly in, stop, then fly out.
    - Moving in a circle pattern.
    - Figure eight pattern.
    - Bouncing back and forth (side-to-side motion).
      * Both sinusoidal and “bouncing off invisible walls.”
  + Patterns can and should be superimposed on each other to create complicated movement.
    - E.G. simply having enemies move in a circle is not enough. They should move in a circle pattern, but that circle pattern should also move across the screen.
  + Movement specific to the types of enemies should be up to the level designers to implement and balance.
* Bosses
  + Each boss will have unique behavior that is custom scripted.
    - The behaviors will have exposed tweakable parameters that allow designers to balance the gameplay while not having to know any code.
  + Individual boss mechanics TBD

## Ship Upgrades

* Between each level there will be a chance to spend money on upgrading the player ship.
* There will be different “tech trees” that the player can upgrade.
  + Defense
  + Offense
  + Exotic
* Each step in the tech tree gives progressively better stats according to the theme of the tree.
* Each upgrade will visually upgrade the ship model.
  + I.E. spread-fire weapons give additional cannon models off to the sides of the ship model.

### Defense

* Armor
  + Player can choose to add additional armor to their ship (effectively increasing their total health, but I’m not going to call it ‘health’ since that’s lazy).
  + Each tier will cost more than the previous thus making it difficult to max out health without a significant investment.
* Shields
  + Shields recharge over time, but they don’t provide nearly as much protection as increasing armor.
  + Tiers alternate between faster recharge times and more shields.

### Offense

* Spread-fire lasers
  + Each tier adds another set of lasers that fire from the sides.
  + This allows the player to not necessarily be lined up with their targets to shoot them.
* Primary lasers
  + Each tier makes the forward-facing lasers more powerful.
  + Bigger colliders make the lasers also feel more powerful.

### Exotic

* Time Slow
  + When activated, all enemy entities (shots, positions, etc.) will slow down dramatically.
  + Tiers alternate between slowing for longer and decreasing the speed more.
* Invincibility
  + When activated, the player “phases rapidly in and out of existence” (becomes invincible) for a short time.
  + First tier slows down player’s movement.
  + Tiers will give invincibility for longer and/or restore the movement speed back to original.
* Mind Control
  + All enemies on the screen (bosses excepted) become your allies, where a simple AI takes over and they shoot at the enemies until they die.
  + Different tiers will give better AI (going from staying in one place to dodging enemy attacks, etc.).

# Story

Aliens have invaded Earth, and it is up to the hero to stop them. Using a highly advanced and experimental ship, the hero will fight their way through the waves of aliens to reach their home planet. There, the hero will destroy their queen, thus shattering the hive mind and saving the world. Along the way, there are human outposts where the ship will refuel and repair. At these outposts, the ship can be outfitted with advanced weaponry and upgrades to aid the hero on their journey.

# Audio

## Music

* Futuristic, upbeat, spacy music will be the general background music for each level.
* More dramatic music for bosses/mini-bosses.
* Upgrade UI and main menu music will be much less prominent, and it will be more militaristic than spacy.
  + Kind of like the music you’d hear at a military ceremony.
* No music in pause menu.
* Triumphant music for when player beats the game.

## SFX

* Each weapon type (player and enemy) needs its own SFX.
  + Laser should sound like, well, lasers.
  + Missiles should have an explosion SFX.
* Enemy charging weapons need charging SFX.
* Beeping SFX for when player’s health is low.
* SFX for enemies dying. A sort of squishy sound you’d hear when squashing a bug.
  + TBD: whether each enemy will have a unique dying SFX
* A damage sound for when the player ship gets hit. Sounds like crunching metal.
* Super attack needs SFX
  + TBD: Sounds must fit the feel of each super, but that means each super must be well-fleshed-out.
* Menu SFX for clicking on items and mouse hover.
  + A kind of “tick” feedback to the user when they mouse over an item.
  + “Cool technological tone” for when user clicks on menu item (can be anything really).
  + Menu items include main menu, pause menu, and ship upgrades menu

# UI