[Github](https://github.com/PlayitLOUD73/skies-of-wrath)

**# Game Design**

**## Type of Game**

**### Overview**

The game will be a vertically scrolling shooter. The player will control a ship that will fly over a scrolling background fighting different enemies.

The background will be an ocean, static enemies will appear in the form of boats occasionally.

**### Gimmick**

\* Power distribution system to manage strength of shields, movement, and weapon power.

\* If the player increases the strength of the shield, he will have to decrease something else

\* This can be done on the fly

\* Only a finite amount of power can be distributed to the systems

**### Other Features**

\* Primary and secondary weapon with cool downs

\* Shields

\* Score system and high score

\* Enemy AI

\* Pre planned routes/ formations

\* dynamic spawning of formations

\* Different kinds of enemies

\* Ground enemies (boats)

\* Scrolling background

**# Development Design**

**## Architecture**

**### Controller Module**

\* takes input from pc

\* hands it off to the game state

**### Game State Module**

\* Acts as the games model.

\* takes information from other modules

\* modifies the game state and feeds information back ot modules that need it

**### Collision Module**

\* Handles collisions of projectiles

\* Tells the game state when things collide in an event queue

**### Enemy Module**

\* Controls enemies with pathing routes (manually created routes for ships to fly)

\* Chooses from a set number of enemy composition and route types

**### Player Module**

\* Handles input from controller module and tells the Game State what to do with the player

**### View Module**

\* Displays sprites to the screen based on information provided from the game state module

\* Manages animations

**### Sound Module**

\* Handles the playing of music and sound effects

\* Takes input from the game state of when to play music and sounds.

**## User Interface**

I would like to have input from a game controller, with keyboard as a fallback control method.

**### Controller control scheme (WIP)**

\* Left stick is movement of Player

\* A button is fire primary weapon

\* B button is fire secondary weapon

\* D pad controls distribution of power

\* start pauses the game

**### Keyboard Control Scheme (WIP)**

\* Mouse controls player movement

\* Left Mouse Button is fire primary weapon

\* Right Mouse Button is fire secondary weapon

\* WASD controls distribution of power

\* ESC pauses the game

**## Technical Challenges**

1. Enemy AI

\* I think the enemy AI and routes could be difficult to get working in a consistent and dynamic way.

\* I will try to make this part as modular as possible to make building and spawning the enemy

formations easier

2. Creating a proper game state

\* Creating enough classes, objects, and variables to manage the game state in way that is not cumbersome will be difficult.

\* I will try to make this part easier by planning out everything each module will need and what the game state needs to directly track.

3. Collisions

\* Given the amount of projectiles that could be on the screen at any given time, having a good collision system could become difficult to polish.

\* I will keep the collision system as functional as possible to make it easy to add hitboxes to different enemies and projectiles.

**# Changes**

**## Changing controls**

I am considering changing controls to keyboard and space. I think this will be a more fun version of

control.

**## Timeline has been updated**

**## Changing Gimmick**

I might change the gimmick from the power system (I cannot think of an implmentation that would be

fun) to a procedurally generated island system to have ground combatants.

I think the gimmick will be unique enemy types and random parameters to make the game feel different enough.

**# Challenges Faced**

Creating enemy AI is difficult, and I will be keeping it simple since the game is fun with the simple AI.

**# Timeline**

**## Milestone 1 March 30**

1. **\*\*DONE\*\*** Sprites for player, enemies, projectiles

\* These sprites will serve as the backbone of the game graphics, more graphics will be created,

but these are necessary first

2. **\*\*DONE\*\*** Game State Module

\* The game state should be in a working state, with stub functions for adding future features

3. **\*\*DONE\*\*** Control Module

\* The control module should take pc input and hand that to the Game state in an event queue

4. **\*\*DONE\*\*** View Module (sprite displays, not animations)

\* The view module should be able to render a list of sprites to the screen

5. **\*\*DONE\*\*** Player movement and shooting

\* The player should be able to move around on screen and shoot projectiles

\* This will most likely not be polished, but it should work

6. **\*\*DONE\*\*** Collision Module

\* Create the module to handle collision checking

7. **\*\*DONE\*\*** Scrolling background

\* Create a background to scroll through

8. **\*\*DONE\*\*** Enemy AI

\* create rudimentary spawner for enemies

9. **\*\*DONE\*\*** Create first playable prototype

\* Enemies can be killed and the player can be killed

**## Milestone 3 April 18**

1. **\*\*DONE\*\*** Menu System

\* Have a proper game over screen, pause screen, and restart game

\* Game can be played as is

2. **\*\*DONE\*\*** Scoring

\* Have a score tracker that changes when enemies are killed

3. **\*\*DONE\*\*** UI

\* Include score and player health

3. **\*\*WONT DO\*\*** Advanced Enemy AI

\* add pathing and dynamic ai decisions

4. **\*\*WIP\*\*** Add enemy types

5. **\*\*WONT DO\*\*** Create land bases (islands?)

\* These can be randomly added and have enemies to kill

**## Final Submission April 26**

1. **\*\*WONT DO\*\*** Power system

\* Create the power system to modify specs of shields, weapons, and movement speed

\* Always a tradeoff

2. Music/ Sound Effects

\* Create (or find public domain) music and sound effects and create the requisite module to add them to the game

3. Work on polishing mechanics and fixing bugs