APHELION DEFENSE

— TEAM 1 —

Aidan Campbell, Brandon Diaz, Changyuan Lin, Daniel Zhan, Eshaan Kaul,
Haotian Ma, Jinmo Huang, Lirong Yao, Paul Sachs, Zhaojiahong Zhu

TABLE

High Thematic Statement

Chapter 1: Mood

Chapter 2: Sound

Chapter 3: Photos

Chapter 4: Art Style (Perspective)

Chapter 5: Art Style (Color Scheme)

Chapter 6: Art Style (Lines)

Chapter 7: Art Style (Animation Style)

Chapter 8: Concept Art (including User Interface)

Chapter 10: File Formats

HIGH THEMATIC STATEMENT

Aphelion Defense is a real-time strategy game set in the vast expanse of space. With a focus on thrilling and engaging strategic battles, our game immerses players in a vibrant and futuristic universe. Through the use of cutting-edge technology and advanced tactics, players will feel a sense of vitality and excitement as they navigate the challenges of space warfare. Overall, Aphelion Defense aims to evoke a feeling of awe and wonder at the limitless possibilities of the future, while providing players with a thrilling and immersive gaming experience.

MOOD: SPACE

Our primary mood revolves around immersing ourselves in the vastness of the universe, where they'll navigate the radiance of the sun and travel through the shadows of the stars. We aim to create an immersive, futuristic atmosphere that will leave players feeling like they're truly part of an otherworldly combat.

MOOD: STRAGIC

As players engage in intense battles and make strategic decisions, they will feel like a commander who is coordinating the deployment of their forces. Our goal is to make the gameplay experience full of exciting decisions, ensuring that players are fully engaged and immersed in the action.

MOOD: BATTLE

Players will witness clashes and collisions on planets and battles between troops in real-time, and react to situations as they arise. Our focus is on delivering an action-packed and engaging gameplay experience that captures the excitement and intensity of conflicts, which includes any clashes and collisions on the planets and battles between troops.

SOUND

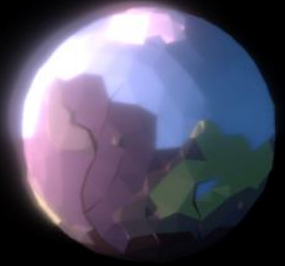
Most of background music of our game will be a combination of orchestra layered with digital synthesizers. Deep Space Travel from Stellaris provides a good example.

No Man's Sky's Hypersleep provides a good example of how to create an outer space ambiance with digital synthesizers.

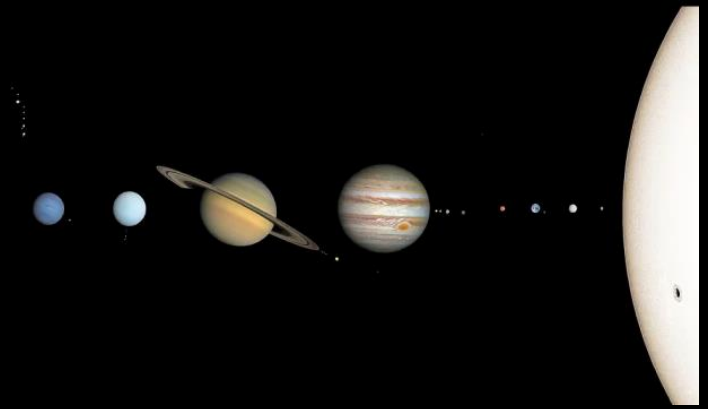
For harder levels, StarCraft Protoss Theme 1 provides an example of how to sonify a mysterious yet powerful opponent.

If the orchestra feels too heavy for a light-weight mobile RTS game, we also plan to combine flute and synthesizer, as in Angry Bird Star Wars' Jedi Theme.

PHOTO: PLANETS



When designing a planet, we want to find a balance between a realistic and an over-fictional look. Inspired by the transition from realistic to low-poly art, we plan to incorporate pixelated polygons on the planet's surface to avoid focusing solely on the simulation of planets.



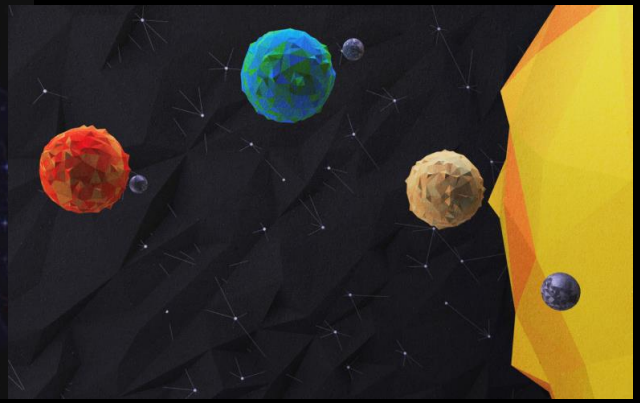
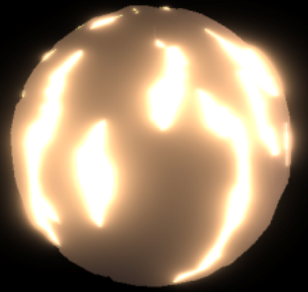


PHOTO: LIGHT/SHADOW



As the planet orbits, it will experience varying levels of light and shadow based on its relative position to the sun. To avoid an excessively realistic appearance and introduce visual interest, we include reflections on the darker side of the planet's surface. Our objective is to create a glossy, glass-like texture that imparts an illuminated and radiant quality to the planet's overall design.

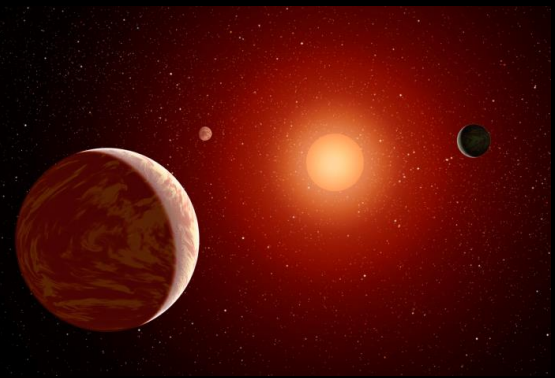


PHOTO: SPACE

To better highlight the brightness of planets, the dominant color scheme of the space's scene graph should be dark, with a gradient of dark blue, dark green, and dark purple. Additionally, the background should provide immersive feedback as the game progresses. For example, in the design of several maps, planets closer to the sun will be brighter, hinting to players that these planets collect sunlight more quickly.

PERSPECTIVE

We chose a top-down perspective for its clear view of the battlefield, which is crucial for resource management and coordination. This perspective also elevates the strategic gameplay experience and gives players a sense of greater control. The clean aesthetic of the top-down view complements a sci-fi theme with sleek designs, fitting well with the universe map design.

COLOR SCHEME

The background color scheme will primarily consist of dark shades of blue, green, and purple, and with hues of a warmer tune including red and yellow.

#090C40 #83413B #98854D #297365 #174038

#262341 #3290A6

Primary Black

Primary White

Player Green

UI Blue

Player Blue

Player Red

Player Yellow

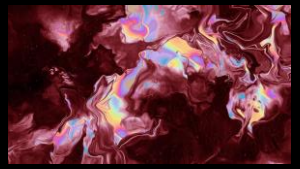
The interface and assets will feature primarily bright, vivid, and high-saturation primary colors with strong contrasts. This will ensure that the information is eye-catching and easy to discern on a dark background.

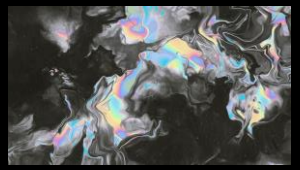
LINES

In order to streamline the production and modification of assets and animations, we utilize a 2D asset creation method from a 3D render in Unity.

The image of the planet should not include any outlines, and instead be presented using a combination of light and dark shading gradients on the low-poly assets, creating a luminous effect. The planet rings for different levels of asset design should be bright, distinguishable, and highly visible. For the rendering process, color for rim, lightning and texture should be cohesive with ownership (enemy: #f96d6d, player: #7FA5FF, neutral: #CDCDCD), and the shader texture should use variants of give example.

The overall texture should be translucent, highlighting the planet's radiance and giving it a sense of depth and dimensionality.





Shader texture

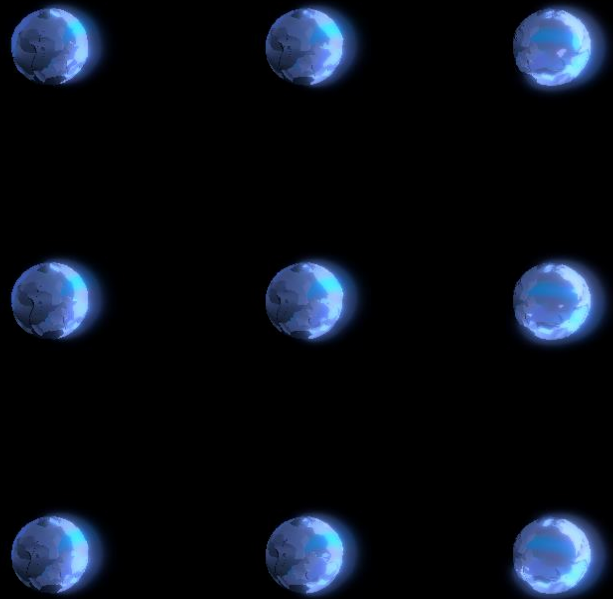
LINES

To create the game's background, we use a brush (Spectra) that mimics a watercolor material to add color, along with a smudge brush (Stucco) to vignette large areas around the edges. Additionally, high stiffness brushes or vector circles with layer blur or drop-down shadows should be used to indicate light spots and create a more dynamic and immersive visual experience.

ANIMATION

Planets will have animated lighting effects and rotation effects while they are orbiting the sun. The texture of the planets are designed to be consistent with its position in orbit, so that the planets won't look static.

There will be animations for units entering and orbiting planets, as shown in the concept sprite sheet on the right. Units are designed as particle systems with self-illuminating effects.

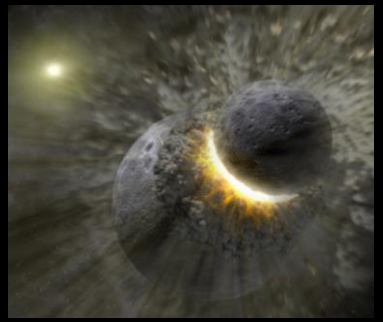


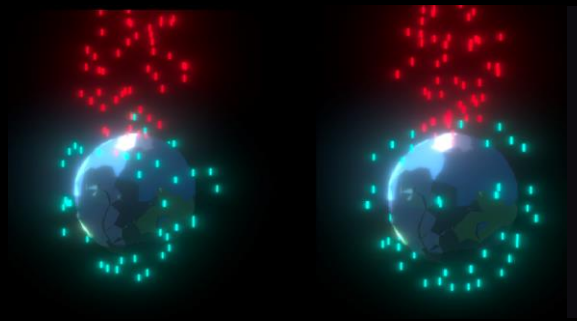
ANIMATION

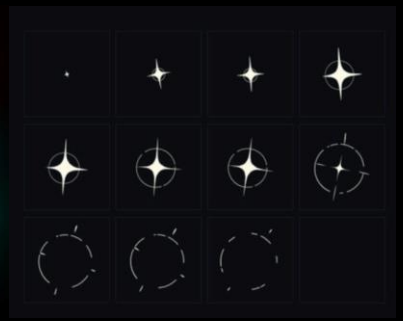
We envision that interactions for moon flinging will resemble physical orbits and collisions similar to those in Angry Birds.

In a later phase of development, we plan to add collision effects for units once the explosion animation has subsided like in the reference provided. This is intended to emphasize the feeling of combat and increase the overall immersion factor of the game.

There will be animations for units entering and orbiting planets, as shown in the concept sprite sheet on the right.



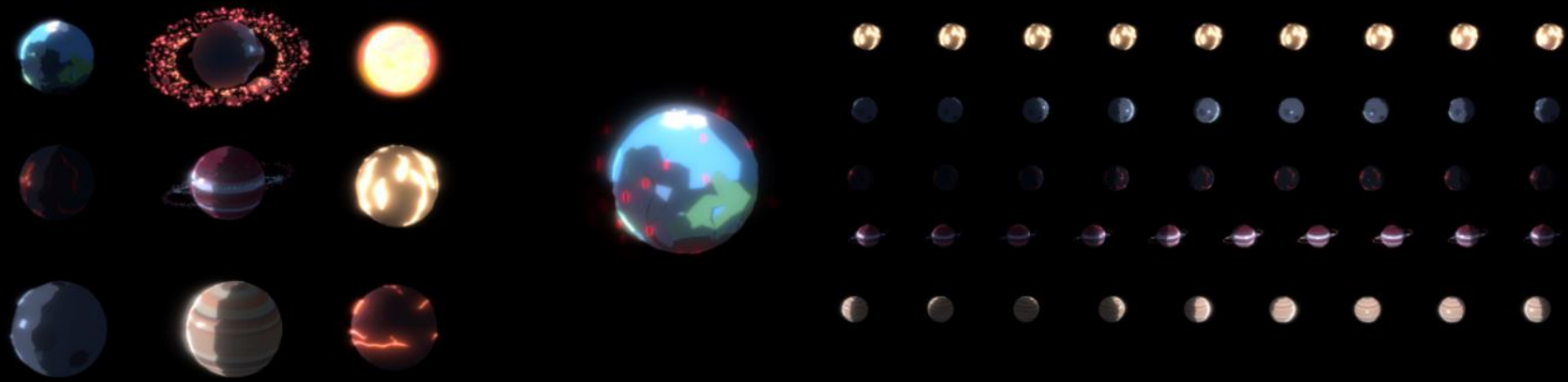




BACKGROUND

The concept design is set in a vast universe filled with low-poly style planets, each with its own unique surface characteristics. The planets are the battlegrounds for a massive space war between different factions fighting for control of the universe.

In this design, shadow and light effects are used to create a sense of depth and atmosphere in the universe. The contrast between the dark shadows and bright light sources create a visually stunning setting for the battle to unfold.



PLANETS

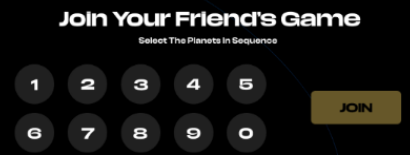
As part of the conceptual design for planets in the game, the player's planet is intended to resemble Earth and is represented by a welcoming blue color, while enemies will be marked by a more threatening red color. Neutral areas will be depicted using a unsaturated gray until one team fully occupies it. Planets of the same level will utilize identical assets, but with varying colors to differentiate them. Additionally, we are exploring the option of having planets of different classes with unique planet rings like those in the top left.

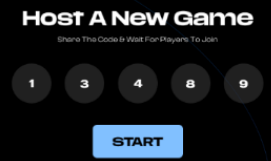
UI STYLE

The UI design should have a futuristic, abstract style with rectangular frames and rounded corners to maintain the ease of use found in mobile games. A dark theme will be implemented to enhance the overall look.

JOIN GAME

In the specific case of the join screens design, we have decided to incorporate a blend of blue and yellow theme colors. The primary objective behind this choice is to establish visual coherence throughout the UI components, while also emphasizing the distinction between the guest and host.

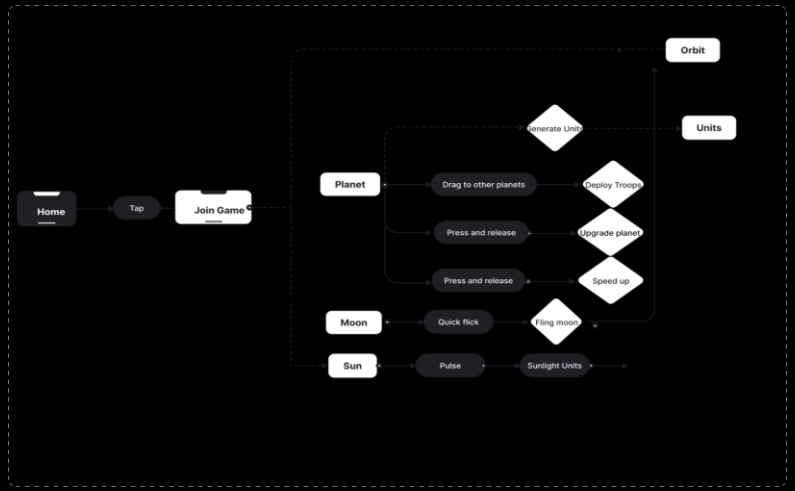




IN GAME

We have created the user flow and designed a wheel menu for deployment, upgrading, acceleration, and moon usage to better achieve the goal of utilizing gestures as the primary scheme of interaction.

At this moment the player should be able to have information about the planet levels, sunlight resource and the capturing process of the map.



FORMATS - NAMING

All assets

All assets should be stored into appropriate hierarchical folders within the 4152sp2023_03 -> Art Assets folder in higher resolution. When ready for the game, they will be placed into a folder called “assets” and sorted into subfolders depending on category: “sounds,” ”planets,” “units,” “backgrounds,” and “UI.”

Art assets

To meet the requirement, all images with the naming convention of <category_name><subcategory><index>_v<version>.png must be static and feature a transparent background. The name of the sprite sheet should be <name_cols_row>.png.

UI Assets

UI assets should be named based on their type (button, title, menu). The naming format should be <category_name>_<subcategory>_<index>_v<version>.png

FORMATS - ASSETS

Image assets

All static images will be provided to the programmers from the designers in PNG format with a RGB color mode. Size will be dependent on the specific asset; however, as a general rule, both the height and the width will be below 512px x 512px. For environment assets, they will be designed at a high resolution and saved in their respective folders for potential resizing needs, but will always be at least 512x512 pixels. If a different size is required, a copy of the asset will be created, resized, and named accordingly.

Sprite sheet

For the orbiting planets assets, the sprite sheet should be in a list format, 256x256 pixels for an individual image. Each individual planet should be centered within its own cell on the sprite sheet, with some empty space between each cell to avoid bleeding. The planets should be drawn in Unity and saved as PNG with transparent backgrounds. The animation frames for each planet's orbit should be saved as separate layers or images, with each frame showing the planet in a slightly different position around its orbit. The number of frames per orbit can be determined based on the desired speed of the planet's movement. Additionally, a separate file should be included that lists the names and positions of each planet on the sprite sheet, along with any relevant animation information.

FORMATS - ASSETS

UI Assets

The specified font for the project is Clash Display - Bold, with the title size set at 48px and the button/icon size at 24px, while all UI assets must have a minimum resolution of 512x512 pixels and can be adjusted in size as needed.

Sound assets

We will use the Vorbis audio format with the .ogg file format. We will create different soundtracks, but only one audio track is used per game. Therefore, we will loop this specific audio track for the whole game. All sound effects and background music are normalized to -10dB. During mobile game play testing, we will make additional volume adjustments for each sound according to testing feedback.