



# Game Design Document

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# Preliminary Design

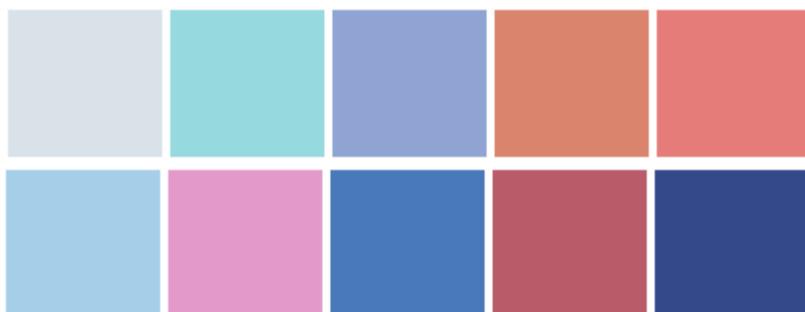
## Team Norms and Workflow

Static meetings occur on Saturday of each week at 4pm with supplemental meetings as needed during each week. The art files will be delivered on Friday at 6pm of each week to be implemented into each week's build of the game. Code will be implemented for each build by 11:59pm on Sunday night. Builds will be created each week by 6pm for the following class session.

## Art Conventions

The art team will use Adobe Photoshop and Adobe Illustrator for concept art. Three-dimensional art will be done with a combination of Autodesk Maya and Autodesk Mudbox. Models will be exported from Maya to be imported and painted inside of Mudbox before being implemented into the project. A link to a mood board with references for concept art and color palettes is located at the link below.

<http://pin.it/DwuMy50>



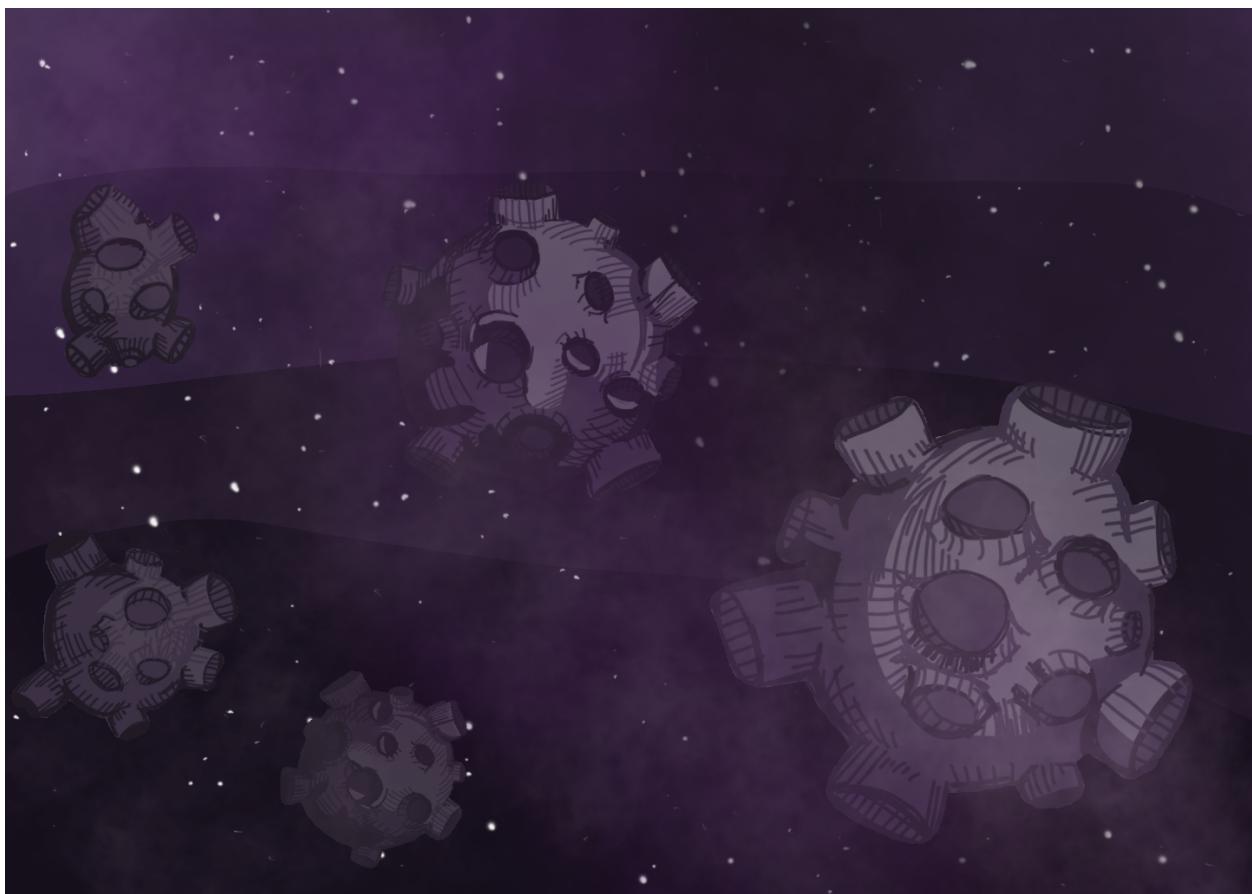
The overall aesthetic of the game will be faceted, low poly, with minimal detail in the textures imitating a geometric art style.

## Programming Conventions

Variables are specified as public, private, or protected explicitly and curly brackets are organized inline. Camel Case is the naming convention used within scripts for the project. MonoDevelop and Unity 5.5.0f3 are the toolkits used for the development and implementation of the code. Files are organized under a master scripts folder and separated further into folders that correspond to a specific coding case. (i.e. Enemies, Power Ups)

# Game Goals

Galactic Grapple is a time-based adventure game in which the player must successfully navigate through an asteroid field and reach the main space ship. The game promotes communication through cooperative navigation features. Each player must successfully communicate with their copilot to grapple smoothly and effectively through the world. Galactic Grapple also has elements of resource management such as crystals that must be collected that encourage players to speak up when they see a profitable space rock.



# **Story Overview**

## **Summary**

A mining ship has crashed and become stranded. The only thing left working are the ship's grappling arms and jump thrusters. The pilots must coordinate their efforts to navigate their damaged ship through the asteroid field while mining the crystals needed to power and fix their ship. Avoiding floating rocks and other obstacles will require all their tools and cooperation. They must grapple away to survive another day.

## **Locations**

The story of the game unfolds above the surface of a planet in an asteroid field that must be navigated through as well as successfully mined.



## The Goal

The players are on a timer and their oxygen has been depleting from the moment they started the game. At this point the players should have explored the environment and now must seek out a sufficient oxygen source to sustain them. The players must get to the main ship before their oxygen runs out!

## Game Controls

### Gamepad (XBOX)

#### Player 1

- Right Analog Stick - Controls the reticle movement and the players ability to aim
- D-pad - Controls the thrusters and the ability to give the ship a movement boost
- Right Bumper - Controls the ability to grapple to objects in the environment
- Start Button - Restarts the game

#### Player 2

- Right Analog Stick - Controls the reticle movement and the players ability to aim
- D-pad - Controls the thrusters and the ability to give the ship a movement boost
- Right Bumper - Controls the ability to grapple to objects in the environment
- Start Button - Restarts the game

### Keyboard

#### Player 1

- WASD - Controls the reticle movement and the players ability to aim
- Arrow Keys - Controls the thrusters and the ability to give the ship a movement boost
- F - Controls the ability to grapple to objects in the environment
- Backspace - Restarts the game

#### Player 2

- IJKL - Controls the reticle movement and the players ability to aim
- Arrows Keys - Controls the thrusters and the ability to give the ship a movement boost
- H - Controls the ability to grapple to objects in the environment
- Backspace - Restarts the game

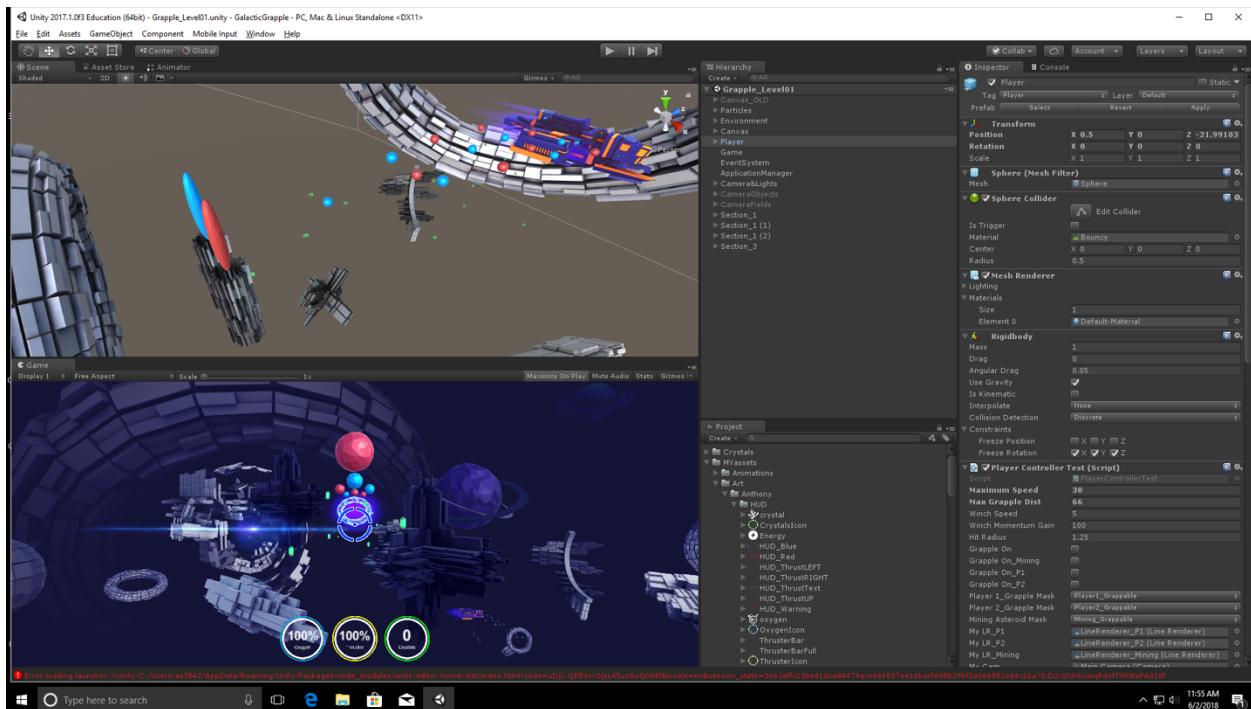
# Technological Requirements

# Programming

The game uses the Unity Engine and its physics to create the effect of swinging through an asteroid field. The programming is done using the MonoDevelop tool and the scripts are implemented in Unity.

# Design

The models for the game are concepted in Adobe Photoshop and then converted into 3D models in Autodesk Maya. The objects are transferred into Unity where they are incorporated into the design of the level.



## Front End

Upon running the game, the player will be met with the development software screen and the developer logo.



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# Title Screen



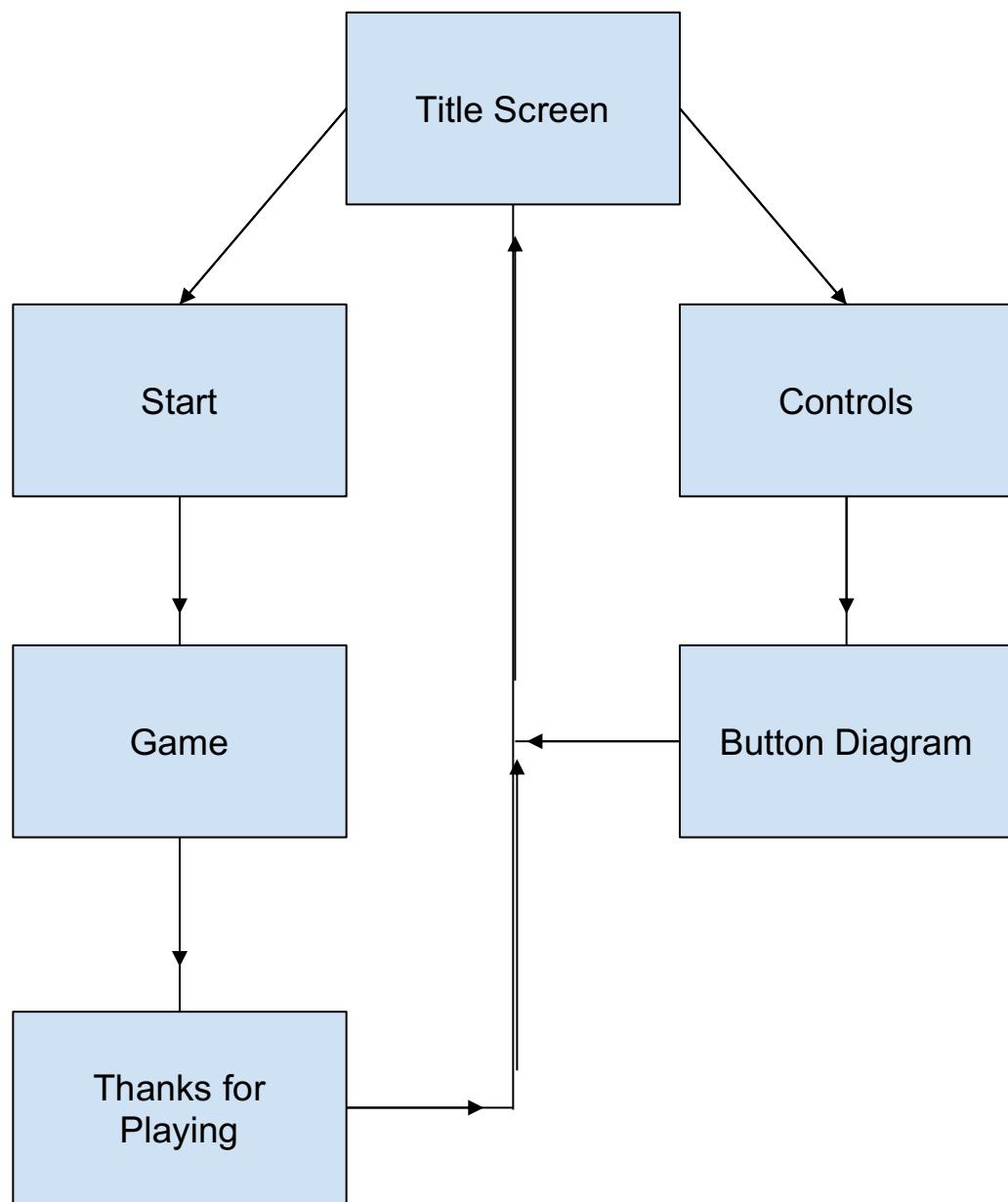
## Appearance

The title of the game appears on screen and the music plays while the player selects an option. The selection can be controlled with the arrow keys on keyboard or the analog stick on the controller.

## Options

The player has four options while on the start screen. They can proceed to play the game, select the mission to play, select controls option which will give the players a diagram of what functions are mapped to what buttons on the game pad or select quit button to exit game.

# Game Flowchart



# Game Camera

The game camera of Galactic Grapple is a first-person camera shared by both players of the game. The players have limited control over the range they can view as the camera is locked to the movement of the ship in order to provide the most immersive motion experience possible.



For educational use only

# HUD System



## **Oxygen Display**

The blue oxygen display represents the percentage of oxygen the players have. The motion ride platform comes with a built-in timer and the game incorporates this time constraint as the player's level of oxygen which lets them know when the journey is nearing its end.

## **Thruster Display**

The yellow thruster display represents the percentage of thruster energy the ship has. When thruster percentage is at 100%, the players are allowed to thrust boost. When thrusters are used, the percentage depletes to 0% and raises within time to 100%.

## **Crystals Display**

The green crystal count display represents the amount of crystals the players have mined.

## **Thruster Indicator**

The white blinking arrows represents thruster indicators to specify to the players which direction to thrust boost.

## **Warning Indicator**

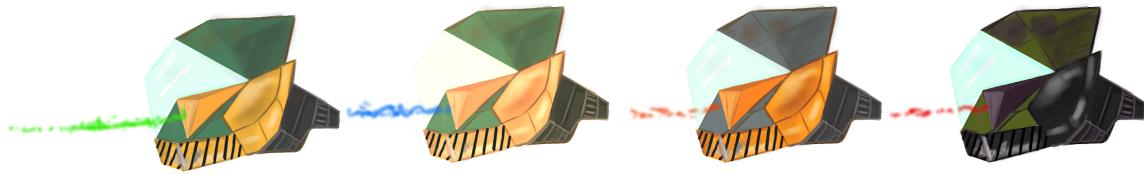
When the players fall out of space or hit a death object, the red warning indicator appears and blinks to notify the players that you died.

## **Targeting Reticule**

The targeting reticule is the player's method for aiming at asteroids and successfully grappling. Each player has a reticule that they can control independently and they are indicated by the varied colors they appear as.

# Player Character

Helmet Ship w/ JumpJet



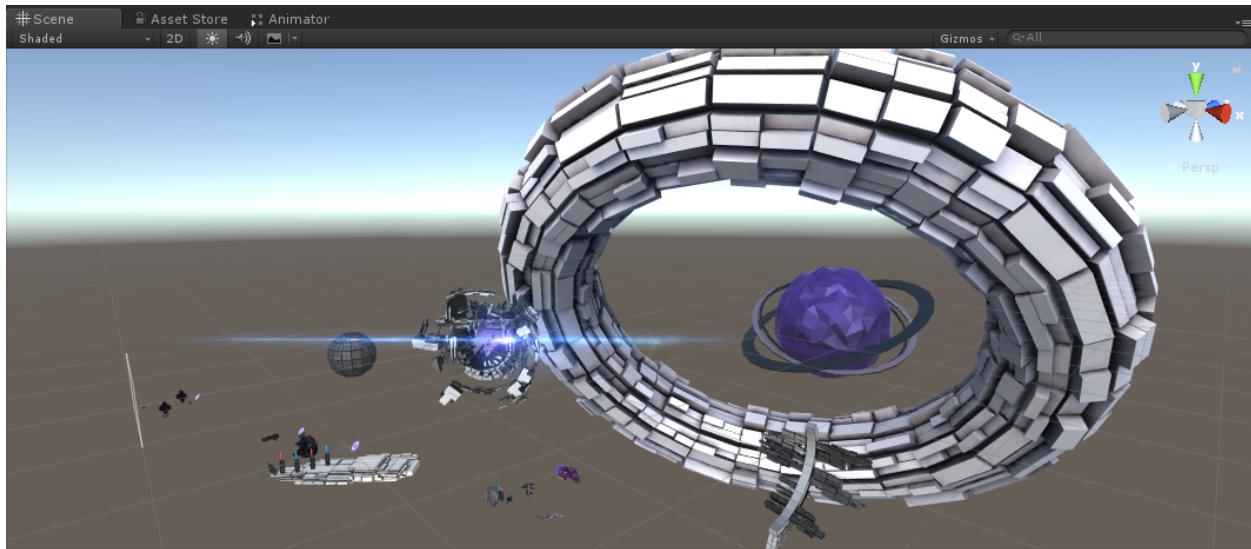
- Particle beam

The adventure begins when the player's ship crashes onto the surface of an unexplored asteroid cluster. The pilots must now navigate the damaged ship to complete the mining mission and escape the asteroid field safely and without causing more damage to their ship.

# Player Metrics

## Size

The player is small relative to the world that is presented in the game. The world spans a great distance with an asteroid field occupying the atmosphere. The player is small enough to comfortably sit atop an asteroid and grapple away.



## Movement

Movement in the game is done through use of the grapple and the thrusters of the ship. The grapple extends a line to a targeted asteroid that allows the player to swing and use the momentum to clear large gaps of space. On the other hand, the thrusters give the player a short burst of limited movement in a direction which is most often used for course correction or a quick save.

## Reactions

The ship reacts to various aspects of interaction including a successful or failed grapple as well as the collision of the ship with another object. This is done through the implementation of sound effects for each action.

# Game Progression Outline

## Story Game Relationship

The first major beat of the story arrives at the start of the game when the players are introduced to an unfamiliar environment. They are notified that the ship has been damaged but they must continue to complete their mission. The players can do this by collecting the resources around the planet but they must first realize cooperation is key. The next major beat of the experience is the realization that resources are being depleted through use of ship movement. At this stage the team must strive to be more efficient in movement and resource collection. Another beat that changes position based on play is the realization that asteroids move once they are stripped of their crystals.



# Universal Game Mechanics

## Grapple

The grapple is the primary means of traveling large distances. Players launch a small tractor beam from the ship to attach themselves to the environment and swing from one meteor.



## Thrust

Small directional jump jets help the player reposition and gain small bursts of speed. Its primary function is to serve as directional movement as well as a last attempt to make a difficult grapple.

## Mine

Each player has the tools to mine crystals while exploring the world. Players hover their reticles over the crystals to mine them.

# **Game Level**

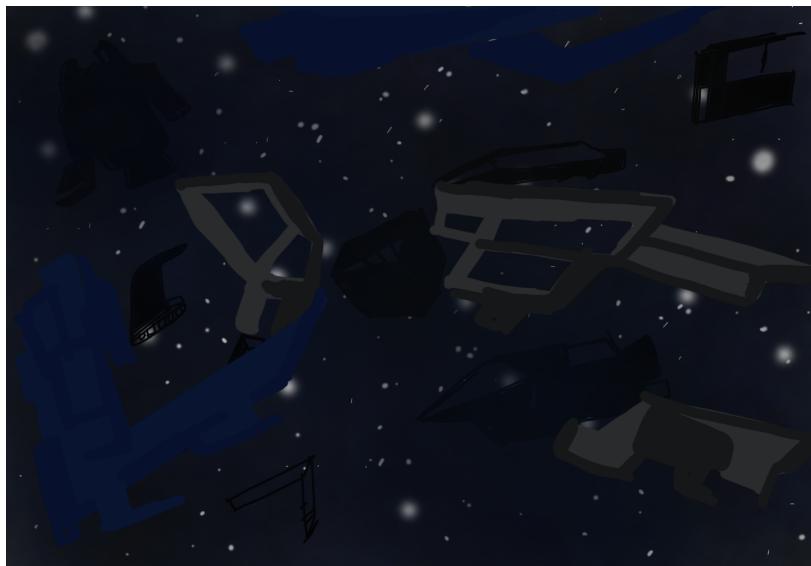
## **Survival**

### **Description**

The game takes place in a singular explorable asteroid field. The ship will start at a base where it has crashed near a few crystal clusters. The ground has very few crystals to collect so the players must take to the sky and grapple around the floating asteroids, some of which are suspended by the energy in their crystals.

### **Gameplay**

Players must cooperate to navigate the ship and gather resources. After the asteroids are depleted they may lose altitude so players must be wary of taking resources from them. Some debris may also obstruct the ship's path so the player must keep that in mind.



## **Collectible Object Sets**

### **Collectibles**

Each collectible can be found in the game level through exploration and mining.

- Free Floating Crystals



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## Music and SFX

### Gameplay SFX

- Background Music
- Grapple SFX
- Warning Beeping SFX
- Thrusters SFX
- Crystal Collect SFX
- Teleport SFX
- Hooray SFX

### UI SFX

- Select SFX
- Menu Music
- Confirm SFX
- Cancel SFX