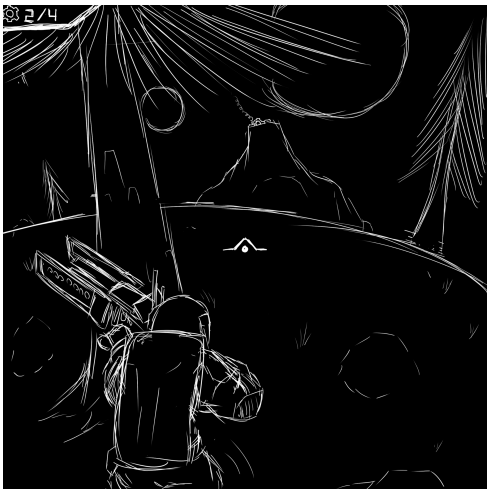
Escape Velocity

Game Design Document

Product Description:

Escape Velocity is a third person platformer game about utilizing your weapon and the planet's low gravity to your advantage as your platform from planet to planet. The goal is to make it to the last planet and advance to the next system of planets.



Overview

Concept

This game is a 3D third person platformer where a scavenger named Sal must find a rare mineral that the company that they work for contracted her to find. Platform to access highpoints on planets while shifting into new gravity fields.

Sal can collect fragments of the mineral leading them to the mineral vein.

Game Feel

Methodical and floaty, challenging but not punishing. The game pace is slow enough for players to make velocity-altering decisions, but high-speeds are restricted to prevent skipping planets. Minimal visual clutter and stylized graphics to prevent players from losing their sense of direction from overstimulation.

Features

The main mechanic will be moving through different gravity fields, and not getting lost in outer space. Use a propulsion device to launch yourself to new planets and reach the end

of the level! Clear simple puzzles to reach high-points on planets to access the ability to leave that planet's atmosphere.

Tools

Management Tools

The team uses a couple of different softwares to develop the game. HackNPlan is used to keep track of the progress of individuals and the progress of the group. The team uses google softwares such as google slides, and google docs to collaborate on the same document. For version control, the team uses a Perforce server. For general communication the team uses a Discord server.

Development Tools

Different development softwares are used to work on this project. Unreal Engine 5.4.4 is the primary game engine used. For art asset development, Maya and ZBrush is used to create custom models and materials.

Polish Phase

The game is tested each time there is an addition to any level, a character has been tweaked, a new mechanic is implemented, a new asset is placed, etc.. The purpose of testing each time anything is changed in the game, is to ensure that if something breaks, it is isolated and can be removed without losing progress. Get as much objective feedback as possible.

Risk Analysis

The game we are making runs the risk of running out of time to polish the feel of gameplay, specifically gravity-shifting. Time must also be allocated into creating interesting puzzles.

Marketing Plan

Our game can be downloaded on itch.io. We'll feature a gameplay video and screenshots of gameplay.

Game World and Narrative

Environment

This game takes place in outer space, the design of each level is made up of planets and that the player will use to progress towards the end of the level. The time-period of the game is set in the future where high-tech tools exist and abandoned buildings are across planets in the solar system.

Locations and Structures

Each Planet has a unique environment, some have remains of past civilizations. Planets are not too large or too small and have a high-point which players can escape the atmosphere from.

Story and Plot

Scavenger Sal has to find a valuable mineral in a solar system. On her search, Sal must use her propulsion device to propel themselves throughout the environment following a breadtrail of the material they are searching for.

Sal works for a scavenging company where she is tasked to find a rare mineral. Mineral fragments can be collected along the way to lead Sal to her destination.

Characters:

Sal: You play as a scavenger named Sal, who must find a mineral wanted by the company she works for.

Art

The game is in a Moebius inspired 3D Nasa Punk art style.

Textures will be 1024x1024, or 2048x2048 depending on the assets.

The assets will be higher poly, with a limit of 60,000 Tris for characters and 100,000 for one level, ~4 planets.

Lighter, desaturated colors to break up the black of space, The color palette of each planet will be unique to the planet. It will have a main base color that covers most of the planet, with complementary colors supporting it.

Characters

Player

She works for Scavengers Co.

She's sent to search for a Mineral located in this Solar System.

She uses a Propulsion device

Alien Life

Alien life is aquatic themed. A Jellyfish can be used as a bouncepad to help platform around the environment.

Environments

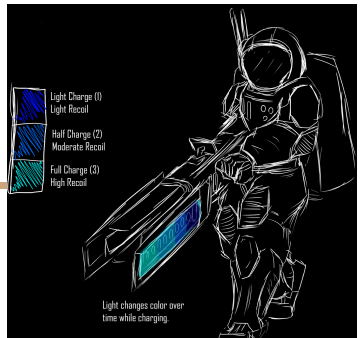
The solar system consists of two environment types, a toxic forest and a crystalline mech planet.

Much of the planets will be covered in foliage and rocks, but will have structures for the player to jump on and platform. Our assets will be higher poly, with simpler, stylistic textures.

Effects (GFX)

The cell shading shader produces an ambient light effect.

User Interface.



An oxygen and charge bar, an aiming reticle, forward and backward velocity markers, an objective marker, and a score counter.

The game also features menus for the main menu, options, game over, completing the game, and a pause menu.

Progression

The goal of the game is to reach the end of the level by platforming off and onto new planets. The player can complete puzzles to leave the atmosphere from the highest point on the planet. If you reach a new planet, the destination marker will move and a respawn checkpoint will return the player that planet on death.

Challenge

Players will have to complete propulsion jumps while managing gravity. There will be different platforming puzzles to solve preventing progress. The player is punished if outside of an atmosphere for too long without replenishing oxygen.

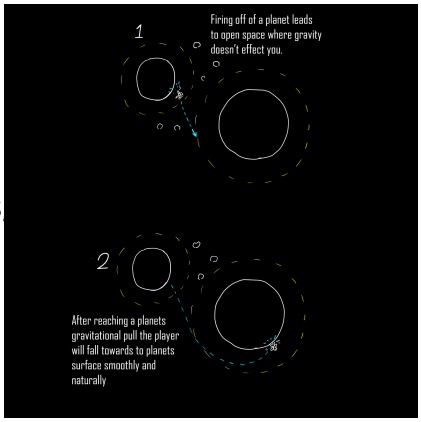
Movement and Actions

The camera moves around with the player and you can move in all directions. The player can use the propulsion cannon to launch themselves in the air, thrust themselves around in zero gravity, propel objects, and the player can also be affected by different gravity fields.

Screens

Main menu, pause menu, options, game over, game end.

The options menu contains gameplay settings, audio settings, and video settings.



Level

Level Flow

There will be platforms and different styles of terrain to keep the game fresh. Each planet is hand-crafted and has optional collectables.

Objectives

Find the mineral that you were sent to receive by the company you work for. Platform onto the highest point of the planet. Progress to the end of the level by escaping the atmosphere of each planet and propel yourself to the next planet.

Obstacles

The main obstacle in the game is gravity, you must platform away from the pull of gravity to progress to the next planet.

Level Design

Optional puzzles to get optional collectables, 5-15 minutes, no mandatory physics puzzles. Checkpoints.

Non-Player Characters

Interface

Controls

Action	Keyboard+Mouse	Gamepad
Movement	W, A, S, D	Left analog stick
Rotation	Mouse	Right analog stick
Aim Propulsion cannon	Mouse-right click	Left Trigger
Fire Propulsion cannon	Mouse-left click	Right Trigger
Pause	Escape	Right Special Button

Visual System

Renderer

Deferred Renderer

Graphical User Interface

Minimal HUD: crosshair, Pro/Retrograde markers, Oxygen meter, and Propulsion Cannon Charge meter. Player Animations.

Audio

Sound Effects

Propulsion Gun Fire

Projectile Explosion

Player Walking

Music

Ambience background music

Menu music