Computer Games Development CW208 Game Design Document Year IV

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Contents

> Concept

>> Tagline

Descend into the depths of alien planets, fight off other miners, and claim the crypto treasures that reside beneath the surface!

>> Details

Windows/Mac/Linux

Target age: 12-up (Mechanical skill required)

Rating: PG (Non-graphic violence)

>> Game Summary

Set in the far future where humanity stretches all across the galaxy, governments have all but vanished in a world dominated by big corporations. The working class live in poverty on barren planets that have been sucked dry of their resources for profit.

In an age of galactic expansion, the mining industry is booming. Many looking for a chance at a better life seek out these mining corporations for a chance at prosperity, but mining is not as it was in the past, with little to no governing oversight, competing mining companies have turned to violence to procure the riches of valuable planets, sending robotic and mechanised miners to battle it out and retrieve the precious resources.

Using varied arsenals of weapons and gadgets procured from the black market, miners fight it out for the rarest minerals to work up through the ranks of their company.

>> Game Outline

Players must fight it out in fast-paced battles while descending deeper into the perilous caves of alien planets to procure valuable materials - but the descent is only half the challenge! Players must return the materials to their ship, for until then, they're at risk of losing it all upon death!

From the safety of the ship, players can sell their mined goods to buy new upgrades, equipment, and weapons - but nothing is permanent, every time the player is killed on the battlefield, they have a chance of losing some of their gear to another player.

>> Unique Selling Points
- Fast-paced online multiplayer combat.
- A unique procedurally generated world in each match.

- Intelligent AI miners to compete with.
- A progression system similar to a rogue-lite, you're never guaranteed to keep your equipment on death!

>> Similar Competitive Products

SteamWorld Dig 2, Duck Game, Awesomenauts.

> Gameplay

>> Overview

Games last approximately 10 - 20 minutes, with a number of games going at any time.

Players can queue up to new games 5 or so minutes in advance to drop immediately once the game starts, or join any time during the duration of the game.

When a player enters a game, they begin in a drop pod which descends onto the planet. Once landed, the drop pod becomes a sort of home base, acts as the player's spawn point, and cannot be moved. The player can enter the pod to return to their ship.

Once the game comes to an end, the core of the planet explodes, killing anyone left on it, meaning players must evacuate by their drop pod before the end of the game.

>> Game Loop
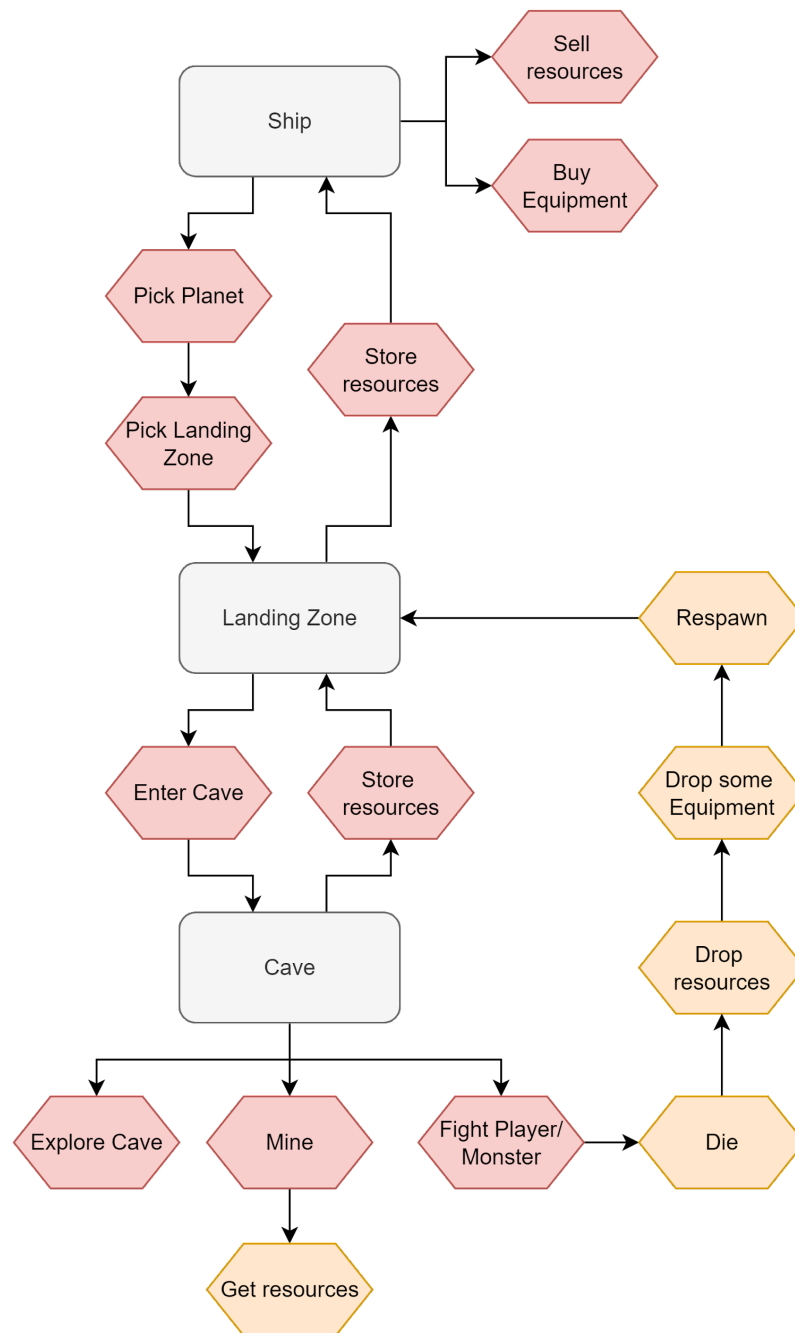
> Mechanics

>> Movement

>> Mining

While exploring caves, the player will find crystal blocks
placed around the place, sometimes surrounded by stone,
sometimes exposed. The blocks will usually come in a 'vein',
that being that it has a couple of blocks connected to it,
forming a string of crystals.

When exposed, crystals will poke out of the ground as a spikey
looking crystal.
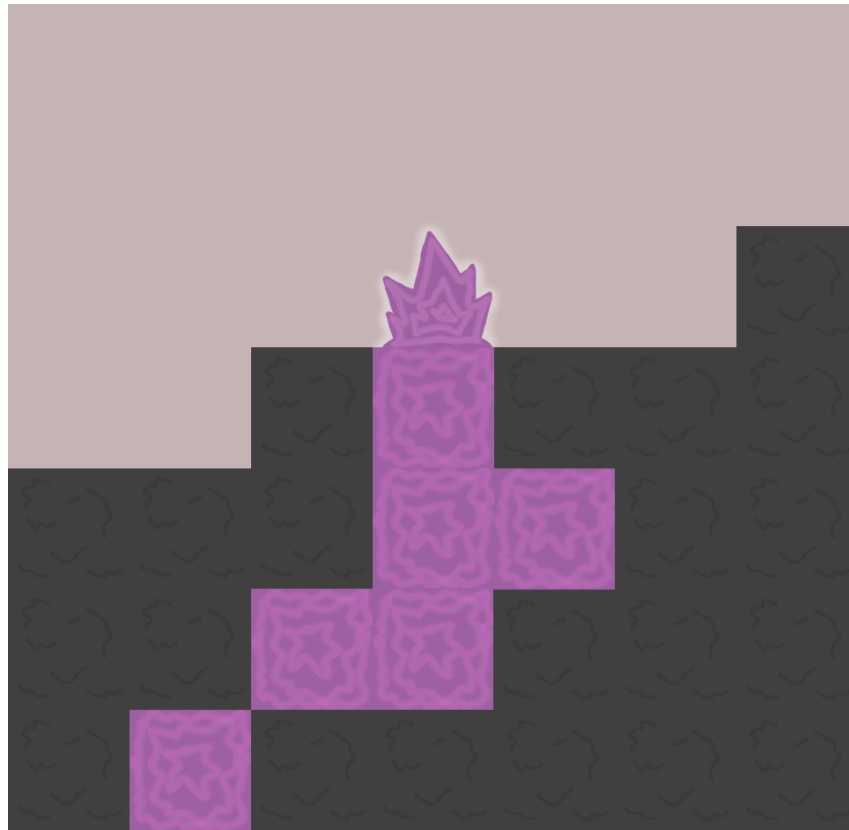
The player can shoot crystals until they break, at which point
they will explode into a bunch of crystal shards which players
can pick up.
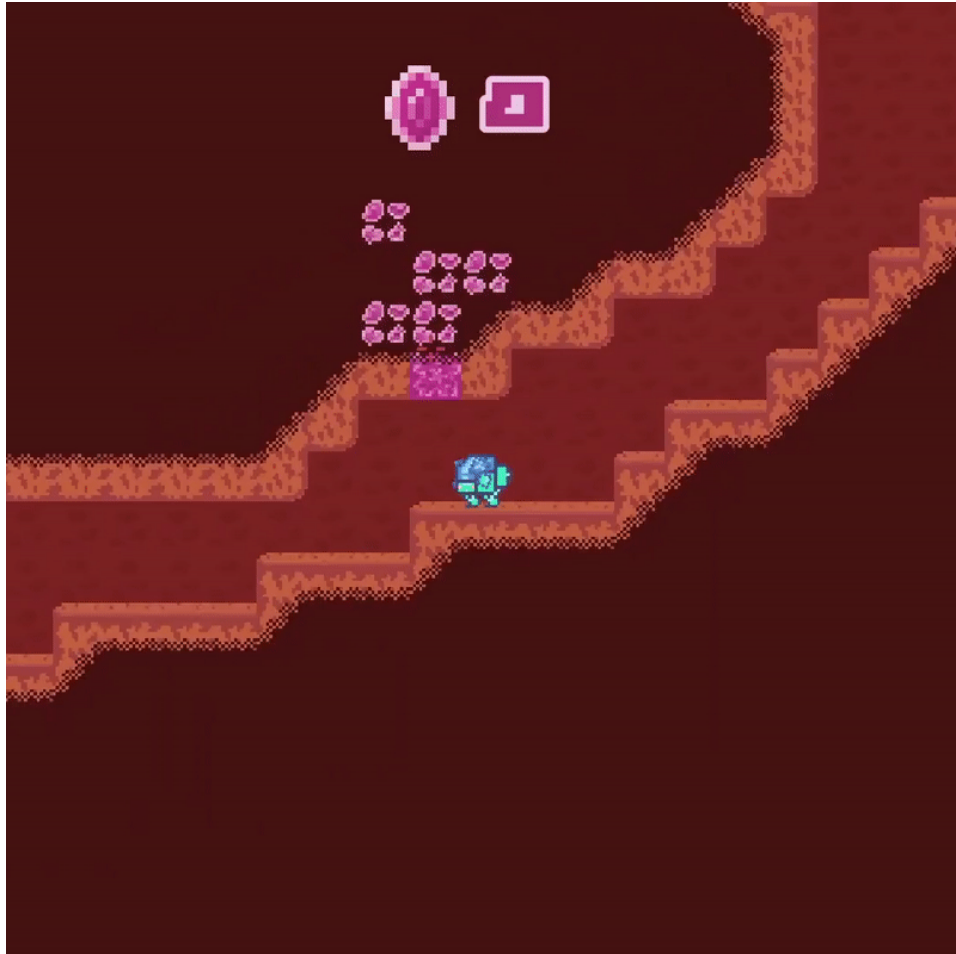
Alternatively, the player can harvest the crystals with a drill instead, which still breaks them and causes them to explode, but also creates additional crystal shards as they're mining it, giving them a greater return of crystals.

Crystals take much longer to mine than a regular block but do not regain health over time like stone blocks. Spiked crystals above the surface appear more cracked when destroyed, without using the usual crack texture overlay of regular blocks.

>> Combat

While mining, the player will have to fight off other players and AI monsters. If the player dies during a battle, they drop all their collected resources and have a chance of dropping some gear (if not using the basic gear).

Combat is rarely two enemies standing and shooting at each other, as the versatile movement set and varied equipment make for dynamic and interesting battles. The cost of losing all collected resources and occasional pieces of equipment makes fleeing the most viable solution in many cases.

>>> Players

Each player, beyond the first few minutes of gameplay, will inevitably have a varied set of equipment, upgrades, and gear. The different types of equipment all aim to aid players in their playstyle, with some players preferring explosives over long-range accuracy weapons, or favouring defence over offence.

>>> AI Enemies

>>> Health, Damage, & Death

After taking damage, if the player leaves immediate danger long enough, their AI assistant drone will begin to repair their mecha suit, healing the player. If the player becomes under fire again, the drone will hide in the suit.

Additional upgrades can be purchased (both permanent and limited use) that allow the drone to heal the player while under fire, or to provide the player with a bubble of safety within which they can safely heal.

Upon dying, the player's AI assistant drone collects the broken mecha pieces in a holographic scanning motion and teleports/flies back to the drop pod to begin resembling the character and the mech.

Respawn takes time but can be fueled (sped up) with crystals. Additional upgrades (permanent and limited use) can be purchased before missions to allow for a backup mech to be generated while the player is using their main one, making the respawn process near-instant, as long as there is enough time between deaths.

>> Resources

To protect the resources (crystals and equipment) they
gathered, players must return to their landing pod at the cave
entrance and deposit the resources there. On volatile planets,
if the player does not leave the planet in their pod before
the planet explodes, even the resources deposited there can be
lost.

Resources can be used, once back at the ship, to purchase new
equipment or upgrades to aid them in future battles. Resources
can also be used during respawn to speed up the process.

> The Game World

>> Overview

>> The Physical World

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                    │  Physical Areas  │
                    └──────────────────┘
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  ┌────────────────┐ ┌────────────┐ ┌──────────────────┐
  │  Player Ship   │ │   Planet   │ │  Hub area/planet?│
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  ┌────────────────┐ ┌────────────────┐
  │ Essentially the│ │ Landing Areas  │
  │  menu, a hub   │ └────────────────┘
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                    │     Caves      │
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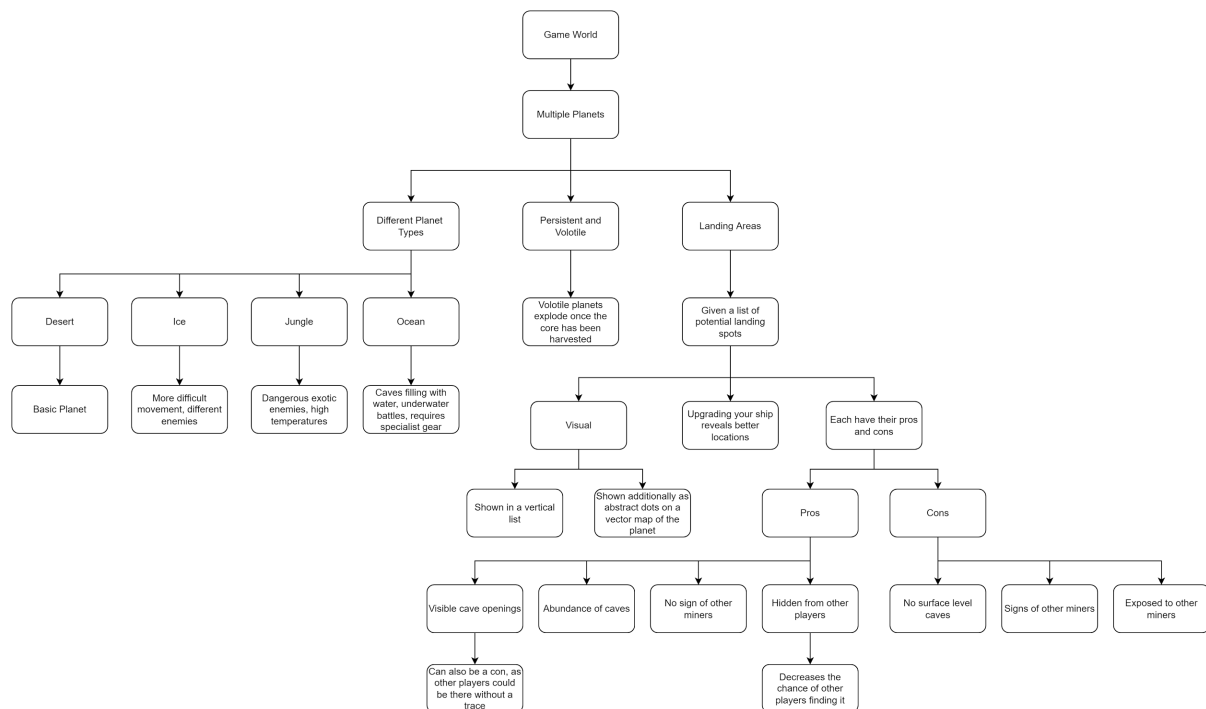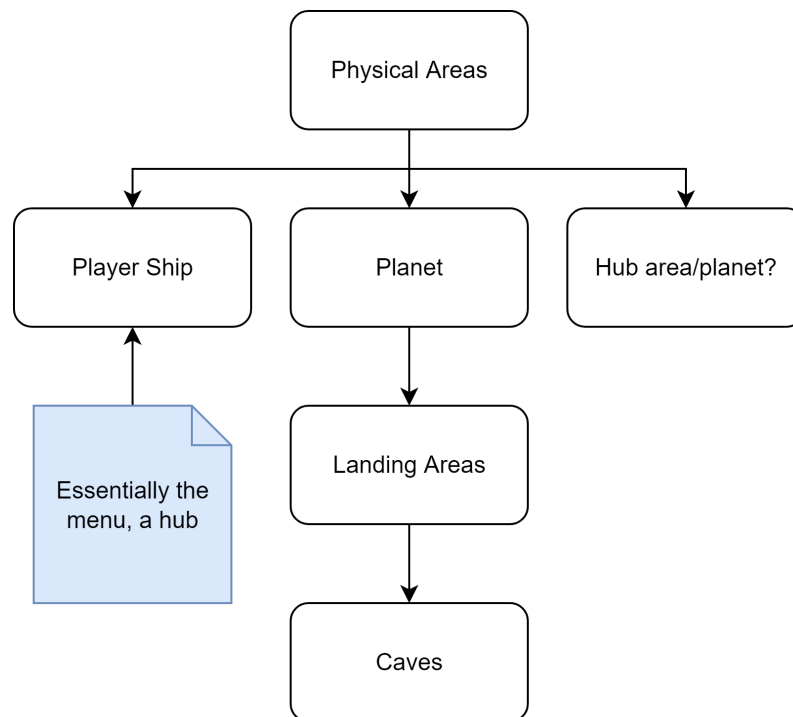
>> Planets

>> Playable Areas

>>> Dropzone

>>> Caves

>> Travel

When on a planet, the player traverses the world in a side
scroller fashion. The player can walk, jump, and fly with a
jetpack to traverse the caves of a world.

Once at the top of a planet, the player can return to their
ship via the landing pod, or return beneath the surface to
gather more materials.

Once on the ship, the player can traverse to different landing
zones on different planets, with each planet having particular
factors that make it stand out from the rest, e.g. icy, full
of monsters, lacking resources, or volatile (meaning it will
explode once the core is mined).

>> Scale

Each tile is approximately one metre in width and height, with the character being roughly the same. Each level is 150 tiles wide and 350 tiles deep.

> Progression

>> Game World

The player starts with access only to a single planet and its variable number of moons. Once the player mines minerals from the planet or moons (non of which are volatile) they can upgrade or buy a ship (and a mech maybe?) to fly to other planets, and then upgrade that ship to fly further to other planets.

>> Equipment and Upgrades

The player can buy NFT upgrades for their character with the game-specific cryptocurrency and trade/sell to other players.

>> Narrative

The player can talk to the AI helper character and form a relationship through choices (out of scope). There could be progression in terms of their reputation in the galaxy.

> Story

>> Overview

The player character begins working for a galactic mining company that treats its employees terribly but offers them a chance at a better life.

The game is set in a world where big corporations rule supreme and governments are essentially a thing of the past. Entire planets are harvested for profit, with little or no regard for the repercussions.

>> Narrative

Start on a barren desert planet. Wanting to get off this dead-end planet, the player approaches a mining company - the planet's main income - to enquire about off-planet work.

The player is allowed to rent out a mecha suit (allowing the player to try out an advanced suit) and goes on a training run to assess their grit and motivation. The run inevitably ends in the player dying, where their character is introduced to the concept of respawning, as the mining company representative explains that death has become a thing of the past - for those that can afford it - thanks to the Soul Orb (name likely to change).

After showing the lengths you'll go to (death) for the company, you're hired and given a basic mecha suit, the loan of a Soul Orb, and a personal AI assistant. You're then given the option of some basic planets to begin your work on.

The player mines resources and keeps a percentage of them, with the rest going to the company. The player can keep all the equipment they found, or sell it for a percentage of its cost, with a tax going to the company.

> Equipment and Upgrades

>> Overview

Players will be able to upgrade their gear and get fancy new gadgets and tools to aim them during a game. Currency earned during the game will allow players to upgrade existing gear they have (list of upgradable gear below) and purchase new gear, or gadgets and tools (list of gadgets and tools below).

>> Upgradable Equipment

Each piece of upgradable equipment has a limited amount of times it can be upgraded, putting a cap on upgrading and forcing players to get new gear to continue to progress.

>>> Guns

Each gun in the game can be upgraded to increase various stats, such as projectile damage, fire speed, accuracy, reload times/cooldown times, etc.

>>> Drills

Drills can be upgraded to increase their mining speed, resource yield, cooldowns, etc.

>>> Armour

The player can upgrade their mech's armour to increase the amount of damage they can take before being destroyed.

>>> Engine

A mech's engine can be upgraded to increase the speed at which the player moves when on the ground.

>>> Jetpack

The jetpack can be upgraded to increase the vertical and horizontal speed, increase the flight time, and reduce the cooldown.

>> Gadgets

Grapple hook, dash boosters, sentry drones, and other non-permanent equipment you don't begin with.

>> Limited Use Equipment

Grenades, health packs, and other limited-use items.

> Inspiration

>> Steam World Dig 2

Steam World Dig 2 is a side scroller tile-based mining game, which could serve as inspiration for the mining mechanics for this project.

This game has both similar mechanics and visuals to Mecha Miners.

Additionally, the game has a tile-based art style similar to the desired look of Mecha Miners, except that this project will go for a pixelated art style. Ideally, this project will have a similar fake 3D look as seen in the image below (where the tops and sides are visible).

>> MotherLoad

Motherload is an old flash game based around descending underground to mine progressively more advanced, and expensive, materials.

Every time the player gets materials they must return them to the station at the top of

the map before their fuel runs out, if they don't make it to the top they don't get the rewards

of their hard work. Once the player returns materials, they can sell them to buy upgrades to go further and survive longer.

This game was a massive inspiration for the core game loop of this project. Mecha Miners borrows the mining, returning to the base, and buying upgrades, while uniquely delivering that content.

>> Aavegotchi

Needs more research.

Look into and compare Matic with Ethereum.

>> Mech NFT

Needs more research.

https://mech.com/

> Design Notes

Additional ideas that could potentially be added to the
design.

Falling Stones. Cobbled stone blocks that fall similar to
gravel in Minecraft. Blocks at rest, they're animated as
individual stones when falling, and as a heap (using
Auto-Tile) when on the ground. Stones cause damage when
landing on players and can burry them if enough fall. When
landing, stones behave similar to sand, in that they'll fall
to the side if there's space beneath and two the side.
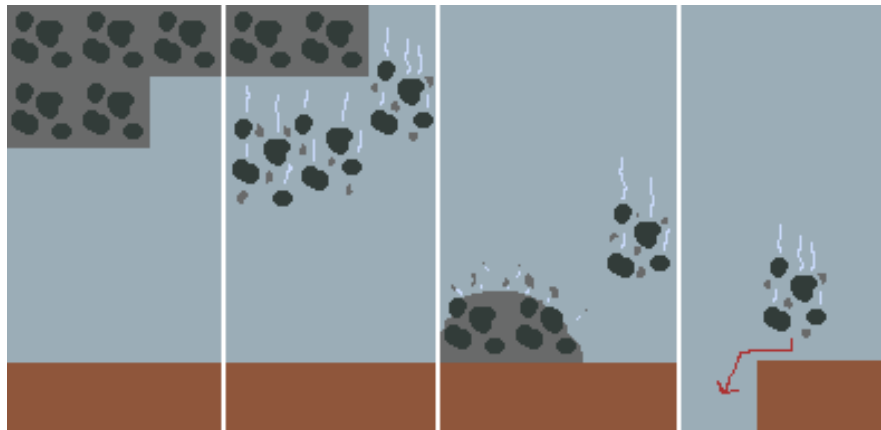
Mech Sizes. The beginning mech will be small, as it is now. As
you progress, you can get new mechs of a larger size. The size
of the mech correlates to strength. Larger mechs allow you to
battle on more dangerous planets but make movement difficult
on basic planets, as well as basic planets having less value
to more advanced players. Ideally, players will see mostly the
same mech sizes, with large mechs being a rare sight, which
players don't even realise is possible. Giant mechs can be
bought to partake in the most dangerous planets, but require a
crypto wallet and pay-in of crypto to partake. The beginning
map has many larger tiles like those in Steam World Dig, with
them showing up more frequently in more advanced levels,
becoming commonplace as the mechs grow in size too.

The game is about cool guns and gear, make them temporary and
shared, players should not gain a *massive* power advantage over

other players, but instead gain more unique ways to fight and mine. As such, the upgrades should be prioritised in the game's development.

Blockchain as a game mechanic - a proof of concept. Also documentation of the integration process with Godot and evaluating its uses - potential or implemented.

The greater the number of players, the greater the speed of breaching a planet, this increase is largely exponential with 3 being the ideal amount. The shaking and damaged structure of the surface makes it easier for other breaches.

Health - regen or health packs? AI helper as a repair bot for regen (hides when being shot at)?

The story is based on mercenaries in a society where material things are everything.

How do you stop players from sitting on tons of money? % fee to land on a planet (A tax)?

Terrible laws (insane tax, no care for health & safety, etc.) could be a narrative explanation for many of the rules and mechanics of the game.

Weapon Creator: Create a weapon creator scene for creating weapons and saving them to a file. It should handle all the dirty work of texture rects and positioning.

Customisable Arm Loadouts: Allow the player to choose from weapons and drills on both arms instead of being restricted to one gun and one drill. The combination of the two allows for greater customisability of play styles.

Take inspiration from:

- Aavegotchi - https://aavegotchi.com/
- The Sandbox - https://www.sandbox.game/en/
- CSC - https://www.csc-game.com/

AI Helper. Consider an AI helper character like Tony stark's AI, maybe customisable or randomised to make it more personal. Gives UI heads up info.

Pacing. Carefully consider pacing, the gameplay could easily get very repetitive.
https://www.youtube.com/watch?v=hbzGO_Qonu0

Maps. Consider maps with very different play styles to keep the game interesting (ice levels with low friction).

End goal. Consider what the player's end goal is when playing, make it clear from the very start. Narrative?

Consider making each game ongoing. Each game could be ongoing, you can arrive or leave at any time, and the core is difficult to get to. You can aim for smaller prizes in the higher areas of the map or go for gold at the core. This would enforce the mercenary narrative of the game. There could be AI enemies on planets, which are tricky to kill on your own, encouraging players to leave them to other players and sneak past with minimal damage done.

Mining mini-game/boss fight. Consider mining as a mini-game or boss fight-like thing (mining the weak points, dodging falling obstacles, etc.).

Weapons and loadouts. Have multiple weapon types and loadouts (3 customisable loadouts that you can switch between at each respawn?).

Death doesn't need to be simple. Consider having the ship generate new mechs or physical bodies, it takes say 3 minutes to generate one, so if you die before that, you may need to spectate for a while. Alternatively to spectating, you could possibly play mini-games to speed up the wait time or pilot little drones with limited health or capabilities.

Add coyote time.

Consider a grappling hook.

Consider non-persistent upgrades. Upgrades that last into the next session, or a limited amount of upgrades like hollow knights charms (e.g. you can buy as many upgrades as you want, but you can only have 3 equipped per game) to avoid an inverse difficulty curve.

Game Timer. Miners are only allowed to harvest unstable planets, as soon as their core is about to expire, they're allowed to mine (And the game begins). They then have a fixed amount of time to procure minerals and leave the planet before being destroyed.