# Game Design Document

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# Game Title

Mineral Mayhem

# Backstory

"Mineral Mayhem" is a top-down 2D mining game inspired by the style of "Motherload." Players take on the role of a miner navigating through underground environments, digging for valuable minerals, upgrading their equipment, and facing challenges beneath the surface. The first implementation will be a peaceful player versus environment type of game wherein the goal is to simply finish the game without running out of money.

Example playthrough of Motherload:

<https://www.youtube.com/watch?v=ZJ_3R854yuw>

# Characters

Player - Will pilot a mining spaceship that digs “down” to collect minerals.

Shop Keeper- Sells parts to the player to upgrade their ship, will also purchase collected minerals from the player.

# Gameplay

## Controls

* Arrow keys/ WASD for PC and finger position for mobile.
* The miner can dig down when down direction is held
* The miner will only dig Left or Right when on flat ground

## Mining and Collecting

* Game Cell types

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Material** | **Time to Mine (Seconds)** | **Turn in Reward** | **Min. Depth Block** | **Freqency** | **Damages Player** |
| Dirt | 0.25 | 0 | 0 | High |  |
| Bronze | 0.25 | 30 | 0 | High |  |
| Silver | 1 | 60 | 0 | High |  |
| Gold | 2 | 90 | 25 | High |  |
| Quartz | 4 | 750 | 250 | Med |  |
| Obsidian | 10 | 2000 | 500 | Low |  |
| Diamonds | 30 | 5000 | 500 | Low |  |
| Lava | Not Minable | 0 | 100 | Low | Yes |

* A storage system allows players to manage their collected minerals.

## Upgrades

* Players can sell their collected minerals for cash to upgrade their mining equipment (drill power, speed, durability, etc.).

**Fuel Tank**

|  |  |  |
| --- | --- | --- |
| **Level** | **Capacity** | **Graphics** |
| 1 | 100L | No Change |
| 2 | 300L | No Change |
| 3 | 1000L | No Change |

**Cargo Hold**

|  |  |  |
| --- | --- | --- |
| **Level** | **Capacity** | **Graphics** |
| 1 | 100 Pieces | No Change |
| 2 | 300 Pieces | No Change |
| 3 | 1000 Pieces | No Change |

**Engine**

|  |  |  |
| --- | --- | --- |
| **Level** | **Speed** | **Graphics** |
| 1 | 1x | No exhaust stacks, grey smoke |
| 2 | 1.5x | 1 Exhaust tip, grey smoke |
| 3 | 2x | 2 Exhaust tip, black smoke |

**Drill**

|  |  |  |
| --- | --- | --- |
| **Level** | **Speed** | **Graphics** |
| 1 | 1x | Grey Drill |
| 2 | 1.5x | Gold Drill |
| 3 | 2x | Purple Drill |

## Challenges

* Limited fuel and cargo space for the mining vehicle adds an element of strategy.
* Player death will cost a fixed of player cash encourage the player to not die
* Player death may result from:
  + Falling too far
  + Running out of fuel
  + Environment variables such as lava pits

## Progression

* Different underground layers with increasing difficulty.
* Achievements and milestones for reaching specific mineral collection goals.
* The game finishes when player has collected 100 Diamonds.
* Players will need to maintain a positive cash balance otherwise they will fail the game.

# Game World, Art and Design

## Visual Style

* Pixel art with a colorful and vibrant underground world.
* Clear distinction between soil layers and minerals.
* Block style similar to Minecraft and other crafting games

## Characters and Environment

* Customizable miner character.
* Dynamic underground environments with diverse backgrounds.
* The layout of the game will be a fixed grid width, something like 64 squares wide and possible 1024 squares deep.

## User Interface (UI)

* Clean and intuitive UI displaying player stats, inventory, and upgrades.
* Depth, pressure, and environment stats

## Level Generator

Levels will be generated randomly using a depth system. First 3 layers are always dirt. Then mix in minerals, air, and danger items based on charts above.

# Platforms

My intent is to write this with JavaScript for compatibility on any web browser, desktop or mobile. Application will most likely contain an embedded SQLlite database for game information and saving player progression.

# Future development

I want to use this game for my final project as well so expanding the game will include:

* Adding a full combat system with enemy and a final boss
* Adding equipment for weapons
* Adding new armour types
* Expanding the mineral types
* Add AI players that can take minerals before the player.

# Appendix 1: Gui Examples

# Appendix 2: Graphics example from similar game Motherload

# Motherload - Play Online on SilverGames 🕹