# 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>

# Compile and run

## Requirements:

* Node JS version 20+
* Modern computer

## Compile and run

Browser to the application directory with a new terminal. Run the command *npm run build* to pull all the dependencies and build them locally.

Use npm start to compile the application and start a web browser to the target *http://localhost:3000/*

A full working build of this game is also available at the following URL:

<https://jacky4566.github.io/>

I also created a video on how I built this game here:

https://youtu.be/RX8F9feYW-k

# How to play

I have create a quick video showing how to play the game here:

<https://youtu.be/mIRE0FBIuu8>

# Characters

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

# Gameplay

## Controls

* Arrow keys/ WASD for PC and finger position for mobile.
* The miner can dig when a direction is held
* The miner can not dig upward

## Mining and Collecting

* Game Cell types

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

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

## Challenges

* Limited fuel for the mining vehicle adds an element of strategy.
* Player death may result from:
  + Falling too far
  + Running out of fuel
  + Environment variables such as lava and water pits

## Progression

* Different underground layers with increasing difficulty.
* Achievements and milestones for reaching specific mineral collection goals.
* Player will need collect all required items to progress

# 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 🕹