

# Design Document

## Overview

This is a game where the player is a caveman that must jump over rocks, duck under flying birds and dodge falling asteroids whilst running from a dinosaur. If the player narrowly avoids an enemy and bumps into it, the dinosaur will come into view. If this happens again shortly afterwards, the dinosaur will catch up and the game will be over. The player can collect powerups (faster speed, no enemies, etc). The game becomes faster and enemies appear more frequently as the game goes on, increasing the difficulty for the player. A level system could be implemented to further improve the user experience, such as completing levels for number of enemies passed, or amount of coins collected. A multiplayer system could also be introduced where 2 players compete to see who gets further in-game.

## Research

### 3D Rail Shooter

In these games the player is taken on a path, from the start of the game until the end, that is out of their control. The player is required to shoot enemies to pass certain stages whilst staying alive. Popular games include *Star Fox 64*, *Space Harrier*, *After Burner* and *Time Crisis* (see below).



This game type could be used to create my game as the features described in the overview could be implemented. However, in 3D Rail Shooters, the player is usually stopped at certain stages to shoot at multiple enemies which wouldn't particularly suit this game.

### 3D Endless Runner

In these games the player is running until the game is over, such as the player being killed by an enemy or the player completing the game. During the game the player is trying to avoid or kill obstacles and enemies whilst sometimes running or flying away from an enemy that is behind the player. Popular games include *Temple Run*, *Subway Surfers*, *Sonic Dash* and *Iron Man 3: The Official Game* (see below).



This game type would better suit my game as all the features described in the overview could be implemented. Such as the player having to run from an enemy and having to avoid obstacles. A shooting element could be introduced to the game to further challenge the player, like in *Iron Man 3: The Official Game*. For example, the player could have the ability to throw rocks at the flying birds which would add more points to the player's score. An ammo powerup could also be added to give the player more rocks (if the player is given a limited amount of rocks).

# Designs

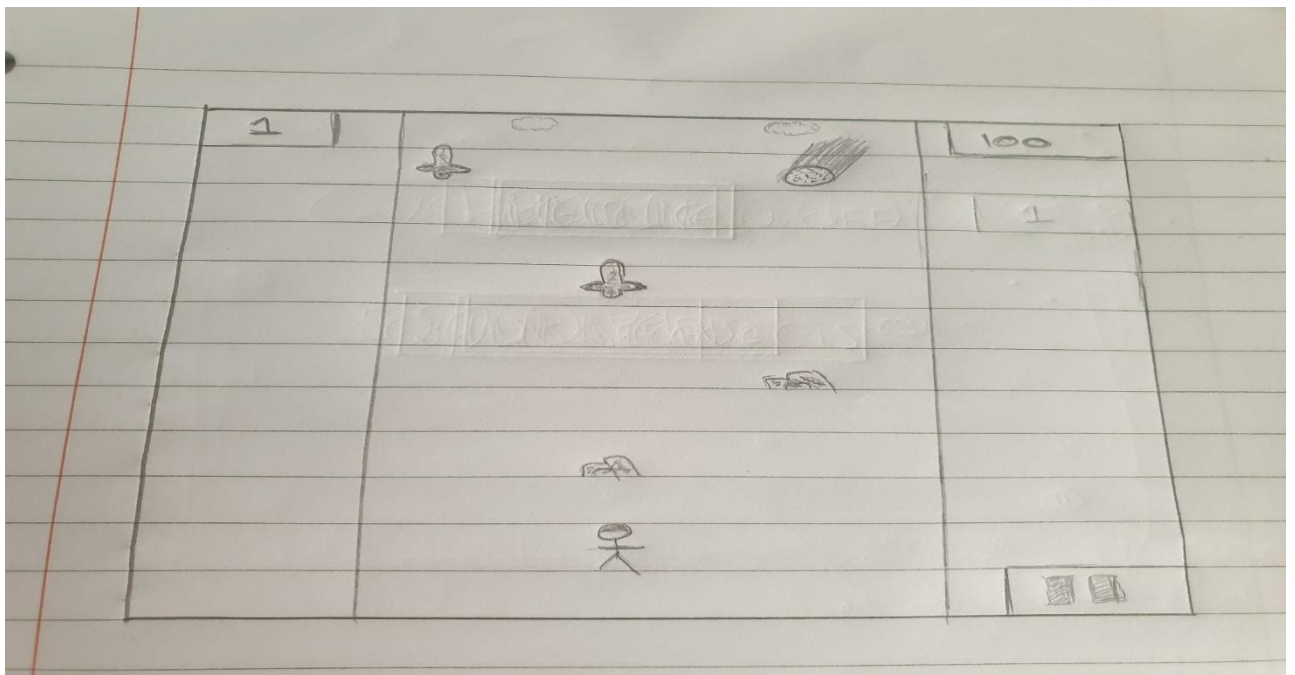
## Front End

The player will be greeted with a menu that displays the title of the game and a play button. The play button brings the player straight into the game to begin playing. A button to play split-screen/multiplayer could be added here if multiplayer gameplay is implemented.



## The Game

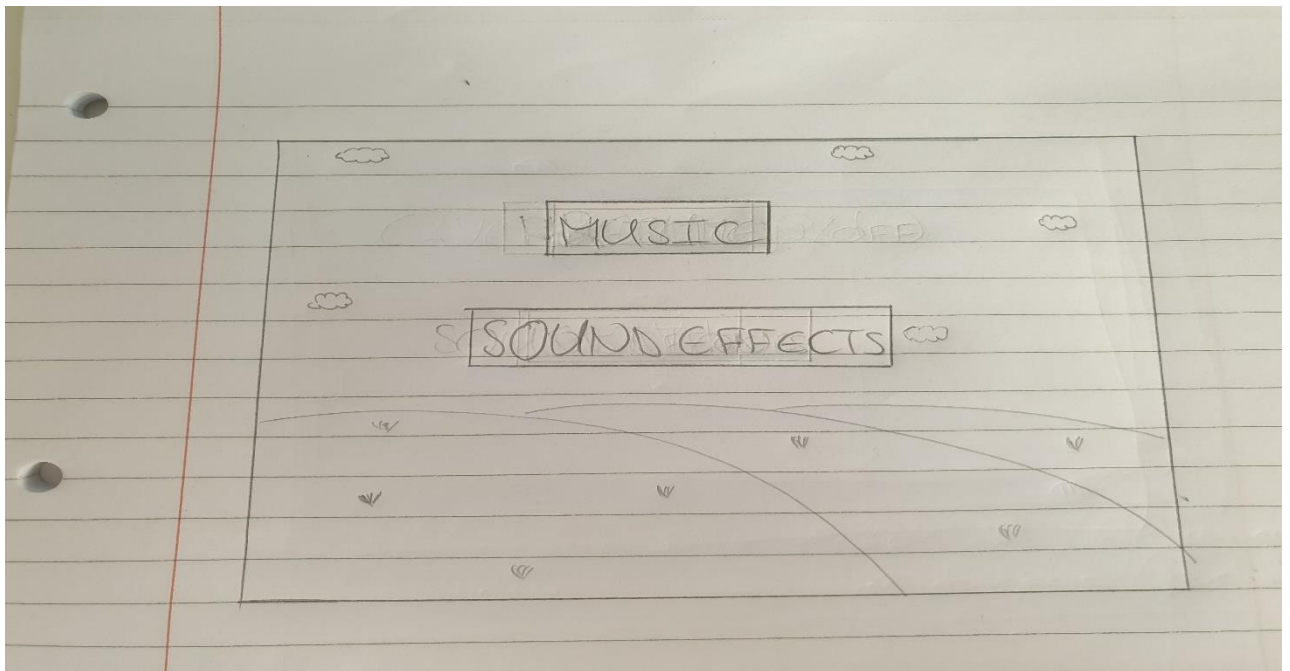
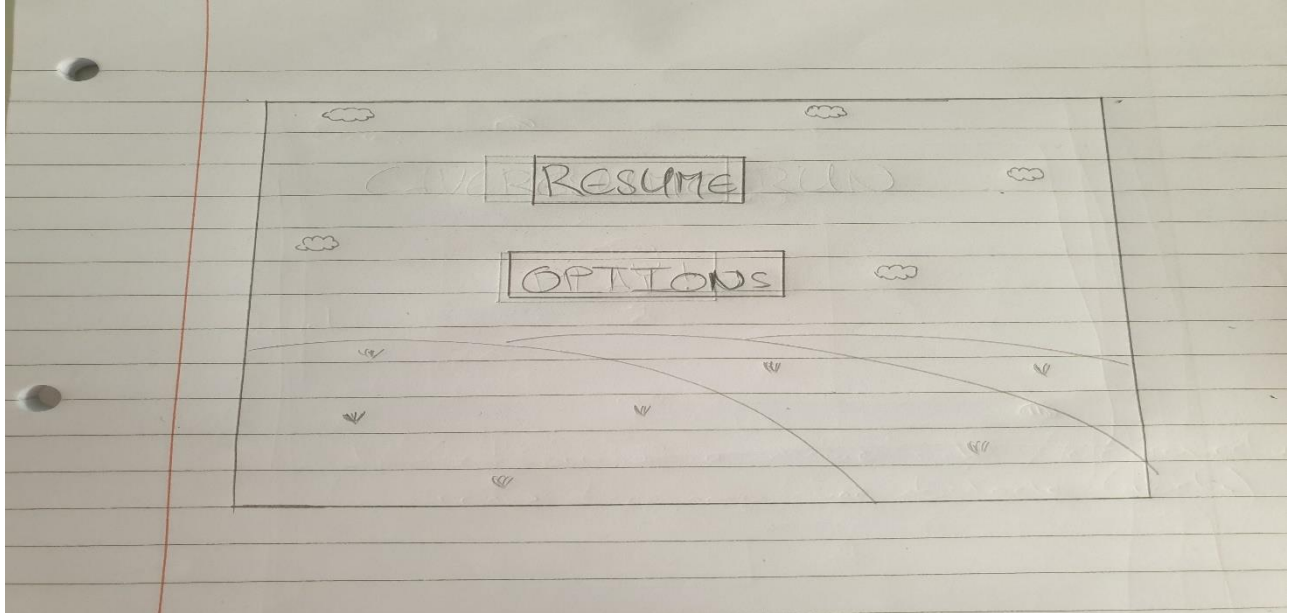
In game the player must avoid rocks, birds and asteroids as seen below. The score (top-right) and level (top-left) will be displayed and a pause button (bottom-right) to bring the player to the in-game menu will be present also.





## In-Game Menus

The player can visit this menu by selecting the pause button on screen during game play. Here the player can select resume or options. Resume will continue the game from where the player was and options will allow the player to turn on/off the music and sound effects. A restart button and the players score/level could also be added here.

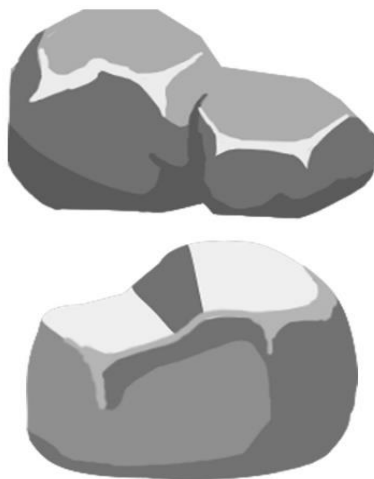
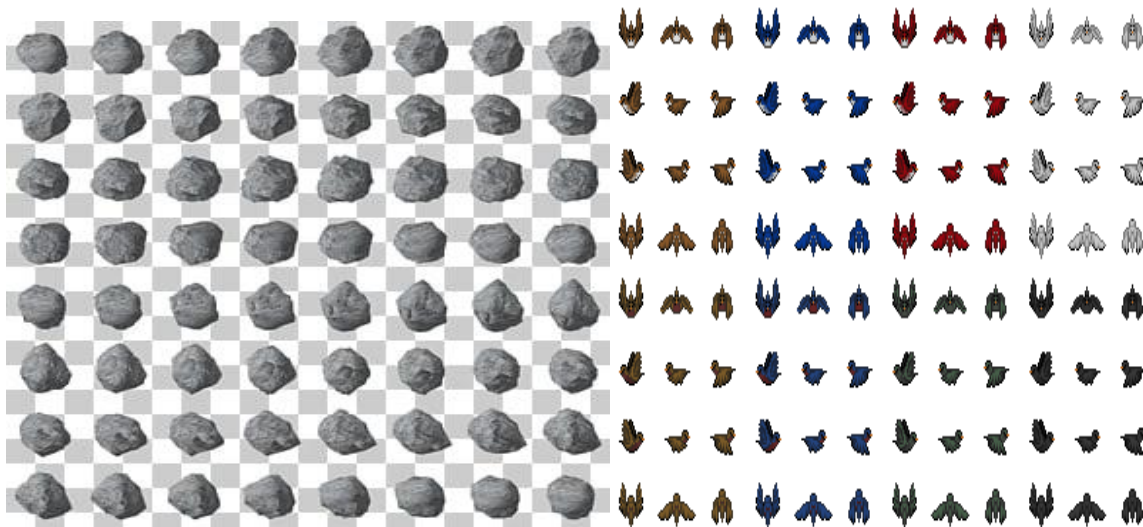


## Level Design

The first level will be a tutorial type level so the player can get used to the game, with instructions on how to play the game and what the objectives are. The player must pass (or kill) a certain number of enemies to access the next level. Such as 10 to get to level 2, 20 to get to level 3, 30 to get to level 4, etc. until the player completes the final level (level 10). The game will become faster with enemies appearing more frequently to challenge the user.

## Enemies/Targets

Enemies include falling asteroids, flying birds, rocks and a dinosaur. These can be avoided by moving to the left/right or jumping over/sliding under. A shooting mechanism may be included to kill the flying birds.



### Collectibles/Power ups

Power ups are available for the player to collect which include a 2x power up to make the player faster, a no enemies power up and a level skip power up.



### Control Mechanisms

To avoid enemies the player can use the arrow keys to move left or right, to jump over and to slide under. The wasd keys and the space bar could also be implemented to further improve the user experience. If a shooting element is implemented, the player could use the mouse or trackpad to do so (left click).

### Multiplayer Functionality

2 players can compete against each other to see who can make it further in the game or get the highest score. This can be done via a split screen functionality.



## References

<https://www.destructoid.com/stories/it-s-time-for-the-rail-shooter-to-take-flight-again-553202.phtml>

<https://levelskip.com/mobile/Top-5-Free-Games-Like-Temple-Run>

[https://www.gamasutra.com/blogs/AndrewDotsenko/20170329/294676/Designing\\_Game\\_Controls.php](https://www.gamasutra.com/blogs/AndrewDotsenko/20170329/294676/Designing_Game_Controls.php)

Sprites

Player: [https://s3.amazonaws.com/gameartpartnersimagehost/wp-content/uploads/2018/10/Cavemen\\_Sprite.png](https://s3.amazonaws.com/gameartpartnersimagehost/wp-content/uploads/2018/10/Cavemen_Sprite.png)

Bird: <https://i.imgur.com/rMJ0kCu.png>

Rocks: <https://cdna.artstation.com/p/assets/images/images/009/972/716/large/jamie-askew-rocks.jpg?1521846707>

Asteroid: <https://c7.uihere.com/files/883/429/178/asteroids-sprite-opengameart-org-2d-computer-graphics-asteroid-thumb.jpg>

Dinosaur: [https://ssl-forum-files.fobby.net/forum\\_attachments/0001/7294/fixedasaurus%20rex.png](https://ssl-forum-files.fobby.net/forum_attachments/0001/7294/fixedasaurus%20rex.png)

Powerups: [https://opengameart.org/sites/default/files/Preview\\_41.jpg](https://opengameart.org/sites/default/files/Preview_41.jpg)