Search for a Star 2023-24: Programming Challenge

Supporting Documentation

(AKA crazy rambling and general devolution into madness)

Seb Scaife

# Base Project Inspection & Research

# Initial Concept Draft

This is written in a pretty manic scrawl within the Quick Ideas text document in my repository, but this game’s general idea is a ‘Hub World’ with a variety of minigames that can show off a range of programming skills.

The general setting would be an empty train on an infinite track: the player can switch between first-person movement across a set environment, and playing games on their phone to pass the time.

Through this concept I should be able to cover a wide range of programming principles: graphics and shader programming; basic 2D and 3D physics; some AI-driven navigation; as well as a variety of UI designs and gameplay mechanics.

# Project Management Considerations

First and foremost, I’ve shifted across from BitBucket to GitHub – since I’m much more used to the latter through previous work, I’ll be able to spend more time on development and less time trying to work out a new source control system.

# Project Introduction

This project is a relaxing simulation, inspired by the vast and diverse mobile market as well as in-browser simulations like anslo’s [slowroads.io](https://slowroads.io/). The setting of this game is the interior of a moving train: the player’s carriage serves as a pseudo-hub-world, offering views of a procedurally generated terrain through the window. They can travel around this environment during ‘Free Movement Mode’. The player can also sit in one of the chairs in the carriage, changing to ‘Phone Mode’ and being given access to a variety of mobile games drawn from classic genres such as Endless Runner and Tower Defense.

The ultimate aim of this project is to demonstrate a vast array of programming paradigms through the medium of a minigame collection, while also having an opportunity to display high-fidelity graphics programming, implementations of 3D physics and camera work, and other more advanced features: in other words, I hope to display a wide range of skills as well as a variety of gameplay mechanics that would be otherwise impossible in a single-game context.

A major conceptual inspiration for this project is a previous Search for a Star winner, “On The Brink”. My first impression of this was that it was a large, open hub world, with a number of minigames – which seemed like an intelligent way to divide a project like this. The key difference is that my project will have all minigames accessible from anywhere, rather than having to go to a specific console to access a specific minigame.

# Game Design Document

Name of Game:

Developer: Seb Scaife

## Executive Summary

Concept: You are a passenger on an infinitely long train journey, passing the time with views and minigames

Genre: Simulation/Arcade

Target Audience: Children and Young Adults; anybody who can relate to being bored on a long journey

## Gameplay

**Free Movement Mode:** Wander around the inside of a train carriage, looking at a procedurally generated terrain out the window and admiring the scenery both inside and outside.

**Phone Mode:** Navigate a simulated phone screen, and play your choice of a variety of mobile games.

## Mechanics

**Free Movement Mode:** WASD movement, Mouse to mouse camera. Standard First-Person controller. 3D Collision detection with interior of the train, and contextual pop-ups to prompt the player to change Modes.

**Phone Mode:** Varies from game to game, and from home screen to game, but largely:

* Home Screen: Navigate with mouse cursor
* Endless Runner: 2D collision, points system, simple 2D terrain generation
* Demolition Game: number of unique levels, 2D collision and flight physics
* Tower Defense: AI-driven waypoint pathfinding (enemies) and shooting (towers)
* All minigames can be exited with the Esc key

## Aesthetics

**Free Movement Mode:** Aim for close to photo-realism; try to carry the visuals here primarily with shader programming rather than high-fidelity models (I’m not an artist!)

**Phone Mode:** Collection of 2D sprites and textures to simulate a phone OS and mobile games. Can either be played as a separate window in-context (i.e. the player is holding the phone in their hands) or take up the entire game screen to allow for easier and more accurate player input.

# Development Diary (DevLog)