

Running on Fumes

Designed by MANDROID in Ottawa



A 2-Dimensional Physics Based Resource Management Simulator

In Space!

Chief Executive Unpaid Intern

James Brunet
100972413

Chief Technology Officer

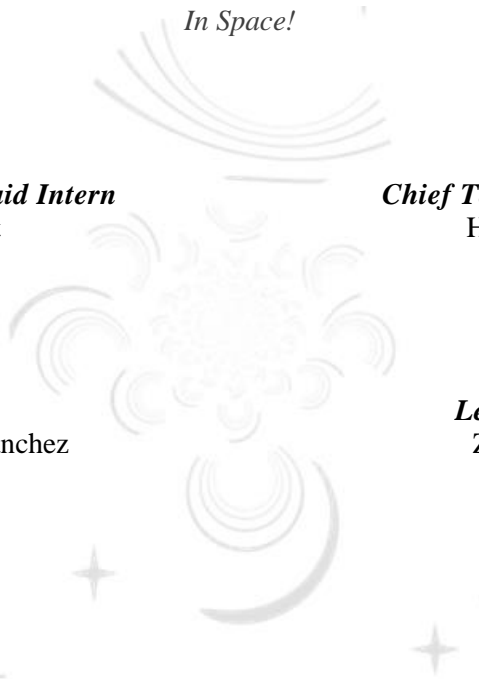
Haydon Ruth
100859519

President

Rafael Martinez Sanchez
100990360

Lead Scientist

Zachary Fry
100847625



What is this project?

Running on Fumes is a novel game concept that places an emphasis on physics, resource management, and problem solving. The player is the captain of a space freighter with limited fuel. The object of the game is to navigate from one location (**Point A**) to another (**Point B**). Between Point A and B are numerous obstacles that impede the players progress.

Why is this project interesting?

The game mechanics are unique: the player's improvisational ability to take advantage of the environment is far more important to their success than their reaction time, literacy, or fine motor skill. Although on the surface it might appear like an action game, it's far more akin to a puzzle platformer, drawing inspiration from critically acclaimed games [N++](#), [Gravity Ghost](#), and [Lost Orbit](#).

Why go mobile?

We have the ability to design features around core mobile hardware components such as,

- Touchscreen
- Accelerometer – For detecting the orientation of a device
- Gyroscope – Tracks if the device is being rotated or tilted.

Why we decided to pursue this project?

The creation of a game for the android platform will allow us to familiarize ourselves with a multitude of different opportunities to explore how certain mobile specific hardware sensors are utilized and function from a software perspective. This project will hopefully give us a greater understanding of how to optimize a program on a platform with limited resources.

What are the functional properties of our system?

1. Two-Dimensional Game Space
2. Classical Forces that interact with objects
3. A real-time updated compass like feature to draw attention to the goal of each game space
4. A variety of game spaces that require the user to adapt their strategies to complete each goal
5. Objects in which the user can interact with during gameplay
6. A collision detection system
7. Simple AI controlled objects that will dynamically influence the environment, and how the user will accomplish each goal.
8. Menu's for Navigating through the app, and each level
9. A responsive leaderboard system that can be used to compare individual level scores against other players.

User Scenarios

User scenario 1, user plays through a level to completion and moves on to the next challenge. This scenario will utilize one or more of features 1 through 7, depending on the level difficulty. We wish to grant users the opportunity to develop an intuitive approach to two-dimensional physics based problems, and a greater understanding of how to take advantage of the environment to complete each assigned goal. We hope to create a natural feel to our level design by implementing the features outlined above giving the user the opportunity to craft unique and unexpected ways to complete the intended goals.

User scenario 2, user navigates the menu to display a list that compares their High Scores with other players. This scenario touches on features 3 and 8. The benefit will be for the users with a competitive or completist nature so they might compare their progress to that of other players.

What are the non-functional properties of our system?

The application must be able to run smoothly. As a game, the user experience needs to be as fluid as possible for the most enjoyable experience. Furthermore, non-fluid and unresponsive experiences often lead to frustration and dissatisfaction.

Our application should be compatible with multiple screen dimensions. Due to the graphical nature of this project, we will need to ensure that controls, visual effects and object boundaries scale equally with the size of the screen such that are easily recognizable and function properly.