

University of Calgary
CPSC 585 — Winter 2019 — Games Programming

Flatlined
High-Concept Design Document

Team A — Light Theme is for Heretics
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1 Game Design

1.1 Overview

Flatlined is a combat-based driving game aimed to test your skill to fight against your enemies. Whether playing alone against AI or with friends, each player find themselves driving a hovercraft in an arena pitted against each other. Utilizing abilities, picking up power-ups, and the navigating the map, everyone must survive to destroy each other in a chaotic battle of strategy and wits.

1.2 Aesthetic Themes

The game mainly follows a cyberpunk aesthetic.

1.3 Inspiration

Flatlined at its core is inspired by Mario Kart's battle mode. Abilities and mechanics in the game are also inspired by Tron (1982), Rocket League (2015), ThinkTanks (2003), and Pac-Man (1980).

1.4 Designer Goals

1.4.1 Vibe

Playing Flatlined should feel exciting and bring a sense of hype and energy, similar to combat games like **Super Smash Bros** or **Street Fighter**. This can be brought about through fast-paced gameplay, coupled with action-packed sound effects and music.

1.4.2 AI and Multiplayer

The introduction of AI-controlled hovercrafts (bots) adds an interesting element to the game, but also a few problems. First, given our past experience and the time-frame creating AI, we don't believe the bots will be equally competent to a skilled human player.

The crux of the fun should be from the multiplayer experience and not depend on the capabilities of the AI.

1.4.3 Driving System

As the players are driving hovercrafts, their driving experience should model that of a hovercraft. The driving model should feel somewhat floaty, meaning the vehicles would have lower traction than a typical 4-wheeled vehicle, allowing for easier drifting.

There should be a balance in the driving system to feel somewhat floaty to imitate a hovercraft, and yet grounded enough to feel fun and responsive.

- Power-ups should feel intuitive to understand and use. They should not introduce new mechanics or keybindings that will cause the player to "waste" them in order to understand what they do.
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1.4.4 Performance

- Flatlined should run at 60 fps for single player and 30 fps for multiplayer.

1.5 Market Competition

There are competitive elements to both the single-player and multiplayer experience. In single-player, players can compete to achieve the highest score possible, akin to competing to reach the top positions in the leader boards in arcade games or certain online games. In other words, this can be viewed as a competitive asynchronous multiplayer experience.

In multiplayer, players can learn strategies to counter

1.6 Game Genre

Flatlined is a third-person combat-based driving game. It is designed to be a fun party game that is easy for new players to pick up and play, while giving the opportunity to those who want to master it the means to do so given.

It is developed for the PC, supporting Windows as a high priority and Mac and Linux with lower priorities, using mouse and keyboard controllers. It will also support XBOX 360 controller support, allowing for multiplayer modes.

1.7 Branding

Flatlined is a new IP on its own.

1.8 Target Market

While violence is a core component of the gameplay, nothing is particularly graphic due to the use of vehicles and the lack of blood and gore. We do not intend there to be any mature themes in the game. We therefore believe that Flatlined is appropriately targeted for all ages 10 and above years of age.

1.9 Gameplay Direction

2 Gameplay

2.1 Terminology

Arena/Map: The closed area where the game takes place.

Ability: The capabilities that a hovercraft can actively use.

Bot: An AI-controlled hovercraft. These hovercrafts are distinct from player hovercrafts.

Player: The individuals playing the game. May also interchangeably refer to the hovercrafts controlled by the players for the sake of brevity, especially in relation to the AI-controlled hovercrafts.

Power-up: An item located on the map that can be picked up by a player by coming into contact with it. Upon pick-up, the player receives a temporary effect, usually beneficial.

2.2 Player Count

The game supports single and local multiplayer, allowing for 1 to 4 players. Local multiplayer would be split-screen multiplayer and would require multiple input devices (XBOX controllers).

2.3 Player Goal

The central goal of the game is to gain the highest score possible before the round is over. Players have the following means to gain score:

- Destroying other player hovercrafts, which can only be done in multiplayer. This can be through the use of abilities accessible to every player. Depending on the means by which enemies are destroyed, various amounts of points can be awarded, encouraging the player to make interesting plays.
- Destroying bots, which can be done in both single and multiplayer. These hovercrafts do not have all the abilities of player hovercrafts and so reward less points.
- Picking up power-ups. These help the player gain points by improving their abilities, but also innately give points when they are picked up.

2.4 Rounds

The game is composed of a single round that lasts for the duration of a timer. Each player is placed in an arena to control a hovercraft with various abilities. They must fight each other in a free-for-all battle with those abilities, amidst a number of neutral bots for added chaos.

2.5 Damage

Players, when alive, can be damaged a set number of times before their hovercraft is destroyed. This is the amount of health they have. Independent of the source of damage, getting hit deals a single point of damage, putting a strong emphasis on dodging and avoiding damage.

When a player's hovercraft is destroyed, they lose some points and are momentarily out of the game before respawning randomly at one of the number of respawn points on the map. If another player destroyed said hovercraft, that player is awarded points for the kill.

The central constraint of proposed features is development time available to implement them. As a result, all features have an associated priority and risk, of which higher priority features will be completed first, and higher risk features will more likely be altered, replaced, or not implemented at all.

2.6 Arenas/Maps

The game will feature a single map. Given the development time frame, a single fun and polished map is preferable to multiple mediocre maps. It should be "small" to "medium" in size, to maintain a high player density to ensure that players are always in the middle of the action, and do not get lost.

If time allows for additional maps, they may be added at a lower priority, but the focus will still be on a singular main map. These additional maps should provide a different purpose than the main map. For example, there could be a small map focused for single player.

Environmental features

- Changes in elevation — Ramps lead to higher and lower platforms. This can give better vision of certain parts of the map, or give opportunities to jump off and surprise enemies.

- **Lava pit** — Falling into the pit will destroy the player hovercraft. Avoid at all costs or try to bump enemies into it.
- **Speed pads** — Driving over these, will give a momentary boost of speed. Great for getting power-ups quicker, and chasing or escaping other players.

2.7 Bots

In all modes, a number of neutral bots will be present on the map. Visually distinct from players, bots will attempt to crash into the players to damage them. They are weaker than players in that they have less health and fewer abilities, but also award less points on kill. As a result, it is up to players to decide much they want to focus on destroying bots versus other players in their strategy.

2.8 Abilities

Movement

- **Standard movement** — A hovercraft does not rely on wheels to move and so can traverse in any lateral direction without needing to turn, meaning that strafing is possible.
- **Acceleration/braking** — A hovercraft can accelerate and brake in any direction it is currently moving. It will often drift if a turn is made, even at relatively slow speeds, which can be both advantageous and disadvantageous.
- **Dashing** — A hovercraft can dash in any direction, temporarily gaining invulnerability. From a mobility standpoint, dashing can be used to catch up to other hovercrafts, reach power-ups faster, or lose others when being chased. From a defensive standpoint, it can be used to dodge attacks.

Attacks

Every hovercraft has 3 attack abilities that are available from the start of the game.

- **Rocket** — A rocket launches forward straight out from the direction the hovercraft is facing until it hits a surface. Upon impact, it explodes, damaging everything in a radius around it. Being the only ranged attack, it is great for attacking distant enemies if aimed well, or when chasing other vehicles. The splash damage can be utilized with parts of the arena environment to hit enemies near walls easier, or to hit multiple enemies that are grouped together.
- **Spikes** — Spikes temporarily extend in all directions from the hovercraft, damaging other vehicles that come in contact with it. Can be used both aggressively and defensively when other vehicles are nearby. It can also be used in combination with dashing to crash into enemies.
- **Flame trail** — A trail of fire is created that follows the player's path. Any hovercraft that contacts it is damaged. Great to use when being chased.

2.9 Power-Ups

Power-ups spawn at certain explicit power-up locations, where players can pick them up by contacting them. Upon contact, the player that picked it up will receive a temporary passive bonus. At minimum, there will be a power-up for each attack ability:

- **Rocket** — Rockets can be launched at a faster rate of fire.
- **Spikes** — Create a temporary shield that blocks damage upon activation.
- **Flame trail** — The trail continuously lasts for the duration of the power-up.

2.10 Difficulty

Single Player

In a single player experience, the difficulty can arise from a competitive approach in achieving a high-score. Whether one is attempting to outperform their previous high scores, or compete with others' high scores, players can improve their skills and learn new strategies to improve. This self-imposed motivation to improve and compete can create new levels of difficulty at a meta game level.

Multiplayer

Similar to single player, difficulty arises from the skills of opposing players. As other players improve, so does oneself need to do so to compete. New strategies can arise in using abilities, power-ups, and parts of the map to maximize points, as well as strategies to counter other players' play styles.

2.11 Menu

3 Concept Art