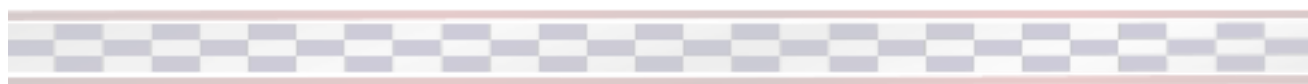




Race for Real

Dmitrii Roets

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Overview / Design Pitch


Race for real is an action racer that takes place in Google Earth. Four players compete for glory or simply survive. Spend hard won prizes on better cars and guns in pursuit of fame and fortune.

Vision

- **Game Summary** - Race for real makes use of Google maps data in order to generate the player environment and race track. The player races a car in a predefined circuit and wins when a set amount of laps are complete or the player kills all AI opponents or the destination is reached. Along the way, the player collects power ups and boosts and uses the mounted machine gun to defeat enemies. Each race brings a defined amount of income (money) which depends on how well the player does in it. The player can purchase new cars and upgrades for them. There are three categories of races where the battle is faster, the risks are higher but the rewards are greater. It costs money to repair the car and should the player run out of money, the game is over and the player loses. In addition to money, the player (and other racers) earns rank points corresponding to race placement. Once the player reaches the top of the leaderboard the game is over. Every play session is ranked in an overall ranking system, the fewer races it took the player to win the game, the better.
- **Theme/Mood** - Real google earth imagery, bright colors.
- **Game Pace** - Real time action, the player races and then enters the shop for. Starting with the slowest car on the market, the player proceeds to upgrade it and as the player skill level grows, he/she begins to win more races and have more income. Once the player buys a sufficiently better vehicle, he will be able to realistically compete at the higher tiers and does so at will. The player progresses to the top of the leaderboard by participating in races where better drivers and cars compete. Repair cost along with weapon costs rise correspond to vehicle. After the shop, the player has to chose the race tier (*Novice, experienced or Pro* covered in detail further). More points are awarded for the more advanced tiers, but competition is stiffer. Furthermore, the three races take place “concurrently” and points are awarded to the other drives. The feedback for rankings and awards are presented to the player after each race, and the player can gage his/her progress based on seeing the other drivers progress. Naturally, the drivers in the higher tiers earn more points, so if the player stays in the lower tiers, the gap will only increase.
- **Game Setting** - Action takes place in Google maps.

Genre and Rating

Action arcade, 13+



Camera and FOV

3D, Third Person Camera with the player vehicle in the center of the screen, additional first person (cockpit camera) option.

Mock-up



Ideal audience

Players that enjoy racing and arcade games. Players that enjoy an element of spice in the form of combat. Idea audience 14 - 21.

Player Experience

- **Game Goal** - The primary goal of the player during a playthrough is to advance on the leaderboard and reach the top position. Once the player reaches the top position, the game is over and the player is declared to be the victor. The amount of races and points it took is then tallied, the player's name is then added to the an overall game scoreboard with the players that took the least amount of races to win the game are placed at the top.

- **Core Actions** - The player controls the vehicle via keyboard input. The player outmaneuvers other vehicles, pushes them out of the way, destroys them by means of weapons. The player attempts to cross the finish line has to do so before the other.

The player upgrades the current vehicle (Engine, Tires, Armor)

The player purchases new vehicles

The player purchases weapons (Mines, Spikes, Booster, Oil Spill)

- **Characters**

Player character is in the form of the current vehicle.

- **LocalScale/Setting**

Game unit scaled to Unity 1 GU = 1m scale. In accordance with Google maps scale. Realistic vehicle dimensions are preserved.

- **Feedback**



Vehicle health indicator.

Quantity of money in the wallet.

Player position on the leaderboard indicates overall progress.

Screen shader for damage.

- **Control Scheme**

Mouse and keyboard input. WASD for movement and turn, SPACEbar for brake. SHIFT for boost, CTL for cannon, ALT for mines/Oil Spills

Release Platform

PC with the potential to expand into mobile touchscreen.

Proposed Development Technology

Unity / Unreal engines. Google Maps API



Game Mechanics

Foundational Breakdown

- **Rules** - The player is restricted to one plain of movement, like in a traditional RTS game. The player has life. The player takes damage from other players and by crashing into obstacles. The player's maneuverability is restricted to roads on the map only. The width of the navigable path of roads depends on the designation of the road on the map. Collision with buildings and obstacles impede progress. Each race starts with 4 AI vehicles of mixed types (depending on tier). Boost slowly regenerates. Ammunition, mines and oil spills do not. The player has the option to purchase weapons prior to the race, this has to be done for every race. Upgrades do not persist to new vehicles.
- **Actions** - The player drives the vehicles and fires the weapons. Additionally the player makes purchasing decisions in the shop.
- **Space** - 3D with movement restricted to the single plain of moment. However, hazards and obstacles threaten the player's progress. Most of the places on Google Earth can be used, but initial space is limited to a single suburb and Full Sail.
- **Core Mechanics** -

Control:

Keyboard is the primary input scheme. "W" key controls the throttle. "A"/"D" are used for steering. SHIFT key enables boost. CTR key fires gun. ALT key lays mine/spills oil. Space is used for handbrake.

Driving:

The player drives forward in the direction of the vehicle faces. The camera chases the player and rotates with the vehicle. The player can collide with obstacles on the map as well as other players. The player uses handbrake to corner sharper. Using boost will give a temporary increase in speed.

Upgrades:

In the shop the player has the opportunity to spend money on upgrades and weapons. Upgrade levels depend on the vehicle, but each vehicle can be upgraded on *Engine*, *Tires*, *Armor*. Each level up upgrade increases attribute by 5 %. Upgrades are not persistent and must be restarted with every new vehicle. When upgrading to a new vehicle, the player receives 20 % rebate (refund) on cumulative upgrades. The player is thus able to upgrade to a new vehicle without having sufficient cash, the drawback will be next to no money left to upgrade the new vehicle - strategically a risky move.

Vehicle Speed:

Every vehicle has a base speed, upgrading the engine will increase that speed. Moving/purchasing new vehicle will increase that potential top speed. Key to note: A new better vehicle in its unupgraded form is inferior to a fully upgraded vehicle of the previous class.

Turning Rate/Cornering:

Every vehicle has a base turning circle radius and amount of skid (drift/tire slip), upgrading the tires will decrease the turning circle and skid. Key to note: A new

better vehicle in its unupgraded form is inferior to a fully upgraded vehicle of the previous class.

Vehicle Armor:

Vehicles increase in amount of life but a small amount, in addition the % of damage sustained decreases with the armor level. Key to note: A new better vehicle in its unupgraded form is inferior to a fully upgraded vehicle of the previous class.

Combat:

Other players (AI) collide and attack the player. AI also picks up powerups if the player does not pick them up first. The player sustains damage and damages the other vehicles. The damage is more severe in side impacts. Every vehicle has a gun (automatic cannon) for which ammunition is finite, additional ammunition can be picked up during the race in the form of a randomly spawning pick up. The power of the gun increases as the player's vehicle gets better (but only slightly). The player and AI can lay mines or spill oil in the path of the cars that follow. A mine stunts and stutters progress as well as dealing damage, the player purchases the mine weapon at the shop for every race and gets 8 mines for it. Spikes can be equipped to the front of the vehicle prior to the race, and increase the damage done during head-on collision. Oil spills can be purchased at the weapons shop prior to the race and replace the option for the mines. The player thus has to choose to equip mines or Oil Spill. Oil spill will cause vehicles to lose the ability to turn for a few seconds and persist throughout the race. Four uses of the oil are available. The player can also choose to purchase UberBoost which increases the effect of boost by 50 %.

Boost:

Every vehicle in the game has a finite amount of boost (turbo as it's sometimes known). Every race starts off with the boost at full and gets drained if the player uses it (by holding SHIFT key), using boost increases vehicle speed by 25%. The boost can be further enhanced by purchasing the OverBoost for a race at the shop giving a 50% increase in the vehicle speed. The player can pick up boost power ups appearing randomly on the level which fill the boost 20 % at a time. The boost slowly regenerates at 1% per 5 seconds.

Level Progress:

Two main game levels/modes exist. A race across town where the objective is to be the first across the map to the finish line. The second, a circuit where a number of laps have to be completed. Three tiers of races are available to the player after the purchases in the shop are complete - *Novice*, *Experienced*, *Pro*. depending on the tier, the player earns money and points for the leaderboard. The races in the tiers take place "concurrently", the player chooses the race and forgoes the opportunity to gain additional points.



Race Tier Breakdown (Circuits)

	Tier		
	Novice	Experienced	Pro
Prize Money (1st,2nd,3rd)*	\$ 750, \$ 300, \$ 150	\$ 3000, \$ 1000, \$ 500	\$ 12 000, \$ 3000, \$ 1000
Points Awarded (1st,2nd,3rd)*	3, 2, 1	5, 3, 1	10, 7, 1
Vehicles Allowed **	Mini, Hotrod, Van	Hotrod, Van, Corvette, Porsche 911	Corvette, Porsche 911, Weber F1
Money pickup value	\$ 50	\$ 200	\$ 400

*4th place gets nothing

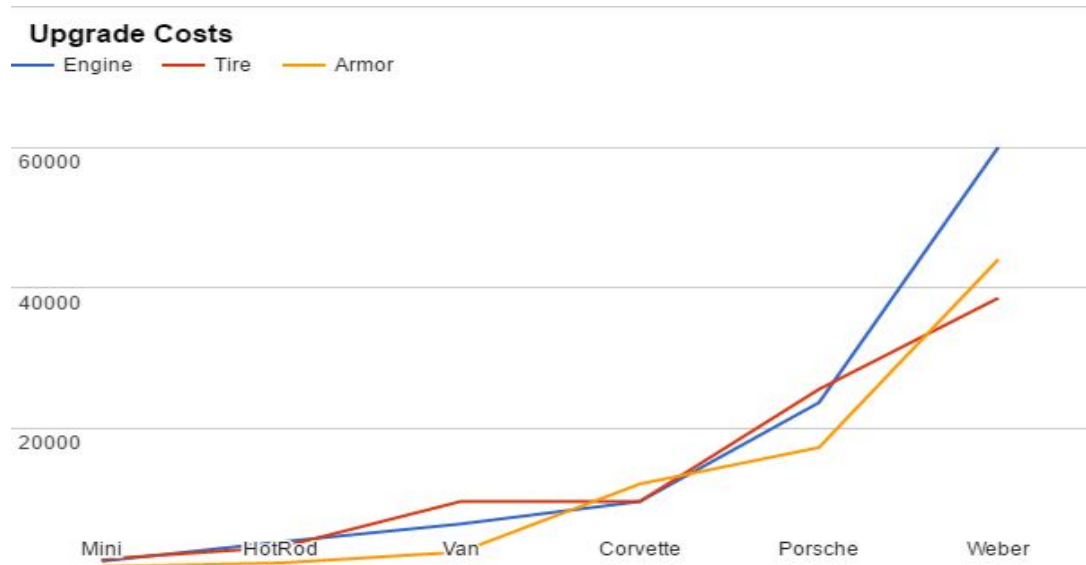
** The player can participate in any tier with any vehicle.

Strategy:

Maneuvering and movement, choices for upgrades in the shops. The player has to make careful decisions about how to spend money in the shop and when to advance. Money spent on upgrades might make buying weapons unaffordable. The player must carefully consider when to upgrade to a new vehicle as upgrades are not persistent and spending all the money on a new car can result in the player actually doing worse as the newly purchased car lacking upgrades is not very good (but will be a lot better after upgrading as the ceiling is higher). As any vehicle needs at least the minimum of upgrades to stay comfortably competitive. Additionally, if the player runs out of money to repair the vehicle - the game is over.

What upgrades to purchase and when to get them. The below chart illustrates the amount of money the player will be spending on the upgraded for each vehicle. The player strategy will thus have to involve earning potential, future and current. The player will have to choose if the final upgrades are worth it. (As a refund of only 20% is given).

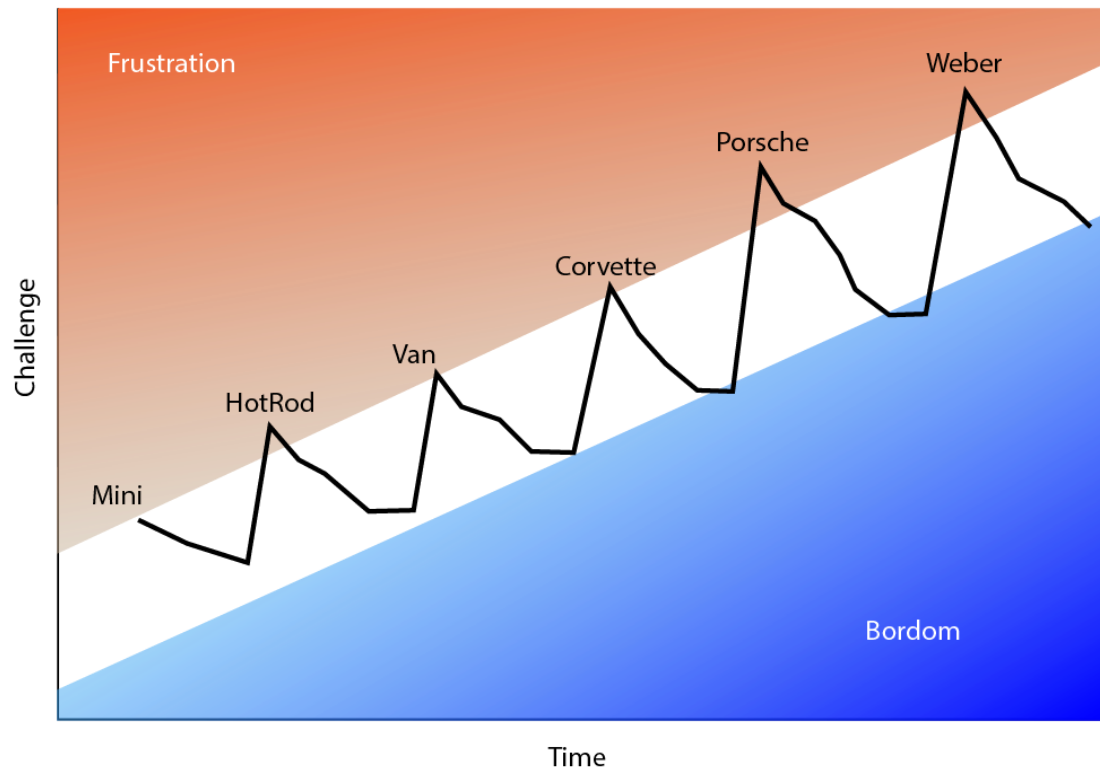




The player can participate in any tier race at any time, however when the player feel ready to try the next tier is completely his/hers choice and is part of strategy. During driving, skill becomes an important strategy. When faced with superior and better upgraded vehicles, the player has to rely on driving skill (corner sharper, better use of handbrake, brake later, push other cars out of the way, more skillful use of the weapons). It is in the player's interest to participate in the higher tiers of racers so that he/she is competing with the drivers at higher levels of the leaderboard - denying them points by winning instead of them and closing the gap.





Difficulty Curve





The Player experiences sharp increases to difficulty when purchasing new vehicles. Once purchased, the player will have to spend money on upgrading the car, as the “vanilla” vehicle lacks the sharp response on cornering speed of the previous vehicle. The new vehicle will also be slower without upgrades. Once a vehicle is upgraded, winning races becomes more frequent and as a result, the player will more money, and the difficulty curve reaches a plateau. It is up to the player how long he/she is willing to stay at this difficulty level, as earning more money now will mean more cash to spend on upgrades for the new vehicle. Three factors will propel the player to upgrade. 1. Every race played gets added to the total races played to win the current game and lingering will have consequences on the game’s overall top rank (where the least amount of races is best). 2. If the player is not racing in the Pro tier, the other drivers are advancing and the player is falling behind on the leaderboard and will have to work harder to decrease the spread. 3. The player gets bored and wants to move on.





Object Breakdown

Name And Role Description	States	Attributes	Key assets
<p style="text-align: center;">Mini</p>  <p style="text-align: center;">uncrate.com, 2016</p> <p>First Vehicle the player starts with. This is the slowest vehicle in the game and the player will be looking to spend as little money on it as possible and just get better one as soon as possible.</p>	<p>Alive/Driving, On Fire (Dead)</p> <hr/> <p>Weapons Cost</p> <p>Mines: 150 Spikes: 200 UberBoost: 275 Oil Spill: 280</p>	<p>Price: Free \$ 500 full repair, Speed:60-70,</p> <p>Scale: 3 *UGU (Unity Game Unit).</p> <p>Engine Upgrade: 1 - \$ 1000 Tire Upgrade: 1- \$ 500 2- \$ 800 Armor Upgrade: 1 - \$ 200</p>	<p>3D Model, Texture ,</p>
<p style="text-align: center;">Hot Rod</p>  <p style="text-align: center;">Dreamstime, 2016</p> <p>Second vehicle available to the player, a little better but still needs upgrades in order to perform and match the previous model. AI will race this vehicle in the Experienced tier on occasion.</p>	<p>Alive/Driving, On Fire (Dead)</p> <hr/> <p>Weapons Cost</p> <p>Mines: 450 Spikes: 500 UberBoost: 675 Oil Spill: 325</p>	<p>Price: \$ 3500 \$ 900 full repair, Max Speed:65-80,</p> <p>Scale: 3 *UGU (Unity Game Unit).</p> <p>Engine Upgrade: 1 - \$ 1250 2 - \$ 2500 Tire Upgrade: 1 - \$ 1000 2 - \$ 2000 Armor Upgrade: 1 - \$ 200 2 - \$ 550</p>	<p>3D Model, Texture</p>

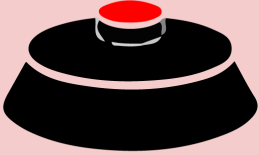
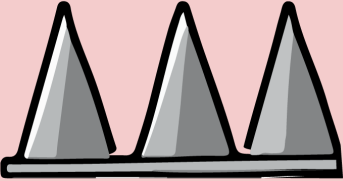
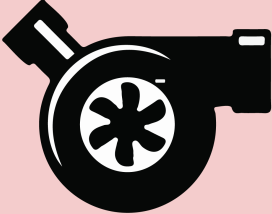


<p style="text-align: center;">Van</p>  <p style="text-align: center;">(Tom McParland, 2015)</p> <p>Third vehicle available to the player, the best vehicle that races in the Novice tier, and is the second worst in the experienced circuit. Fully upgraded, it can win the experienced and with skilled driving can win a novice in the completely vanilla (with no upgrades)</p>	<p>Alive/Driving, On Fire (Dead)</p> <hr/> <p>Weapons Cost</p> <p>Mines: 450 Spikes: 500 UberBoost: 675 Oil Spill: 550</p>	<p>Price: \$8 500 \$ 1500 full repair, Max Speed:75-95,</p> <p>Scale: 3 *UGU (Unity Game Unit).</p> <p>Engine Upgrade: 1 - \$ 2500 2 - \$ 3800</p> <p>Tire Upgrade: 1 - \$ 2500 2 - \$ 3000 3 - \$ 4000</p> <p>Armor Upgrade: 1 - \$ 1000 2 - \$ 1300</p>	<p>3D Model, Texture</p>
<p style="text-align: center;">Corvette</p>  <p style="text-align: center;">John Machaqueiro, 2016</p> <p>The Corvette is the second best vehicle used in the experienced tier. Fully upgraded it can even win races in the pro. If the player is racing the vanilla version of the car in the novice tier, he must do so with care as the repair cost of the vehicle is way more than the potential winnings. This this the first vehicle that can realistically compete in the pro tier.</p>	<p>Alive/Driving, On Fire (Dead)</p> <hr/> <p>Weapons Cost</p> <p>Mines: 600 Spikes: 700 UberBoost: 650 Oil Spill: 750</p>	<p>Price: \$18 000 \$ 3200 full repair, Max Speed: 90 - 110,</p> <p>Scale: 3 *UGU (Unity Game Unit).</p> <p>Engine Upgrade: 1 - \$2500 2 - \$ 3800 3 - \$ 5000</p> <p>Tire Upgrade: 1 - \$2500 2 - \$ 3000 3 - \$ 4000</p> <p>Armor Upgrade: 1 - \$ 2000 2 - \$ 4000 3 - \$ 6000</p>	<p>3D Model, Texture ,</p>

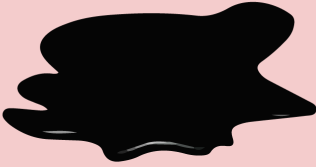
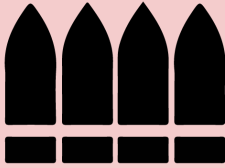




<p style="text-align: center;">Porsche 911</p>  <p style="text-align: center;">Patrick George, 2016</p> <p>This vehicle is the first that can realistically compete in the Pro tier against the Weber. High repair price forces the player to compete in the Pro tier.</p>	<p>Alive/Driving, On Fire (Dead)</p> <hr/> <p>Weapons Cost</p> <p>Mines: 1250 Spikes: 1750 UberBoost: 2250 Oil Spill: 2750</p>	<p>Price: \$35 000 \$5000 full repair, Max Speed: 95 - 120,</p> <p>Scale: 3 *UGU (Unity Game Unit).</p> <p>Engine Upgrade: 1 - \$ 5000 2 - \$ 7800 3 - \$ 10800</p> <p>Tire Upgrade: 1 - \$4000 2 - \$ 5500 3 - \$ 7000 4 - \$ 9000</p> <p>Armor Upgrade: 1 - \$ 3200 2 - \$ 6000 3 - \$ 8000</p>	<p>3D Model, Texture ,</p>
<p style="text-align: center;">Weber F1</p>  <p style="text-align: center;">Michal Fokt, 2013</p> <p>Best vehicle available to the player. Full four stages of upgrades with the prices to match.</p>	<p>Alive/Driving, On Fire (Dead)</p> <p>Mines: 2520 Spikes: 2950 UberBoost: 3300 Oil Spill: 2800</p>	<p>Price: \$60 000 \$10000 full repair, Max Speed: 110 - 135,</p> <p>Scale: 3 *UGU (Unity Game Unit).</p> <p>Engine Upgrade: 1 - \$ 8000 2 - \$ 12000 3 - \$ 16000 4 - \$ 24000</p> <p>Tire Upgrade: 1 - \$ 6000 2 - \$ 8500 3 - \$ 10000 4 - \$ 14000</p> <p>Armor Upgrade: 1 - \$ 5500 2 - \$ 7500 3 - \$ 13 000 4 - \$ 18000</p>	<p>3D Model, Texture ,</p>



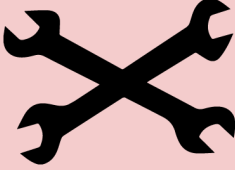


<p style="text-align: center;">Mine</p>  <p>The mine is deployed by the player and opponents during the race behind the vehicle and persists for the duration of the race unless collided with by the player and the opponents. If the player or opponent hit a mine, 10% of the vehicle full health damage is done and the speed is reduced to 0. If the player purchases the mines weapon in the shop 8 mines are available during the race.</p>	Planted/Idle, Exploding	Scale: 0.5 *UGU (Unity Game Unit) Damage: 7%	3D Model, Texture ,
<p style="text-align: center;">Spikes</p>  <p>The Spikes are purchased in the shop and are fitted to the front of the player vehicle for a single race. The spikes significantly increase the damage from collisions and negate head on collision damage to player.</p>	In shop item ,idle , attached to car	Scale: 2 *UGU (Unity Game Unit) Damage: 50% more the side collision.	3D Model, Texture ,
<p style="text-align: center;">UberBoost</p>  <p>The UberBoost is purchased in the shop and for the duration of round gives 150% to top speed while boosting instead of the regular 125 %</p>	In shop item. Idle, attached to car	Scale: 2 *UGU (Unity Game Unit) Damage: 50% more the side collision.	3D Model, Texture ,



<p>Oil Spill</p>  <p>Mutually exclusive to mines, creates a spill on the road. Any Vehicle driving through will lose steering for 1.5s</p>	Planted, Idle	Loss of control duration 1.5s	3D Model, Texture ,
<p>Ammo Pick up</p>  <p>A randomly spawning object on the circuit. Loads 15 % ammunition into the car.</p>	Idle (Appeared), flashing (about to vanish)	Scale: 2 *UGU (Unity Game Unit) Loads 15 % ammunition. Frequency: normal Duration: 20s	3D Model, Texture ,
<p>Boost Pickup</p>  <p>Loads 15 % boost into the car.</p>	Idle (Appeared), flashing (about to vanish)	Scale: 2 *UGU (Unity Game Unit) Loads 15 % boost Frequency: normal Duration: 20s	3D Model, Texture ,
<p>Money Pickup</p>  <p>A randomly spawning object on the circuit. Gives money depending on the tier if collected.</p>	Idle (Appeared), flashing (about to vanish)	Scale: 2 *UGU (Unity Game Unit) Money by tier: Novice - \$ 50 Experienced - \$ 120 Pro - \$ 250 Frequency: normal Duration: 20s	3D Model, Texture ,
<p>Repair Pickup</p>	Idle (Appeared), flashing (about to vanish)	Scale: 2 *UGU (Unity Game Unit) Repairs car by 3 %	3D Model, Texture ,



 <p>A randomly spawning object on the circuit. Gives repairs the vehicle if collected. Can also be collected by AI.</p>		<p>Frequency: normal</p> <p>Duration: 20s</p>	
<p>Big Money Drop</p>  <p>Occasionally larger money drops will spawn out of the way, more lucrative.</p>	<p>Idle (Appeared), flashing (about to vanish)</p>	<p>Scale: 2 *UGU (Unity Game Unit)</p> <p>5 x Regular Money drop.</p> <p>Frequency: Very rare</p> <p>Duration: 20s</p>	<p>3D Model, Texture ,</p>
<p>Big Repair drop</p>  <p>Occasionally larger repair spawn out of the way, more lucrative.</p>	<p>Idle (Appeared), flashing (about to vanish)</p>	<p>Scale: 2 *UGU (Unity Game Unit)</p> <p>30 % vehicle repair.</p> <p>Frequency: Very rare</p> <p>Duration: 20s</p>	<p>3D Model, Texture ,</p>





Systems

- **Main Menu System / Gameflow (level loading etc).**
- **Input.**
- **Camera System.**
- **Google Maps API integration**
- **Collision and Navmesh from data generation.**
- **Combat System - Taking and Dealing Damage.**
- **AI.**
- **AI only races simulation**
- **Game manager (level counter)**
- **Level system end Shop.**
- **Level asset management system.**
- **Animation Systems.**
- **Damage screen fade and effect for damage feedback**
- **Money**
- **Upgrades**
- **Random object spawning.**
- **Leaderboards**

Technology use

The data stream contains the map and texturing data, along with the meshes for the models. The game ingests that data, renders it overlays the UI.

Technology limitation

As of 2014, access to the Google Earth API has been deprecated. An alternative API such as Cesiumjs.org can be used and the buildings remodeled.

Skill

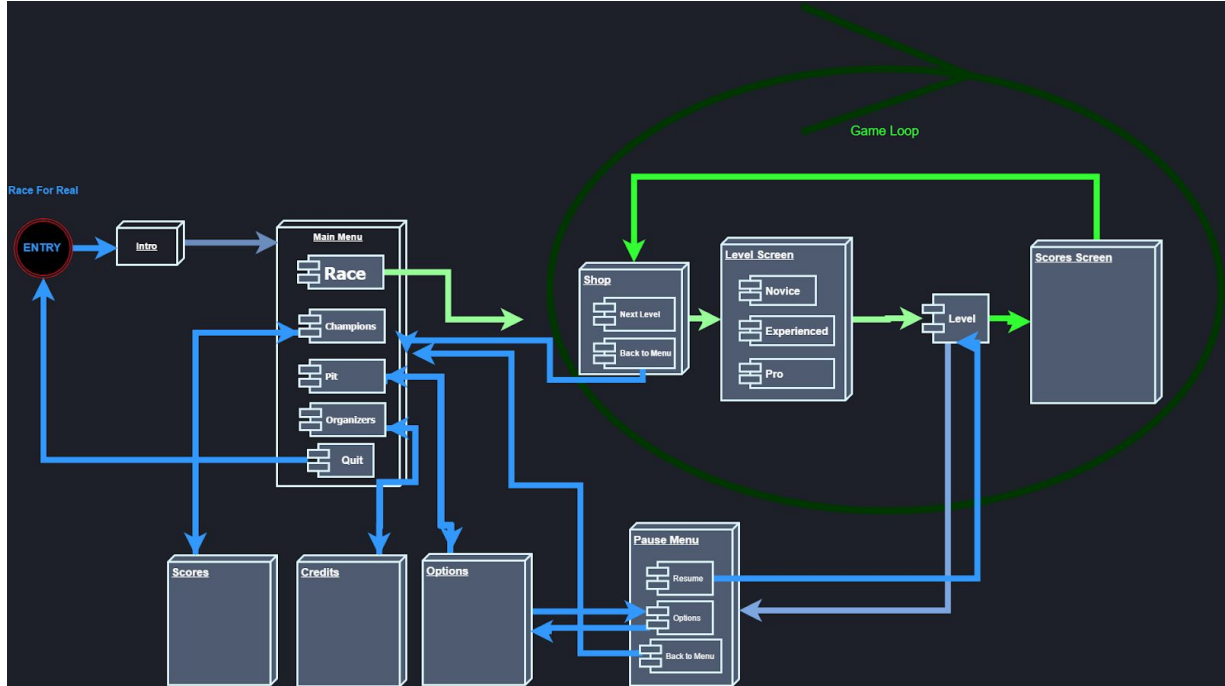
As the player plays the game, he/she gets better at controlling the vehicle and becoming more aggressive. Skillful use of the handbrake will aid drifting, tough but essential skill to master. Skillful use of handbrake is essential. The player will often be outmatched by the AI and will have to use dexterity and quick thinking in order to compete. The player gets better at aiming the cannon (which fires only in the direction the vehicle faces) and at laying mines. The player times upgrades better and begin to save money.

Chance

Power Ups that spawn on the circuit at random times and semi-random locations. They greatly aid progress. In addition, the player can randomly receive submissions at the shop such as a contract to kill a specific AI player or to pick up a certain item on the level.



UI Flow Chart



Main Menu



Pause Menu



Shop (End of Level)



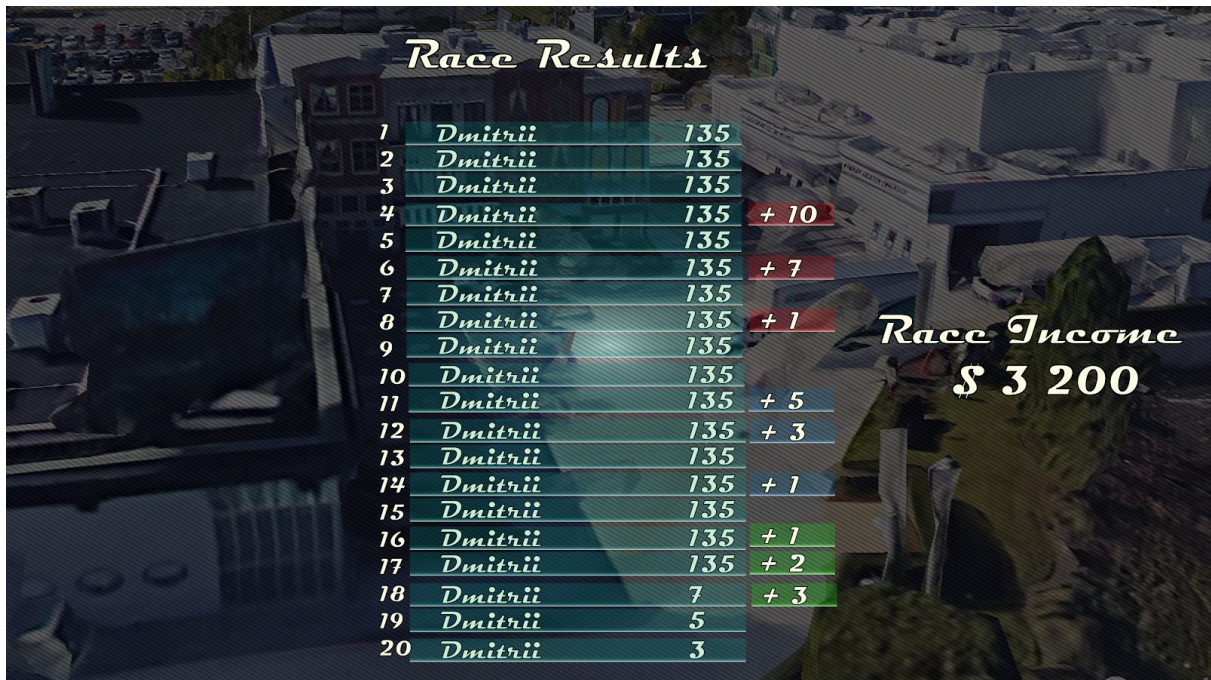
HUD



Tier Selection



Race Results



<i>Race Results</i>			
1	<i>Dmitrii</i>	135	
2	<i>Dmitrii</i>	135	
3	<i>Dmitrii</i>	135	
4	<i>Dmitrii</i>	135	+ 10
5	<i>Dmitrii</i>	135	
6	<i>Dmitrii</i>	135	+ 7
7	<i>Dmitrii</i>	135	
8	<i>Dmitrii</i>	135	+ 1
9	<i>Dmitrii</i>	135	
10	<i>Dmitrii</i>	135	
11	<i>Dmitrii</i>	135	+ 5
12	<i>Dmitrii</i>	135	+ 3
13	<i>Dmitrii</i>	135	
14	<i>Dmitrii</i>	135	+ 1
15	<i>Dmitrii</i>	135	
16	<i>Dmitrii</i>	135	+ 1
17	<i>Dmitrii</i>	135	+ 2
18	<i>Dmitrii</i>	7	+ 3
19	<i>Dmitrii</i>	5	
20	<i>Dmitrii</i>	3	

Race Income
\$ 3 200





Level Design

Environmental Overview


- **Summary** - The world closely resembles real world conditions. 3D buildings pulled from the map will represent the collidable obstacles the player will be facing. The initial map will focus on the Full Sail, Semoran/Baldwin Park Area and Downtown Orlando.
- **Race Types** - Two basic types of races exists: The circuit race which consists of multiple laps around the same circuit and the destination race which has the players from one point to another (longer).
- **Camera/FOV** - Chase camera behind the vehicle will highlight the 3D aspects of the level as perspective shifts while the player is advancing.
- **Aesthetic expectations** - The imagery and design is drawn directly from Google Earth. Hence the imagery will be as close to realistic as technology would allow. Some deformation of objects is expected, but it has no impact on gameplay.
- **Scale of the space** - Scale represents real life proportions between obstacles and pathways. The Full Sail circuit spans the 1.5 mile circuit traced around buildings.
- **Environmental objects**

Interactive

The only truly interactive objects on the level are the vehicles/ mines and pickups.

Non-Interactive

The rest of the environmental objects are static and collidable. Such as buildings, trees and other static map objects.



Level Concepts

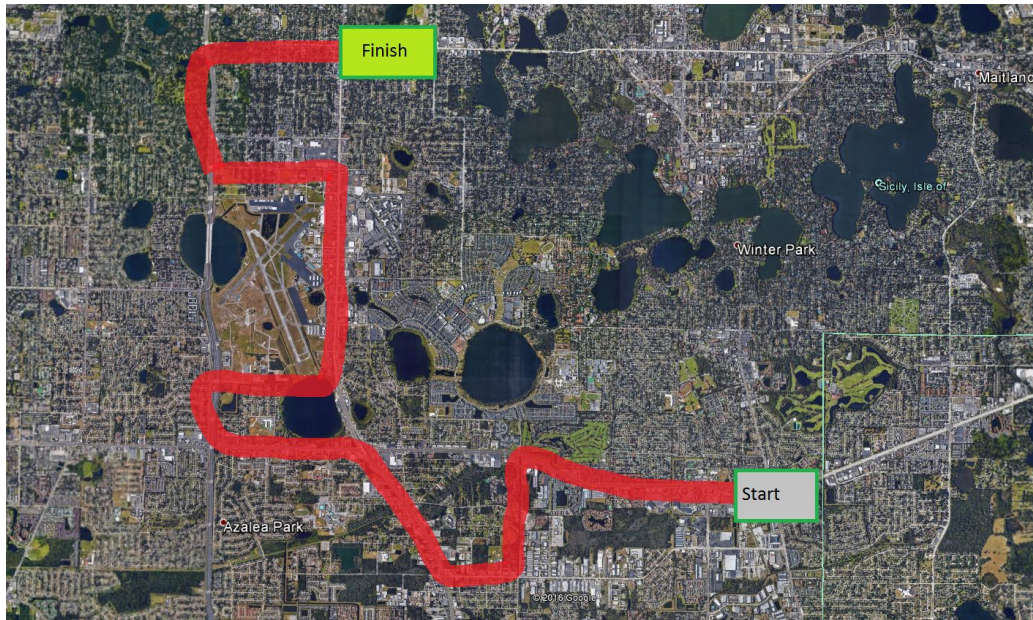
Circuit Race (Novice) - Full Sail



Destination Race (Experienced) - HomeRun



Destination Race (Pro) - Downtown



Color and texture expectations

The textures and coloration data is gathered from the Google Maps data.

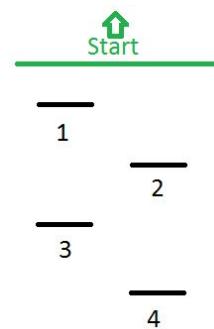
Light placement and directionality

The Google Maps built in lighting system (in the time of day independent mode) will be used.

Placement of key interactive objects

Spawn locations for pick is predetermined, however the type of object spawned (Ammo, Boost, money etc) is randomly generated. For every map and corner, the optimal path for the AI is predetermined. The AI will attempt to follow this "race line" as closely as possible. The AI will not make attempts to deviate from this path to gather pick ups. Should the AI be deviated from the race line by other AI or the player, an immediate attempt to return to the race line will be taken.

Vehicles positioned at predetermined starting positions before the finish line. The placement is 1 - 4, with 1 being closer to the start line and thus ahead of the other cars illustrated by the diagram to the right. Placement order will be determined by the ranking table such that the drivers (AI and Player) that are lower, will start closer to the first position and ahead of the other cars. In the event of a tie on the table, the contested position will be determined at random.



Placement of key non-interactive objects

The non-interactable objects will be determined by the data drawn from the map. Collision meshes and pathfinding data will be generated from this data as well.



Level Flow Chart

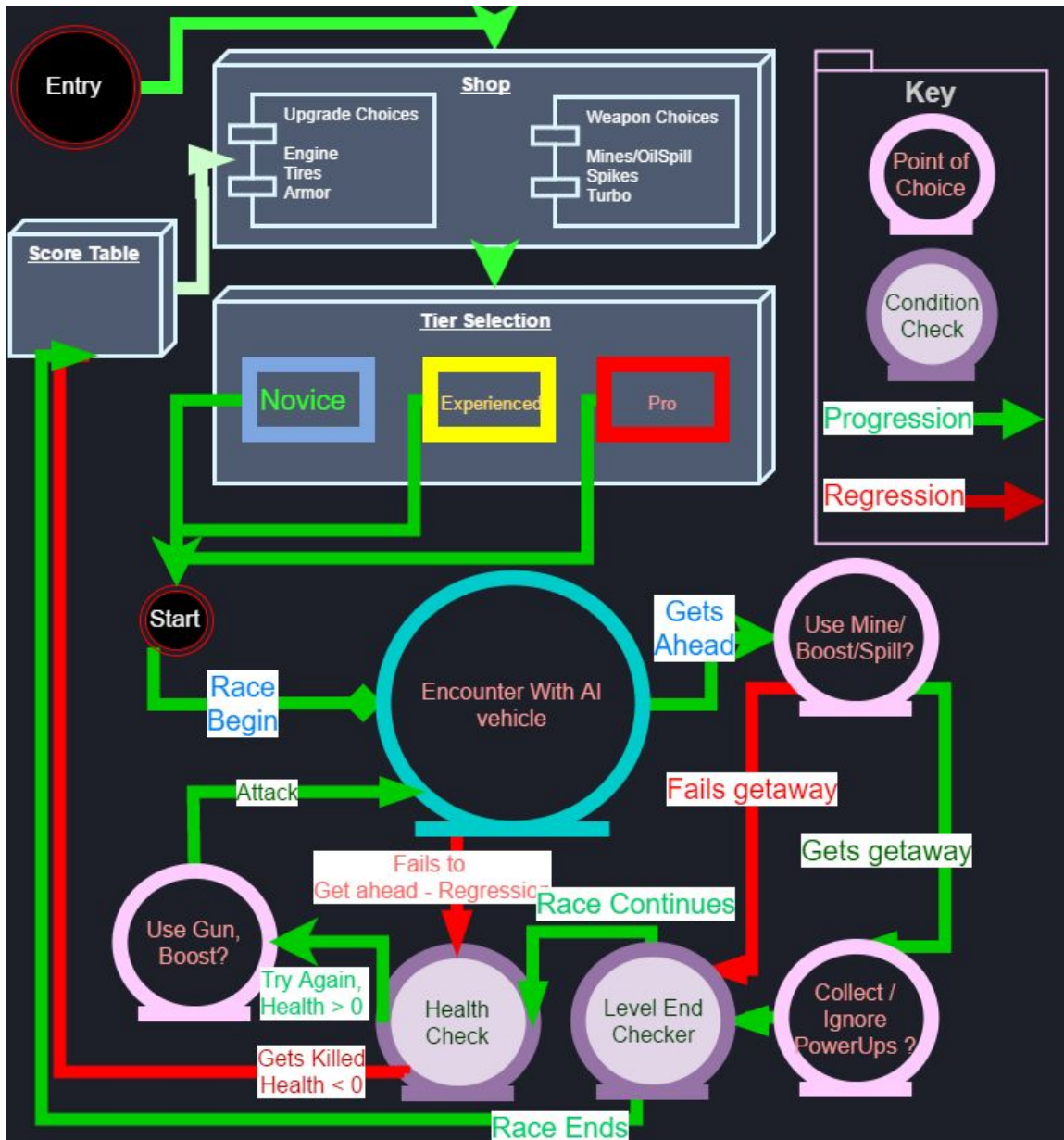


Chart Breakdown

The player first is an encounter with another vehicle in the game. In case an unsuccessful encounter (in which the player does not get ahead) the player will attack attack the enemy from the back. In the case of a successful encounter, and the player got ahead - he must find a way to stay ahead. During a tight race the player might choose to ignore and forgo some pickups. The race continues until the level end condition is met.



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