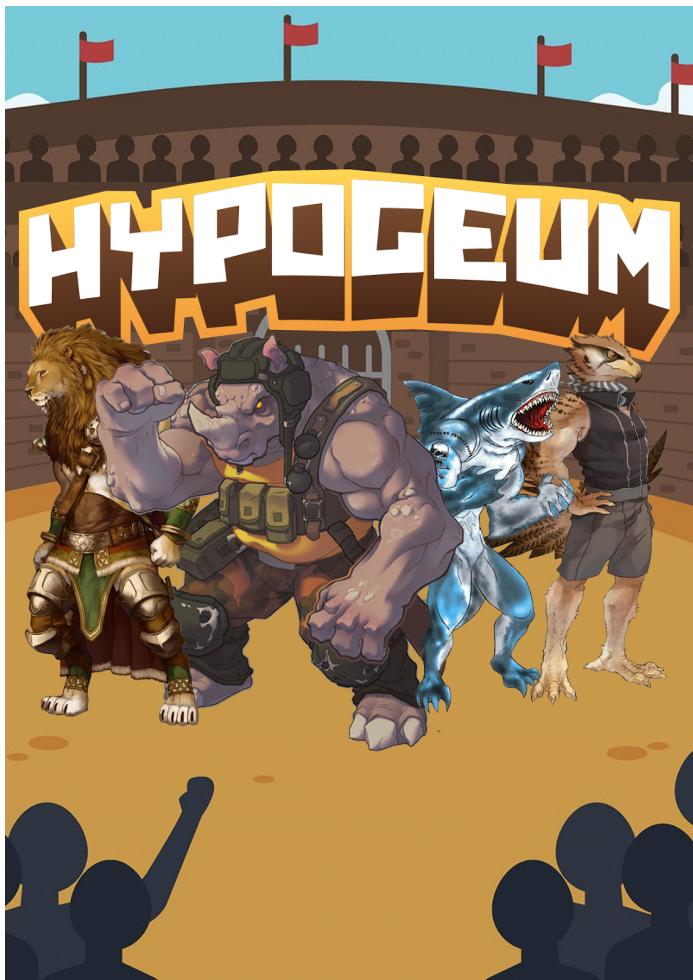


# *Game design*



## **Abstract**

Since humans had left the Earth, centuries have passed and the blue Planet is now inhabited only by the animals, that have learned to manage the technology of our descendants and to create their own. From that moment, a long war among the different species has taken act, to establish which was the best one. Inspired by the ancient books on “mythology”, they decided to set their battles in a huge arena: the Hypogea. Rather than kill each other in “primitive” ways, they clashed each other using different cars, depending on the species they belong. Now, only four teams have left – Eagles, Lions, Rhinos and Sharks – and the outcome is more uncertain than ever. Who will be the audience’s favorite? Who will win the war? And, most important, who will obtain the supremacy?

## **Team Lama**



927539 - Carrarini Andrea

894173 - Cerrato Loris

939930 - De Cosmo Andrea

931468 - Maione Michele

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## 1 Changelog

## 2 Vision Statement

---

“Hypogeum” is a **shooting/racing** game, where four couples of players belonging to the same animal species face each other in a huge arena (called Hypogeum) trying to defeat their enemies and be the **last team standing**. Each team is on a car, where one of the member plays as **driver** whereas the other one plays as **shooter**, equipped with a faction-specific **weapon**. During the matches, in addition to its opponents, each species must pay attention to the surrounding environment: different **traps** and **NPCs** (from the small ones to the bigger ones) could interfere with the players’ battle and make their life harder. Nevertheless, as in every self-respecting challenge, each team has its **supporters** in the audience that, through **thrilling actions** performed by the players, can get excited for their heroes and help them with useful power-ups. In order to be the last species in the arena, the **cooperation** between the members of a team becomes **essential**. Once the battle begins, they are **two**, alone against their opponents, and can only **rely on** each other and on their nature: will their **instinct** take over or will they be able to avoid being overwhelmed and exploit their **reason**? Only the most **courageous** and **sly** players can lead their species to the victory and gain the **supremacy** on all the other ones. A periodic leaderboard is used to keep track of players’ results and battles, in order to establish, at the end of each season, which **species** has been the best one and who have been the **bravest** between its **heroes**.

### 2.1 Game genre

“Hypogeum” can be played either as a **driving game** or as a **third person shooter**, depending on player’s choice.

### 2.2 Look and feel

The game uses a **cartoonish graphics** and represents a **futuristic world** where the animals have taken the control of the existing technology and have started a war to gain the supremacy. The main characters are **evolved humanoid animals** belonging to four species (eagles, lions, rhinos and sharks) able to drive cars and shoot, facing each other in arena they called “Hypogeum”.

### 2.3 Game logline

Choose your **species** and face your **opponents**: are you **brave** and **skilled** enough to gain the **supremacy**? Jump on your car and show to everyone what are you capable of!

### 2.4 Gameplay Synopsis

In “Hypogeum”, the players choose one of the four existing animal species (that can be their favorite one, the one that embodies their ideals, way of thinking, etc.) and try to become the hero of their faction, battle after battle.

The matches are set in a huge arena, called “Hypogeum”, where four teams of two players face each other with the aim of defeating all their opponents and become the last team standing.

Each team represents an animal species and is made up of two players, both on the same car but with different roles and tasks:

- The driver:
  - drives the car, being aware of the environment (obstacles and traps in the arena);
  - avoids the enemy teams’ shots and tries to put his teammate in the best possible conditions to fire their opponents;
  - activates his ultimate ability, depending on the chosen species;
  - uses the ramps and performs tricks to increase the audience’s hype for the match.
- The shooter:
  - shoots the enemies with his specie-specific weapon;
  - increases the audience’s hype when damaging other players;
  - activates his ultimate ability, depending on the chosen species;
  - shoots to the traps to activate their effects, trying to damage the enemies.

- Both:
  - try to collect the power-ups dropped by the audience (driving toward/shooting to them) and use them;
  - decide if collect the instinct coin or the reason coin that will start a challenge whose reward will affect the team statistics for the whole match;
  - face the NPCs, trying to destroy them shooting or running over, depending on their characteristics.

At the beginning of the battle, each team car spawns in a different area of the arena. From the very beginning, the species must make a choice: are they going to boost their instinctive abilities or the reasoning ones? Maybe none of them, but their choice depends on their faction and on what kind of game they want to play. The choice of which strategy to follow for the whole match has an important role in the first phases and can lead to different outcomes! To worsen the situation, during the match, several elements can make the environment hostile, from traps to NPCs and random events that sometimes may occur, but the audience can help the team: thanks to thrilling actions, the supporters' hype can increase, up to the point that someone on the bleachers will give a power-up to his species' heroes.

For the players, the cooperation between the driver and the shooter becomes a fundamental element: the only way to survive in the arena and to reach the objective is helping each other, joining the forces against the enemies and the environment.

At the end of the match, the game assigns a score to each team member, depending on their results in the battle, that is added both to their personal score in their species leaderboard and to the overall leaderboard of the factions.

At the end of each season, the best species is decreed, and the bravest players are selected among its members. These will receive special in-game rewards to celebrate their achievements and abilities: they distinguished from all the others for their skills and courage and are the heroes of the dominant species.

## 3 Audience, Platform, and Marketing

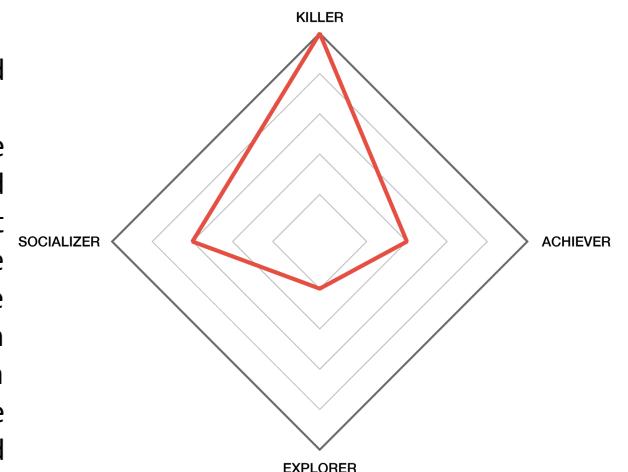
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### 3.1 Target Audience

The game we are designing is for the Killer-type gamers.

We define them as players who really enjoy competition and demonstrating their skill and mastery on the game.

These players love winning, so with Hypogea we are developing a stimulating competition on many directions and not only on winning a single game. Most of the mechanics that we will see deeper later in the gameplay section (like the audience participation, the specie ranking, the objectives, the boss) are designed to provide the player sub-goals that can make the player feel very good at the game if achieved. As a secondary type, due to its co-op nature, we imagine this game to be interesting in a way also for socializers, who can find friends in game to play the co-op, or just play with a partner:



- Killer (100%): As we said in the introduction, the whole game is designed around the concept of "dominating", from the lore to the gameplay. The idea itself being in an arena was developed to provide the player the feeling of being at the centre of the attention and demonstrate to be the best, like a "real gladiator", but in a different environment. Also, due to its co-op nature and complexity of the possible in-game options we imagine Hypogea to be a "easy to access / hard to master" game, where the very good players can shine in the highest level fights.
- Achiever (40%): The game itself is not really designed around "collectibles" or similar features, but we imagine the species ranking as an appealing factor for this kind of player.

- Explorer (20%): The world external to the arena is not developed in game, so there is no real possibility to explore much. Despite that, the arena in which the matches are carried on is pretty big, and moving around it can be very beneficial in order to win the game; still, we don't consider this as a feature that can satisfy explorer players that much.
- Socializer (75%): The game is not playable by one player alone. We provide the possibility to be matched with another player if the duo is not pre-made but still, every player needs to have a partner to join the game. This, plus the system of species (which is basically a "macro-guild"), can result very appealing for socializer players, who are able to play with their friends or find new ones to stably play with.

### 3.1.1 Age and distribution

We expect our target to be overall a bit younger than average, but still covering well the main demographic portions.

Analyzing data from different sources, we imagine this kind of distribution:

Age	10-14	15-19	20-23	24-27	28-30	30+
Distribution	19%	31%	26%	14%	7%	3%

This sets 18 as the average age of our players.

Despite shooting and racing games usually have a male audience as the very majority of their target, we imagine Hypogea to be a bit more appealing for girls also, due to its non-violent / non-realistic style. A huge success like Fortnite, based most of its fortune on this factor, attracting girls and very young kids thanks to its "comic / fun" style (percentage of male and female players in 2018 was 72/28); of course Fortnite is a particular case and it can't make a statistic by itself, but it represents a good case study.

Considering this, and considering a distribution of approximately 93/7 %, in the "classical" existing shooting/racing games, we expect something around 80/20 for our game.

(Sources: <https://www.statista.com/statistics/865625/fortnite-players-gender/>  
<https://quanticfoundry.com/2017/01/19/female-gamers-by-genre/>)

### 3.1.2 Geographical spreading

Finally, about the geographical spreading of the game, we have no real reason to believe that the game could find any sort of big problem in specific areas or nations.

The only concern we imagine possible, is connected with animals considered sacred in some countries, but at the moment we have no evidence of religious impediment connected to any of the four animals we present in the game.

(Source: [https://en.wikipedia.org/wiki/Animal\\_worship](https://en.wikipedia.org/wiki/Animal_worship))

### 3.1.3 Personas

#### THE COMPETITIVE KID



*"Let's smash these noobs bro, they don't stand a single chance against us!"*

BUSY ————— FREE TIME

SINGLE PLAYER ————— TEAM ORIENTED

SEARCH NEW GAMES ————— FOLLOWS TRENDS

##### SIMONE

17 YEARS OLD

MILAN, ITALY

Is quite expert in gaming

Owns many different consoles

Plays with his two brothers

Spends around 15 hours a week

playing on different platforms

Can spend some money in games

##### ABOUT

Simone is a kid who attends the second year of high school; he is a mid-core gamer, who follows some gaming channels on Youtube and some streamers on Twitch. He has two younger brothers who also play games with him, and they usually play with their friends the games that become the trend of the moment.

##### MOTIVATIONS

- He wants to imitate his favourite streamer, who tried the game and is very good at it.
- He is very competitive and wants a game in which he can constantly show his skills, with low luck involved.

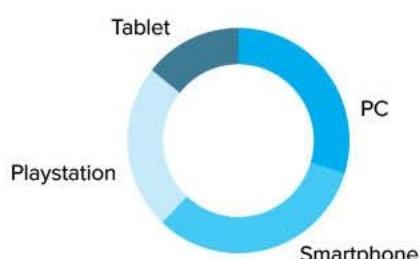
##### CHALLENGES

Achieve tangible results in the game before his friends and brothers.

##### NEEDS

A game which is simple to approach but hard to master.

##### DEVICES USED



##### CHANNELS USED

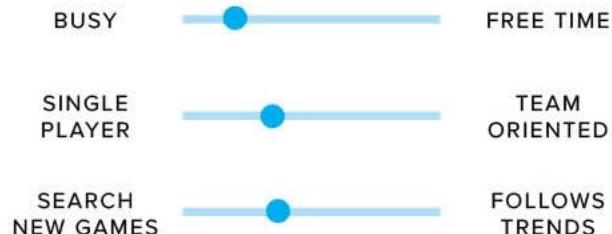


The competitive kid.

# THE NERDY STUDENT



*"Let's have some fun, I want to kick some asses before going to bed"*



## SOPHIE

23 YEARS OLD  
LONDON, ENGLAND

- Has played many games as a teen
- Owns only a computer
- Enjoys playing with her boyfriend
- Spends 8 hours a week playing
- Wants exciting experience in short time, usually at night

## ABOUT

Sophie is a young girl who attends her fourth year in university. She has always enjoyed videogames and have many friends who play with her. Her boyfriend is also a gamer and sometimes they find new games to play together. She would like to play more but the university commitments don't allow her to.

## MOTIVATIONS

- Try a new game that was suggested in her favourite review site
- She wants a game that she can play with a partner
- Discuss of the game with friends to improve and tell about fun games

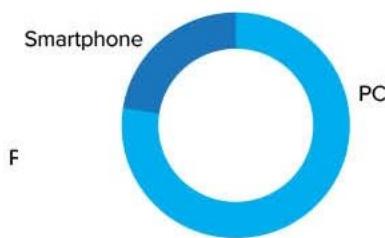
## CHALLENGES

Find her favourite class and master it soon, to win more games

## NEEDS

A game with short but exciting matches that she can play at night

## DEVICES USED



## CHANNELS USED



The nerdy student.

## 3.2 Platform

We chose to develop the game for PC for many reasons. The first is that the control of the camera is much easier with a mouse compared to any other device, and needing a good coordination with the driver, having a good control of the shooter camera is extremely important. Moreover, using mouse and keyboard helps the players to control in a better way the characters, obtaining better results.

Besides that, since our game is not for hardcore gamers, PC allows us to expand more easily on a wider base in a shorter time; then, if the game gets successful, we could consider the possibility of release the game even on other consoles, such as PlayStation, Xbox and Nintendo Switch.

Nevertheless, until now we are not thinking about porting the game on mobile platforms since the weak internet connection and the difficulty to manage the controls on a touch screen are critical points in making the experience enjoyable and well developed.

## 3.3 Minimum system requirements

The minimum system requirements make the game playable in the vast majority of computers, so we have not deprived ourselves of market shares due to hardware architectures.

CPU	1 GHz
RAM	2 GB
O.S.	Windows 7 SP1+
Graphics card	With DX10 (shader model 4.0) capabilities
Audio card	✓
Broadband internet connection	✓
Keyboard	✓
Mouse	✓

## 3.4 Top performers

It is important to make a careful analysis of the major competitors already on the market, both to take inspiration and to obtain a share of users.

### 3.4.1 Crossout (2017)

Crossout is a post-apocalyptic MMO-action game for PC and consoles developed by Targem Games and is published by Gaijin Entertainment.

The game allows players to construct their own post-apocalyptic vehicles to be used in PvP engagements with real players and PvE missions involving AI-participants.

The battles are real-time and involve two teams of players and AI-participants. To win, a team must eliminate the enemy team, capture base or perform other tasks depending on the game mode.

This game also provides a system of factions (at the moment they are 7); each faction has its own gameplay features and story.



### 3.4.2 H1Z1's Autoroyale (2018)

Autoroyale is an expansion of the famous battle royale H1Z1, developed by Daybreak Game Company.

The gameplay is based on the same logic of a battle royale, but the players can only move and shoot through their cars.

Players start the game inside a box placed in the map, then this box opens, leaving the players and their vehicle free; every car is controlled by four players (one drives and three shoot). Driving over power-ups, activate them and shooting some special boxes, it's possible to acquire new weapons and equipment. Players have to escape a circle that is closing over and over (otherwise they die), and the last team standing wins.



### 3.4.3 Borderlands 2 (2012)

Borderlands 2 is an action role-playing first-person shooter video game developed by Gearbox Software and published by 2K Games. The gameplay revolves around the completion of missions and the collection of randomly generated "loot" (such as weapons, shields, skins, and other items) with various rarities, statistics, and elemental effects. Four playable character classes are available in the base game, each with their own unique abilities and skill trees.

Borderlands 2 was one of the best-selling games of 2012, and has become the best-selling game in the history of 2K Games, with 8.5 million copies sold by February 2014.

We consider Borderlands a competitor, since they implemented a Co-Op modality, in which the players can also drive vehicles and shoot from them, even if it's not divided in matches, but more of an "open world".



### 3.4.4 Rocket League (2015)

Rocket League is a vehicular soccer video game developed and published by Psyonix. The game is based on controlling a rocket-powered car and use it to hit a ball that is much larger than the cars towards the other team's goal area to score goals, in a way that resembles a soccer game.

Players' cars have the ability to jump to hit the ball while in mid-air. The players can also pick up a speed boost by passing their cars over marked spaces on the field, enabling them to quickly cross the field, use the added momentum to hit the ball,



or ram into another player's car to destroy it.

Matches can be played from between one-on-one up to four-on-four players, as well as casual and ranked. Rocket league is a competitor because of the variety of similar elements with our game: it is also played in an arena with cars, requires a good amount of coordination in driving and with the team, periodically provides in-match power-ups.

### 3.4.5 Fortnite (2017)

Fortnite is an online video game developed by Epic Games.

The game has three distinct game modes, sharing the same general gameplay and game engine.

“Fortnite Save the World” is a cooperative shooter-survival game for up to four players that have to fight off zombie-like creatures, while defending objects through the fortifications they can build.

“Fortnite Battle Royale” is a free-to-play player-vs-player battle royale where up to 100 players fight until one of them is the last one standing. Weaponless players airdrop from a “Battle Bus” that crosses the map and, when land, they try to survive and kill other players, while the map shrinks down, time after time.

In “Fortnite Creative”, that is a sandbox game mode, the players are free to create their own worlds, battle arenas, race courses, challenges and so on. In the first two modes, players use a pickaxe to knock down existing structures on the map and collect basic resources that then they use to build fortifications such as walls, floors or stairs, that can also be edited adding doors or windows, etc. Depending on the material used, these items have different durability properties that can change if they are updated with stronger variants using more materials. “Fortnite Battle Royale” is a resounding success, involving more than 125 million player in less than a year and earning hundreds of millions dollars per month, up to become a cultural phenomenon. The monetization is done through V-Bucks, that are the in-game currency buyable with real-world funds or earnable completing missions or achievements, used to buy pinatas containing random items.

We consider Fortnite as a competitor since recently Epic Games started a timed event (in April) called “Air Royale” during which team of players face each other to gain exclusive rewards. One of the member of the team plays as pilot of the plane and has to drive the vehicle and use the on-board weapons, whereas the other one is like a “passenger” and uses his personal weapons to hit the enemies.

## 3.5 Feature comparison

	Crossout	Autoroyale	Borderlands 2	Rocket league	Fortnite	Hypogeum
Co-Op (on same vehicle)	No	Yes	Yes	No	Yes (limited to an event)	Yes
Real time coordination	No	No	Yes	No	Yes (limited to an event)	Yes
Arena	No	No	No	Yes	No	Yes
Different classes	Yes	No	No	No	Yes	Yes
In-match objectives	No	Yes	No	No	No (they are in-game or	Yes



					connected to events)	
Neutral enemies	No	No	Yes	No	No	Yes
Factions	Yes	No	No	No	No	Yes
Rewards for stylish plays	No	No	No	No	No	Yes
Off-match car customization	Yes	No	No	Yes	No	No
Game mode	Last-standing	Last-standing	PvE	Scoring goals	Last-standing, Sandbox, Cooperative Survival Shooter	Last-standing
Graphic style	War	Post-apocalyptic	Semi-realistic, 2,5D	Cartoon	Cartoon	Cartoon
Platforms	PC, Xbox, PS4	PC, PS4	PS3, Xbox, PC, macOS, Linux, PS Vita, PS4	PS4, Nintendo Switch, Xbox, PC, macOS, Linux	PC, PS4, Nintendo Switch, Xbox One, macOS, iOS, Android	PC

As we can see from the analysis up here, the main features that differentiate Hypogea are the its co-op mode which is one of the core mechanics, more than the others game presented here (most of them have co-op meant as teamplaying, in our case the actions are actually carried on as two in real time, needing very good coordination).

Besides that, we differentiate for the strong focus on the factions system and the mechanic of the audience, which is non existing in the most famous competitors.

## 4 Legal Analysis

---

The "Hypogea" name is free from copyright.

PEGI 7: no bad language, violence in a not realistic context, online gameplay.

Most of the resources and assets used in the game are available with a free license, some assets might be purchased from the Unity Asset Store.

The project is implemented in Unity, with a Personal Edition version.

## 5 Gameplay

---

### 5.1 Overview

You can choose between 4 factions: Lions, Sharks, Eagles and Rhinos.

There are 2 roles: driver and shooter, both collaborate to win the battle race and gain points for their faction.

Your objective is to defeat the enemy teams by destroying their cars.

In the arena there are also mobs, traps, jumps, audience... try to avoid dangers kill enemies and win for the glory of your species!

## 5.2 Gameplay description

After the matchmaking ended (when the 4 teams have been formed) the game starts with the teams' cars in different spawn points of the arena, then the driver is free to move everywhere in the whole map, doing jumps, collecting power-ups, trying to have collisions with other teams, collecting Rational or Instinct coin or running over the AI mobs.

Obviously, your driving ability is key to avoid the dangers of the arena and to let your shooter try to hit the enemy teams to knock them out of the game.

The shooter instead must use his weapon to hit both AI mobs and enemy teams, his aim skill is fundamental to eliminate the opponents and lead his team to the victory.

Jumps will determine the audience entertainment that will lead to power-ups thrown to their faction's champions inside the arena.

Different factions have different car stats and a different class special ability, discussed in the [5.2.2.1 Stats](#), that will charge up during the game along with time and kills, either of mobs or players.

Every team at the beginning of the match can see two different coins: one for his Rational side and the other for his Instinctive side. Picking up one (driver) or shooting it (shooter) will make the other disappear, forcing you to make a choice between your human side or your beast one.

Once you have collected one, you will have to complete a task to get a boost to the respective stats of the side you have chosen, anyway a detailed description will be presented in chapter [5.2.6 Reason vs Instinct](#).

Bumping with your car into a mob will damage it, while bumping into an enemy car will damage both cars differently, basing on their resistance stat. Bumping into walls will not damage your car.

The game **lasts 15 minutes** and **ends** when only **one team remains**. What happens if there are still 2 or more teams alive is discussed in chapter [5.2.1.1 Tie when time is up](#).

Other problems that may occur are when the minimum number of players is not reached or if one or more players lose the connection. These cases are described respectively in chapter [5.2.1.2 Not enough players](#) and [5.2.1.3 Connection lost](#).

In the arena there will be traps the driver should avoid or the shooter can activate from distance, discussed in chapter [5.2.3 Traps](#).

Along with traps, the arena will be populated with mobs of different type and dimensions, a full list will be presented in chapter [5.2.4 Mobs](#).

The audience will have a part in the game, a full explanation of audience hype and power-ups will be presented in chapter [5.2.5 Audience Hype](#).

## 5.2.1 Gameplay special cases

In the gameplay there are 3 special cases that need to be explicitly discussed:

- tie when time is up;
- not enough players;
- connection lost.

### 5.2.1.1 Tie when time is up

After **15 minutes** the team with **more health** is declared to be the winner. If there is a tie, 2 minutes overtime start, during which the teams have to inflict to their opponent(s) the most possible damage. At the end of the extra time, the winning conditions are checked again: the remaining team or the one with more health wins, whereas if these conditions are not satisfied, the players drew and the match ends.

### 5.2.1.2 Not enough players

During the matchmaking may happen that the game does not find the minimum number of players required to start a match (8 players). In that case, after two minutes, the player can choose to join a smaller lobby of 4 or 6 other players (playing a match respectively with 2 or 3 teams, instead of 4).

### 5.2.1.3 Connection lost

The connection lost case is divided in two smaller cases, one for the player that loses the connection and the other for his teammate.

The player that has a connection lost can not rejoin the match. If it happens for the first time in the last two hours, the player is kicked out of the match without any penalty to his score, otherwise for each following connection lost, in addition to being kicked out, the player loses an incremental amount of points. In this way we aim to prevent unfair behaviours, such as rage quits, and collateral damage to the teammates that could get a disservice.

The teammate left alone can choose if he wants to play alone, controlling both the driver and the shooter for the rest of the match, or if he prefers to return to the home, without any score penalty.

## 5.2.2 Factions characteristics and abilities

Each faction has different value of statistics and different special abilities, one for attack and one for defense. They can be charged with time for the driver and with damage and kills, both of players and of mobs, for the shooter.

The stats are:

- Attack: it affects the amount of damage the shooter inflicts with his weapon;
- Resistance: it affects the amount of damage from collision you cause to others and that you get;
- Health: it is the health pool of the car, when it reaches 0 your team is eliminated;
- Speed: the maximum speed the car can reach;
- Agility: it affects the way curves are done;
- Fire rate: it regulates how fast each faction weapon can fire (the fire rate value is hidden to the players).

### 5.2.2.1 Stats

Here's the full list of each faction its stats value:

Property	Lions	Sharks	Eagles	Rhinos
Health	1200	1000	800	1500
Attack	9	7	5	7
Fire rate	6	7	9	5
Resistance	6	7	5	9
Speed	6	7	9	5
Agility	7	6	9	4

### 5.2.2.2 Special abilities for each faction

In the following, we present the lists of the special abilities of each species:

#### Lions

Ability	Name	Player	Description
Attack	Grenade	Shooter	Throws a grenade causing massive damage
Defense	Roar	Driver	Makes all cars spin on their position, for a limited amount of time, within a certain range

#### Sharks

Ability	Name	Player	Description
Attack	Bite	Driver	Executes a straight dash and the car bites what's in front, causing damage instantly and damage over time
Defense	Shark skin	Shooter	Reduces all incoming projectiles damage and cancels all incoming collisions damage

#### Eagles

Ability	Name	Player	Description
Attack	Net	Shooter	Throws a net, blocking for a limited amount of time all players hit

Defense	Tornado	Driver	Summons a small tornado around the car, deflecting all incoming projectiles for a limited amount of time
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## Rhinos

Ability	Name	Player	Description
Attack	Charge	Driver	Charges furiously at a higher speed and increases caused collision damage
Defense	Shield	Shooter	Creates a shield around the car with a health pool and no time limit

### 5.2.3 Reason vs Instinct

The animals of the game world belongs to **evolving species** that, time after time, started to get humanoid appearance and behaviours. Since this evolutionary process has **not been completed** yet, sometimes one between their **rational** and **instinctive** natures may **prevail** on the other and affect what they do and their way to act.

For these reasons, in Hypogemum players have the chance to choose between their **rational** or **instinctive** side. At the beginning of each match the team can decide to collect an **Instinct** or a **Reason Coin** (or none of them) modifying the team statistics (or not) for the whole match.

The two coins have respectively a **paw** and a **brain** drawn on them and can be collected by the team **driving over** or **shooting at** them. Once the team has decided which nature will be the prevailing one and has taken the corresponding coin, the game assigns an objective that needs to be achieved to apply the changes and modify the statistics. The objectives are divided in two groups, depending on which nature they affect:

- **Reason objectives:**
  - Don't get hit from enemies' projectiles for 1 minute;
  - Avoid 3 collisions;
  - Run over and kill 5 small robot spiders;
- **Instinct objectives:**
  - Kill 5 mobs with your weapon or your special ability(shooter);
  - Cause 200 damage in total to other players;
  - Detonate 3 mines by shooting them.

As it can be noticed, the **rational nature** is more related with **driving skills**, since this is an **ability** belonging exclusively to **humans**, and gives bonuses to Speed and Agility statistics, whereas the **instinctive nature** is more related with **shooting skills**, that represent the most **animalistic behaviour** and are **aimed at surviving**, and gives bonuses to Attack and Resistance.

### 5.2.4 Traps

To make teams' lives harder, many traps are spread throughout the whole arena. They obviously need to avoid them, but in some cases, they can be activated at the right moment to damage the enemy teams.

Here's the list of all the traps present in the game:

- Spin Trap: if a car run over it, it causes the car to spin around for a little amount of time;
- Mud: a pool of mud in which the cars moves much slower;
- Mine: an explosive mine that detonates on touch, it can be activated at distance by a shooter to damage opponents' cars. Respawns after 30 seconds;
- Geyser: it lifts the car for a while, causing low damages over time and exposing it to other teams' projectiles;
- Meteoritic Rain: After 5 and 10 minutes, a meteoritic rain will fall in the arena, trying to hit teams' cars and causing massive damage to them.

### 5.2.5 Mobs

To make the environment more dynamic mobs will be spawned during the entire match.

They are of 3 types and dimensions, and they have different purposes:

- Spider robots: organized in group, they can't hurt the team's cars and can be killed easily simply running over them;
- Tank robot: it guides the group, it doesn't hurt the players, but can't be killed by simply running over it: a collision with it will let the players' car bounce. It can be killed by the shooter, using his weapon or special ability, or by the driver, if his faction has an attack special ability (Sharks and Rhinos). When a car kills the last small robot spider of its group, the leader will follow the car until it gets destroyed or its enemy is not defeated, trying to have collisions with it and obstructing the team game;
- Goliath: spawns at the center of the map at mid match, targeting the players who enters its range of attacks. A special medal will be given to the players of the team that succeed to kill it and a scoreboard of the players with more medals will be online, granting, at the end of the season, an in-game reward to the first positions.

## 5.2.6 Audience Hype

Another important mechanic is the management of the Audience.

Audience in the arena is composed by all the 4 factions' supporters and they will react to their champions doing acrobatic jumps on ramps. Ramps are of 2 types:

- Single: you can execute the jump in only one direction;
- Double: the jump can be executed in both directions, paying attention not going short and falling in the trap between and with the possibility of an aerial collision with other teams' cars.

Each faction has its own hype bar and it can be raised only by the team of the same faction, the amount of bar progression depends on 4 factors:

- The max height reached in the jump;
- The flight time;
- Hits on target while on air;
- How the car lands on the ground.

In the last 2 minutes of the match the progression is doubled.

When the bar is completely full it will automatically reset to 0 and the audience will throw a power-up in the arena, activated on passage or shoot only by the team of the same faction.

Here's the list of the power-ups:

- Immunity to traps for 30 seconds;
- Invisibility, edges can be seen, for 30 seconds;
- Medi Kit: restore 20% of lost health, health cannot go over 100%;
- Bonus charge to both driver and shooter special abilities of 20% of the bar.

## 5.3 Controls

### 5.3.1 Driver mode

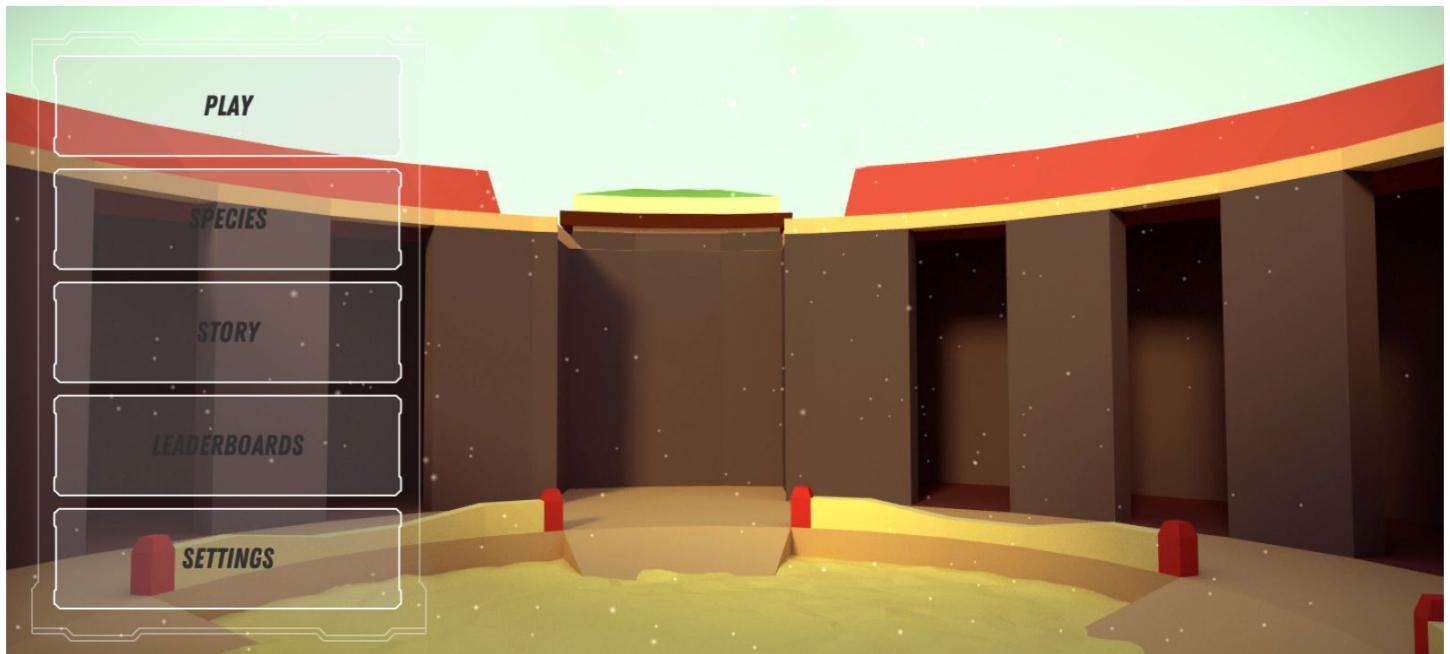
KEYS	ACTION
W	Go ahead
S	Go back
A	Go left
D	Go right
M	Brake
L	Use special ability

### 5.3.2 Shooter mode

KEYS	ACTION
Mouse L	Fire
Mouse R	Activate special ability

## 5.4 Interfaces

### 5.4.1 Start menu



Start menu.

The start menu provides the following interface (just a reference draft here, to be changed in design) with several buttons:

- **play** - brings the player to the selection of the role and then to the matchmaking;
- **species** - contains a description of the powers and the statistics of each car;
- **story** - explains the context of the game, the events that have happened and the story of the species;
- **leaderboards** - shows the rankings of players (can be filtered in drivers and shooters), species (which species is winning the season) and medals (ranking for trophies);
- **settings** - let the player adjust the game settings.

### 5.4.2 Characters selection

In this phase the player has to select the species he wants to play and the role he wants in the game (driver or shooter), then the matchmaking starts:



Characters selection.

#### 5.4.3 Matchmaking

The matchmaking screen is the same of the start menu, but with a timer on it that shows the estimated time to find the match and the elapsed time.

#### 5.4.4 Loading

The loading screen shows some wallpapers in loop and a loading bar at the bottom.

#### 5.4.5 Game UI

The game UI has to show many important informations for the players:

- Health points;
- Audience level;
- Objective percentage;
- Obstacles in the map;
- Paths (reason or instinct);
- Special move percentages (one for the driver, one for the shooter);
- Time;
- Speed.



HUD of the game.

## 5.5 Rules

- 4 teams, 8 players (2 players in each team);
- A role is given to the players for the whole battle, so they cannot change it during the match and cannot have both;
- When the health of the car becomes zero, the team is defeated, and the players are taken back to the menu;
- When a car is hit by an enemy bullet, its health decreases by an amount of damage that depends on the species' characteristics;
- Bumping into an enemy car will damage both the vehicles, according to their respective resistance stat, while bumping into a wall does not damage the car;
- There is no friend fire (that is players can not shoot themselves);
- The special abilities of the team can be used only when completely charged;
- Players' cars cannot leave neither the arena nor the car;
- The battle has a time limit of 15 minutes, set to prevent stalls. When time's up, the team that has more health left wins. Otherwise a 2 minutes overtime starts. If at the end the teams have the same health left, then the game is tied;
- The medi-kit restores 20% of team's health, without overtaking the maximum value.

## 5.6 Scoring/ winning conditions

The game is won by the last team standing in the arena before time's up. If there are two or more teams alive after 15 minutes, the winner is the team with more remaining health. If there is a tie, 2 minutes of extra time are added at the end of which the winning conditions are checked again. If none of the teams satisfy these conditions, the game ends with a draw.

## 5.7 Modes and other features

The game has only a multiplayer mode, where 2, 3 or 4 teams of two players face each other in a free-for-all battle.

To cope collaboration issues within the 2 players' teams, an in-game team chat will be developed (available only during a match), with the possibility to switch to a game channel where everyone in the lobby can talk if needed.

## 6 Game Characters

### 6.1 Characters design

The player can choose one of the four factions before starting the matchmaking.



Banners and badges of the factions.

Each faction has a different type of car, weapon and different types of special abilities for attack and defense. The characteristics of the cars, the damage caused by weapons and the special effects have been balanced to ensure that no faction has an advantage.

## 6.2 Types

### 6.2.1 PCs

#### 6.2.1.1 Lions



It's still true that lions are the kings of the forest. They are the most aggressive species, which does more physical damage.

#### Stats

Weight (kg)	Health	Attack	Fire rate	Resistance	Speed	Agility
3000	1200	9	6	6	6	7

#### 6.2.1.2 Rhinos



If a tank was an animal, it would be a rhino. They are the most resistant specie.

#### Stats

Weight (kg)	Health	Attack	Fire rate	Resistance	Speed	Agility
4000	1500	7	5	9	5	4

#### 6.2.1.3 Eagles

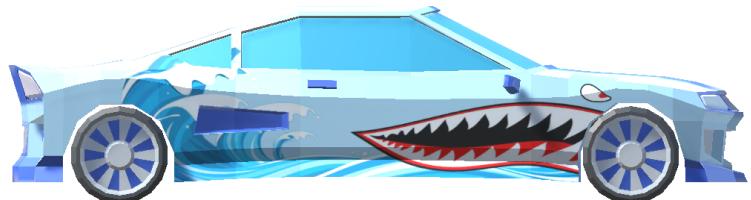


"Eagles is the name, speed is their game", fast attacks and elusive defence.

##### Stats

Weight (kg)	Health	Attack	Fire rate	Resistance	Speed	Agility
2000	800	5	9	5	9	9

#### 6.2.1.4 Sharks



The shark species is the most balanced, their versatility in battle is their trump card.

##### Stats

Weight (kg)	Health	Attack	Fire rate	Resistance	Speed	Agility
3000	1000	7	7	7	7	6

## 6.2.2 NPCs

### 6.2.2.1 Tank robot



Tank robots have guns. They have 4 spider robots in formations around.

#### Stats

Weight (kg)	Health	Attack	Fire rate	Speed
1000	300	3	3	4

### 6.2.2.2 Spider robot



Spider robots come out of the arena pits. These are weak enemies, but very annoying, because they walk in formation of 4 around a tank robot.

#### Stats

Weight (kg)	Health	Attack	Fire rate	Speed
200	100	1	0	4

### 6.2.2.3 Goliath



The goliath is 4 meters high, it is very slow, but it has devastating power.

#### Stats

Weight (kg)	Health	Attack	Fire rate	Speed
6000	10000	10	1	2

## 6.3 Size comparison

All vehicles and enemies have been designed to have different dimensions and masses to increase the reality of the game.



## 7 Story

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### 7.1 Synopsis

Since humans had left the Earth, centuries have passed and the blue Planet is now inhabited only by animals, that have learned to manage the technology of our descendants and to create their own. From that moment, a long war among the different species has taken act, to gain the supremacy. Inspired by the ancient books on "mythology", they decided to set their battles in a huge arena: the Hypogeaum. Now, only four teams have left – Eagles, Lions, Rhinos and Sharks – and the outcome is more uncertain than ever.

### 7.2 Complete story

The gameplay reflects the part of the story where the species are fighting; playing the game and completing the matches doesn't carry on the story.

All the developed narrative is included in the backstory and has not a direct impact on the gameplay.

### 7.3 Backstory

For the complete backstory, see chapter [8 The Game World](#).

### 7.4 Narrative devices

Since the story is not narrated through the gameplay, the player will be able to access it through a specific menu in the home of the game, in which he can read the complete story of the world and of each faction.

## 8 The Game World

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The game is set on our World, in a remote future. Since the humans had left the Earth to move to one of the several exoplanets they had discovered, centuries have passed and Nature has started to re-seize of all that had been stolen to her so all the cities, the monuments and the buildings created by men's ingenuity had been abandoned and covered by dust, grass and mud.

The animals left on the Earth, time after time, evolved, up to the point to get humanoid appearance and behaviours: not so far, they started to act like men, trying to figure out how our descendants' technologies worked, how they interacted and what those strange symbols they wrote could mean. Among all the species, four have emerged: the Eagles, the Lions, the Rhinos and the Sharks, each of them with an increasing desire to become the dominant faction, which would have reigned over all the others.

Leaded by the thirst for power, these clans started a long war to determine who among them should have been the sovereign one, causing death and destruction in a world that had borne already too much with humans and their clashes. Since all the species have risked the extinction, the leaders of each faction decided to stop the war and set their battles in a huge arena, where couples of heroes belonging to each clan would have face their opponents to show who will be the bravest and best one, as humans did in their history several millennia before.

The arena was of elliptical shape with several levels of bleachers surrounding it, and has been built in a desert, where the sun always shined, so its field is completely covered by sand. The clashes would have held during the day, so that anyone could admire the heroes' feats. To improve the level of entertainment, the matches were played with each team on a car, where one of the two members should have been the driver and the other was in charge of shooting the enemies with his species' favorite weapon, up to the point that they will be the last faction standing in the arena: only then the battle ended. For these reasons, up to now, the arena is the only level where the players can act and fight against their enemies, where they can move in the entire area during each match. The battles are set in a chaotic scenario: the audience continually incite the heroes to do their best, whereas other players try to defeat them, and traps and NPCs never stop to hamper the team.

Periodically, among all the species, the one with the highest score (assigned based on its heroes' abilities and results) is declared be the dominant one for the next war season, whereas the other ones will have to try to put the end to its supremacy. In order to award and push the bravest and most able heroes to fight for the glory of their species, the best players of the winning faction will be rewarded personally by their leader.