

# Game Proposal

## Game Description

### Overview

Elements Racing is an action racing game where the player controls his avatar's vehicle through a lap-based race track.

The race starts on a dirt track with the drivers controlling their earth car, a go-kart-like, four-wheeled vehicle.

Along the way, the player collects coins of three different kinds (earth, water and fire). As soon as he has collected three coins of a kind, three things will happen:

1. A count-down of 10 seconds will be triggered. When the count-down reaches zero, the world will transform into the new type (e.g. collecting three water coins results in the world being flooded, fire coins cause the roads to be transformed into lava and earth coins dry out the world converting it back to its initial state).
2. The players car starts transforming into a new vehicle, allowing it to be manoeuvred in the transformed world (attached floating devices for the water world, heat shield for lava and wheels for earth).
3. All coins he has collected so far will be lost.

The transformation of the world will urge other player to do one of the following in before the count-down reaches zero:

1. Complete the collection of the coins of the kind into which the world is transforming and get the corresponding upgrade, exactly as the player triggering the transformation did.
2. Complete the collection of any other kind of coins which will stop the transformation in progress and trigger the count-down for the new transformation instead.

If the other player fails to do one of the above in time, his vehicle will not be able to handle the new environment. It will still be able to move, but much slower, while constantly decreasing the player's energy bar. Once that energy bar is empty, he loses a life and respawns in the same place where he died but in the vehicle adapted to the current world. His energy bar is now full again but all his coins are lost.

The game is won either by a player completing the three laps of the race course first or by his opponent losing all of his lives.

### Environment Types

The **Earth** type environment consists of a dirt track. Only the wheel-based vehicle can be used on the dirt tracks. The water and the lava vehicles will run aground.

In the **Water** environment, all roads are flooded and can only be traveled on with the water vehicle. The earth or the lava vehicle will drown.

"The floor is lava" is the theme of the **Fire** world. The earth car or the water vehicle will immediately burn so it is only possible to survive in the fire vehicle.

## Vehicles

The **Earth Car** is a go-kart-like, four-wheeled vehicle. It can only be navigated in the earth environment. It will only move slowly in water and lava and drown respectively catch fire when the energy bar is empty.

In the water world, the player controls **Water Vehicle**, a floating vehicle similar to a hovercraft. It is not able to handle lava for long and will move slowly on the dirt track. It is being destroyed when the energy bar is empty.

Moving through the fire world requires the **Fire Vehicle**, a heat-resistant vehicle covered in titan. It floats on lava but is too heavy to keep fully afloat in water. Like the water vehicle, it will run aground in the earth environment.



## Coins

There exist three kinds of coins - earth, water and fire - which are scattered across the course. The player collects them by driving through the coins and keeps them in his inventory. Collecting three coins of a kind will trigger the count-down transforming the world. Coins are dropped by being hit by another player or by crashing into obstacles. Triggering a transformation will make the player lose all the collected coins as well as dying by not being adapted to the transforming world.

## Transformation

Whenever a transformation is triggered, the players will be displayed a count-down starting at 10 seconds. Once it reaches zero, the world transforms into its new type within seconds. These transitions are possible:

Earth to Water: Giant water outlets flood the track and the water level in the roads rises quickly.

Earth to Fire: The giant outlets thrust out lava, covering the roads.

Water to Earth: The water level decreases revealing the previously covered dirt track.

Water to Fire: Lava comes out of the outlets converting the water into lava.

Fire to Earth: The lava level decreases in the same way the water level does when changing from water to earth.

Fire to Water: Water comes out of the outlets converting the water into lava.

## Goal

The player's goal is to either finish the race first or be the "last man standing" by having his opponent lose all three life. This offers a way of possibilities to play the game since it introduces a strategic component in addition to the classic racing mode.

## Balance

All levels are designed in a way that brings balance to the game. If a player falls behind by losing a level, he should still be able to win. This balance is achieved by dynamically positioning coins (or additional extras) so the player behind has an advantage on the leading player and can catch up more quickly.

## Platform

In the first version, the game is played in a split-screen setup on a Windows or Mac OS X computer. It may be deployed on the OUYA console later on.

## Style

The graphics of the game will be in an abstract comic-like style. These are examples from games that inspired our idea:



Voxel graphics from Blocky Roads



Retro comic look from Diddy Kong Racing

## Technical Achievement

We consider the transformation of the environment to be the main challenge and one of the most critical points. Since it should create the impression of the world transforming over time and not instantly by just switching models and textures, this may involve combining multiple effects such as geometry transformation, particle effects and mesh animations.

Another key features is the behaviour of the vehicles on ground, in water and in lava. It is to be implemented in a way that makes controlling the vehicles both easy and fun.

## "Big Idea" Bullseye

The big idea behind our game is the combination of the classical racing concept with the idea of world transformation and player evolution. Only a player that has a cart that is adapted to the current world type (lava, earth, water) will be able to win.

But every player has a way of getting his own evolutionary advantage by using evolution powers stored in coins and transforming the world with them. By combining these evolutionary elements with a racer, players can influence greatly the outcome of the race by choosing the right strategy for the moment.

From a technical point of view, the transformation of the environment is clearly the part which will make our game outstanding in that matter.

## Project Scoping

We collected ideas of possible features and grouped them into layered categories sorted from absolutely crucial to nice-to-have extras:

### Functional Minimum

- Race mode on a lap-based track
- Simulate driving in a wheel-based vehicle
- One basic race track
- 2 player setup with split-screen
- Platform: Windows and Mac OS X

### Low Target

- Transformation between 3 types of worlds with basic graphic representation
- Impact of the 3 worlds on the driving behaviour of the vehicle can be perceived
- Coins to trigger transformation
- One well balanced course

### Desired Target

- Graphically distinguishable earth, water and lava worlds
- Vehicles have a look and behaviour to match the worlds, i.e. floating on water & lava with heat shields.
- Life points being lost when world changes and player hasn't transformed in time

### High Target

- Detailed levels with appealing graphics
- Two to three highly detailed and well balanced courses

### Extras

- Water Effects, Splashing, etc.
- CPU players
- Network mode
- Additional items such as weapons or turbo boosts

## Planning of Development

We have adopted a loosely SCRUM-based method. SCRUM is a very rigid method that we can not fully comply with given our schedules. We are therefore limiting our activities to:

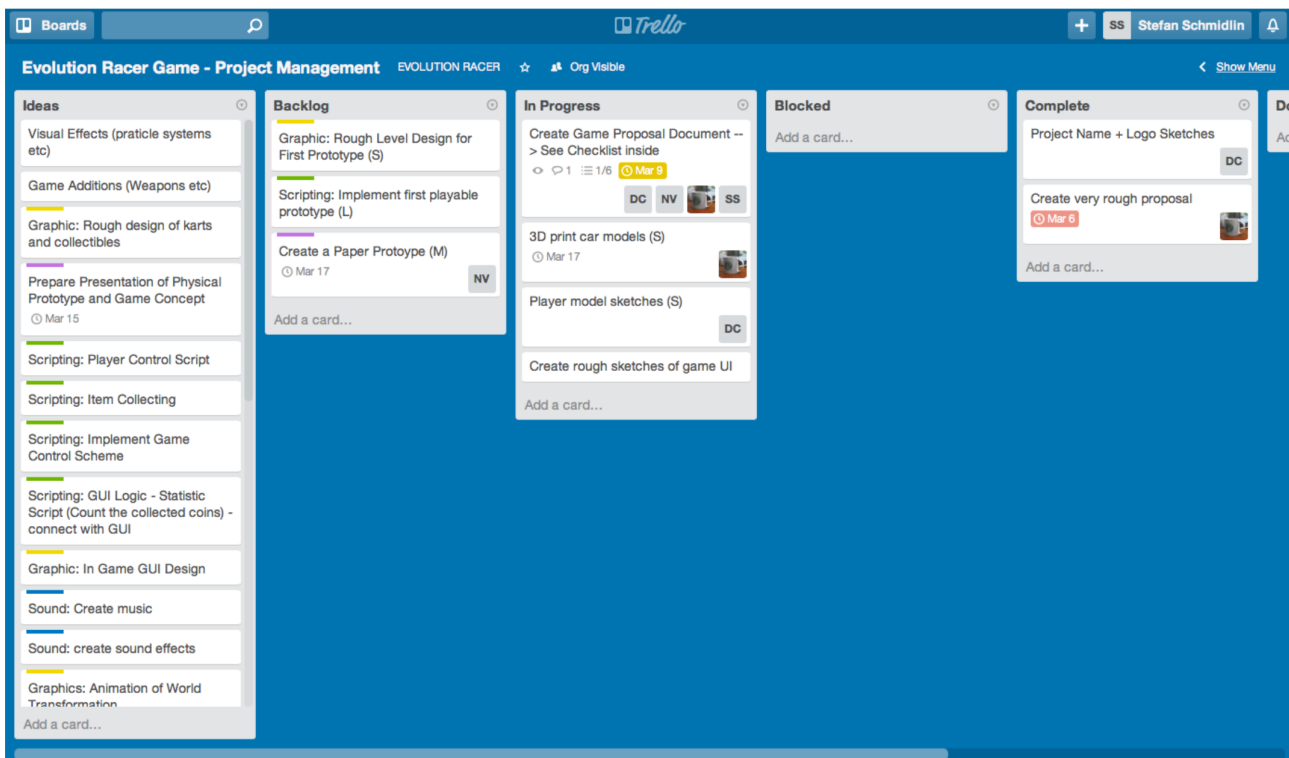
- Maintaining a backlog of tasks we define, estimate and prioritise together
- Assigning work to owners, and reviewing work as a team
- Planning our work using defined, estimated and scheduled tasks ("Items of work to be done")

To estimate the size of each task, we assign S, M, L - textile sizes to each task:

- S = up to 4 hours
- M = 4-10 hours
- L = 10-15 hours
- Items larger than L will be split

As this method is heavily reliant on being able to communicate precisely and demands a lot of self-organisation, it is very well suited to our team which is not co-located.

As a project management tool, we use Trello.com.



Trello.com board with the lists for “Ideas”, the prioritised and estimated “Backlog”, “In Progress” items, stuff that is “Blocked” as well as “Complete” (ready to be reviewed), and “Done” items.

The board is public for everyone, but only our team can edit. It is accessible here:

<https://trello.com/b/MdINusJN/evolution-racer-game-project-management>

In order not to lose track of the overall progress, we maintain a project schedule. The schedule will be handed in as a separate document and is accessible via the following link:

[https://docs.google.com/spreadsheets/d/1HMy5xVozEV-9XYnC\\_ThzUvmyd3XPcl-X-RniPtYBVvQ/edit#gid=0](https://docs.google.com/spreadsheets/d/1HMy5xVozEV-9XYnC_ThzUvmyd3XPcl-X-RniPtYBVvQ/edit#gid=0)

## Communication Plan

The team is spread out over various locations and it is very hard to meet and communicate remotely, as everybody has varying schedules. We have therefore agreed on the following meeting schedules and communication tools

### Meetings

What	When	Where and Who
<b>Group Meeting</b> We meet to discuss our current activities. This is similar to the SCRUM daily standup, and also includes elements of the sprint	Weekly, Thursday 7pm - 9pm	Everybody at ZhdK
<b>Hand-In Meeting</b> We discuss Assignments that need to be handed in, review completed tasks and plan next steps for the following phase	Before Deadlines, Sunday 7pm	Everybody remotely via Skype
<b>Work Meetings</b>	On Demand	People working together on a task or requiring input from others. Can be done via Skype or in person.

### Tools

- To communicate, we use Skype.
- For document creation, we use Google Drive where we have a shared folder to put all documents and files.
- For brainstorming, we use Stormboard.com.
- For project management, we use trello.com, as mentioned in the previous chapter.
- For code and asset sharing we will use GitHub.

### Responsibilities

All team members can theoretically do all tasks, but we have defined some specialties:

- Denis will focus mostly on modelling and graphical work
- Nambi graphical work
- Stefan and Sandro on programming
- Sandro on handing in documents and assignments
- Stefan for organisation, project management and tooling

## Assessment

We want Elements Racing to feel like a whacky kart racing game, filled with loads of two-player action. Transforming the worlds and harming the other player is fun, but even more fun it is for the other player to strike back and transform the world again.

Transforming the world into earth, lava and water and the benefits that a player can gain from it (racing faster) adds a strategic element to the game. "Should I transform the world now and be faster, or should I wait until the other player transforms it, and then transform it into the world I want right after? Should I focus on collecting Ice coins or fire coins if the other player is collecting ice coins already?"

In addition, players can choose to race fast and try to complete the three laps the fastest possible, or also to prefer killing their enemy instead.

The game is targeted at kids from ages 8 and up who can easily control a simple kart racer, and enjoy the idea of knocking out their friend and winning by whatever means. While they might not get the strategic element behind world transformation, they will still have fun racing the tracks. If time permits, it might be especially interesting for kids this age to add mean weapons in addition to the world transformation, to add more of this "Mario Kart" feeling while preserving the dominant power of the world transformation.