Starving Worms : Rough Proposal

Adrien de Gottrau
Cléa Benz
Jan Wolf
Nicolas Imhof

1. Game Description

1.1 Background story

In a universe far far away, where worms are the rulers over the world and mankind never existed, two worm clans, the Cheroms and the Apploms, were living peacefully. Each clan was producing and harvesting its favourite fruit and everything was fine. Sadly, after a huge storm of radiation coming from the sun the complete season cycle of the planet got disturbed. Because of the genetic mutations caused by the radiation some plants started to move and others, like the fruit producing trees, struggled to survive. The two clans were trying hard to keep their beloved fruit trees alive despite of the rapid and unpredictable changes of the seasons. But their efforts were in vain and after a couple of years, the fruit producing trees died out. Soon, the only cherry left on the planet was controlled by the apple-eating Apploms and the only apple left was controlled by the cherry-eating Cheroms. Because worms don't know how to speak and since they have no hands to gesture, they started a ruthless war to conquer their favourite fruit.
Both clans enslaved more and more living plants in order to help defending their only fruit against the attacks of the enemy clan, while training the strongest attack force possible to steal the other clan's fruit. It is now your turn to take control of a clan and help them defeat the enemy by conquering their fruit. The winner will be able to control the whole planet, while starvation or enslavement will be the penalty for the loser.

1.2 Overview and scene description

The game map is divided in two parts, which are influenced by different seasons. The two opposing worm clans, one in the north and one in the south, start to grow plants to protect their fruit. The plants need to be carefully selected and positioned as they might only protect the fruit in a specific season.
The attacking worms, that spawn automatically, are looking for the nearest path to the opponent's fruit.
Once a season changes the worms might get blocked or killed on their way. If they get blocked they have to look for a new path.

1.3 Game mechanics and player action

The principle game mechanic is a tower defence and offence game. To win the game the player has to get the opponent's fruit with his or her own worms while defending its own fruit with plants that kill the other clan worms. The places to grow a new plant are restricted. To grow a plant a resource, radiation, is required.

Controls:

- Map view control:
  The player can change the viewport position by swiping over the touchscreen.
- Unit control:
  The player cannot interact with units directly. He can only get unit informations by tapping a specific unit.
- Build control:
  The player is able to build defensive structures (plants) via a build menu button . By clicking that button, a list of available buildings will pop up. If a building is selected the mesh of the tiled map will get highlighted to assist the player in positioning the desired defence structure.
- Season Change: The player can change the season of its own territory and the opponent’s at the cost of radiation energy.
- Upgrade control: The player is able to upgrade units indirectly by upgrading the spawn building. Clicking an already constructed building shows a list of upgrade that can be applied.

2. Game Design

2.1 Big idea bullseye

2.2 Game Elements

Plants
The player can build plants at most positions on the game map. Each type of plant may have different attack strengths depending on the current season. Plants can be upgraded to get stronger attacks.

Worms
Worms spawn at a constant rate near the player's fruit. They immediately look for the shortest path to the fruit of the other worm clan. The player can choose which type of worm will be spawned. Worms can be upgraded, so that they are finally strong enough to pass the opponent's defences and steal the desired fruit.

Map
The map contains various elements which can have different properties in each season. Some ideas for elements and their properties are listed in the following table.

	Spring	Summer	Fall	Winter
Lake	parts are still frozen at the start, at the end the lake is flooded.	fluid water, storm on lake causes vortex on/near the lake	fluid water	frozen, worms can walk over it
Mountain	lot of water from melting snow	possible to walk over it	rockfall because of frost	snow, not accessible
Forest	grows quickly and blocks worms	trees appearance change	trees die, path becomes walkable again	trees appearance change
Marsh	looks like grass but the worms will drown in it	the density of the marsh is bigger, so some worms can walk over it.	visible that it is marsh but the worms can not walk over it	frozen, worms can walk over it
Desert	no effect	too hot, worms take damage while traversing	no effect	no effect
River	lot of water in it from the snow of the winter, no crossing possible	less water, so at some places it is possible to cross, (exception if lot of rain)	less water, so at some places it is possible to cross, (exception if lot of rain)	frozen, the worms can cross the river
Grain field	the grain is growing, may some worms get gored.	not possible to pass the grain filed, it is too dense	the grain field is decayed the worms can cross it	frozen so no problem to pass
Hedge	the hedge is growing, the worms might get killed while passing it	the hedge is too dense so it is not possible to pass	the hedge is decayed, the worms can cross it.	frozen, possible to pass

Volcano	not season dependent, but some random events may happen. E.g. explosion, smoke			
Carnivorous plants		eat worms		
Bird swarm	returns from the south, eats worms		fly to the south, eats worms	

Seasons

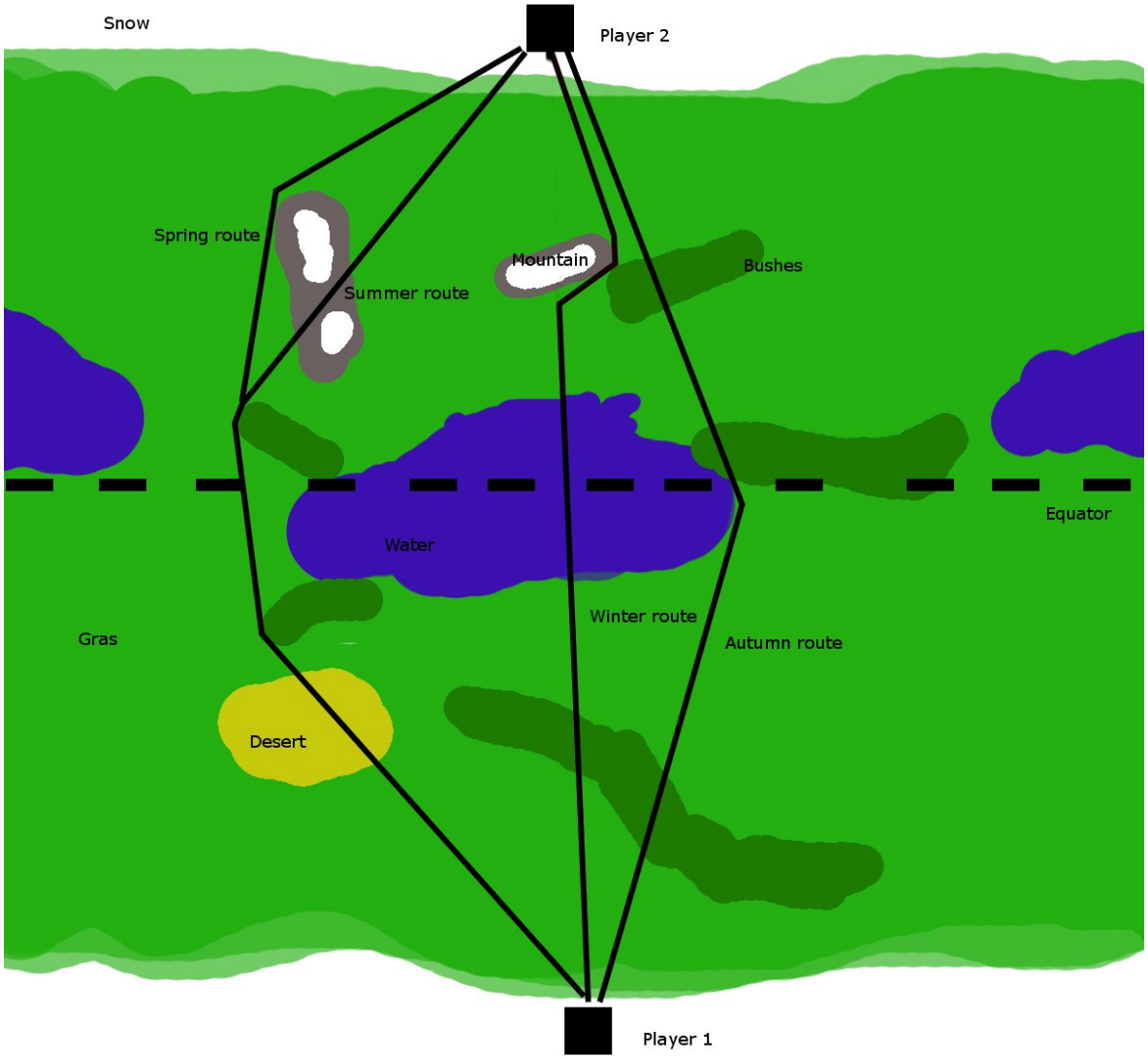
Both parts (north and south) of the map have its own season. They change over time in normal order (winter->spring->summer->fall), but can also be changed immediately to any season by the players at a certain cost.

End of the game

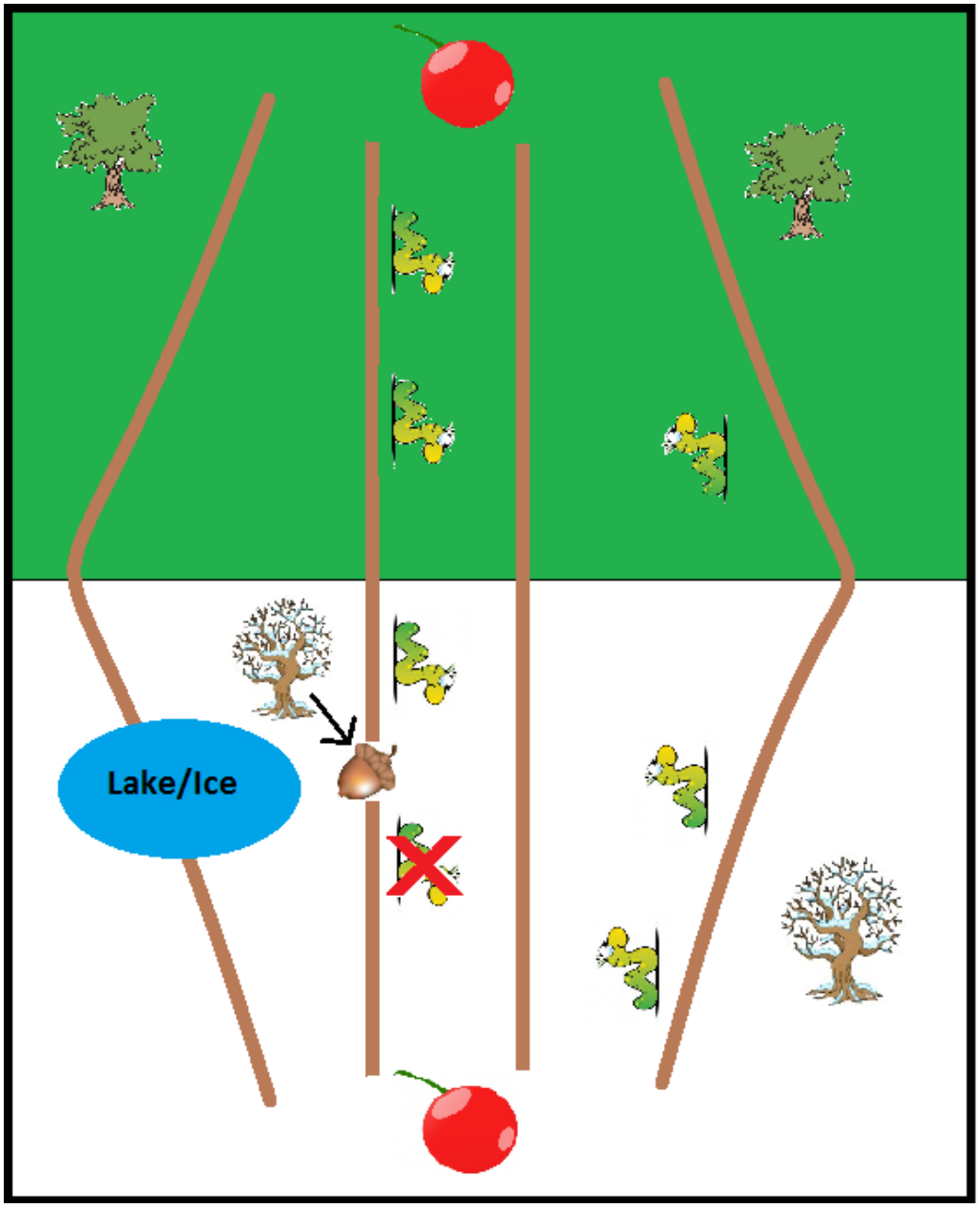
A player wins the game when enough of his worms have reached the fruit of the other tribe. A short animated sequence shows how the worms carry the fruit away.

2.3 Sketches

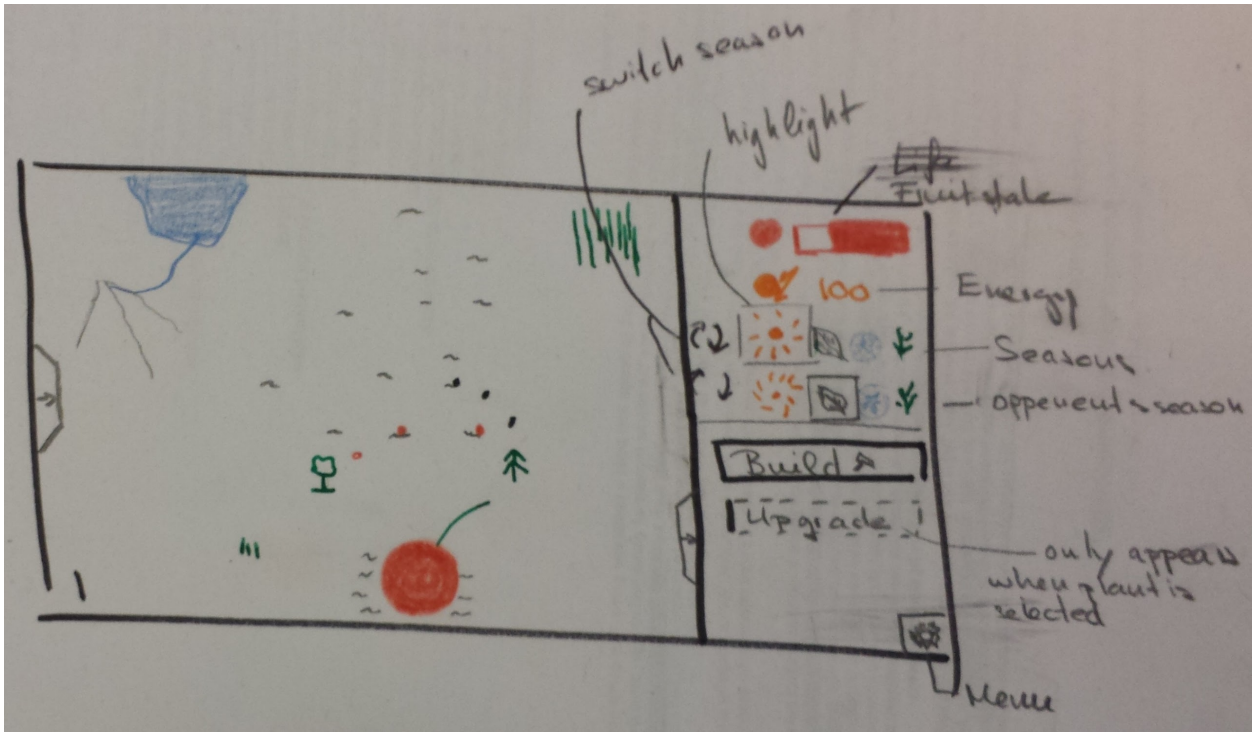
Rough concept of a possible map with different walking paths for the worms depending on the seasons:



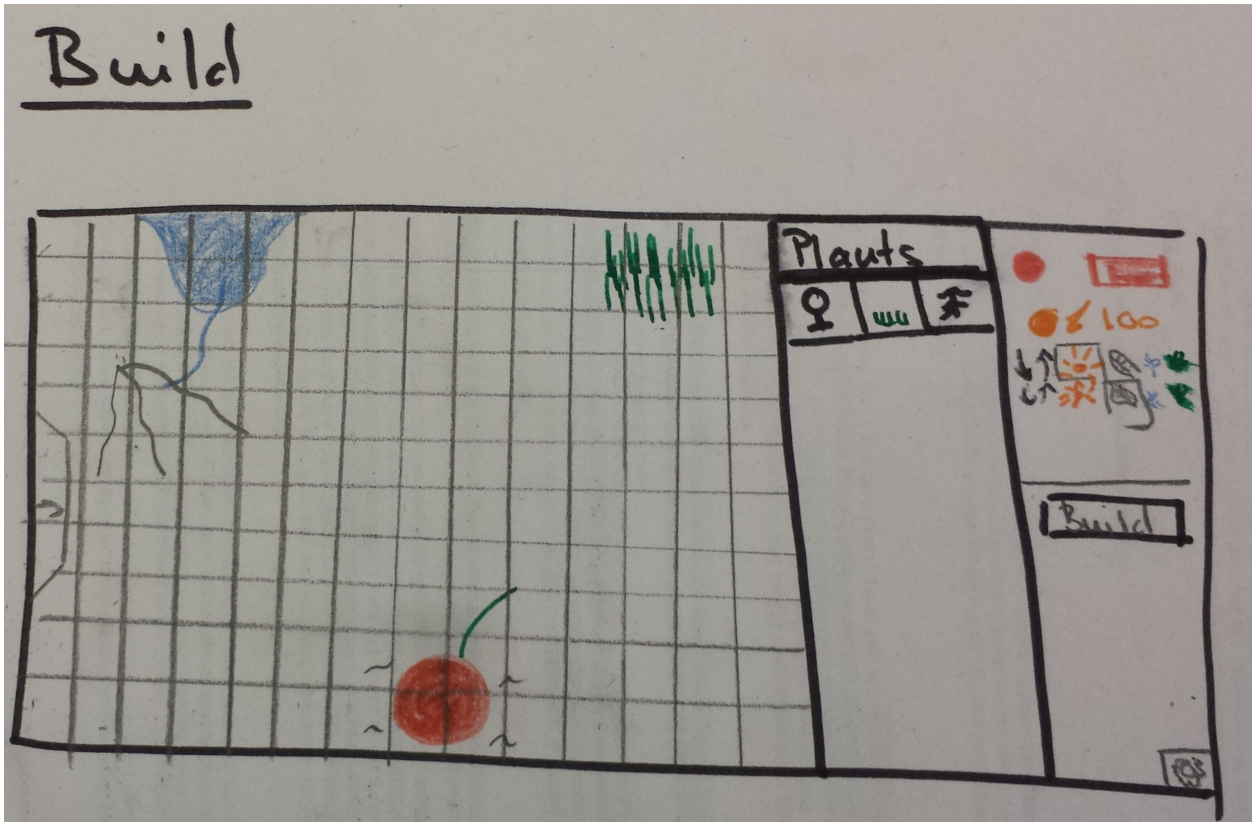
Similar rough concept with example worms, trees and cherries:



Sketch of the player view and interface:



Sketch of the “build” menu:



3. Technical Achievement

In a first step, our technical achievement will be a smart artificial intelligence (AI) that acts as a worthy opponent for the human player. The difficulty for the AI lies in analysing the terrain and finding the most efficient spots to place the defence structures. Also the additional dynamic generation of random maps will be a challenge, since the terrain should still stick up to certain restrictions to ensure playability. An intelligent path finding system is required for the worms to reach their target through the terrain. Furthermore the AI should understand the effect of changing the seasons on the current game situation to take advantage of it. Of course, the AI should be challenging but not unbeatable or weak.
In a second step, as high target, the complexity of a real-time multiplayer game on a mobile device becomes yet another technical achievement. The game needs to be of high-performance to allow a fluent gaming experience. In addition, beautiful weather effects and terrain changes can be created for the high target of the game.

4. Layered Requirements

Functional minimum :

- main building (cherry,apple)
- worm spawning and walking
- ability to create defending towers
- ability to improve the worms
- primitive graphics
- simple map
- player interface (game menu, information display)

Low target :

- animations
- single player (Primitive AI)
- change the seasons
- different towers (influenced by seasons)
- different paths / areas (influenced by seasons)

Desirable target :

- worm clans
- advanced graphics
- advanced AI
- small tutorial
- game balance

High target :

- multiplayer
- additional towers and worms
- good game balance
- intuitive user interface

Extras:

- even more towers / upgrades / units
- worms fight each other
- event at each season start
- interactive tutorial
- intro (video)
- chat system

5. Development schedule

Week	Task	Assigned to
1	First ideas	All
2	Brainstorming, decide for rough concept	All
3	Rough proposal	All
4	Proposal	All
5	Physical Prototype / First balance	Jan / Adrien
6	First design: plants / worms	Cléa / Nicolas
7	Map design / Primitive AI	Jan / Adrien
8	Change the seasons / Effect of the change	Nicolas / rest of the team
9	Path selection / Graphics / AI / Balance	Cléa / Jan / Adrien / Nicolas
10	Tutorial / Multiplayer / Advanced graphics / User interface	Cléa / Nicolas / Jan / Adrien
11	Alpha release: Glue everything together	All
12	Playtest and tweeking	All
13	Playtest presentation, final report	All
14	Final public presentation	All

6. Assessment

The main strength of the game is the possibility to change the seasons. This will offer a lot of additional strategic complexity to the players and is what makes the game really different to other games of the “tower-defence / offence” genre. The player will not only have to think about what effect which season will have on his own units but also on those of the opposing player. The player can use the seasons in an aggressive way to support his own troops or defensively to slow down the hostile forces. Since changing the seasons is not for free, the player has to compare the usefulness of growing another defence structure to a change of the season. Furthermore it is not always clear what effect the change of the season has and how it will influence the walking paths of the worms.

The game is intended to be played by everybody that owns a tablet. It is supposed to be easy to learn but hard to master. Like this, hardcore gamers will enjoy the game as much as casual gamers. The cute comic style of the starving worms game is supposed to attract people from every gender and every age.

The game should be fun to play. After the first short game round, a player should have the desire to play another round.
The game’s success will be indicated by the achievement of our goals, by the number of downloads and the rating at the Android market.