

Battle of the Seasons

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1. Game Description

The storyline:

In a world where powerful wizards rule as kings, the land is split up in to small kingdoms. Originally there was only one kingdom and its people worshiped four gods: Vers, god of spring, Aestas, god of summer, Autumnus, god of fall and Hiems, god of winter. With time, few discovered how to wield the magical powers of the gods. They were called wizards by the people and they were as greatly admired as they were feared. Each wizard would only be able to summon the powers of a specific god. Eventually, they became power hungry and started to quarrel, summoning the people who truly believed in their patron god to join them into battle. Smaller kingdoms emerged but conflict has not yet withered. You will play the role of a wizard king. Your duties are to defend your kingdom and make sure your rivals never bother you again.

The actual game:

That is where our game starts. We have two players that both take the place of a wizard king that has to try to defeat the other by fending off his attacks, and launching attacks of his own.

The level design:

Add the start of a game each player's kingdom consists mainly of an empty map with some natural obstacles (trees, rocks and water) and the castle at one end of the map:

**Basic gameplay:**

The basic idea of our game was inspired by a well known subgenre of real time defense strategy games, called tower defense. However, in our game the players do not just set up defenses and try to fight off the attacking forces but they also need to prepare forces that attack the opposing player.

The goal of the game is to eventually destroy the opposing player's castle before his own castle is destroyed. Both castles have a certain amount of life that will be decreased by each attacking force that is able to get through the defenses and enter the castle.

The game will be played in a turn base fashion, where each turn will be split into three different phases:

1. Prepare phase:

When the game starts the players will start with a certain amount of resources, in the following turns the resource increase will be dependent on well he did during the defend and attack phase. With those resources the player is able to built, sell or upgrade defense structures, that should make it harder for the attacking forces to reach and harm the castle. The player is able to put the defense structure wherever he wants, but there always needs to be at least one free path that leads to the castle. Once the player has used up all its resources or decides that he is done preparing he will finish the prepare phase, and enter the next phase.

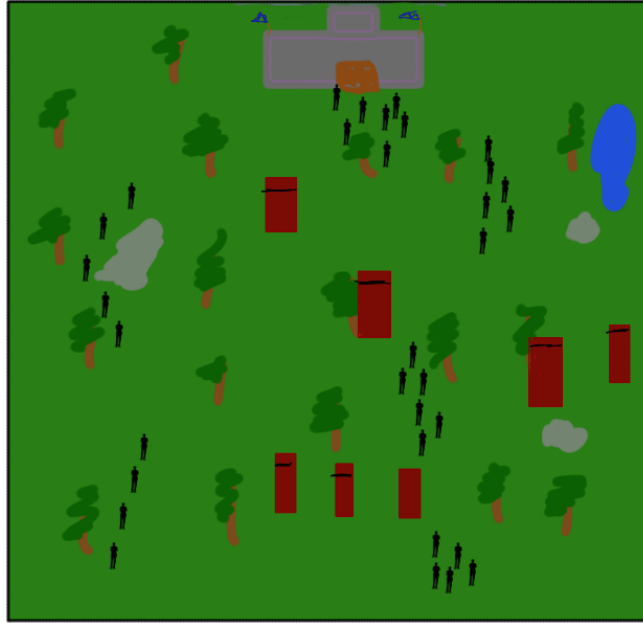


2. Attack planning phase:

In the attack planning phase the player needs to select the number and the type of the attacking forces that he wants to send to his opponent. The number and the type of the forces that a player can choose from are dependent on the number and types of defense structures he deployed in the previous phase. The attacking forces will be AI controlled. The player will have no controls over the forces once they are deployed.

3. Defense phase:

In the last phase the player has to actively defend his castle against the attacking forces. For each attacking force that he kills/destroys he will get new resources which he can use (together with the resources that are left from the prepare phase) to build, upgrade or sell defense structures. The AI will always try to find the best (least dangerous) way to the castle, and will react to newly built structures by recomputing the best way to the castle. The defending player will be able to use an ultimate defending power that will allow him to drastically reduce the number of attacking forces but the power will have a recharge time, such that the power should only be used as a last resort when the attacking force is too strong. Examples of ultimate defense powers can be, flooding the map or sending out poisonous gas



After those three phases there will be a fourth phase in which the players can see how well their attack went before they start preparing for the next turn.

After each turn the season of the level will change to the next one(the order is always winter, spring, summer, fall, winter). The season will affect the abilities of both the attacking and defending forces.

2. Technical achievement

1. Implementation of multiplayer turn-based gameplay

To allow turn-based tower defense gameplay, we will implement and deploy a server that matches players, does the synchronization between player's turns and sends the players playbacks of their attacks. This must be done well so it is almost transparent to the user.

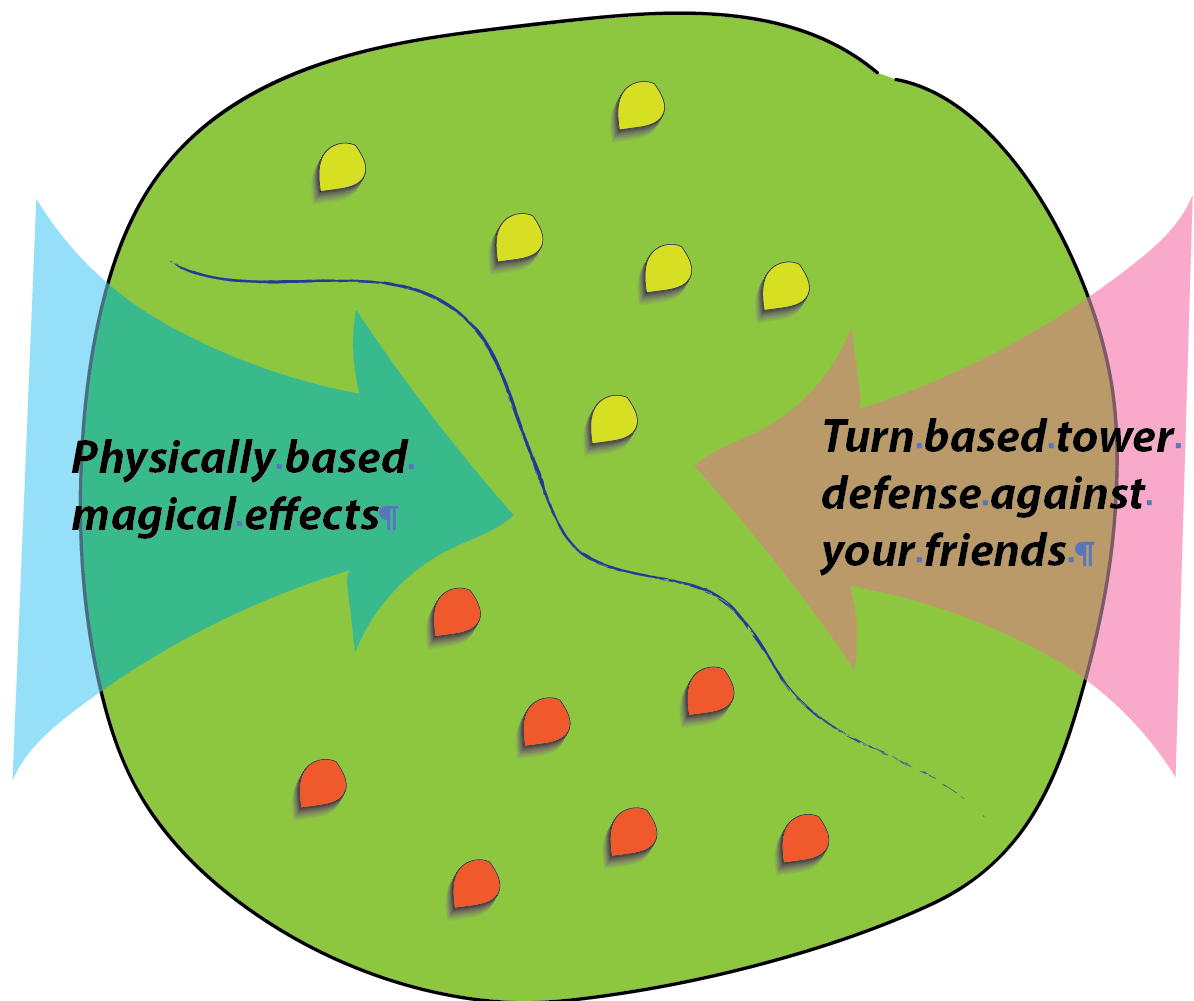
2. Physical System

Our game contains magical effects. Some of these effects will be physically based. This requires us to consider the physical interactions between fluids, defense structures and other objects in our map. Our physical system will mainly involve fluid simulation.

3. "Big Idea" Bullseye

Central Concept: Turn based tower defense against your friends.

Graphic Big Idea:



4. Development Schedule

1. **Functional minimum:** Basic tower defense with one unit and one tower. No multiplayer implemented.
2. **Low target:** Attack planner. Multiplayer gameplay. General client UI (find friend, start game).
3. **Desirable target:** Ultimate defense magic implementation (with fluid simulation). Appealing graphics. Appearance and gameplay affected by seasons.
4. **High target:** More tower and unit types. Tower and unit upgrades. Attack playback. Sound effects.
5. **Extras:** More units and towers. Deploying defense troops or heroes. Player high scorers or ranking.

Timeline:

E = Everyone G = Gustavo R = Raphael X = Xianghao

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High Target															
More content: towers, units, upgrades	10												R	GX	GX
Attack playback	15												GX	GX	
Sound effects	10													R	

5. Assessment

Tower defense is a subgenre of real-time strategy games that has become very popular in the past years, especially on smartphone. It typically is implemented as a one player game, where the player creates defenses against the computers attacks.

We wanted somehow to allow one player to play against the other on a mobile phone but we immediately found some complications. First, it is clear that with current mobile technology we would be unable to guarantee data connectivity between the players' devices throughout a whole gameplay session. Many external factors affect mobile connectivity, like being on a train going through a tunnel, and losing a game because of this could make it frustrating. Second, if you would like to play against a friend, you would have to find a time where both of you would be available to play simultaneously. This would make it cumbersome for people to actually play the game.

To solve these problems, we decided on a mix of real-time and turn based functionality where both players never need to be simultaneously connected or playing. This allows the game to be played casually, at the convenience of each player and only requires connectivity at certain points of time to download or upload attack and defense playbacks. Furthermore, since the gameplay is turn based, you can have multiple game sessions running with different friends, in parallel.

Another virtue that sets this game apart from other tower defense titles is the usage of physically based simulation for defensive magic. Most games simply have fixed animations while ours will be an actual simulation which allows user interaction.

We find that the multiplayer enhancement and the fluid simulation that we proposed to the basic tower defense genre will make it a much more enjoyable game to play on the mobile phone and will allow for a great gaming experience.