Briefing

This game is essentially a party game that requires you to use Android cell phones has the players controllers, and a main screen to display the map. On the main screen the map will be visible, and it's in here where the players will be able to see public informations about other players. The map will be procedurally generated, making it so buildings will be placed randomly on the map.

On the Android the player will be able to see its cards that allow him to cause chaos or fix the town with its diseases and health care policies. The goal of the player is to get the highest reputation, winning the elections.

Game Context

State of Art

The idea for this game started from our experience with party games like Jackbox. These kind of games are usually short in time, high in fun and require you to communicate with your gaming mates. In Jackbox there is a main screen (the TV, the monitor) that will be the center of game where the game narrator speaks to engage all players in the minigames that come up. Each player is able to play using the interface that is shown in their smartphones, that will react according to the stimuli shown in the main screen. The mini games will usually involve voting, or pairing up with other players in order to succeed.

We also wanted to involve more in-depth mechanics, making the project closer to a board game. The main screen is the board, controlling all important information and data going around, while the cellphones are the player's interface with the game.

Plague Inc is a game where the goal is to infect all human beings, and our ideia started close to this one. We chose to instead work with the possibility to heal and or infect people so that it would have a better educational ground, allowing the game to deal with how common health diseases spread and affect people. This is not meant to be learnt directly, but a consequence of gameplay.

Secret Hitler has an interesting twist in how it deals with player's objectives and human relationships. By hiding the objectives of players it creates a certain discomfort and destability in personal relationships, allowing the game to have a bigger replayability that it's independent of whom the players are. Games like Aldeia Adormece or Town of Salem also deal with this kind of "interpersonal games" as its part of the core mechanic.

In essence we are trying to create a board game that uses the available technology to create a different experience of gameplay for the player.

Genre & Audience

The game tries to be qualified as a party game because of the way it interacts with the player. By creating fast matches and fast gameplay it can be seen as a "casual" game, however the way the game's depth develops and the match shows more of its mechanics the player will start to see more of a board game. The game will have a set of simple mechanics, that together will create a more complex experience.

Our main audience are primarily young adults, the reason for this demographic choice was based on the overlap between the generation of people interested in board games, where the age of this online communities is ranged between 20-30. Even though

Nintendo Switch is looking to reach a mature audience, its best selling games are the local multiplayer and party ones. Therefore using the official Nintendo reports we can put the people that mostly play party games in the age range between 19-35. To better understand our chosen audience and test the hypothesis that they have at least 3 misconceptions about basic health care, we created a public survey and previously validated it with two physician.

Even though one of the doctors suggested us to take a closer look at basic life support and actually deal with this kind of information, we consulted another doctor who told us that, this kind of information seemed too complex to adapt for a first prototype, since that it required to be completely accurate from a medical standpoint to avoid sharing misinformation.

Technology

We will use unity for both the mobile interface for the player and the game server which will be in the same project. Different scenes will be built for different platforms. We will use Blender for any 3D modeling, Illustrator for the vector art. And we used Time.Graphics for planning. For the device communication we will be using the LLAPI, since unity has already deprecated its networking functionalities.

Impact on the audience

Our efforts are focus on creating a fun party game, the educational part will be evaluated and improved but we see it more as an extra, even if our assumptions won't be able to result in nothing relevant, we will continue to produce a game for young adults.

Even so, we expect to make our players entertained but at the same time, with a really subtle way, we want to start a conversion between players and produce some reflection. in fact when a player uses an antibiotic or vitamin c and sees that the flu is not decreasing that may spark curiosity.

In the emotional part, we are not expecting that the players have strong feelings about the game but rather with other players, we expect to get emersion because the all the players are investing, spreading the motivation between all the players

Monetization

Like all party games, this one will be sold as one-time purchase for the computer. However the version for android will be free. This makes it so you only need to own one copy of the game to play with your friends.

What sets this project apart?

The interactive nature of the city, where the public will have an intelligent form of reacting to the events and give some random outcomes to the game. Most games in this genre only have a static board or simple indications of what's going on, but in our case we intend on creating a living city. The complexity of the game mechanics resemble more a board game than a party game, and that's what we are trying to achieve, a digitized board game with party game focus. We want a game that's fast and simple to understand in the

first interaction but with some depth so that the next round has something different and fresh.

Game Lore

This game follows the final year of the run for mayor of city X, where all the candidates have to deal with a major health crisis in the city.

All the candidates have different strategies for reaching their goals, even though the end objective is the same for all, the means to reach it are very different for all participants. This quest for power is defined by your will to get it, and even more by what which one is willingly to sacrificed to achieve your goal, If you want to be the people's mayor you strive for popularity, building your reputation among the public, by researching a cure for a disease in order, or even invest in infrastructures like hospitals or sanitation in order to help solve a crysis. But if you want to be an absolutist you go for the money, trying to gather all the money you can to buy the elections and run the city with an iron fist, by lying to the media about who is helping the people or even buy the media to spread fake damaging news about your rivals and improving the public perception about you. Another way of playing is to not play, not helping you or the people, not having an end goal except for total annihilation, by causing more chaos in the city, creating and spreading even more deadly diseases, until in the end with enough money you could even kill one of your opponents ending their run permanently or if your lucky vanish the hole city from existence and winning by armageddon.

This guidelines for playing the game, are given to you in the beginning of the game but what you do with what you get is entirely up to you has the player.

/*As the day of the elections comes closer and the seasons go by you'll face different health issues, like colds in the winter, allergies in the spring, heat strokes in the summer or flu in the fall.*/

In the end you'll want to rile up people to your cause so you can become mayor or buy your way to power and that's exactly what this game is all about power.

Game Mechanics

Draw and play cards.

Every player can draw and play cards. A player can draw a card at anytime during the game, but each draw has a money cost balancing when players are able to buy new ones. The game will not work on a turn-base, instead players will be able to freely use their cards, also for a cost. We chose this type of game mechanic over a turn-based one to engage players in a more dynamic experience.

There are three type of cards, Physical Diseases, Mental Diseases, and Health Care Policies. Physical Disease cards are rarer and will spread diseases on the board, (the game world in the host), allowing you to later on either curing them, or spreading them to the point of killing everyone. Mental Disease cards are also rare and are meant to be cast as a debuff to other players, changing the way they interact with their phone. Health Care Policies are cards that allow the player to create an impact on the city, curing diseases and/or giving other diseases a harder time expandinding. Spreading physical diseases increases your

money income overtime, but curing people with health care policies gives you a small money boost. Players need to use these cards in their own benefit to win the game.

Reputation/Money/Contagious Rate

Victory is achieved in three possible ways, you can get every human on the board sick with a disease by first playing a physical disease card, and then waiting for the diseases to spread, which can be hastened by playing policies that affect the board negatively. If a high percentage of the humans in the city gets sick with a disease that you spread, then you will be able to kill them off and get a victory.

If humans remain alive, you can win by getting a high reputation, this is achieved by playing good policies that improve the city's health and by successfully accusing other players of making foul play (accusing them of spreading a specific disease).

You will also be able to win if you can buy the elections. This will be a very expensive special card that will randomly show up to one player.

Players can get mental diseases

When a player uses a mental disease card on another player it changes the way he interacted with his cellphone, these diseases are incurable but may have some kind of relief, which can be bought. For example if you get Obsessive Compulsive Disorder you will have to rearranged all cards in alphabetical order or/and some cards can't be play because they are "dirty" or are "not the right number". Players with tourette will send random messages or have random "actions" towards others.

Secret Communication

Throughout the game players will be able to secretly communicate with each other. This chat will be a set of predetermined lines that you are capable of saying to other players, also for a cost of ingame currency. In this part of the UI you also be able to take action over other players, like for example accusing them of spreading a disease, or sabotaging the cards they are playing in other to reduce their reputation.

Weather Seasons

This will be a core mechanic, if we look at Harvard's paper on seasonal diseases, it's main conclusion is that the flu likes a cold and dry weather. With that in mind we will explore the diseases ingame and correlate their infectious ability with the current season on the board. The same applies for human behaviour which is influenced by season. It goes from being indoors to more regular sexual activity, we will need to later perform more research on this subject.

In the end, seasons can boost or lower a disease's effect, their infectious rate, their live spam and area of dispersion.

Generations

In our society, vaccines and immunization are a fundamental to maintain a good public health and it's not a secret that education is an key factor to promote healthy habits.

So when a player invests on researching vaccination and/or education, he will obtain public health cards that are focused on researcher or education. Using these reduces the effects of current diseases but with more impact on the future generations.

In our game if you want to win reputation points, this is an good approach to improve it, although could be way more expensive.

Feed and Research cards System

The feed system will basically show you random events that will happen on the city to help hint what problems the players should addressing. When a player decides to conduct a research, that will be on the news. The other players will be hinted that he is researching and sometimes what is he researching. So the way other players may use this information, is not only based on the game state but also on bluff and other interactions the player are having in the group.

Procedural Content Generation

In the beginning of every game will have a new city, represented by a 2D grid, extruded random points to give the resemblance of a real city skyline. The pre-made assets that will be used will be simple but stylized with multiple shaders. After the construction of the base city, the gaps will be filled with road assets so the connections between buildings are made. The last step is populating the "ghost" town with NPCs, where the initial state that each one of the NPCs has, will be the defining factor to where they will be spawned. So if the citizen is in perfect wealth he will be in the street, taking a walk or interacting with other people. On the other hand if their health state isn't the best then they will be at home resting or in the worst case scenario they could be heading for the hospital to get better.

Goal Oriented Action Planning

One of the most important parts of the game board will be the reaction of the population over the curse of the game, so when the player launches a disease over the NPCs they will go to the doctor or home, taking some kind a measure to fight the disease the best way possible and if they succeed it will be because of the players actions. Raising that player's reputation by giving their vote to the player and trying to bring others to the same cause. With this system it will be possible to simplify the UI so that the players will have more of a visual stimulation and realization of what's happening in the game at any given point in time.

This type of realistic behavior will be achieved using a combination Goal Oriented Action Planning GOAP algorithm with Behavior Trees (BE) in a data driven paradigm, using the more video game related model, the entity-component-system (ECS) model. So GOAP is an AI algorithm that gives the object a set of necessities with different priorities and using that data the AI object defines what action he should take next, in order to satisfy his necessities in the most efficient way, but that has a great cost when the number of NPCs is high.

With that in mind the use of a more efficient but a simpler algorithm is necessary to optimize GOAP, one like BE gives a good boost in performance but the biggest help comes by using the ECS model. Where every NPC will be considered an entity, by that it means it will hold only and identification of who he his, the components are characterized, so they hold data and the ID of the entities that should have that component. Last but not least the element that acts over the components are the systems, and they are no more handlers of

events, so they iterate over the all entities that are being hold by a component and act on each one.

Using this model there will be a clearer separation between data, events and event handlers to achieve a better performance overall in order to have the flexibility of implementing complex behaviors in the population.

Game Flow

Each round of the game starts on the computer (the host). It will wait wait for a few players to join, from two up to eight. The first player to join, or the hosting computer, will be able to start the match earlier in case there isn't eight players.

At this stage players will be able to customize their in game appearance, like their color, and name. They will also be assigned a "role"/"bonus" that allows them to achieve a specific type of victory easily. The player will too be capable of discarding a set of cards from their hand, in order to get new cards, which can be better or worse.

Now the match begins. The map is shown on the screen and the people inhabiting it go live and start moving around. All players will be slowly receiving money as the time passes, this money is used to fund their campaign. They will also get a news feed with important and not so important events that are happening on the city. Each player can now use cards that will either affect the map or others players. Cards will be able to be researched(made), showing up a hint on the news feed when a player starts a research. Players are also capable of secretly communicating between them, allowing them to sabotage other players' cards or accuse other of foul play, for example when researching a card for a deadly disease. When a player accuses another, there will be a voting for all players to decide if this is true or not, the result will come afterwards, either costing or granting money and reputation to all players who got the voting right.

The game ends after a period of time with three possible outcomes. If one of the players has contaminated all humans living on the board, and therefore killing them he wins. If not then there can either be a victory because someone bought the elections, or someone actually got elected from having a high reputation.

Game Evaluation

Questionnaire

Our assumption is that people aged between 25-35 years old have at least 3 misconceptions about health care amongst the ones we are testing in our questionnaire. In our questionnaires we have ranked all answers based on the number of misconceptions. At the time we have 15 answers, which is not enough to perform a parametric test. The mean of misconceptions is 2.4, and the percentagem with 3 or more misconceptions is 0.53%. but the range is not ideal to see if there is any significance degree for our assumption. We'll still be testing more subjects in order to improve our statistics and reflecting that in our content provided.

Theme test

In the realm of games for health, this game is trying to tackle that challenge by using in game cards descriptions of the diseases they launch. Those descriptions serve the purpose of explaining what a card does in the game when played, where the effects are based in the real life effects that the disease has. So a flu card will have the description of what is the flu, the way you can get the best spreading rate and also the way to prevent it. Every piece of information present in a card will be researched and verified, so we could be confident in the results when we start testing if people have enriched their knowledge about the health issues presented in the game.

Game testing

We will conduct 2 internal test and one public test(20/05-02/06), the internal one will be with school mates, first to test the UI(31/03) , testing the game as a whole(26/04) . Each session will have multiple group organized between 2-6 players.
We won't conduct our misconception test in the first two trials, but we will use it in the last, even though we won't use the data because the group is not diverse enough, but this will provide insigne for the public test.
That final test will be conducted with one group, we will make a "party" and we will stream the game. This way we approach the environment we see our game and is also a way to promote it.

Game effect

After we finished our game, we will perform another misconception questionnaire, one with more accuracy and updated questions, then later perform the same test after the players have experienced the game. We want to know if the players' knowledge in health care will increase by playing our game, by checking how many misconceptions they will still have.

Emotional Response

We are looking forward to test the game with machinery, that will help us improve our user interface, and learn a bit about how to better communicate with players. We want to improve our visual effects and interface's feedback. For that we will implement some triggers and check the emotional response on some game moments

Game Assets

Art and design

We will invest in some low poly models and que tipo de arte pomos?
-Cards
-Visual FX
-
Music and sound - fx

We are looking to to have happy and goofy music, we will need comum quizz sounds but sometimes we will look for a darker twist in the sounds

Our sounds list:
- Win
- Lose
- Research
- Text-to-speech for new anuncing
- Dramatic sound when a new disease is spread
- Joy sound when it is cure
- People complaining
- People cheering

Schedule

We decided to make a simple graph to plan which bigger features need to be done, and we ended up with a simple plan like this one.
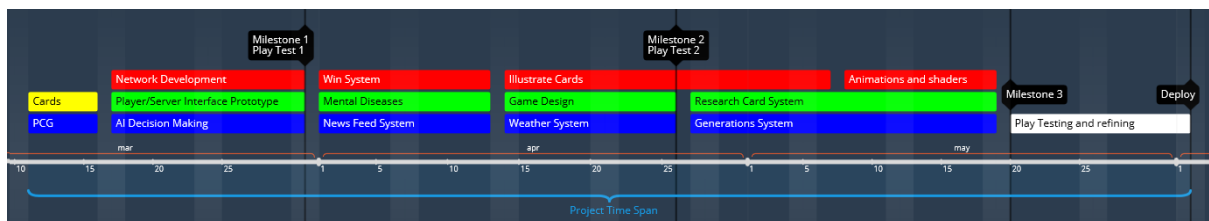

Image 1: Time Schedule, Red(Diogo), Green (Moisés), Blue (Fernando)

Firstly we made a prevision of how much time we have left until the project deadline and we decided to have some important milestones that would divide main features that are to be implemented in the game. As such we planed for a milestone on the 31st of March and another on the 26th of April with intensive game testing to make sure the project is going in the right path. The last milestone on the 20th of May is meant for us to have the game almost complete and spend the last two weeks finding and fixing bugs. We also want to save that time to test gameplay, and make some adjustments to make sure the game is balanced.

For the first Milestone we want to have a basic placeholder map being procedurally generated, the Networking system able to communicate between server and client with simple messages, the android device being capable of playing and drawing cards, the beginnings of the communication interface and finally the movement of the humans in the city.

For the second Milestone we want to have the mental diseases interaction with the user done, the winning conditions working, the news feed system showing up information from what's happening on the city, the weather system affecting the humans and diseases behaviour, the beginning of the UI design and core gameplay working.

For the third Milestone we will have Animations, the research system working and the generations system working.

In the end we want to save two weeks to make extensive playtesting and fixing bugs/ adjusting gameplay.

Cards and PCG - 16th of March
First milestone - 31st of March
Win System, Mental Diseases and News Feed System - 13th April
Second milestone - 26th of April
Illustrate cards - 7th of May

Third milestone - 20th of May
End - 2nd of June

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