Design4Health

IN4302TU – Building Serious Games

Synopsis & Responsibilities

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Chapter 1

Team

The team consists of 5 members, all having an own main responsibility. These will be explained below.

1.1 Responsibilities

- Ralf Nieuwenhuizen: Communication

- David Prihoda: Lead Artist

- Ismini Psychoula: Lead programmer

- Arnold Schutter: Lead Game Design

- Shuheng Shen: Lead Testing

1.1.1 Communication

The communicator is responsible for the timely communication with external parties and the teacher including weekly updates.

1.1.2 Lead Artist

The lead artist is responsible for gameplay and graphics. Gameplay (fun) should continuously be checked and the graphics should be made according to a graphical design plan. The lead artist is responsible for this plan and prioritizing tasks.

1.1.3 Lead Programmer

The lead programmer is responsible for keeping the overview of the software (architecture) and for quality. The lead programmer prioritizes the milestones for the software and checks for the quality and coherence. When deliverables are not satisfactory, the lead programmer is allowed to let deliverables be rectified.

1.1.4 Lead Game Design

The lead game designer is responsible for the overall planning and the coherence between the software and the game design.

1.1.5   Lead Testing

The lead tester is responsible for weekly testing the deliverables for appearance, errors/bugs, gameplay quality and coherence. The Lead Tester prioritizes the tasks to be improved together with the Lead Programmer.

Chapter 2

Planning

The group will work with a scrum-based system, where the tuesday meetings will be used for planning, and the friday sessions for evaluation.

2.1 Meetings

Our weekly meetings are at:

- Monday 08.45 - 10.30

- Tuesday 12.30 - 16.30

- Thursday 13.45 - 15.30

- Friday 13.45 - 16.30

2.2 Schedules

See the figures below for an initial planning (figure 2.1) and a list of tasks (table 2.1). Future tasks will be tracked using the github issue tracker. Since we are using the issue tracker on github, we can use our commit messages to set the issue status to fixed/closed, simply by putting [closes #7] or [fixes #6] in the commit message. If a commit doesn't fix or closes anything, the commit message has to contain the issue number, i.e. [#6], to be able to keep track of what feature it belongs to.

Week	Mo	Tu	We	Th	Fr
46		"System proposal" pitches and decision		"Game proposal" pitches and decision	Finish sketch of game play
				Meeting with company: adopt ideas	Decide on and set-up of software
				First sketch of game play	
47		Set goals and planning for this week (Design & Software)		Finish documentation + send	Evaluate week
		Game design last changes and documentation			
		Software and GitHub running			
48		Set goals and planning for the week (Design & Software)			Evaluate week
49		Set goals and planning for the week (Design & Software)		Finish prototype	Evaluate week
50		Set goals and planning for the week (Design & Software)		Presentation	Evaluate week
51		Set goals and planning for the week (Design & Software)			Evaluate week
52	Holidays				
1	Holidays				
2		Set goals and planning for the week (Design & Software)			Evaluate week
3		Finish documentation		Last improvements	
4					

Figure 2.1: Planning

Week	Start date	Own Milestone	Action holder	Deadline
46	10-11-2014	Proposal synopsis	Arnold	13-11-2014
		Hand in game synopsis to Prof	Ralf	14-11-2014
		Set up GitHub	Ralf	14-11-2014
47	17-11-2014	Static prototype presentation	David and Shuheng	18-11-2014
		Software pres and cons overview	Ismini	18-11-2014
		Decision on software platform	All	18-11-2014
		Finish test accelerometer posibilities	Ismini	20-11-2014
		Hand in game design document	Ralf	21-11-2014
48	24-11-2014			
49	1-12-2014	Hand in game prototype	Ralf	5-12-2014
50	8-12-2014	Finish and prepare presentation (2 persons!)	Ralf (you can delegate)	9-12-2014
51	15-12-2014	Hand in game prototype Beta	Ralf	19-12-2014
		Invite company for final presentation	Ralf	19-12-2014
52	22-12-2014			
1	29-12-2014			
2	5-1-2015			
3	12-1-2015	Hand in game prototype & documentation	Ralf	16-1-2015
4	19-1-2015	Finish and prepare presentation (2 persons!)	Ralf (you can delegate)	19-1-2015

Table 2.1: Initial todo-list

Chapter 3

Game design

As can be seen from the planning in the previous section, a game will be created in a couple of stages. In this section there shall be some explanation on the commissioner's assignment, the outline of the envisioned game, and how this will be realised.

3.1 Assignment

The official game description does not contain specific requirements. The purpose of the game is to motivate or help people to do exercises to get fit and healthy. Exercises are possibly but not necessarily provided by a physiotherapist.

3.2 Design concept

The concept of the design is an engaging game for which the user needs to perform exercises in order to make progress in the game. By executing more and more exercises the user has more possibilities in the game and new challenges will become available.

3.2.1 Game Story

The game starts with a story.

2542 AD. Your uncle was one of the first people to buy land in an unknown planet and decided to turn it into a farm to facilitate the earth's growing needs of foods. As years went by the farm became very profitable and produced the most sought out products. You were very surprised when you received a mail saying that your uncle had left you the farm years ago but you only learned of it now. After so many years the fields are unused and empty. Will you be able to salvage the farm? Spend your money wisely to grow the company and unlock new possibilities by doing the exercises.

3.2.2 Gameplay

The game is about a farm and the user is the farmer. By growing crops and keeping lifestock the farmer can grow the company and make money. However, crops and lifestock are only available when certain skills are available. To show certain skills, the farmer has to execute exercises in real-life. An exercise is specific for each crop or lifestock. For example, the skill for picking apples has to be shown before the appletrees can be bought.

After showing a certain skill, the belonging crop or lifestock is unlocked so it can be bought. However, things can only be bought when the farmer has sufficient money, space and energy. The amount of energy represents the time and energy of the farmer during one day. This amount is fixed at the beginning, but can be increasing by becoming more active, or by hiring partners or buying hulpful equipment. The amount of space around the farm is fixed throughout the duration of the game. While the game progresses, some old crops or lifestock might be sold to free space for new options. The farmer can make money by selling products on the market. Crops should be harvested first, this is done by executing the corresponding exercises for the specific crop. Gaining products from life stock such as milk from the cow also requires the execution of exercises before it is available to be sold. Preparing and selling products on the market also takes energy.

During the game, the farmer is allowed to buy machinery or equipment to enlarge the available amount of energy during the day. The extra energy is however only available when an exercise, corresponding to the specific item, is performed during the day. For example, when a pump is bought and this gives 10 extra energy, the farmer should do the pumping exercise to gain the 10 extra energy for that day.

Every now and then the farmer receives a special order or task. This can be for example the delivery of specific crops or products during the period. When the farmer completes these tasks, the game will advance to the next level. A new level introduces new crops, lifestock and equipment.

When the exercises are performed sensors are used to measure the movements along with sounds and visualizations to increase the interactivity of the game and make the experience fun.

3.3   Advanced Exercises

Exercises can specifically be designed by physiotherapists for certain phsyiotherapeutic problems, so these exercises are very useful for certain users. By having these users execute the exercises, that apply to their injury, in the game, they follow a special training program without even noticing.

3.4   Design construct

A diagram of the different components of the game is shown in figure 3.1.

3.5   Fulfilling requirements

The envisioned design will fulfill the requirement of being an engaging, activating game. This is all meant to activate people while doing an activity they love, gaming. As there are no real age requirements, an age group will be set as soon as we determine how complex the game will be. Adding features to the farm will make the game more appropriate for older people (think of people over 12 years), and keeping it simple will keep the target age group a little younger (more like 8-14 years). The game will be serious, as there is a clear purpose behind it of activating people, and it will be fun, as is proven by previous games in which you build up your own world, and have to show dedication to keep it up and running.
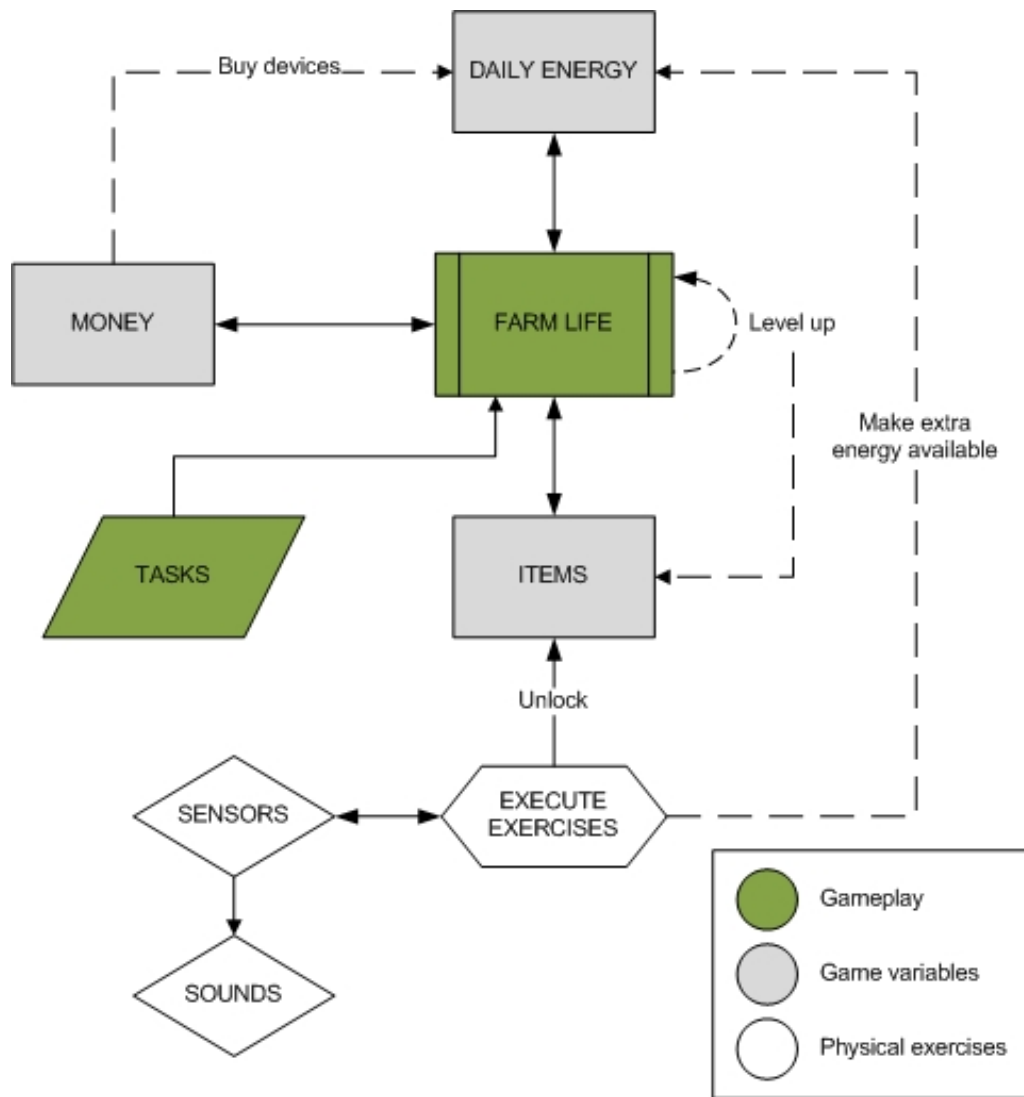
Figure 3.1: Component diagram of the game

3.6   Prototype

To get a feeling of how the final release of the game will be and to test whether the idea is really as engaging as it sounded at first, there will be some prototyping in the early stages of the project.

3.6.1   Designing the game

Before starting on developing the actual software, there will be sketches for all screens of the game, to create a clickable static prototype. This will be presented to the group, and after that final decisions are made on the design.

3.6.2   First playable

The first playable will be a small version of the final game. It will not be as complete, but the vital functions will be there, for example the farm, some sort of crop, the money, place and energy, and some livestock. There will be some user tests and the progress will be reported to the commissioners.

3.6.3 Resources

To get from a paper prototype to a full up and running game some resources will be needed. Because it will be a smartphone application, no external sensors will be needed. Plenty of open source software is available to fulfill our needs. The only cost we will have is the Android Developer registration fee which is $25

Hardware

The only requirement for someone to play our game will be that he owns a smartphone. Research about the sensors on each phone we can use will be done. Most likely these will include the accelerometer, GPS, and microphone.

Software

The game will be developed for Android mobile phones, using open source software. We will most likely go for HTML5 supported by javascript, eventually with supporting libraries. The HTML5 can be converted to a native app by using PhoneGap (`http://phonegap.com/`). This also gives us the option to convert to other mobile platforms, like iOS and Windows (Phone)