**Project Plan**

***Caretaker Simulator***

*ROC Tilburg PIT*

*Graduation Internship*

Gabriel Mureseanu

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| V1.0 | 04/03/2023 | Gabriel | Changed research question to design challange, added sub-questions and methods, changed text in all document to be more visible | Waiting for feedback |
| V1.1 | 09/03/2023 | Gabriel | Added stepping stones to a few research questions, updated inside scope with better wordin according to feedback | Complete |

**Distribution**

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# Project assignment

## Context

ROC PIT is a teacher research department for ROC Tilburg. Both are stakeholders in this project. At ROC PIT they are always searching for technology that can be used in education, as students don’t learn the same way as 20 years ago. In this project they are trying to make learning a fun experience by combining education and gaming. ROC PIT is trying to use (serious) games in order to connect with the educational needs of the students in a fun and engaging way. A serious game refers to a game where the primary focus is not entertainment. In these games the primary focus is usually education, therapy, engineering, etc. By developing a serious game with a focus on learning, they hope to find a new way of education.  
 The problem presented is that the students of health and wellbeing (future caretakers) need training to be able to use the technologies available during the job to eventually reach a point where they are integrated in a “normal day at the office” way. Currently, these 21st century skills are taught using real world products which leads to multiple problems such as: product availability, the responsibility of taking care of (usually expensive) products, teacher/information availability, etc. The equipment is not the only problem, it is also a challenge to train students of how to correctly react in emergency situations.  
 A serious game in the simulation genre can be used to simulate the training of these skills in a realistic environment of a caretaker’s job. This also allows for a risk-free experience of emergency situations. The goal of the assignment is to create a close to realistic game in the simulation genre of a caretaker's job for training purposes, where the student can learn about the use of technologies that will be available in real-life scenarios while also learning how to correctly assess the urgency and how to react in specific situations.

## Goal of the project

The main goal of the project is to train the students of health and wellbeing into using technology in a “normal day at the job” way using game design in the form of an educational game.

The deliverable of the project is a fully shippable MVP (feature complete, content incomplete) of the Educational Game, which will contain 5 specific in depth events that can happen during the daily job of a caretaker, with a focus on the back-end system extensibility. The visuals and sound will be minimal.

The advantages the game offers when compared to normal real-world training is the ease of access to technology, a realistic environment in which the technology is used, and up-to-date and easily updated (by the future developers) information.

The primary advantages of the game mentioned before will be tested using the help of the students in live play-testing and feedback sessions with input from experts in the field (main stakeholder).

ROC PIT hopes that the “fun and engaging” atmosphere of the game can help with learning the skills needed for the job.

## Scope and preconditions

|  |  |
| --- | --- |
| **Inside scope:** | **Outside scope:** |
| 1. Simulation Game | 1. Available technology data and information |
| 1. Game Systems | 1. Available Testers |
| 1. Technology implementation | 1. Tester Data |
| 1. Gamification Insights |  |
| 1. Recommendations based on research |  |
| 1. Conclusions based on research |  |

## Strategy

The approach of the project is Scrum, with sprints that will last 2 weeks.  
There are multiple reason why I have chosen Scrum for this project.

* My main stakeholder does not have a clear vision of what the requirements of the project are, so they are becoming clearer as the development advances. Scrum offers an environment where possible changes in requirements do not affect the development in a bad way, so no damage is done to the development cycle.
* Scrum can help complete deliverables quickly and efficiently by focusing on the fastest (while still achieving the requirements) solution to the problem.
* The implementations can and should be tested in sprint reviews, in my case this consists of the play-test sessions. This results in a product developed with the constant input of the users in mind, leading to a final product that can better cater to the user’s needs.
* The duration of the internship is only 20 weeks, and Scrum is the most efficient method for fast-moving projects.
* I have experience working with scrum.

## Research questions

The design challenge and research question which the project revolves around is : How can I design a **Simulation Game** for the **Students of Health and Wellbeing** that will **help** them **learn** how to **use** health and wellbeing (caretaker) **technology** in a “normal day at office” way**.**

The main research question can be used to understand how game design and gamifycation can be used to help students learn about the technology used in the daily life of a caretaker.

Based on this main research question, a lot of sub-questions could be considered, but I have chosen to focus on the following sub-questions and methods:

//Stepping stones.

* What makes a game educational?

**Methods used:**

* + Available Product analysis
  + Literature Study 
  + Best good and bad practices

**Stepping Stones:**

* + Devlog Entries
* How can gamification/game design help with learning in the field of health and wellbeing?

**Methods Used:**

* + Literature Study 
  + Available Product analysis
  + Problem analysis Icon

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  + Explore user requirementsIcon

    Description automatically generated
  + Stakeholder AnalysisIcon

    Description automatically generated
  + Usability testingIcon

    Description automatically generated
  + Data quality checkIcon

    Description automatically generated
  + BrainstormingIcon

    Description automatically generated
  + PrototypingIcon

    Description automatically generated

**Stepping Stones:**

* + Game Design Document
  + Devlog Entries
  + Prototypes
* How to impactfully convey educational information using serious game design?

**Methods Used**:

* + Literature Study 
  + Available Product analysis
  + Document analysisIcon

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  + Problem analysisIcon

    Description automatically generated
  + SurveyIcon

    Description automatically generated
  + Non-functional testingIcon

    Description automatically generated
  + Usability testingIcon

    Description automatically generated
  + Peer reviewIcon

    Description automatically generated
  + Data Quality checkIcon

    Description automatically generated
  + BrainstormIcon

    Description automatically generated
  + PrototypingIcon

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**Stepping Stones:**

* + Game Design Document
  + Devlog Entries
  + Surveys
  + Feedback/Playtest reports
  + Protoypes (based on feedback/playtest)
* How to showcase advanced technology in a video game without overcomplication?

**Methods Used:**

* + Explore user requirementsIcon

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  + Problem analysisIcon

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  + BrainstormingIcon

    Description automatically generated
  + PrototypingIcon

    Description automatically generated
  + Unit TestingIcon

    Description automatically generated
  + Usability testingIcon

    Description automatically generated
  + Data quality checkIcon

    Description automatically generated
  + Computer simulationIcon

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**Stepping Stones:**

* + Prototypes
  + Feedback/Playtest reports
  + Conclusions and Recommendations based on research
* What makes a “good” simulation game?

**Methods used:**

* + Literature Study 
  + Available Product analysis
  + Document analysisIcon

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  + ObservationIcon

    Description automatically generated
  + Non-functional testingIcon

    Description automatically generated

**Stepping Stones:**

* + Game Design Document (influence)
  + Prototypes
  + Conclusions and Recommendations based on research

## End products

Diagram

Description automatically generated

# Project organisation

## Stakeholders and team members

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Abbreviation** | **Role and functions** | **Availability** |
| Erdinç Saçan  M 06 38501002  E [esacan@roctilburg.nl](mailto:esacan@roctilburg.nl" \t "_blank) | *Erdinc* | *Supervisor* | *Tuesdays and Wednesdays every week* |
| Daan <Rutjensdrutjens@onderwijsgroeptilburg.nl> | *Daan* | *Lab Supervisor* | *Tuesday and Wednesdays every week* |
| Guus Vanhautem  +31 6 303 69 608  [gvanhautem@roctilburg.nl](mailto:gvanhautem@roctilburg.nl) | *Guus* | *Main Stakeholder* | *Tuesdays in person All week by E-mail and/or Teams* |
| Unnamed Students of Health and Wellbeing | *Students* | *Testers* | *On demand.* |

## Communication

*\*See 2.1 for abbreviations*

|  |  |  |
| --- | --- | --- |
| **Person** | **Method of communications** | **Timeslot(s)** |
| Erdinc | Whatsapp, E-Mail, In Person | Tuesday, Wednesday |
| Daan | Whatsapp, E-mail, In Person | Tuesday, Wednesday |
| Guus | Whatsapp, E-mail, In Person | Tuesday (In Person), Rest of the week (Whatsapp, E-mail) |

# Activities and time plan

## Phases of the project

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Duration** | **Description** | **Deliverables** |
| Beginning | 2 Sprints | In this phase I will be working on the Project plan and start doing research based on the research questions. | Project Plan |
| Research, Implementation and Testing | 6 Sprints | In this phase I will be working using the Scrum method in order to realize the product by conducting research, applying findings and gathering feedback from the students and main stakeholder. | Protoype(s), Game Design Document, Research Documents, Testing Reports. |
| Finalization and Handover | 2 Sprints | In this phase, I will be creating the pre-final version of the MVP, with a final play-testing session and apply the last feedback. I will also be preparing the project for handover. | Finished MVP, Advisory report. |

## Time plan and milestones

For this project, a sprint will have the duration of 2 weeks, totalling to 10 sprints.

Each day will start with a Stand-up, and the rest of the day is going to be dedicated to working on the project (devlogs included).

During the sprint, there will also be special “meetings” , as shown and explained below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| 1st | Sprint Planning | Last Sprint Demo | N/A | N/A | Task Recalibration |
| 2nd | N/A | Progress Update with Stakeholder | N/A | N/A | Sprint End + Retrospective |

* Stand-up

Daily (personal) “meeting” to examine and decide on tasks for the day using a scrum board.

* Sprint Planning

(persoanl) Meeting that takes place at the start of each sprint to decide what tasks and features will be planned for the sprint.

* Sprint Demo

A demo of the features completed in the sprint before showcased to my main stakeholder.

* Task Recalibration

(personal) “Meeting” to examine if tasks have been correctly assesed and are not under/over-estimated.

* Progress Update

Meeting with stakeholder to update him on any progress that has been made.

* Retrospective

(personal) Meeting where I look back on the sprint and see what went well and what went bad, what I should continue doing and what I should change going forward.

This table represents the “what if” perfect scenario if the development cycle goes as intended. The development will most probably not follow this plan.

|  |  |  |  |
| --- | --- | --- | --- |
| **Phasing** | **Plans** | **Start date** | **Finish date** |
| 1. Sprint 1 | Create basic Project Plan,verify with main stakeholder and Fontys Mentor | Week 1 | Week 2 |
| 1. Sprint 2 | Update Project Plan based on feedback, start researching topics needed for project, set up workflow (Trello, GitHub, Unity Project) | Week 3 | Week 4 |
| 1. Sprint 3 | Create first prototype, verify prototype with Stakeholder | Week 5 | Week 6 |
| 1. Sprint 4 | Build upon prototype, have testing session with students at the end of the sprint. | Week 7 | Week 8 |
| 1. Sprint 5 | Apply student feedback for the prototype, test again | Week 9 | Week 10 |
| 1. Sprint 6 | Apply feedback form last test, create first version of MVP | Week 11 | Week 12 |
| 1. Sprint 7 | Add content in the form of situations, events, technologies, etc. | Week 13 | Week 14 |
| 1. Sprint 8 | Polish (visual,audio,systems) | Week 15 | Week 16 |
| 1. Sprint 9 | Pre-final Version of the MVP, test the product with the students and stakeholder | Week 17 | Week 18 |
| 1. Sprint 10 | Final changes based on stakeholder/student feedback and handover. | Week 19 | Week 20 |

# Testing strategy and configuration management

## Testing strategy

The testing strategy for this project is to use Unit Testing in order to make the system extendable in the future, acceptance testing in order to make sure the application fits the needs of the students, and usability testing in order to make sure that the game is educational.

**Functional:**

* Unit Testing
  + Unit testing will be used to make sure that changes and future development will not cause issues with the already existing code.
* Acceptance Testing
  + The acceptance testing will be done by the students in order to find out if the application meets their needs.

**Non-Functional**

* Usability Testing
  + Usability testing will be used to evaluate the educational part of the game and its efficiency at teaching.

## Test environment and required resources

The testing environment that I will be using during this project in the GitHub CI/CD pipeline which runs in the cloud. The CI/CD pipeline will be used for Unit Testing.

The acceptance testing will be done in a physical environment, more specifically,in a class full of students of health and wellbeing.

**Functional**

* GitHub
  + CI/CD pipeline
* Unity
  + Unity Test Framework

**Non-Functional**

* Students of Health and Wellbeing

## Configuration management

The tooling that I will use for version control and branching is a combination of GitHub and the Unity PlasticSCM source control.

The branching strategy follows the industry standard, each new feature/fix is developed in its own GitHub branch and on completion, a merge request to Main will be made.

Because my main stakeholder does not have knowledge in the field of Game Development, the quality checking will be done using the CI/CD pipeline.

The “release” will consist of builds made for testing purposes and a final MVP build to showcase to the stakeholder.

# Finances and risk

## Project budget

N/A

## Risk and mitigation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risk** | **Chance of happening** | **Impact** | **Mitigation activities** | **Prevention activities** |
| 1. Main Stakeholder not being available. | Very Low | Very High | Discuss and arrange everything with the supervisor while the main stakeholder is not available. | Make sure to communicate and establish weekly meetings, always keeping each other up-to-date with our plans. |
| 1. Sprint goals not being reached / Falling behind | Low | Low | Focus on completing goals in the next sprint, while working extra | Make sure to stick to the proposed time plan. |
| 1. Students not being available for testing | Medium | Low | Rearrange the play test session for another sprint. | Make sure that my stakeholder is well informed on the dates I plan to test the product and that he and his students are available. |
| 1. Misunderstanding of requirements | Medium | Low | Re-define the misunderstood requirement and verify with main stakeholder | Make sure to have meetings often to discuss the implementation of requirements. |