**Project Plan**

***<<Caretaker Simulator >>***

*<<ROC Tilburg PIT>>*

*<<Graduation Internship>>*

<<

*This template can be used for all projects, especially software engineering projects. Chapters or parts that are not applicable can be removed.*

*Text in italic is background information and must be removed in the final version of your project plan.*

*Note that this is a template and can be changed for own purposes, e.g. you can adapt the layout to the layouts as used at the company of your internship.*

*For your project name, think of a name that highlights the most relevant aspect of your project, and also specify whether it is about graduation internship or third year internship.*

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# Project assignment

## Context

*<<Describe the company and context briefly.>>*

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

*<<Describe the goal of the project. Take into account:*

*The why, what is the reason for doing this project ?*

*What would the new preferred situation look like ?*

*What are the advantages of this project?*

*How does this project add value to the company/context?*

*Which possibilities are offered by the ICT product that the project will realize ?*

*>>’*

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 major 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

*<<What activities, and which end products (to what extent or quality) belong to the project, and which don’t >>*

|  |  |
| --- | --- |
| **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. Researc |  |

*<< Indicate any preconditions. E.g., think of technology choices that have already been made by the company. Note that you are also expected to retain a critical, but constructive, mindset for choices already made >>*

## Strategy

*<< Describe the strategy for your project (the approach). E.g., waterfall, or an agile approach like scrum, and justify the choice. >>.*

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 project in a meaningful 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 really like Scrum.

## Research questions

*<<*

*Describe the research questions that are most relevant to your project. For each research question, describe the approach and/or methodology. Use the Dot Framework to specify strategies and methods - see* [*http://www.ictresearchmethods.nl*](http://www.ictresearchmethods.nl) *for details.*

*Note that research is not only part of the initial phases (like analysis) of the project but runs throughout the whole project. E.g., in the realization phases, you will probably do research in the Workshop and Lab context.*

*Also realize that during the project your research questions may change, and that new ones will come up. That normal for any project ☺, and is not a problem as long as you involve the right stakeholders, and keep your deliverables updated and in sync.*

*>>*

* **How to design and implement systems that are extensible to the point it makes future developments much easier? //Change**

For this question I will research extensible systems in great detail and apply professional concepts to the system development of the game. I will also test the extensibility by how easy it is to add new content to the game.

* **What makes a system extensible?**

For this research question I will be doing research on extensible software and report my findings in a research document.

* **How to impactfully convey educational information using serious game design?**

For this question I will test and gather information by having multiple play-testing sessions with the students of health and wellbeing, and draw conclusions based on the efficiency at which the systems convey information and skills to the students.

* **What makes a game “educational”?**

For this research question I will be doing research on the topic of educational games and gather information about the core concept and specifics of educational games.

* **How to showcase advanced technology in a video game without overcomplication?**

In order to answer this question I will do research and gather information about the technology and ways to implement it, and then verify my results during the play-testing sessions with the students.

* **How to correctly assess and communicate the seriousness of a situation in the form of a game system?**

This question is quite unique and hard to answer, as it is dependant on the situation. In order to try and provide an answer I will do research about how other educational games in the industry handle this matter, test it by using the feedback form the play-test sessions, and validate the results with my main stakeholder.  
  
//Design challange. Target audience, product, technology.

## End products

*<< A Product Breakdown Structure (PBS) lists the end products that you realize, including a description of each product. In software engineering, the end products are more than just the project plan and the application itself. E.g., requirements documents, architecture documents, research reports and test reports are all end products. These are all important products that are required for effective handover. They are also necessary for further maintenance and follow up-projects. The PBS can change during the course of the project.>>*

Diagram

Description automatically generated

# Project organisation

## Stakeholders and team members

*<<Indicate all stakeholders and team members for your project. For each stakeholder indicate the role for your project. Note that the role that a person has for your project is different from the function the person has. E.g., someone with the function “department manager of department X” can have the role of product owner for your project.*

|  |  |  |  |
| --- | --- | --- | --- |
| **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

*<< Indicate the meetings and other channels of communication that you have established, or that you use for your project. Think of communication with all stakeholders including company supervisor, teachers, etc.*

*In which manner does each communication take place? Think of the goals, the location (or whether it should be online), the timing and frequency, and the attendee list.>>*

*\*See 2.1 for abbreviations*

|  |  |  |
| --- | --- | --- |
| **Peron(s)** | **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

*<< Describe the main phases of your project. Even in a scrum project you should specify at least the components at the beginning and end phases like problem analysis in the beginning, as well as handover, evaluation, reflection, and wrap up at the end.*

*For internship projects, reserve sufficient time for developing/maintaining the portfolio/thesis.*

**>>.**

|  |  |  |  |
| --- | --- | --- | --- |
| **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 a waterfall project you can indicate the phases and milestones below (can be adapted as required).*

*For an agile project describe how the artefacts are planned. E.g., length of sprint (with justification), organization of stand up, demo, retrospective.*

*>>*

This table represents the “what if” perfect scenario if the development cycle goes as intended.

|  |  |  |  |
| --- | --- | --- | --- |
| **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

*<<Which testing strategy do you envision? E.g., on which levels will testing take place? Consider that you could choose unit, component, integration, system, or acceptance testing.*

*Justify your strategy, and also set goals where relevant. E.g., percentage code coverage for the relevant unit tests. For each of the planned tests, indicate what will be automated and what not.*

*Also think of quality testing setups like, e.g., SonarQube.*

*>>*

For the testing of the game, I will be implementing unit testing using the Unity Test Framework to make sure that all systems work as intended and that future developments will not cause issues with the already existing systems.

I will also be using a form of acceptance testing by having play-testing and feedback-gathering sessions with the students of health and wellbeing.

## Test environment and required resources

*<< Describe the test environment. E.g., do you envision a DTAP (Development, Testing, Acceptance, Production) environment. Can you make use of a CI/CD environment, or will you develop your own?*

*It often helps to use a picture to visualize the test environment.*

*If you already know, describe which resources are required for realization and testing. Think of hardware, cloud environments and specific tooling required for development and testing.*

*>>*

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

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

## Configuration management

*<< Describe the project approach with respect to version management. This might include things like tooling, branching strategy, promotion-, release- and baseline strategy.*

*Also, when relevant, think of a mechanism to deal with change requests and problem reports.>>*

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

*<< Investigate and define all risks affecting the project. For each risk indicate what has been done, or will be done during the project, to prevent the risk from being actualized, and define the mitigation actions, such as what you plan to do if the risk actually eventuates.*

*In a more elaborate version, you can also label the risks with their chance of occurrence and impact. The advice is to focus on risks that have both a real chance of eventuating and some considerable impact. Direct risks, like what to do if your company supervisor is not available anymore, should always be described, as they have happened in the past quiet regularly.*

*>>*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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. |