

Progress Report

Group 1

Classroom utilization optimization via mobile application

Students:

Jordi Larzo (313296)

Nils Franke (313446)

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Supervisors:

Poul Væggemose (POV)

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Characters: 19,586

**ENG-FPRPM-A21: International Project within Business and
Communication (GBE)**

**ENG-FPRPM-A21: International Project within Software Engineering
(ICT)**

Semester A2021

2021-12-17

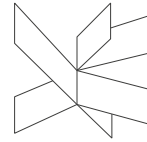
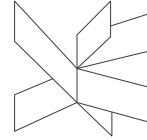


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1 Introduction

This report describes how the project has been developed among the different members of the team as well as all the procedures carried out to reach the final result.

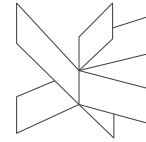
This document tries to cover in a summarized and concise way the events that have arisen during the planning, development and monitoring of the project.

2 Group Description

The group was formed during a class of ENG-FPRPM-A21 and after talking about it among the three students. The group is made up of two GBE students (Anne Schneider and Nils Franke) and one software engineering student (Jordi Lazo).

The two GBE students have focused on creating all the necessary documentation to document and record all the processes developed during the project. Therefore, they provided all the testing and tested the whole application. They have also created the design prototype of the application which has been very important since the developer has focused and inspired on it to develop the application.

Jordi has been the developer in charge of coding and launching the application.

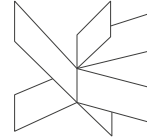


3 Project Initiation

The first time we became aware of this problem was when we learned about it from Professor Martin Møhl in the FPRM lecture. He told us that currently the rooms for lectures have to be changed more often because the room capacities of VIA Horsens are not sufficient. This was exactly the reason for solving this issue and thus improving the organization of the space. For this purpose, we formed our group to solve the problem against the background of resource utilization, which has a business background, but we also wanted to develop a prototype, so we formed a group of two GBE students and one ICT student. In addition, the choice of group members was somewhat limited by the fact that there were certain restrictions imposed by the event. But also, by the fact that only a total of 5 students have the lecture FPRM.

The first thing we did was to start writing our project description and thus acquire the necessary background knowledge. Then we started planning the whole project and the time schedule. We planned in detail what had to be done and by when. Unfortunately, this did not always work out. Especially since the analysis took much more time than planned, the time for the subsequent points became much shorter. At first, we had a rough idea of how to solve this problem of resource allocation by tracking student attendance. But during the ongoing meetings we became aware of how much more we could use the app for and how many ideas we could realise. As we wanted to include some of these things to realise the full potential, we sometimes lost track of time. After a certain time in the project, we became increasingly aware that we would not be able to realise some of the things we had planned. Therefore, compromises were made at some points in order to be able to complete the project as far as possible. It would have been better to have more experience from the beginning to be able to better assess how much is possible in the given time.

In order to track and plan the times, a Gantt chart was created during the creation of the project description. During the course of the project, the SCRUM method was used. With this method, we planned sprints of seven days.



4 Project Description

Project descriptions provide the following details to the applicants: the problem the project will address, a set of goals for the project, the overall objectives for the project, as well as a project plan that describes the activities the members will undertake.

Therefore, the problem was initially defined in the document Project Description according to the three members of the group. However, after reviewing the document by the supervisor, it was decided to redefine and simplify the problem to start with it after the kickoff.

The main objective of the project was to be able to register the students who attend their classes in person at the university and to be able to store, manage and present the data obtained to the professor and the schedule manager. So that the space resource management of the VIA University can be improved sustainably.

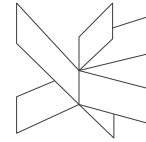
However, this goal would only have been realistic with the time frame planned from the outset. Since some changes and new ideas meant that the time schedule was not always adhered to, the achievement of the previously defined goals became increasingly unrealistic during the course of the project. As we realised that we had less and less time, the decision was made to dispense with some nice to have requirements.

5 Project Execution

The execution of the project was done according to what was agreed in the Project Description. However, during the implementation and development of the application, timelines were changed due to delays, which resulted in the application's features having to be cut.

For the execution of the project, the following tools were used:

- Double Diamond
- Scrum



The application of these methods was a success. We had meetings in which we in addition to the relevant topics, also discussed the tasks for the SCRUM sprint (seven days, see log book, appendix, Table A. 1). Next to the described tools and methods for the developing process, the team agreed to communicate via MS Teams (own channel) and use this also for document sharing and review. For the meeting minutes a notebook (OneNote, see Figure A. 1) was created which also allow to collaborate on open points, review descisions and what needs to be done within the next sprint.

It started well and we kept very close track of the schedule and work packages. Regular SCRUM reports were created to accurately track the individual sprints. After the analysis phase we started with the design of the prototype which led to regular changes of the user stories and the use cases. This cost us a lot of time and could have been avoided with better planning. The test cases were unfortunately written too late, which meant that the code did not match the test cases.

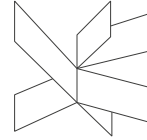
Before the execution of the project, the following risks were described in the project description:

1. Low quality of data
2. Poor usability for students
3. Small number of end users
4. No approval from Google Playstore
5. Attendments to the law

and were managed as follows:

1. Encourage users to use the app more
2. Improve usability, improve GUI
3. Review of usability, marketing
4. Work on data security, cooperate with Google Play Store
5. Work on data security

The least successful aspect of the implementation of the project was the fact that not all functions mentioned in the project description could be implemented.



It was not possible to implement all the functions and tests of the system during the implementation of the project. Furthermore, time management during development was also the least successful part of the project, as many changes had to be made in order to complete a finished project despite the short time schedule.

The team is satisfied with the final result obtained despite the difficulties encountered. As a team we would have liked to be able to implement more functionalities in the application.

6 Personal Reflections

In the following we have written our personal reflection.

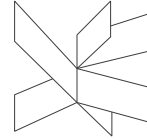
6.1 Jordi Lazo

According to the contract group, the following points were established in the content of the group contract:

- Participation
- Communication
- Meetings
- Conduct
- Conflict
- Deadlines

All these points were accomplished successfully except for the established deadlines which had to be modified.

I feel the person most responsible for the project in terms of the final result of the application. Because being the only programmer all the programming work has been done by the developer. Whether or not the application meets the established requirements is solely the responsibility of the developer.



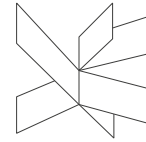
Also, in the Project Report there are specific sections that as a developer only I could do. I also feel solely responsible for these sections.

On the one hand, the success has been in participation communication, meetings, conduct, conflict between the three members of the group. For example, in all meetings, notes are always taken, new ideas were added and common points were reached to carry out the successful development of the project. On the other hand, the failure has been in deadlines because in the end the characteristics of the system had to be cut. However, the cooperation and attitude of the members has always been very good.

Personally, the only change I suggest is to modify the deadlines section. Be more flexible with deadlines. However, the group work was a success. I think all we have worked satisfactorily. As regards motivation and interest, the motivation of the group was constant and good. We all wanted to work and carry the project forward. The only thing that demotivated was the deadlines.

From what belongs to my experience as a programmer within the team together with two GBE students, I have to comment that I must maintain more communication between the members of the group and document all progress because this has been able to create conflicts or misunderstandings in certain points of the project.

On the one hand, regarding the teamwork, it is important to comment that I believe that is an essential work system that all companies use today and each person must know. It allows you to achieve goals that individually could never be achieved. Because working in a team of many people allows to create very great things. On the other hand, some disadvantages of teamwork are: some personalities tend to dominate the conversation and the group and teamwork can encounter scheduling conflicts. Because if a person exerts force in the group and there are people who do not agree, conflicts can be created that individually would not happen. This are important points to keep in mind.



6.2 Nils Franke

One of the points that worked very well was the communication, for example. In the Group Contract we said that we would keep the others informed and let them know when we changed things. This worked well, especially through a WhatsApp group and via teams, we always knew what the current status was.

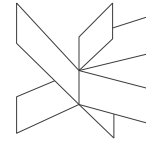
However, what did not work so well was the information as such. We had agreed to give constructive reasons for changes and suggestions. Sometimes this didn't work out that well, because sometimes you were so involved in the topic that the explanation was sufficient for you, but not for others. But all in all, the cooperation in the sense of the Group Contract worked very well.

We split the responsibilities for the group project so that everyone had some main points to work on. I felt very responsible for the planning and design of the prototype. I put a lot of work into thinking about exactly what it should look like and which functions should work where and how. I made sure that the design was exactly in line with the ideas of the whole team.

I also felt partly responsible for communication, i.e. mediation in the group. It often happened that I was able to mediate very well between two different points of view on a matter.

The group contract helped a lot with communication. Just in the sense that all team members were regularly reachable, which was very helpful. So meetings could be held at short notice, but also short messages about changes could be clarified immediately. The participation part was also very good. All team members were always present at the meetings. This helped a lot to really keep the whole team up to date.

As I said, I think the group contract was very good. All the important things were recorded and followed. Nevertheless, not everything always went smoothly. I don't think another group contract would have changed that. The ideas about the execution of a project were sometimes just too far apart.



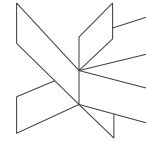
Generally speaking, the cooperation as a team worked well and I think everyone contributed very satisfactorily from their own point of view. Nevertheless, the ideas of "making a good contribution" sometimes diverged. However, we were usually able to meet in the middle, so that both ideas were mostly fulfilled.

I think everyone has done their own maximum work, even if these maximums were sometimes very different. Nonetheless, it usually worked well to adapt to each other's way of working and to make sure that the work was distributed fairly. The problem with the expertise was that it was sometimes very far apart. Especially when two GBE students work together with an ICT student, there are very different levels of expertise. Partly, the problem was to explain the knowledge to the others in a comprehensible way. But mostly we worked it out, because in general, the motivation in the group was very high - everyone felt responsible for the whole project and the result as such.

We were especially motivated by the very constructive criticism and feedback from our supervisor Poul. We were partly demotivated by the different approaches to certain things. It was sometimes a bit sobering when you had the feeling that something was not as satisfactory as it could have been.

On one hand, the communication and different approaches were difficult sometimes but on the other hand, we benefited a lot from the multicultural group work. The biggest improvement was clearly the development of one's own English level. It was a completely new experience to talk in English all the time and sometimes to try to find a new approach to explain things because it is not your mother tongue. So, it was also the biggest challenge, and it was not easy all the time. But it was really fun, and I liked it a lot.

We also learned a lot about our own abilities and how to improve them in a group context. For myself, I have learned that I have to try harder to formulate the things I have in my head so that others can understand them better. Besides that, there are a few things I would try differently next time. The most important, I would try to keep an even closer eye on the time.



I would also try to communicate more in case of problems but also in case of changes. In addition, I would also try to be more precise about things to ensure that I really get what I expect out of it.

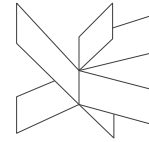
Working in a group is a lot different to working alone on a problem or project. I think the good thing about working in a group is that it is very close to reality because on projects you will usually always work in a team. The same is true for problem-based learning. I find it very good to try to solve a real existing problem. This reflects a lot of the connection to practice.

In terms of creating a problem formulation, there are some pros and some cons. The positive thing is that you have to think about and formulate clear thoughts and goals from the outset. This makes you aware of the scope of the project relatively quickly. However, the disadvantage is that you are very bound to this formulation during the course of the project. Quick changes are therefore not possible.

The same applies to creating a project description, there are advantages and disadvantages. The project description is good to get some basic knowledge about the whole project. It also provides a guideline for the later project that can be used for orientation. But here, too, it is the case that the project description can partially limit you, especially if you realise during the course of the project that a different solution would have been better, then you can't just change that.

6.3 Anne Schneider

Most of the parts of the group contract we conducted to. Especially the agreement to the level of communication and availability we held up to. Furthermore, we did our best to discuss open points and problems during the several meetings we had within the project. However, due to different level of experience and expectations we often had a different level of understanding if it comes to how to do things what causes delays and redoing parts of the project.

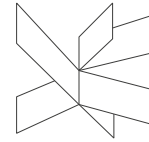


As far as I'm concerned, I felt very responsible for the group project and tried my best to deliver my part in time, keep everyone in the loop and keep track on the work that needs to be done. As the Scrum master of the project, I was responsible for work assignments, meeting arrangements with the supervisor, communication with the supervisor and review of several parts of the project. Due to my experience with MS Office tools and scientific work, I took the lead for how we should put things together, what should be included and how we can present it. However, all decision were made as a group, so I took only the initiative, I didn't make all final decisions.

I don't think that the group contract had any impact on the project process. Even we all agreed to it, the main part we hold up to was because it is the way of working together in an effective way, contract or not. For the next group contract, I would make sure that everyone involved really understand what it is about and would be more careful with lining out the level of expectations and the way of working.

In my opinion, every group member did his best to maximize the project's outcome to his/her level of satisfaction. But with the assignment of clear roles (Scrum master, product owner and developer) it was difficult to align the responsibilities, so that members might not felt that responsible as they should have. Even it wasn't his/her main responsibility, for me a group project means to support each other in every way and at least keep a certain level of general responsibility. Maybe it was due to the lack of experience, lack of interest or just the different way of working, but I think the group did not reach its maximum potential.

As the project had the highest priority through the semester, the team was very motivated to get things done. Especially with the feedback from the supervisors and the regular meetings the project work was always present. Maybe we were too motivated, as we tried many different things in between so there was times when we lost focus on the main deliverables of the project and lost track of time. The most frustrating thing for me, was the different ways of working, especially due to the different level of expectations. It's

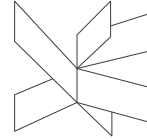


one thing to get the work done, it's another thing to work in a group and might look left and right what can be done as well.

What I learn from working in a multinational group is, that everyone works in a different way, have a different understanding of what to do and how to do it and to what level of quality the outcome can be achieved. Being a perfectionist in some way, I am used to try to deliver more than the expected outcome, more than just a satisfying solution and always question myself if there is a better way of getting things done. If this comes together with a different attitude, combined with the language barrier, I learned to communicate more clearly and to make sure that everyone really understand what is expected. Even they say "yes", it doesn't mean that they really understand.

However, I learned a lot from this project. As for me, I think problem-based learning is the best way of learning as it allows you to get the essence of what's behind the theory. I always prefer to apply things rather than to just read about it, to try new tools and methods and I am convinced that you can learn a lot from errors. And from others. Group work is a good way to get a new perspective on things, to learn from others and their way of working and their expertise. If put together right, group work allows you to maximize the quality of the outcome. On the other side, group work and the different level of expectations and satisfaction can slow you down and can get frustrating. If someone always goes the minimum expected outcome, it is almost impossible to push this person to another level of quality.

One of the main deliverables of this project for me personally, was the huge amount of working hours and discussions you have to put into a software developing process. It took a very long time to really specify the problem, the purpose and the requirements. And even it was frustrating, exhausting and confusing in between, I think that the creation of a problem formulation and project description makes sure everyone understands what the project is about. True, it is difficult to image all the details before even starting the project, but to think through the what, the how and the when (!) ensures everyone at least have an idea about project scope.



7 Supervision

We are and were super satisfied with our supervisors Poul and Lene. The meetings with our supervisors were always helpful and motivating. We always got very good feedback and the constructive criticism helped us to stay on track during the project as well as gave us new input and new ideas.

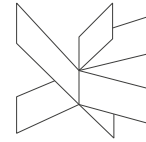
Especially Poul, main supervisor due to the IT relation of the project always supported us with availability, constructive criticism and a lot of patience and insights into IT related terms. Both were always available very quickly which made our work much easier and we did not have to worry about continuing without feedback.

All the meetings with the supervisors as well as all the input given to us was always helpful, we are extremely satisfied with the whole cooperation.

8 Conclusions

Teamwork the among colleagues has been a success. We have been able to complete the essential objectives proposed in the Project Description although the three members would have liked to be able to implement all what was planned.

Meetings have been held, notes taken, advice has been sought from supervisors and there has been great communication with them. Without a doubt, we would do teamwork again. The only point is we would discuss more about the deadlines. It would be necessary to adjust them according to the real objectives that we would have liked to achieve.



9 Appendices

Meeting #	DATE	DESCRIPTION
1	13/09/2021	Group formation
2	29/09/2021	Draft of Project Description
3	29/09/2021	Discussion of first draft of Project Description
4	06/10/2021	Changes on Project Description
5	12/10/2021	Discussion of review comments
6	12/10/2021	Feedback on Project Description and discussion of analysis phase
7	25/10/2021	Discussion about the subproblems
8	27/10/2021	Timeline for analysis phase and sprint dashboard
9	03/11/2021	Discuss the user stories
10	15/11/2021	Project Report version 001
11	19/11/2021	Presentation of the app idea to the schedule manager
12	22/11/2021	Interview with schedule manager; scheduling process
13	06/12/2021	Flow charts and Progress Report
14	08/12/2021	Progress in GitHub
15	10/12/2021	Discussion about minor changes to the Project Report
16	10/12/2021	Discussion about the next sprint
17	13/12/2021	Progress of coding and progress of project reporting
18	15/12/2021	Review Project Report, discussion of open points
19	16/12/2021	Feedback from supervisor on open points

Table A. 1: project log book

ENG-FPRPM OneNote

RESEARCH TASK BOARD JOURNAL

06/10/2021 Supervisor
Wednesday, October 6, 2021 1:00 PM

Agenda:

- Project Description changes

Attendees:

- Jordi Lazo
- Nils Franke
- Anne Schneider
- Poul Væggemose (supervisor)

Topics:

- Topic 1: students in VIA → wrong source @Nils
- Topic 2: bug fixes @Jordi
 - In project period bugs/errors will be fixed
 - After project: pin-point to how the errors will be fixed
 - Focus is on errors during project

Right sidebar (Previous Notes):

- 29/09/2021 Supervisor
- 06/10/2021 Supervisor
- 12/10/2021 Project Description
- 12/10/2021 Supervisor
- 25/10/2021 Feedback
- 27/10/2021 MEETING
- 03/11/2021 Supervisor
- 15/11/2021 Feedback
- 19/11/2021 Supervisor & Scheduler
- 22/11/2021 Supervisor & Scheduler
- 06/12/2021 Supervisor
- 08/12/2021 MEETING
- 10/12/2021 Supervisor
- 10/12/2021 Feedback
- 10/12/2021 MEETING
- 13/12/2021 Feedback**
- 13/12/2021 Supervisor
- 15/12/2021 MEETING
- 16/12/2021 Supervisor

Figure A. 1: collaboration in OneNote