

SeGaBu

Final Report

Version 0.8

Version history

Version	Date	Description	Done by
0.8	14.12.2017	Making final changes to the document	AHA
0.7	1.12.2017	Modified chapters 5,6,7,8,9 and 10	AHA
0.6	1.12.2017	Modified chapter 10	ALA
0.5	30.11.2017	Modified chapter 10	PEJ
0.4	30.11.2017	Modified chapters 2,3 and 4	AHA
0.3	30.11.2017	Modified chapter 10	TNA
0.2	29.11.2017	Modified chapter 1	AHA
0.1	29.11.2017	Copying relevant chapters from Project Plan version 1.0	AHA
0.0	28.11.2017	Applying TOL Final Report template version 0.2	AHA

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1 Description of the Project

The main purpose of this project was to continue development of the existing application platform, Hire.me, in order to have an improved version of the application for the usability testing purposes executed by the customer OASIS (Oulu Advanced Research on Service and Information Systems) first in MegaMatchmaking event and later in another testing session. As a result, we should have a fully working and bug free application with the features agreed together with the customer along the project.

The original purpose and target of the project has been achieved as planned. See the updates of description fields in Results and Delivery document (appendix 1). We have delivered testable version of Hire.me application for the customer's usability testing purposes and continued the development as agreed together with the customer along the project. We have also delivered the fully working and bug free Final Application within the planned schedule.

2 Results & Reviews

The table of Result Reviews below shows all the reviews done throughout the project. The reviews were done as planned. The only change done for the table is adding the accurate dates of the last reviews to keep the scheduled hours of the project group in balance. Design documentation was postponed from week 49 to week 50 due to concentration on last bug fixes during week 49. Testing day application was delivered two days before the original deadline as re-planned together in the extra meeting with client representatives.

Review (phase)	Result/Deliverable	Date	Participants	Issues and Practices
<i>I</i>	<i>Project Plan (+ related appendices)</i>	<i>w38, 24th of September → likka, w39, 26th of September → SG</i>	<i>likka Paajala, Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian</i>	<i>In the end of Phase I, reviewed by likka before sending to SG members, Project Plan was delivered and reviewed as planned.</i>
<i>I</i>	<i>Existing Expertise</i>	<i>26th of September</i>	<i>likka Paajala, Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian</i>	<i>In the end of the Phase I, reviewed first by likka and after that also by the SG.</i>

Review (phase)	Result/Deliverable	Date	Participants	Issues and Practices
<i>II</i>	<i>Design plan + documentation</i>	<i>w43 (plan), w50 (documentation)</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian, Ilkka Paajala</i>	<i>During Phase II, reviewed by the SG members, documentation was done before closing the project.</i>
<i>II</i>	<i>Test plan and Test Results</i>	<i>w43 (plan & results so far), w50 (final results)</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian, Ilkka Paajala</i>	<i>During Phase II, reviewed by the SG members, final test results were delivered to SG before closing the project.</i>
<i>II</i>	<i>Mid Report</i>	<i>w43, 22nd of October → Ilkka Paajala, 24th of October → SG</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian, Ilkka Paajala</i>	<i>In the end of Phase II, reviewed by Ilkka before sending to SG, Mid report was delivered and reviewed by the SG members as planned.</i>
<i>III</i>	<i>Extra demo</i>	<i>w45, 7th of November at 4 PM</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen</i>	<i>In the beginning of Phase III, SG members participated in the scrum planning meeting.</i>
<i>III</i>	<i>Testing Day Application</i>	<i>w45, 10th of November</i>	<i>Ilkka Hietaniemi</i>	<i>During Phase III, application was provided through GitHub.</i>

Review (phase)	Result/Deliverable	Date	Participants	Issues and Practices
IV	<i>Final Application</i>	<i>w49, 8th of December</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian, likka Paajala</i>	<i>In the end of Phase IV, Final Application was delivered as planned and reviewed through GitHub by Ilkka.</i>
IV	<i>Final Report</i>	<i>w49, 1st of December → likka Paajala, 2nd of December → SG</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian, likka Paajala</i>	<i>In the end of Phase IV, reviewed by likka before SG members, Final Report was delivered and reviewed as planned.</i>
IV	<i>Managerial Material</i>	<i>w50, 15th of December</i>	<i>Juho Mattila, Ilkka Hietaniemi, Eeva Leinonen, Aryan Firouzian, likka Paajala</i>	<i>All managerial materials of the project were sent to SG members through email as one zip-file after the project will be officially closed together with the closing words by the project manager.</i>

The table of Project Reviews below shows the reviews done for the project management. The reviews were done according to the plan.

Review (phase)	Date	Acceptance
<i>I</i>	<i>w 39</i>	<i>Project's status together with the Project Plan was reviewed and accepted. (Test Plan based on the review results was created.)</i>
<i>II</i>	<i>w 43</i>	<i>Project's status together with the Mid Report was reviewed and accepted.</i>
<i>III</i>	<i>w 45</i>	<i>Application status was reviewed and accepted.</i>

Review (phase)	Date	Acceptance
III	w 49	<p>Final Application was reviewed and accepted.</p> <p>Project's status together with the Final Report was reviewed and accepted.</p> <p>Final Test Results were delivered in the end of week 50. No need for the separate review.</p>

3 Assessment of Results

Results/Deliverables

Result/Deliverable	Quality Target	Measurement
Testing Day Application	Stable and bug free application	<p>UX-testing will be performed in recruitment event MegaMatchmaking 2017. Application should not contain any functional bugs when delivered to the customer.</p> <p>Assessment: The client found the Testing Day Application to be ready for larger scale testing in Extra meeting, week 45.</p>
Final Application as MVP	<p>Good UX</p> <p>Working</p>	<p>The UX test results are as "expected" or more. Will be defined in "Test planning" task.</p> <p>Assessment: The test results and customer satisfaction show that the application's UX is good and satisfying.</p> <p>All the functional bugs have been fixed and retested to "work as expected". Will be defined in "Test planning" task.</p> <p>Assessment: All the functional bugs were fixed and tested and the client accepted the Final Application to be ready for the 2nd Testing day.</p>

Process

Quality Target	Measurement
Within the limits of the project resources	Resources (workload) will not exceed more than +/- 20h of the planned total for each project member. Assessment: Workload stayed within the limits of the project's scope.
Within the schedule	For the schedule the maximum delay for the final application is 5 working days. Assessment: There were no delays in the project because the Testing Day Application and the Final Application both were delivered in time.

Success criteria

Success	Measurement
Acceptable	Bugless version of the current application. Assessment: This criteria was met because there were no functional bugs in the delivered applications (Testing day + Final).
Good	In addition to previous, features for user profile creation, work category selection and job recommendation have been implemented. Assessment: This criteria was met with a slight change in the implementation. The only lack in criteria is the server side implementation of job recommendation but it was agreed in the 2nd SG meeting that it should be left out from the scope of this project.
Excellent	In addition to previous, extra features (e.g. mentor and peer support) have been implemented. Assessment: This criteria was more than half met since the project group did not implement mentor and peer support (because this would have been too resource consuming and it was not prioritized to be important) but instead the project group implemented echo.me and 3rd party training games to the application. In addition, one of the project group members created easier configuration for the backend of the application.

4 Project Schedule

Project's schedule stayed almost the same as originally planned. Project group had one extra meeting with customer representatives in the beginning of the week 45 to make sure that the application is accepted as it is before the MegaMatchmaking event. Table 1 below shows the slight changes (marked in red) in the project implementation in coding and testing categories. In coding category the project group suggested in the 2nd SG meeting that it would be good to create a backend documentation because it took over one week from one PG member to understand the functionalities of the backend without the documentation. SG members agreed unanimously that documentation for Hire.me backend should be created. Project group decided to deliver all the test results also for the customer so that they are able to get a clear picture of the testing and the bugs that were found along the project. This task can be found on the testing category, the results were delivered before closing the project.

Table 1. Planned vs. actual tasks of the project (changes marked in red)

WEEK	Planned → Actual		Planned → Actual		Planned → Actual		Planned → Actual	
	MANAGEMENT	DESIGN	CODING	TESTING	MANAGEMENT	DESIGN	CODING	TESTING
50	CLOSING	CLOSING	Design Report	Design Report			Refactoring + backend documentation	Unit testing + Functional testing
49	Final Report review, Preparing for the 3rd SG	Final Report review, Preparing for the 3rd SG	Last	Last	Final application + Review and documentation	Final application + Review and documentation		Unit testing + Functional testing
48			changes	changes				Unit testing + Functional testing
47	Other tasks (project maintenance)	Other tasks (project maintenance)	Possible	Changes	Additional	Additional		Test planning + Functional testing
46			changes	to	features	features	+ bug fixes	Unit testing + Functional testing
45	Other tasks (project maintenance)	Other tasks (project maintenance)	to	design	Testing day application	Testing day application		Functional testing
44			design		Missing	Missing		Functional testing
43	Mid Report review, Preparing for the 2nd SG	Mid Report review, Preparing for the 2nd SG	Design Plan Review	Design Plan Review	features	features		Functional testing
42			Changes/	Changes	Debugging	Debugging		Functional testing
41	Other tasks (project maintenance)	Other tasks (project maintenance)	possible	+	Debugging	Debugging		Test planning
40			new	new	Debugging	Debugging		Heuristic evaluation
39	Plan review, Preparing for the 1st SG	Plan review, Preparing for the 1st SG	designs	designs	Debugging	Debugging		Heuristic evaluation
38								
37	Project planning, Literature review	Project planning, Literature review						
36								

5 Project Resources and Workload

The current situation of used hours was presented in the 3rd steering group meeting and the final resource usage table was delivered for steering group members before closing the project. In the middle of the project it was seen that there were too many hours planned for the design and testing so resources from those categories were moved partly to coding category because there was a need for extra resources. The workload did not exceed +/- 20 hours of the original plan so everything went as planned.

6 Risk Management

Project group faced only one risk during the project. The risk was about health issues. The project manager wasn't able to attend the extra meeting in the beginning of the week 45 due to illness. The meeting was still held and two project team members took the responsibility to manage the meeting and handled it very well.

7 Project Facilities

Working premises

Premise	Purpose
TS 134	For meetings between the project group members (customer participation is also highly desired). Project group members had a meeting in TS 134 every Tuesday before the 3rd SG meeting. The customer participated all but the last two meetings due to illness and busy schedule.
Tellus, meeting rooms	Rooms reserved for meetings with the customer. Meeting room was only used once, for the Kick-off meeting.
TS 335	For the 1st steering group meeting. The room was used for the first SG meeting. The only problem was that PG members got the access to room just before the meeting started so there was no time to get familiar with the premises. Project manager asked the customer to book a room for the further SG meetings to start half an hour before the actual meeting.
TS 267	For the 2nd and 3rd steering group meeting The room was used for the 2nd steering group meeting but there was a change just before the 3rd steering group meeting from TS 267 to IT 120. In IT 120 there was no HDMI cable or adapter but project group handled the situation well.

Hardware and Other Equipments

Hardware/equipment	Purpose	Stakeholder
Mobile phones	Communication, testing. This was the best and fastest way to communicate with the project group members as well as steering group members for example when PM needed to inform the SG that she can't participate in the extra meeting.	Project team
Laptops	SW development, communication, project management, documentation. Everything worked as planned.	Project team
Access control card	Access to working premises in University of Oulu. Project group found this very useful so they were able to use the room TS 134 for the weekly project group meetings.	Project manager

Software

Software	Purpose	Licence
WhatsApp	Communication. This was used for the status checks of the project group members twice a week (Thursdays and Sundays). It was also the fastest communication channel whenever there was a need to communicate with either PG or SG members.	Free
Gmail	E-mail This worked well for the communication with other experts and steering group members when there were larger amounts of information to share.	Free
Android Studio	Development Everything worked as planned. There was a little bit of configuration needed also in the middle of the project when Android Studio required an update but it didn't take too much time from the project implementation.	Free

Software	Purpose	Licence
<i>Git</i>	<i>Version control Everything worked as planned.</i>	<i>Free</i>
<i>GitHub</i>	<i>Code repository Everything worked as planned. This was an easy channel to share repositories also with the customer.</i>	<i>Student license, PG</i>
<i>Google Drive</i>	<i>Documentation, file sharing & storing Google Drive worked very well for the documentation, file sharing and storing. The biggest benefits were: the easy access and use, ability to modify same document with other group members at the same time and safety in storing.</i>	<i>Free</i>
<i>IntelliJ IDEA</i>	<i>Java IDE Everything worked as planned.</i>	<i>Free</i>
<i>Jenkins</i>	<i>Continuous integration Jenkins was not that much in use but when it was used, it worked as planned.</i>	<i>Free</i>
<i>Docker</i>	<i>Deployment One expert (Vinoth Selvaraj, backend developer) taught the project group how to use Docker.</i>	<i>Free</i>
<i>MongoDB</i>	<i>Database The project group was taught by backend developer (Vinoth) how MongoDB works.</i>	<i>Free</i>
<i>Vertx</i>	<i>REST APIs Everything worked well.</i>	<i>Free</i>

8 Project Stakeholders and Organisation

Stakeholders

Organisation	Expectations/priorities
<i>OASIS Research Group/SeGaBu</i>	<i>Testable version of the application to be used in the recruitment event 'MegaMatchmaking 2017' in Oulu City Theatre 14th of November</i>
<i>Degree Programme</i>	<i>Real-life project work for the students, learning outcomes</i>
<i>Project Group</i>	<i>Professionalism in real-life software project, expertise in subject area</i>
<i>CEO of Valfi Oy</i>	<i>Opportunity to pass the course 'IT Infrastructure' by acting as an adviser on the main functionalities of the application</i>
<i>End Users (job seekers in ICT field)</i>	<i>Aid for job seeking</i>

The steering group of the project consisted people from research group OASIS and the project group members were very pleased to have an opportunity to work with these persons. They were all very nice, polite and easy to work with. CEO of Valfi (Valtteri Kujala) was very nice person too, even though his participation did not help the project group much because he focused in commercializing opportunities of the application. His presentations may be helpful for the future project groups when they continue the development of Hire.me. The project group members hope that the end users will find Hire.me useful in the future.

Other experts

Name	Organisation	Expert
<i>Vinoth Selvaraj</i>	<i>Degree Programme</i>	<i>Educating the project group about the backend of the existing application, 13th of October →</i>
<i>Valtteri Kujala</i>	<i>Valfi Oy, Degree Programme</i>	<i><u>Deliverables for Valtteri:</u> Backlog, test plan and screenshots of the application <u>Deliverables for the project group:</u> Evaluation of the infrastructure used in the project + advises on the main functionalities of the application (participation in project group meetings 10th of October and 7th of November).</i>

Project group was very pleased to get the backend education from Vinoth Selvaraj. He was a very nice person and the project group found the education very useful. One of the team members took a responsibility to make an easier configuration for the backend after getting to know the backend side of the application so meeting with Vinoth was in a big role of the project implementation. Valtteri Kujala participated in two project group meetings and provided two presentations for the project group. These presentations should be given to future project groups when developing the application further.

9 Other Experiences

The communication was fluent throughout the project and there were no big delays in the schedules. One of the biggest delays was with sending the meeting invitation for the 3rd steering group meeting because the Final Report template was provided in a very late stage so the Final Report creation started in the last minute and the report was not ready to be sent along with the meeting invitation as early as the project group would have wished.

All the practices along the project worked very well. The project group used Scrum method by tailoring it to meet the small project group's needs. There was no need to meet with the project group members more than once a week because the status checks took place twice a week via Whatsapp and that was enough to keep the project fluently running. If the communication would not have worked as well as it did, the live meetings would have been considered to be held more than once a week. It was also very good to have the steering group participation in the weekly meetings so that there was at least one person who gives useful tips for the next sprint's implementation and also for the prioritization of the tasks in agile and rapidly changing mobile application development.

10 Lessons Learned and Personal Experiences

“Overall, the assigned project turned out to be quite interesting and challenging enough to keep up the motivation. Having a bit of background knowledge with Android as a platform, working with the Hire.Me application felt very comfortable. Biggest challenge in this project was the lack of documentation. Because of that it took some time to get into application's architecture and to get sufficient level of understanding about the source code in order to be able to contribute into development. Also the well documented list of existing bugs would have been helpful since our main task was bug fixing. However despite of these challenges I felt that we eventually got the development running quite smoothly and contributing into the project were actually fun.

I have to also give credit for our project team. Communication within the group was always very good and we worked very smoothly together. Each team member took responsibility to keep the project going and ensured that we reach the settled goals. It was also easy to ask help from others whenever it was needed.

Maybe one lesson to learn from this project for me personally was that it is very important to pay attention also to the design activities. There were often times when I thought that proper designing would have helped the actual implementation. Especially when creating the layout for different views, I felt that if there would have been clear vision how the view should look, the implementation would have gone much faster.” - Aatos Lang

“The core lessons that I learned, were mostly technical knowledge regarding Android and Server development. Especially the tools that were used in making it, were completely new to me, forcing me to learn them fast. Which was a task that I think, I succeeded in. Additionally project requires good deal of communication which we did not have any significant problems in, which gave a good lesson on using modern communication methods.

One important aspect for the project is planning the time consumption, which turned out to be a difficult task due to lack of experience with this type of software project, making evaluating it a difficult task for all of us. Still, with the experience we have gained, we should be more aware how to judge time consumption of each task more accurately.” - Toni Närhi

“During the project I found out that without a proper documentation of a source code it takes time to get programming running smoothly, especially, when the architecture of the program contains complex communication between the server and the client. Without the documentation, one doesn't have any understanding what each software module does and what situation is handled in each method. Considering this, bug fixing was a suitable way to start doing programming tasks because it requires a lot of debugging, which helps to learn the behaviour of the source code. Previously, I have gained some work experience from testing and making bug reports but in this project I was able to take part on fixing the bugs which I liked a lot because it offers the feeling of success when you see that your fix works as expected. Sometimes it took many hours of work and pain but what could be a greater feeling, than seeing after all the hard work, that your fix actually works.

One of my responsibilities was also to design functionality testing including test cases. Test cases were carried out manually every week which I think was not the best solution for our project due to simple test cases and small team size. Definitely testing should have been automated because testing manually same simple test cases is boring especially when most of the test cases are carried out along with debugging and programming features. Actually, it is my fault that test cases were so simple ones and felt redundant. Maybe I should have done more complex test scenarios that won't be tested during debugging and programming.” - Joni Pennala

“This R&D Project course has been one of the best courses during my university studies and it has given me a lot of important theoretical and practical knowledge about how to manage a project, as well as how to use different kinds of applications for the mobile software development, for example Git and Android Studio. I didn't have any experience of mobile application development before, so I found this project work very important and useful according to future opportunities in ICT field. I started an own company with two partners last spring so I will most certainly need the project management skills in the future and that is the most important reason I wanted to have a role of the Project Manager in our team. I am glad that Aatos, Toni and Joni accepted my request to be the Project Manager.

I found it very easy to organize within our team after we met for the first time with the group members because in that gathering we discussed about our possible strengths and weaknesses according to this project work. After that discussion we shared the original roles which were modified a little bit along the project. One of the changes was that Joni, who first was assigned to be the tester and graphical designer, started also coding by fixing the bugs. I also planned more hours for testing for myself and Joni but we realized along the project that the actual needed hours for testing are much less than the planned hours and I also realized that management work requires more hours than I originally expected so I re-planned more hours for managing and less for testing for myself. Re-planning was quite interesting to do, because in the beginning of the project you are only able to use your best guessing skills to predict the hours needed for each task. I think that this will be easier in the future, at least if I participate in the project, which has similar aspects as this project.

I need to say few words about my team members. I think that everyone did all they could (within the scheduled hours) for the project to be successful and everyone helped each other along the project. In the beginning we all agreed that we will work hard and try to get a good grade from this course. We all had a feeling that we work for the same shared goal so neither of us wanted to betray the other team members by not doing the tasks which were directed straight to them. After reading the articles from literature review, our team decided to use “self-organizing team” model in our project group, which encouraged everyone to always take care of the tasks that he or she finds that are important to be done and no-one has started doing them yet. The steering group members were all very nice for us and everyone was always very supportive and helpful. Also, we appreciate the help we got from Vinoth Selvaraj, who was the backend developer of the original Hire.me application. I really got the feeling to be the Project Manager in a real software project.

Thank you all who participated in this project! In the first mail Tonja wrote: “You may consider yourself lucky to be part of this project” and I really felt lucky throughout the whole project.”

- Anni Ahonen

Appendices

- Results and Delivery
- Schedule