

NORWEGIAN UNIVERSITY OF
SCIENCE AND TECHNOLOGY

National Integration Platform for Citizen Centric eHealth in Norway

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Helsedirektoratet
Norwegian Directorate of Health

Abstract

This report describes the design of the National Integration Platform (NIP) used for Citizen Centric eHealth in Norway. The NIP is a platform to collect different user generated eHealth data from third party solutions and services. It also describes the making of the working prototype. The challenges of this prototype is to demonstrate the transfer of personal and/or medical data from different devices and systems. The intention of the platform is to enable citizens the ability to publish information they produce into the government run NIP. It is worth noting that security is not a requirement of the prototype. To demonstrate these different parts the creation of an Android application (App), a web App and a back-end Application Programming Interface (API) was required.

The motivation for working in this project is to innovate and create a new platform that can be used to better understand the health of citizens. The citizens gather various health data from different locations and devices and in return provide a better understanding of the citizens health. Together with educated health professionals and doctors this can be a powerful tool for improving the quality of life of the users. The most interesting part was to figure out how to design a system that can have the high level of security required to transfer personal health information.

The demands were to plan, design and describe the NIP and to develop a prototype. The demonstration of this product is aimed mainly at two groups of people: 1. Educated health professionals 2. Developers The product should have a demonstration side that is easy for the first group to grasp, understand and form an idea of how it will work while also making it appealing and technical for the second group.

The result of this project is first and foremost a working prototype of a NIP. It is also a web App and an Android app to make the demonstration easier to grasp. This report is also part of the result which has the purpose of documenting the problem, the process, the workflow and the final products.

Preface

This report is for the main project in the course TDT4290 Customer Driven Project at NTNU. The team consisted of a three students from NTNU.

The team would like to thank our supervisor Meng Zhu for his guidance, help and advice for this project.

In addition we would also like to thank our customer Helsedirektoratet and their contact person Helge Blindheim. Say something about helge

Thank the people from usability tests valuable feedback

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Abbreviations

API

Application **P**rogramming **I**nterface

App

Application

NIP

National **I**ntegration **P**latform

NTNU

Norges **T**eknisk-**N**aturvitenskapelige **U**niversitet i **T**rondheim

Norwegian University of Science and Technology

Chapter 1

Introduction

1.1 Project description

This project is part of the Customer Drivent Project (TDT4290) at NTNU. The purpose of the course is to let students acquire practical experience in development of a medium-large software project, including experience in project management, group dynamics, customer relations

1.2 The client

The customer of this project was the Norwegian Directorate of Health (Helsedirektoratet).

Helsedirektoratet er eit fagdirektorat og myndighetsorgan som ligg under og blir etatsstyrt av Helse- og omsorgsdepartementet. Helsedirektoratet har også oppgåver frå Kommunal- og regionaldepartementet.

The Directorate has, among other, the task of digitalizing Norway's health care system by providing services for both specialists and citizens.

The customer was represented by Mr. Helge T. ... His contact is shown in table [1.1](#)

Name	Phone	E-mail
Helge T.

TABLE 1.1: Customer representative

1.3 Involved parties

The people involved in this project were a) the customer, b) the team and c) the supervisor. The customer, described in the previous section, was represented by Mr. Helge ... The team consisted of three students from the Department of Computer and Information Science (IDI) at the Norwegian University of Science and Technology (NTNU). The group was supervised by Zhu Meng.

Name	Phone	E-mail
Anders Olsen Sandvik
Emanuele Di Santo
Sebastian Zalewski

Name	Phone	E-mail
Zhu Meng

1.4 Project drivers

1.5 Problem domain

1.6 Project objective

1.7 Duration

Chapter 2

Project management

2.1 Planning

2.1.1 Work plan

2.1.2 Resources

2.1.3 Limitations

2.1.4 Milestones

2.1.5 Tool selection

This section will describe the different tools we used during this course

Git and GitHub “Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.”

[bib]<http://git-scm.com/>

Sublime Text

Inteliject IDE

Google Docs

Apache Maven

Travis CI

Latex

Balsamiq Mockups

Lucidchart

2.2 Organization

2.2.1 Roles

2.2.2 Weekly schedule

2.3 Quality assurance

2.3.1 Templates

2.3.2 Customer relations

2.3.3 Supervisor relations

2.4 Risk management

Chapter 3

Preliminary study

3.1 Main Section 1

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3.1.1 Subsection 1

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3.1.2 Subsection 2

Morbi rutrum odio eget arcu adipiscing sodales. Aenean et purus a est pulvinar pellentesque. Cras in elit neque, quis varius elit. Phasellus fringilla, nibh eu tempus venenatis, dolor elit posuere quam, quis adipiscing urna leo nec orci. Sed nec nulla auctor odio

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3.2 Main Section 2

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Chapter 4

Requirements specification

4.1 Funcional requirements

4.2 Non-funcional requirements

4.2.1 Quality requirements

4.3 Use cases

Chapter 5

System architecture

5.1 Overview

5.2 NIPEN

5.3 Front-end

5.4 Heart rate

5.5 Weight

Chapter 6

Sprint 0

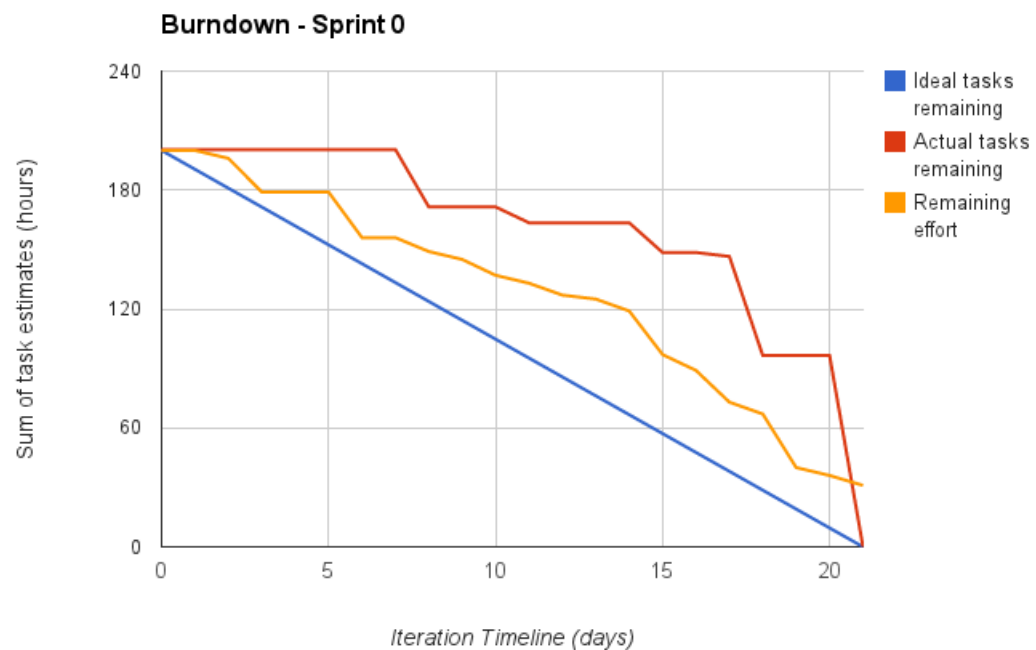
This chapter is meant to give an overview of sprint 0. Section 9.1 gives an overview of the planning. Section 9.2

6.1 Planning

** We planned to have 2 weeks sprint but in the middle of the sprint we changed the first sprint to a 3 week sprint. That makes some of our numbers inconsistent. Referring to the status reports and the weekly meetings. We usually estimated 60 hours per week of work but the first sprint ended up being estimated at 200 hours for 3 weeks**

what we planned to do shall we include some data from scrumdo? definitely a chart..

6.2 Duration



6.3 Goals

what did we expect to achieve by the end of this sprint (general progress in the project)

6.4 Feedback

from customer, from supervisor

6.5 Problems

6.6 Evaluation

our thoughts about this sprint

Chapter 7

Sprint 1

7.1 Planning

what we planned to do shall we include some data from scrumdo? definitely a chart..

7.1.1 Expected results

what did we expect to achieve by the end of this sprint (general progress in the project)

7.2 Feedback

from customer, from supervisor

7.3 Evaluation

our thoughts about this sprint

Chapter 8

Sprint 2

8.1 Planning

what we planned to do shall we include some data from scrumdo? definitely a chart..

8.1.1 Expected results

what did we expect to achieve by the end of this sprint (general progress in the project)

8.2 Feedback

from customer, from supervisor

8.3 Evaluation

our thoughts about this sprint

Chapter 9

Sprint 3

9.1 Planning

what we planned to do shall we include some data from scrumdo? definitely a chart..

9.1.1 Expected results

what did we expect to achieve by the end of this sprint (general progress in the project)

9.2 Feedback

from customer, from supervisor

9.3 Evaluation

our thoughts about this sprint

Chapter 10

Sprint 4

10.1 Planning

what we planned to do shall we include some data from scrumdo? definitely a chart..

10.1.1 Expected results

what did we expect to achieve by the end of this sprint (general progress in the project)

10.2 Feedback

from customer, from supervisor

10.3 Evaluation

our thoughts about this sprint

Chapter 11

Sprint 5

11.1 Planning

what we planned to do shall we include some data from scrumdo? definitely a chart..

11.1.1 Expected results

what did we expect to achieve by the end of this sprint (general progress in the project)

11.2 Feedback

from customer, from supervisor

11.3 Evaluation

our thoughts about this sprint

Chapter 12

Testing

12.1 Main Section 1

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12.1.1 Subsection 1

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12.1.2 Subsection 2

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12.2 Main Section 2

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Chapter 13

Conclusion and further work

13.1 Main Section 1

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Chapter 14

Reflection

14.1 Main Section 1

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Appendix A

Appendix Title Here

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