

METU DEPARTMENT OF COMPUTER ENGINEERING

CENG492 Computer Engineering Design II

Configuration Management Report MOMO SOFTWARE

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1 Introduction

Our project aims to create a context aware user interface which is sensitive to environmental conditions. In this project we need to use many different tools and methods. We need to build a project whose components should be able to run without facing any problem. Moreover all of group members should be able to improve his software simultaneously.

1.1 Purpose of CMP

IEEE defines Software Engineering as *The application of a systematic, disciplined, quantifiable approach to the development, operation and maintenance of software, that is, the application of engineering to software.* This definition states that it is very crucial that all of the software components are able to run simultaneously in a planned way. Moreover, unplanned works can lead to many problems while developing next steps of software.

In this project, all of group members will develop their codes and software components simultaneously. Building the right coordination hierarchy in this development seems to difficult, however if CMR were prepared, coordination and maintenance problem will be out of question.

We will use this document to supply the integrity of project. Moreover we will build a version history and handle workspace management by using this document. In other words, the purpose of this document is to identify and describe a CM process for our project.

1.2 Scope of the Document

The scope of this document is the identification of the CMR for our project. It defines the general standards of the project. Moreover, it explains the methodology which our group members are responsible of behaving accordingly.

1.3 Definitions, Acronyms and Abbreviations

CMR: Configuration Management Report

CM: Configuration Management

SCM: Software Configuration Management

GUI: Graphical User Interface

1.4 Document References

- Software Requirements Specifications, by Momo Software, Fall 2010
- Detailed Design Report, by Momo Software, Fall 2010
- CM_Report_Template, METU Computer Engineering, Spring 2011
- IEEE Standards for SCMP, IEEE Std 828, 1998

1.5 Document Overview

In the introduction part, we explained the purpose and meaning of CMR and we try to give the references and abbreviations used. In the second section the responsibilities of team members are defined and the tools that will be used during the project are explained. The CM Process part explains the identification of process, tools and practices for Management and Control, Configuration Status Accounting and Auditing. In the fourth section, Project Schedules and CM Milestones are defined. The project resources are explained in fifth section. Finally we conclude the document by giving information about Plan Optimization.

2 The Organizations CM Framework

2.1 Organization

Software Development:

Menu and GUI Development

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Database and Web Application Development

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Testing:

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Change Control Team:

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Version Control:

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Release Control:

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2.2 Responsibilities

Momo Software has 3 members and each of them is a part SCM team. In the following parts, the responsibilities of teams are explained:

Software Development Team:

- **Menu and GUI Development Team**

This team is concerned with the menu development and GUI part of the project. Since the GUI is the most important part of the project, all of group members are responsible for developing different substructures of this part. We will develop our software on the Android platform and use Java programming language to develop and design interface. Moreover we will use Android emulator in order to simulate environment conditions for our project.

- **Database and Web Application Development Team**

In this part of the project the database design and management work will be handled. This team is concerned with creating databases on MySQL, communicating database and software while the application is running and making necessary operations on tables that are stored on MySQL server. Moreover Html and JavaScript technologies are used in order to create and manage our Website.

Testing Team:

Since our project consists of many different components in it, maintaining and integrating them causes some problems and bugs. Moreover there may be some cases that we will not cover while developing software. In order to prevent this problems and conflicts in the final product, this team will create some scenarios and make some tests.

Change Control Team:

This team is responsible for accepting or rejecting the important changes that will be planned. Moreover this team controls changes and their effects. Actually there are two group members who is a part of this team, however the necessary information about these issues are shared to other group member.

Version Control:

This team controls versions of our project. Furthermore, team members are responsible for analyzing the previous versions when facing any problem related to current versions. They should be able to maintain versions and keep them in a safely and secure way.

Release Control:

Making plans about releases is main responsibility of this team.

Also there are some general responsibilities about configuration management that are related to all group members. These responsibilities can be analyzed as the following:

- Following CM schedule and obeying the deadlines.
- Informing other team members about his progress and giving them the necessary information.
- Following the same conventions with other team members about code writing and commenting issues.
- Committing his development and software to version control system.

2.3 Tools and Infrastructure

2.3.1 Project Management Tools

We will use SubVersion (SVN) and Trac in our project.

- **SVN:** Subversion is an open-source version control system that manages files and directories, and the changes made to them, over time. This capability allows you to recover older versions of your data, or examine the history of how your data changed.

Why SVN is necessary for your project:

- To protect you from accidental file loss.
- To modify and manage the same set of data for various team members
- To branch, share, merge and manage the file releases.
- To back-track to earlier versions of a file.
- **Trac:** Trac is an open source, web-based project management and bug-tracking tool. Every module, task bug etc. can be assigned to group members to separate everyone's responsibilities. Moreover it is a tool that enables communication and shows project progress. It also serves as a web interface to Subversion control system.

2.3.2 Technical Tools

We will use Eclipse software framework which has an extensible plug-in system. The reason is that it is very useful do develop applications in Java by means of various plug-ins.

We develop our project on Java in order to utilize the advantages of it for mobile device platforms. We choose Android from platforms of mobile device.

Android is the most suitable platform that can respond most of the necessities of our project. Therefore, we chose this platform and it is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java. Moreover, we will use Android emulator which is not just a tool

allowing you to easily test applications without having to install it to a real device, or even having one. With the proper configuration it is possible to test situations which are hardly reproduced on a physical one. Android emulator is almost the best tool existing to develop our mobile device project.

It will be necessary to use sensors such as light sensor, accelerometer sensor and orientation sensor for our project and Android provides developers these libraries to implement these sensors in applications.

3 Configuration Management Process

3.1 Identification

Project will developed using a revision control tool with team development features. Each state and changes in the project will be presented with highly detailed comments and explanations. Moreover, each part of the project will have detailed explanation about itself and it will be clear to identify their responsibilities, states and completeness.

3.1.1 Source Code

Source code of the project will be kept on a revision control network. The team will use subversion tools to add, delete or edit files in the project folder. Therefore, all versions from the beginning to the end of the project will available when needed. This will present a project that allows both easy development and recovery.

3.1.2 Documentation

Documentation is one of the most important parts of the project. We pay a huge attention to the documentation process. All documents of the project will be available on project web site. Below are the currently available documents:

- Project proposal
- Requirements analysis report
- Initial design report
- Final design report
- Configuration management plan
- Weekly progress reports

Test specifications report and user manual will be added when finished.

3.2 Configuration Management and Control

The project has a timeline that the team needs to follow. Product development will progress according to that calendar. Each component will be build and run through its own unit test. The team will build weekly releases and test them to detect defects and errors. Each release will have its own version number. With each release a build and a test report will be presented.

3.3 Configuration Status Accounting

Through the process of product development with each build of the software a build and defect report will be produced according to test specifications. With each build, a discussion will be held about whether it is necessary to make any changes. If so, a change request will be reported. At the end of the development process, final release report and documents will be prepared.

3.4 Auditing

Auditing is a vital part of the progress throughout the project. The team members meet every day and discuss the progress of the project. Moreover, we discuss obstacles and how do we get over them, we plan improvements and enhancements about the projects. Audits are mainly divided into three categories:

Functional Audits: The purpose is to ensure that the components meet the requirements and behave according to design specifications.

Physical Audits: The purpose is to ensure product contains all data and documents it is supposed to have.

Process Audits: The purpose is to ensure development process is on its track specified by the design report and product is produced by specified procedures.

4 Project Schedules and CM Milestones

To increase efficiency of our team, we plan to have short term goals. Thus, we set the main milestones of our project and a detailed project plan is also available on our web page. The main milestones are determined in terms of finish date of the units of the system, tests and course deadlines. The milestones are below:

| CMP Milestones | Dates (MM/DD/YY) |
|-------------------------------|-------------------------|
| First Development Snapshot | 29.03.2011 |
| Semantic Zooming GUI Research | 05.04.2011 |
| Test Specifications Report | 26.04.2011 |
| Scenario | 26.04.2011 |
| Network Design | 03.05.2011 |
| First Release | 17.05.2011 |
| Integration | 24.05.2011 |
| Testing - Debugging | 24.05.2011 |
| Optimization | 31.05.2011 |
| Final Package | 31.05.2011 |
| Demo | 14.06.2011 |

5 Project Resources

The following resources are used for CM activities by Momo Software:

- SVN: Revision Control System (SubVersion)
- Trac: Tracking System
- Web Site: Our project development news and resources
- Eclipse IDE: Integrated Development Environment

All members of Momo Software will learn using Trac in order to show their own progress. These CM activities will help to make our efforts more efficient. In addition, a regular software development plan will be achieved. Each member will be responsible for weekly reports, weekly backups and situation reports.

6 Plan Optimization

It is very important and necessary to fulfill the CMP responsibilities to follow the development situation. During implementation of project, CMP responsibilities are divided into three in order that each member of Momo Software can work for what they are interested in or good at. After we make regular weekly meetings for more control over the group and also weekly meetings with our assistant and we get feedback from him, we may revise this document according to the meetings if it needs. A plan optimization will also be performed by a responsible team member for Configuration Management when an update occurs.