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| |  |  |  |  | | --- | --- | --- | --- | |  | | **MINISTRY OF EDUCATION AND TRAINING** | | | **FPT UNIVERSITY** | | |
| Capstone Project Document |
| Online Medical Consultant System |
| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | **Group 02 – Report 1** | | | **Group member** | Trần Nguyên Tiến Sứ - Team Leader - SE60781  Trần Cao Danh - Team Member - SE60705 | | **Supervisor** | Mr. Nguyễn Huy Hùng | | **Ext. Supervisor** | N/A | | **Capstone Project code** | OMCS | | |
| * Ho Chi Minh City, 11 May / 2014 – |

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# Introduction

## Project Information

* Project name: **Online Medical Consultant System**
* Project Code: **OMCS**
* Product Type: **Web Application**
* Start Date: **May 11th, 2014**
* End Date: **August, 20th, 2014**

## Introduction

With the emergence of the Internet, many systems have been built to reduce the gap between patients and doctors. They provide the convenient way by let patient communicate face-to-face with health care provider via social media. That is successful story from many developed countries that we try to apply for Vietnam using different approaches.

Nowadays, Vietnam hospitals usually are overwhelmed[1] with patients. A lot of plans have been proposed to handle that situation[2]. Besides that, taking a medical treatment at hospitals not always a good choice due to the traveling cost, wasting time and unsafeness[3].

Based on observation, we see that there are many cases that patients don’t need to go to the hospital quite often because those can easily conduct via internet. So we want to improve the processes of medical treatment.

Reference:

[1] http://nld.com.vn/suc-khoe/loay-hoay-chuyen-giam-tai-benh-vien-20120315104111496.htm

[2] http://www.vietnamplus.vn/no-luc-giam-qua-tai-cac-benh-vien-tai-tp-ho-chi-minh/245738.vnp

[3] http://www.nhandan.com.vn/suckhoe/tieu-diem/item/22586202-bat-an-nhu-vao%E2%80%A6-benh-vien.html

[4] http://www.jmir.org/2013/10/e220/

# Project Management Plan

## Problem Definition

### Name of this Capstone Project

The official and formal project name is “Online Medical Consultant System”. Its abbreviation is OMCS.

### Problem Abstract

This system aims to provide the convenient way for doctor and patient to exchange information (chatting, sharing webcam, attachment).

In order to conduct a high quality consulting based on reliable information. This system helps hospitals to build medical profile template.

With many medical profiles linked to one patient, it’s more easier to extract some common information like immunization, allergy.

### Project Overview

#### The Current System

In Vietnam, there are some websites provide medical consultant services:

* **Alobacsi** *“Vì sức khỏe người Việt”*

<http://alobacsi.vn/kham-benh-online.htm>

Users can search questions in knowledge base (nearly 100.000 questions with answers). Make question by submit the form

* **Tuvansuckhoe24h** *“Chia sẽ cùng chuyên gia”*

<http://www.tuvansuckhoe24h.com.vn/>

Support chatting using yahoo. Ask question for consultants

* **Bacsytructuyen**

<http://bacsytructuyen.com/>

This website collect articles, tips related to medical from many resources. Users can access those information. Besides that, patients can submit question by filling the form

All above systems have many disadvantages:

* Lack of interaction between patients and doctors
* Hardly can provide high quality consulting service due to missing reliable resources (medical profile, allergy, immunization,…)
* Patient cannot able to manage their own profile information, medical heath record

#### The Proposed System

The main system will be a website. It’s intended for used in one hospital or clinic.

The system will provide the following main features:

* *Hospital admin:*
* Define a template for medical profile with high customization, reusable patient information and built-in components.
* Update hospital information.
* Manage doctors, patients, specialty fields, film types, allergy types.
* Manage all created medical profiles.
* Manage comments from patient.
* *Doctors:*
* Manage patient information.
* Use predefined templates to create medical profile for patient.
* View conversation history, chat with patient.
* Request patient to show their webcam.
* View medical profile template.
* *Patients:*
* Manage some basic information, health medical record.
* View their medical profile.
* Request doctor to get consulted, share webcam, upload attachment.

#### Boundaries of the System

* The system is intended for using in one hospital (we named it as FPT Hospital)
* The language of the system is Vietnamese.
* The complete product includes:
* The website, for admin, doctor, patient to interactive with system.
* All the documents, reports during the time develop the system.
* This system currently not included for these features:
* Exporting medical profile.
* Managing medicine.
* Managing process of a hospital.
* This system not intend to replace the current medical treatment processes in hospital. It just provide the convenient and reliable ways to conduct medical consultant online, especially in re-examination.

#### Development Environment

#### Hardware requirements

**For server**

|  |  |  |
| --- | --- | --- |
| Windows | Minimum Requirements | Recommended |
| Internet Connection | 4Mbps | 8 Mbps |
| Operating System | Window Server 2008 | Window Server 2012 |
| Computer Processor | Intel® Core 2 Duo | Intel® Core(TM) i5 CPU , M 460 @ 2.53GHz |
| Computer Memory | 1GB RAM | 3GB or more |

Table : Hardware Requirement for Server

**For Web User**

|  |  |  |
| --- | --- | --- |
| Web | Minimum Requirements | Recommended |
| Internet Connection | 2Mbps | 4Mbps |
| Web Browser | Chrome 22 | Chrome 36 |

Table 2: Hardware Requirement for Web User

#### Software requirements

* OS: Microsoft Windows 7.
* Skype: used for communication and meeting
* Google Code & TortoiseSVN: used for source control.
* Website Server: IIS 7 Express
* IDE: Visual Studio 2012
* DBMS: SQL Server 2008 R2
* StarUML 5.0

## Project organization

### System Process Model

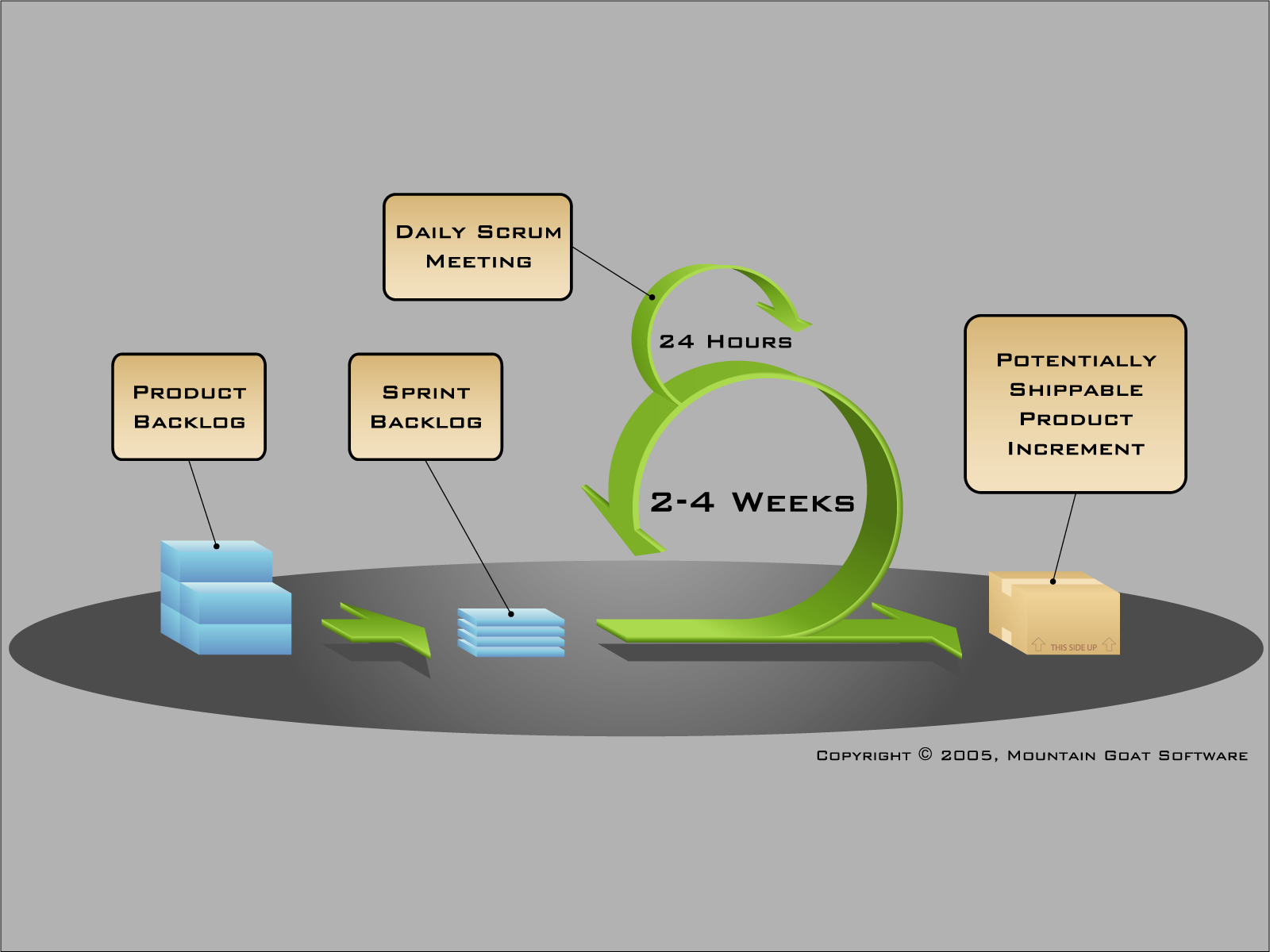


Figure 1 Scrum framework

We decided to apply SCRUM methodology in our project with many customizations:

* **Roles**

Teacher plays as a Product Owner and Scrum Master

Students play as Development Team

* **Event**

*Sprint*: each sprint is timeboxed for one week. Start and end at the same date

*Meeting*:

* *Planning 1*: choose stories from product backlog and put them into sprint backlog
* *Planning 2*: not conduct due to lack of time and resources
* *Daily meeting*: conduct every evening by using Skype
* *Review meeting*: conduct at the end of sprint where PO review the work that was completed
* *Retrospective meeting*: rarely hold. To take a look back on the previous sprints and discuss to made agreement for improvement
* **Artifacts**

*Product backlog*: list of requirements that are created and managed by PO.

*Sprint backlog*: list of works for the Development Team must address during the sprint.

*Burndown chart*: not conduct

*Impediment*: list of difficulties that the team meet during handle tasks.

### Roles and Responsibilities

|  |  |  |
| --- | --- | --- |
| Full name | Role in Group | Responsibilities |
| Nguyễn Huy Hùng | Scrum Master, Product Owner | * Ensuring the team deliver value to the business * Manage product backlog, prioritizes userstory * Facility the team |
| Trần Nguyên Tiến Sứ | Team member | * Tracking & managing progress. * Designing database. * Analyzing requirements. * Planning & scheduling. * Coding. * Testing. * Writing documents & reports |
| Trần Cao Danh | Team member | * Analyzing requirements. * Designing database. * Coding. * Testing. * Writing documents. |

Table Roles and Responsibilities

### Tools and Techniques

#### Tools:

* Microsoft Visual Studio 2012: Used to implement software modules.
* Microsoft SQL server 2008 R2 Express: Used as the database of the system.
* Microsoft Project: For the team leader to manage tasks of the members and the progress of the project.
* TortoiseSVN: Control source code of the whole project.
* Trello (<https://trello.com/>): Kanban for sprint
* Google Chrome, Firefox: Used to test the system.

#### Technologies:

* ASP.NET MVC 4
* Entity Framework Model First
* Front-end: Backbone.js, Underscore.js, RequireJS, HTML 5, CSS 3, AJAX, Bootstrap

## Project management plan

### Product Backlog

### Sprint Backlog

* Reference Appendix: Sprint Backlog.

### All Meeting Minutes

* Reference Appendix: Meeting Minutes.

## Convention Rules

This part requires of recommends certain practices for developing program in the C# language. The object of this coding standard is to have some positive effects:

* Avoidance of errors/bugs, especially the hard-to-find ones.
* Maintainability, by promoting some proven design principles.
* Maintainability, by requiring or recommending a certain unity of style.
* Performance, by discussing wasteful practices.

We will use the coding convention for C#.

<http://msdn.microsoft.com/en-us/library/ff926074.aspx>