# B. Software Project Management Plan

## Problem Definition

### 1.1 Name of this Capstone Project

The roll system using mobile device (RSM)

### 1.2 Problem Abstract

Roll system was known with HPLite32, SimplePass of HP fingerpint system; roll system with ID card using by almost corp or com around the world; the system face identify by Uniqul – Finland publish on 7/15/2013 or LogonSmart by Asus. Today, the trend machines replace humans in the hard work or the work does not require high intelligence became popular. So roll system face recognition becomes ever more necessary. The number of students in a university as well as the number of employees in large corporations in Vietnam is increasing dramatically, which means that the system should have professional roll with accuracy high.

### 1.3 Project Overview

#### 1.3.3 The Current System

Below are some current roll call systems:

* By manual: This system is widely used in school, university. The instructor will call the name of each student, check the absent, then submit the result to log system.

+ Advantage: Simple to implement, cheap.

+ Disadvantage: The roll call take 3-5 minutes, take effort of instructor, wrong roll call.

* Using ID card: This system is usually used in corporations. Each employee has a card. The card will be read by a card reader to check the attendance of the employee.

+ Advantage: High accuracy, not take much effort to check attendance.

+ Disadvantage: High cost (ID Card, Card Reader). Risk of ID card lending, missing.

* Using fingerprint: This system is currently used in FPT University. 15 minutes before and after a studying session, the student must show his fingerprint to a machine to take attendance.

+ Advantage: Quickly. No effort must be made from instructor.

Disadvantage: Cost of fingerprint reading machine. Risk of machine error. The student checks the attendance but not go to class.

* Using camera + face recognition: This system is just in experimental stage. Each classroom has a camera. At the beginning of the studying session, the instructor uses the computer, connect to the camera and take picture of classroom. The system will recognize the student in the picture, write to roll call log system.

+ Advantage: Quickly. The entire class picture can be stored as log.

+ Disadvantage: High cost (Camera cost). Face recognition not to accuracy.

#### 1.3.2 The Proposed System

The system is intended for used in only school or university, where the pupils/students sit in a classroom. The system must to manage the course, teacher, check attendance…. In detail, the system will enable following function:

##### 1.3.2.1 Web

* The admin can manage information about course, class, instructor, students.
* The system will provide a method for admin to upload the student’s images, select the students in the images to make training data.
* The system will make a roll call list (Contains: Course, Class, Time, Instructor, Student List) for each class, based on the input information.
* The system will provide a method to assign instructor and student to course. The system must check the availability of the instructor before assigning.
* The system must support a method to change instructor of a course (When instructor is sick or busy).
* The system can output report about the absent rate of a course, or a student.
* Based on the respond from instructor, the system will gather more data to become more accuracy.
* The student can view info about what course they’re studying.
* The student can view their own attendance of the course they participated in.

##### 1.3.2.2 Mobile

* The instructor can view info about: What course they are teaching. Roll Call and student lists of these classes.
* The instructor will use the mobile application. At the beginning of a studying session, a picture of entire class will be taken for checking attendance.
* Base on the student list, the system will recognize the students in the picture, show the attendance result to instructor.
* The instructor can confirm the attendance result, re-check attendance manually.
* The system will alert the instructor when it detects stranger in classroom.

#### 1.3.3 Boundaries of the System

* The system is intended for using in FPT University. Serve the need of attendance checking of instructor.
* The maximum number of a classroom is 30 people. The classroom size, brightness is the same condition as in FPT University.
* The system is not intended for managing these aspect:

+ Managing the teaching calendar of instructor.

+ Managing instructor qualification, salary info.

+ Managing the testing, mark of student of each class.

* The language of the system is English.
* The complete product includes:

+ The website, for admin and students. Instructor can also use the website to change profile, view roll call info.

+ Mobile Application for instructor to check attendance.

+ All the process involved document.

### 1.3.4 Development Environment

##### 1.3.4.1 Hardware requirements

**For server**

|  |  |  |
| --- | --- | --- |
| Windows | Minimum Requirements | Recommended |
| Internet Connection | Cable, Wifi | Cable, Wifi |
| Operating System | XP, Vista, 7, 8 | XP, Vista, 7, 8 |
| Computer Processor | CPU Pentium 4, Core or Atom | Intel(R) Core(TM) i5 CPU , M 460 @ 2.53GHz |
| Computer Memory | 1GB RAM | 3GB or more |

**For Mobile Application**

|  |  |  |
| --- | --- | --- |
| Mobile | Minimum Requirements | Recommended |
| Internet Connection | Wifi | Wifi |
| Operating System | Android 4.0 or later version | Android 4.4 |
| Hardware | Touchscreen, Camera 2.0 MP or above | Touchscreen, Camera 4.0 MP or above |
| Memory | 128mb or more | 512mb or more |

##### 1.3.4.2 Software requirements

* Microsoft Windows 7: operating system and platform for development.
* SQL Server 2008 Express: used to create and manage the database for system.
* StarUML: used to create models and diagrams
* Skype: used for communication and meeting
* Visual Studio 2010: used to implement website and web service.
* Eclipse Juno 4.4, Android SDK 22.0.5, ADT 22.0.5 & JDK 7u25: used to implement mobile application.
* Google Code & TortoiseSVN: used for source control.

## Project organization

### 2.1 Software Process Model

Project is developed under agile model.

### 2.3 Tools and Techniques

- Front-end technologies: Html, css …

- Back-end: C# & java

- Web Server: IIS

- Database Management System: SQL Server 2008 Express

**3.3 All Meeting Minutes**

Refer to Meeting Minutes folder.

## Coding Convention

Follow Code Conventions for the Java TM Programming Language, by Sun Microsystems, rev April 20, 1999.

Illustrated C# 2008 (Expert's Voice in .NET) by Daniel Solis.