**MINISTRY OF EDUCATION AND TRAINING**



MOBILE PROJECT MANAGEMENT

MPM

**CAPSTONE PROJECT**

Specialty: Software Engineering

Project members:

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Supervisor: Mr. Cao Xuan Vinh

Hanoi – 2013

RECORD OF CHANGES

\*A – Added M – Modified D – Deleted

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| --- | --- | --- | --- | --- |
| **Effective Date** | **Author** | **A/M/D** | **Change Description** | **Version** |
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|  | KhanhVD |  |  |  |

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DEFINITIONS AND ACRONYMS

|  |  |
| --- | --- |
| **Acronym** | **Definition** |
| MPM | Mobile Project Management |
| PM | Project Manager |
| PTL | Project Technical Leader |
| TL | Team Leader |
| QA | Quality Assurance Officer |
| DV | Developer |
| URD | User Requirement Document |
| PMP | Project Management Plan |
| SRS | Software Requirement Specification |
| ADD | Architecture Design Document |
| DDD | Detail Design Document |
| SDD | System Design Description |
| TP | Test Plan |
| TC | Test Case |
| UC | Use Case |
| AP | Acceptance Test |
| SC | Source Code |
| IT | Integration Test |
| ST | System Test |
| UT | Unit Test |
| UI | User Interface |
| TR | Test Report |
| GUI | Graphic |
| CM | Configuration Manager |

**Table 0-2: Definitions and Acronyms**

1. **INTRODUCTION**
2. **Project Management System Introduction & History**

In the modern lift, people must often face with pressures from work office, family and social. There is a long list of individual work, family work, agency work as well as social activities. All those tasks need to be remembered and carried out on time as well as exactly. Many people have their own way to remember and organize their tasks. Generally, the simplest way is using the notebook to take notes and plan their tasks. Before 1998 when Microsoft published windows 98 and mobile phone was expensive product, if you had asked somebody about how to organize the work, they would shown to you their small notebooks, or simply some piece of papers which recorded the daily tasks was stuck at the visible places that was easy to see, such as the fridge, calendar or desk office. In the first years of twenty century, personal computer became popular. People used to use Sticky Notes (the software that is built into Windows) or others software to manage their tasks. Furthermore, most of the first generations of cell phones of Nokia, Motorola and Black Berry have owned the remindful software that allow user to create simple schedule which was installed in their phone available.

Nowadays, Smartphone has gradually replaced traditional mobile phones. Therefore, a series of applications for task management and schedule programming have been dramatically developed with a lot of powerful functions to assist the task management and work organization by programmers. By using a few simple steps, users can build the list of tasks with the functions of notification, alarm, sorting and checklist. Nevertheless, most applications only support personal task management, not having those functions in group project tasks’ management. Besides, it has not been yet the functions of sharing job or communication among people within using the same system.

These are the reasons why people need an integrated system that allow users can manage tasks, task sharing and communication channels to support their works.

1. **Initial Ideal of the Group**

The project’s main objective is to build systems consist to build and manage tasks, combine share tasks and communication systems pass by message among users. Our purpose is that people can apply our application in project management.

After reading a research report on the Smartphone market in Vietnam, we realized that Smartphone using the operating system is concerned Android and dominate the market. We decided to write an application android

After discussing about trends in software development, we know that SOA (Service Oriented Architecture), Cloud Computing and Mobile Application are the favorite topics are being discussed on many forums technology

Our team makes final decision that our system will include:

* Android device is client system that is used for user to interact with the system. It can be also developed on other mobile platform such as iOS, Windows Phone, Windows Store.
* Web services are the backend of mobile project management system that will include business logic analyst and database processing. Our web service is Platform-Independent Model and will support developers can use our service for their application in the many development platform such as Web Form, mobile application, windows store application.
* By using cloud computing for deploying web service and database, we can use advantage of cloud computing such as high scalability, high performance, high security… In the other hand, it helps us save money to publish and deploy our application like a commercial product.

1. **Existing Products& Systems**

Currently there are several similar products

1. **2Do: To Do List | Task List**



**Figure A-III-1: 2Do: To Do List**

**2Do: To Do List** is a software product from **Guided Ways Technologies Ltd**. 2Do: To Do List is introduced to be able to run on 3 environments (Android, iOs, Mac OS) and support Smartphone, tablets, and Mac computer. 2Do is incredibly powerful software. This feature-packed productivity app provides everything you need to manage your daily tasks. 2Do includes a helpful tutorial on how to get started. Creating a new to-do list is pretty easy, and the app includes a variety of options for each task. For each item on your 2Do list, you can also add notes, set a due date, tag a location, schedule an alarm, and tack on a URL or photo. You can even make an audio recording with voice notes.

1. **GTasks: To Do List & Task List**

****

**Figure A-III-1: GTasks: To Do List & Task List**

**GTasks** is a software product from **Appest Inc.** Gtask is run only on Android. It supports smart phone and tablets. Gtasks is my favorite To-do list app, because it’s simple and efficient task management. In-app, you can set ring tone reminders, create individual tasks, or categories of lists. You can change the name, color, order of your lists and sync with your Google tasks perfectly. With the simple swipe of a finger, you can scroll between the categories, and quickly pull up what you’re supposed to be doing next. The widgets are good-looking, and flexible

1. **Air To-Do**

****

**Figure A-III-1: Air To-Do**

**Air To-Do** is a software product from AllAboutApps Inc. Air To-Do is run on iOS 3.1 or later. It is compatible with iPhone, iPod touch, and iPad. Air To-Do’s interface is very simple, which is a plus for a list app. For each individual item, you can add a due date, set an alert, add a URL or photo, write a note, or tag a location. Air To-Do also includes plenty of sharing options, including the ability to send items via email or text message. One thing I really like about the Air To-Do app is its integration with Facebook and Twitter.

1. **Comparison with our product**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Products**  **Features** | 2Do: To Do List | GTasks | Air To-Do | **(MPM)** |
| Add Tasks | X | X | X | **X** |
| Drag & Drop Task | X |  |  | **X** |
| Share task |  |  |  | **X** |
| Comment on task |  |  |  | **X** |
| Send message |  |  |  | **X** |

**Table A-III-1: Comparison with our product**

1. **Our solution and Purposes**
2. **Solution and Improvement**

We will develop Mobile Project Management by using cloud computing technology and Android platform for client side’s development. These are overview about our technical solution:

**Mobile ~~Android~~ Platform**

Android is an open-source software stack created for a wide array of devices with different form factors. The primary purpose of Android is to create an open software platform available for carriers, OEMs, and developers to make their innovative ideas a reality and to create a successful, real-world product that improves the mobile experience for end users. We also wanted to make sure that there was no central point of failure, where one industry player could restrict or control the innovations of any other. The result is a full, production-quality consumer product whose source is open for customization and porting

**Benefits of Android Platform**

* **Graphic Support**

Android offers high built-in support for power 2D and 3D graphics, which help businesses to attract maximum users to their mobile applications. High quality graphic plays a vital role in apps.

* **Cost Effective**

Android is very cost effective as an open source platform. The wide range of android development tools are free to download. Thus, mobile application development companies can deliver high quality apps at affordable rates to businesses that are always looking for solutions that are cost effective.

* **Freedom to Developers**

Android platform is quite flexible and therefore mobile app developers can work with greater flexibility and freedom. This open source technology gives freedom to developers to extend the source code and exercise their development capabilities and skills to create an effective and unique app.

**Cloud Computing**

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction

**Benefits of Cloud Computing**

* **Cost Savings**

Cloud computing providers (Amazon, Microsoft...) have pricing calculator method to help customer can estimate usage cost. With small business, pricing is about $500 per month.

* **Better Scalability and High Performance**

Cloud Computing give the opportunity for customers to scale their computing resources whenever they deem it by increasing or decreasing the required resources. You're not paying for resources which you are not utilizing. If your websites or services have too many connection in the same time, cloud computing will duplicate all website resources such as database, data. This feature helps the website always be available.

* **Easier Maintenance**
* **Better Support**

Cloud Computing providers (Microsoft, Amazon) have great support team and they always on the line for the helps. Moreover Cloud Computing supported multi programming language such as C#, Java, PHP, Python…It is easy to find sample or tutorial on Internet.

* **Improve Security**

1. **Our purposes**

This project is registered and implemented as the capstone project for the team members. The first purpose is to fulfill the requirements from FPT University studying program. The second purpose is to create a complete product for going lives. Furthermore, we have strongly believed that our application can help people to manage their personal task and enterprise company to manage project. We will publish our application like commercial app as soon as we can.

1. **PROJECT MANAGEMENT PLAN**
2. **Project Overview**
3. **Project Name**

The name of this project is “Mobile Project Management”. It project the main purpose of this project is to helps organizations or companies to manage their projects or people to manage their personal tasks.

The project aims to officers who have trouble in organize their tasks. They often work on the many projects in the same time. So we need the application that helps to manage and organize tasks, can run on their personal device (such as mobile phone, PDA or tablet). Our application gives them solution to solve their problem.

1. **Project Objectives**

This mobile application helps project manager and team members manage schedule, tasks, communication and human resource in the project. We will develop this application by using WCF Services for Android device. Services and Database will be deployed on Microsoft Azure which is one of the largest cloud computing providers in the world. The application must be reliable, fast, friendly, and easy to use.

1. **Project Scope**

The scope of the system:

* Help the project manager in project management by using building project and organization features in our system
* Help the team member in creating and sharing tasks for others members in the same organization.
* Help the all members can share their comments and experience by using task comments and sending message feature.
* Help a person can find and invite his/her friends for working on a project.
* Help a person in organizing his/her individual work.

Target users of the system:

* Officers working on the project.
* ~~Enterprise companies~~
* People whose need the task management application
* **S2M (Small to Medium) Companies:**
* **Consumer (Personal):**
* Home:
* Student:

**Project Enviroment**

1. **Production Environment (?)**
2. **Development Environment**
3. **Hardware Requirements**

* Personal computers for developing/testing with the minimum configuration: 2GB of RAM, 100 GB of hard disk, Core 2 Duo 2.0 GHz.
* A server computer for run developing/testing WCF services on Window Azure Computer Emulator with the minimum configuration: 4GB of RAM, 100GB of hard disk, Core 2 Duo 2.0 GHz.
* An account of Microsoft Azure(Educator) for deploying Services and Database
* Android Smartphone with 3G and Wi-Fi powered for testing and deploying purposes

1. **Software Requirements**

* Operating System: Windows 7, Windows 8
* Framework: .NET Framework 4.0, ASP .NET Web Services
* IDE: Visual Studio Express 2012 for Web, Eclipse Juno 4.2.2 with ADT Plugin
* Others: MS Office, MS Project, Adobe Photoshop CS5
* GitHub for Windows Version 1.0.48.0

1. **Tools and Techniques**
2. **Tools**

|  |  |  |
| --- | --- | --- |
| **Tools** | **Description** | **Version** |
| Microsoft Office Project | Project management software, support for planning, assigning task, control progress… | 2007 |
| Microsoft Office | Use Word, Excel, PowerPoint, Visio to make reports, create charts, draw diagram and make presentations | 2010 |
| Visual Studio Express for Web | WCF Service development purpose | 2012 |
| Eclipse | Android application development purpose | 4.2.2 |
| Microsoft SQL Server Management Tool | Design database | 2012 |
| GitHub for Windows | Documents and Source Code’s Version Management | 1.0.48.0 |

**Table B-I-5-1: Tools**

1. **Techniques**

|  |  |
| --- | --- |
| **Technical** | **Description** |
| WCF Services | Visual Studio is the greatest IDE for developing WCF Services. Because our team has experience and skill in C# so we strongly recommend that C# is programming language. |
| Database | We chose Microsoft SQL Server for database development. This database will be deployed to Microsoft Azure. |
| Android application | Java is our favorite programming language and Eclipse is freedom IDE. We decide use Android Platform for Fat Client development |

**Table B-I-5-2: Techniques**

1. **Project Organization**

### Software Process Model



**Figure B-II-1: Software Process Model**

The process model used for developing this project is iterative and incremental development model. We have only approximately 3 months for doing everything of this project and not every member has experience for that similar system before. Beside, the beginning the problem definition is not totally clear and we need to clarify it in iterative model. The iterative way lead us to reduce the misunderstand requirements and make sure project runs in the right way. So we should choose this iteration rather than water fall model. Furthermore, incremental model can help us to break down many phases into small steps and do some steps in parallel. Working in parallel some steps can help us to reduce effort and project can delivered on only 3 months

In term of project management process, we have to perform the following phases:

* **Initial planning:** Use UML tool like VP UML to model and design the abstract system, helping the stakeholders to understand the whole system and each other.
* **Requirements:** Elicit functional and non-functional requirements.
* **Analysis & Design:** Analyze requirements, design model and functions for the system.
* **Implementation:** Develop the system based on what was designed and analyzed.
* **Testing:** Test the functions of the system, also test the non-functional requirements.
* **Evaluation:** Evaluate all the works that are done to the point, then decide what to do next
* **Deployment:** The final stage: Deploying and packaging the system**.**
* **Termination:** Close out the project.

Chuyen sang Agile

### Roles and Responsibilities

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Full Name** | **Team Role** | **Responsibilities** |
| 1 | Vũ Duy Khánh | Project Manager, Developer | Process Managing  Database Designing  Collecting and Developing Documents |
| 2 | Lương Anh Sơn | Member, Designer | Software Designing  Documents |
| 3 | Nguyễn Trung Dũng | Member, Developer | Developing Client side  Documents |
| 4 | Lương Thanh Hùng | Member, Developer | Developing Server side  Documents |
| 5 | Phạm Minh Hoàng | Member, Tester | Testing  Documents |

**Table B-II-2-1: Roles and Responsibilities**

1. **Project Management Plan**

### Tasks

1. **Initiating**

|  |  |
| --- | --- |
| Description | Identify project, project team, stakeholder, project’s purpose and technical solution |
| Output | Introduction document |
| Deliverables | Report No.1 |
| Dependencies and Constraints | N/A |
| Risks | Misunderstand in project identifying, lack of knowledge about new technical |

**Table B-III-1-1: Initiating**

1. **Planning**

|  |  |
| --- | --- |
| Description | Plan to manage human resources, define the project goals and objectives, identify tasks and how goals will be achieved, quantify the resources needed, and determine budgets and timelines for completion. |
| Output | Planning document, schedule |
| Deliverables | Report No.2, MPP file |
| Dependencies and Constraints | N/A |
| Risks | Under schedule or over schedule |

**Table B-III-1-2: Planning**

1. **Technical Training**

|  |  |
| --- | --- |
| Description | Study the basics of developing in Android, Cloud Computing and WCF Services |
| Output | Samples about Android, WCF Services |
| Deliverables | N/A |
| Dependencies and Constraints | N/A |
| Risks | The technologies may be new and difficult to learn |

**Table B-III-1-3: Technical Training**

1. **Software Requirements Analysis**

|  |  |
| --- | --- |
| Description | Analyze software requirements to create software requirements specification document |
| Output | Software Requirement Specification document |
| Deliverables | Report No.3 |
| Dependencies and Constraints | N/A |
| Risks | N/A |

1. **Database Design**

|  |  |
| --- | --- |
| Description | Identify main tables, columns and type of value. Draw entity relationship diagram |
| Output | Database detail |
| Deliverables | N/A |
| Dependencies and Constraints | N/A |
| Risks | Under schedule or over schedule |

1. **User Interface Design**

|  |  |
| --- | --- |
| Description | Design user interface base on use cases, draw work-flow screen, define actions on each screen |
| Output | User Interface Design |
| Deliverables | N/A |
| Dependencies and Constraints | N/A |
| Risks | Under schedule or over schedule  User Interface does not meet customer requirements |

1. **Software Detail Design**

|  |  |
| --- | --- |
| Description | Chose System Architecture, draw components diagram, class diagram, sequence diagram |
| Output | System Detail Descriptions |
| Deliverables | Report No.4 |
| Dependencies and Constraints | N/A |
| Risks | Under schedule or over schedule |

1. **Develop Server Side Application**

|  |  |
| --- | --- |
| Description | Develop WCF Services (Task Management Services, User Management Services, Message and Notification Services) |
| Output | Source code |
| Deliverables | Executable program and source code |
| Dependencies and Constraints | N/A |
| Risks | Lack of knowledge about WCF Services Developments  Under schedule or over schedule |

1. **Develop Client Side Application**

|  |  |
| --- | --- |
| Description | Develop Android Application (Task Management Functions, User Management Functions, Message and Notification Functions) |
| Output | Source code |
| Deliverables | Executable program and source code |
| Dependencies and Constraints | N/A |
| Risks | Lack of knowledge about Android Application  Under schedule or over schedule |

1. **Testing**

|  |  |
| --- | --- |
| Description | Creating test case and execute test |
| Output | Test plan, test case document, test report, all tested modules and tested system |
| Deliverables | Test documentations (Test plans, test reports) |
| Dependencies and Constraints | Developments are done |
| Risks | Under schedule or over schedule  Unit test may not be performed thoroughly causing spending many efforts in system test phase. |

### Task Sheet: Assignment and Timetable

TBD (To be determined)

1. **Code Convention**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Description** | **Detail, Reason & Example** | **How to use** |
| 01 | Use the default Code Editor settings in Visual Studio 2012 | **Reason:** Easy to setup and control source code  **Example**: Smart indenting, four-character indents, tabs saved as spaces… | Tools, Options, Text Editor, C# Formatting |
| 02 | Use the default Code Editor settings in Eclipse | **Reason:** Easy to setup and control source code  **Example**: appearance color, annotations… | Windows, Preferences, General, Text Editors |
| 03 | Display line number | **Reason:** It helps on work effort management and debugging process  **Example**: appearance color, annotations, | Check on display line number on Code Editor Settings |
| 04 | Don’t Ignore Exception | **Reason:** It helps on debugging and error controlling  **Example :**  **try**{  //Doing something  }**catch**(IOException i){  //Error Message  }**Finally**{  } | N/A |
| 05 | Don’t catch generic Exception | **Reason:** Programmers have to know exactly what type of Exception and where to catch Exception  **Example:**  **try**{  someComplicateIOFunction();  // may throw or catch IOException  loadData();  // may throw or catch SqlException  }**catch**(IOException i){  //Error Message    }**finally**{  } | N/A |
| 06 | Full qualify imports | **Reason:** save the time to fix import error, reduce the number of import statements and improve effort  **Example:**  **import** android.widget.\*; | N/A |
| 07 | Create a variable for iterating before the loop | **Reason:** improve program performance  **Example:**  Wrong  **for** (x = 0; x < rows.count(); x++) {  // Doing something  }    Right  **int** rowsNum = rows.count();  **for** (x = 0; x < rowsNum; x++) {  // Doing something  }  In the wrong example, every loop the count() function will run, which can be very expensive for some collection. In the right example, the count() function will only run once. | N/A |
| 08 | Don’t initialize variable inside loops | **Reason**: improve program performance  **Example:**  Wrong  **for** (x = 0; x < rows.count(); x++) {  User user = **new** User(); System.out.print(user.UserId);  }    Right  User user = **new** User();  **for** (x = 0; x < rowsNum; x++) {  System.out.print(user.UserId);  }  In the wrong example, every loop the User class is initialized, which waste processor and memory. | N/A |
| 09 | Put open brace with preceding | **Reason:** make the code more clearly  **Example:**  **if**(s == "abc" && s == "cba"){  // Doing something  } | N/A |
| 10 | Variable naming convention | **Details:**   * Non-public, non-static field names with m * Static field names start with s * Other fields start with a lower case letter * The name of array variable must be plural noun   **Reason:** Make the code easier to understand  **Example:**  **public** String firstName;  **int** mAge;  **private** **static** **final** String *sMessage*;  **public** List<User> users; | N/A |
| 11 | Method naming convention | **Detail:**   * Name of methods have to start with verb. * Verb begin in upper case if it’s public and lower case or preceded by underscore (\_)   **Reason:** Make the code easier to understand  **Example:**  **public** **void** DisplayMessage(String s) {  }  **private** **void** \_displayMessage(String s) {  } | N/A |
| 12 | Class naming convention | **Detail:** Beginning with upper case  **Reason:** Make the code easier to understand  **Example:** User, Task | N/A |
| 13 | Interface naming convention | **Detail:** Beginning with I character  **Reason:** Make the code easier to understand  **Example:**  IUser | N/A |
| 14 | Use #region and #endregion to tidy up | Reason: Make the code easier to view  Example:  #region  public int Add(int x, int y){  throw new NotImplementedException();  }  #endregion | Visual Studio |
| 15 | Don’t use magic number or raw string, create a constant for them | Reason: Make the code easier to understand  Example:  Wrong  **if** (a == 5) {  b = "This is type a";  }  Right  **const** TYPE\_A = 5;  **const** TYPE\_A\_NOTICE = "This is type a";  **if** (a == TYPE\_A){  b = TYPE\_A\_NOTICE;  } | N/A |
| 16 | Use standard comments | Reason: Helps programmers and reviewer to understand source code  Example:  /\*\* Return the correctly rounded positive square root of a double value.  \*/    **static** **double** sqrt(**double** a) {  } | N/A |

1. **SOFTWARE REQUIREMENT SPECIFICATION**
2. **Introduction**
3. **Objectives**

This is the Software Requirements Specification for the Project manager system. This SRS details the capabilities and functions that the Project manager must be capable of performing Mobile Project Manager is designed to support people to manage their daily tasks, people can share with each task. These requirements will assure that the system will correctly and reliably perform its intended functionality. This specification will provide general, as well as specific requirements to be used in the design, testing and validation of the system.

1. **Scope**

Scope of Software Requirement Specifications Document is defined General User Requirement Specification, External Interface Requirement, function and non-function. This Software Requirements Specification applies to the Project Manager system, including the Project manager Android applications. Mobile Project Manager helps people create and manage tasks for themselves. It also can create team and project team. MPM allow manager can add members to the project team and assign tasks to them

1. **Requirements**
2. **User Requirement Specification**

From developer team suggestions and surveys, discussions with users, we have got a list of requirements as following:

* Project Software allows you to create and manage project tasks follow state.
* Each project has 3 default states are Todo, doing, done.
* Users can create new State, Modify the State.
* These tasks are grouped by State. The software allows users to move back and forth between tasks and state with drag drop.
* The software allows the user can search users and add users to project
* The software allows users to create teams, manage teams and add all members of team to project.
* Software functions assign tasks to other users, and can manage other users.
* Software functional has to add tasks, update tasks, delete tasks and list the tasks that have been added.
* The system have to view tasks follow calendar
* The Tasks have to status notify
* The task status is about to expire must be notify
* When the overdue tasks to automatically switch status and sends notification to assigned persons
* Software have to function write comment for task
* Software have to function send message for each member and all team member

1. **External Interface Requirement**
2. **User Interfaces**

* The software interface should be intuitive, friendly easy to use
* Mobile project manager have to support Gestures feature that allow users to interact with your app by manipulating the screen objects you provide such as long press. Swipe, pinch open, pinch close
* The item, logical button layout, easy to understand, not glitzy users, because the use of multiple small mobile screen should be able to press the wrong button

1. **Hardware Interfaces**

* The system should be deployed online and available to a wide range of hardware devices. The system should be accessible on any mobile or tablet using android.
* The system should be Supporting Different Screens; Android categorizes device screens using two general properties: size and density. You should expect that your app will be installed on devices with screens that range in both size and density. As such, you should include some alternative resources that optimize your app’s appearance for different screen sizes and densities

1. **Software Interfaces**

* Programs should run on all machines using android operating system.
* Software should support multiple versions of android.
* Software interface supports English and Vietnamese.

1. **Communication Protocol**

* MPM system uses standard protocols (JSON) and TCP/IP to communicate between clients and server.

1. **Non-Functional Requirement**
2. **Performance**

* Sign-in time should be equal or less than 2 seconds.
* ~~Shut down the app in 0.5 seconds.~~
* Maximum delay in toggling foreground / background is less than 1 second.
* ~~Huong den 10.000 users~~
* 1000 people use the service access at the same time. Concurrent users
* Response time is less than 2 seconds.

1. **Usability**

* Users do not need any tutorial or guide for using this app. They have spent less more than 15 minutes to setup their first project management.
* Support multi languages such as Vietnamese and English.

1. **Scalability**

* Supporting Different Devices: Support all Android devices come in many shapes and sizes all around the world.
* Supporting Different Screens: My app will be installed on devices with screens that range in both size and density. 4 generalized sizes: small, normal, large, xlarge. 4 generalized densities: low, medium, high, extra high.
* Supporting Different Platform Versions: While the latest versions of Android often provide great APIs for my app, I will continue to support older versions of Android until more devices get updated.
* Support Many Themes: Fonts, Colors, Buttons

1. **Maintainability**

* Make future maintenance easier, or cope with a changed environment
* Independence components development and easy for debugging and deploying to meet new customer requirements

1. **Availability**

* The system should be able to available 95% of time.
* The database servers should be available 24 hours/day.

1. **Security**

* Ensure security for user account, not be lost their information
* Data must be encrypted when transferring via (?)
* Authentication is required when accessing into or querying from database system

1. **Functional Requirement**
2. **List of Functions**

Can phan chia ra thanh cac Component hoac Group. E.g: Task Management, Account Management…

|  |  |
| --- | --- |
| **Code** | **Description** |
| FR01 | Login by Gmail |
| FR02 | Login by User ID |
| FR03 | User registration (dua len dau tien) |
| FR04 | Add Member to Project/Organization |
| FR05 | View member |
| FR06 | View Task Member (Thieu Create Task, Assign Members to Tasks, Changing Task Status…) |
| FR07 | Remove user from project |
| FR08 | Create a group member |
| FR09 | Add member to group |
| FR10 | Remove member from group |
| FR11 | Add group to Project |
| FR12 | Delete a Group |
| FR13 | Send message to a member |
| FR14 | Send message to a group member |
| FR15 | Send message when a task over due |
| FR16 | Send message when a task at the approach of over due |
| FR17 | Send message when add a member |
| FR18 | Send message when remove a member |
| FR19 | Send message when assign a task to a member |
| FR20 | Send message when removing assign a task to a member |
| FR21 | Send message when change complete a task |

1. **Function Description**

#### FR01: Login by Gmail

* Access right: Users
* Description: Users use this function to access application by Gmail

#### FR02: Login by User ID

* Access right: Users
* Description: Users use this function to access in application by use a id has registered before

#### FR03: User Registration

* Access right: Users
* Description: Users use this function to register, an user become a member to use application

#### FR04: Add member

* Access right:
* Description: use this function to add a username to database of project management.

#### FR05: View Member

* Access right: Users
* Description: Users use this function to view all public information of a user

#### FR06: View Task of Member

* Access right: Users
* Description: Users use this function to view all assigned tasks of a member

#### FR07: Remove user from project

* Access right:
* Description: use this function to remove a exist member from projects.

#### FR08: Create a group member

* Access right:
* Description: use this function to organize members by making a group

#### FR09: Add member to group

* Access right:
* Description: use this function to manage their project.

#### FR10: Remove member from group

* Access right:
* Description: use this function to remove a exist member from group

#### FR11: Add group to Project

* Access right:
* Description: use this function to add a group of member to Project

#### FR12: Delete a group

* Access right:
* Description: use this function to delete a exist group.

#### FR13: Send message to a member

* Access right: Users
* Description: Users use this function to communicate between 2 of members

#### FR14: Send message to a group member

* Access right: Users
* Description: Users use this function to send a message to all members of group

#### FR15: Send message when a task over due

* Access right: Users
* Description: Users use this function to remind users about overdue task.

#### FR16: Send message when a task at the approach of over due

* Access right: Users
* Description: Users use this function to manage their sessions by logging in or out of the system, which grant them the rest of the system’s functions.

#### FR17: Send message when add a member

* Access right: Users
* Description: Users use this function to remind users about adding to a project

#### FR18: Send message when remove a member

* Access right:
* Description: use this function to remind users about removing from a project

#### FR19: Send message when assign a task to a member

* Access right:
* Description: use this function to remind members about assigned a task in project.

#### FR20: Send message when removing assign a task to a member

* Access right:
* Description: use this function to remind members about removed assign a task in project

#### FR21: Send message when change complete a task

* Access right:
* Description: use this function to remind members when a member complete a task

1. **User Case**
2. **Main use case**

Chia ra thanh cac Group User Cases, e.g: Task Management, Account Management…

****

#### Functional specifications

1. **Task Management Function**



|  |  |
| --- | --- |
| **Use Case ID** | **T-001** |
| **Use Case Name** | **1-Create Project** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | The application will be make a name to the list for uses to manage their project |
| Actors | Users |
| System | Mobile Project Management |
| Preconditions | User has already logged in the system |
| Post-conditions | The application will be displayed name of project on project’screen. |
| Flow of Events: Create Project | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch “Add project” button | Dialog box “Add project ” appear |  |  | | 2 | Enter the project name |  |  |  | |  | Touch “Create” button | Display project name on project ‘screen | |
| Exception | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Not enter the project name |  |  |  | | 2 | Touch “Create” button | “Create” button is invisible |  |  | |



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| --- | --- |
| **Use Case ID** | **T-002** |
| **Use Case Name** | **2-View Project** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | This function allows users viewanexisting project that was created before. |
| Actors | Users |
| Preconditions | Access in application and touch on a existing project |
| Post-conditions | displaystateboard and tasks on stateboard’ screen |
| Flow of Events: View Project | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touchone of the list project | Display stateboard and tasks in project |  |  | |



|  |  |
| --- | --- |
| **Use Case ID** | **T-003** |
| **Use Case Name** | **3-Create Task** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | The application will create task in project |
| Actors | Users |
| System | Mobile Project Management |
| Preconditions | Project has already created |
| Post-conditions | The application will be displayed task on stateboard |
| Flow of Events : Create Task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch “Add Task” button | “Add Task ” screen appear |  |  | | 2 | Enter the task name |  |  |  | | 3 | Enter the description |  | | 4 | Choose start date | DatePicker UI appear | | 5 | Choose due date | DatePicker UI appear | | 6 | Touch “Create” button | Task is created and displayed on stateboard | |
| Exception | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Not enter the task name | Warning text display |  |  | | 2 |  | “Create” button is invisible |  |  | |



|  |  |
| --- | --- |
| **Use Case ID** | **T-004** |
| **Use Case Name** | **4 – Move task** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | This function allows users move tasks between stateboards |
| Actors | Users |
| Preconditions | Task has created before |
| Post-conditions | Task is moved to a new stateboard |
| Flow of Events: Move task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch and hold a task at least 1 second | Task has been selected light up |  |  | | 2 | Drag and drop task to a new stateboard | Task has been moved to a new stateboad | |



|  |  |
| --- | --- |
| **Use Case ID** | **T-005** |
| **Use Case Name** | **5 – Edit task** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | This function allows users edit an existing task on project |
| Actors | Users |
| Preconditions | Task has created before |
| Post-conditions | Task has updated new infomation |
| Flow of Events: Edit task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a task on stateboard | “Edit Task” screen appear |  |  | | 2 | Change the task information |  | | 3 | Touch button Save | The new information of task is update | |
| Exception | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Make the task name blank | | Warning text display |  |  | | 2 |  | | “Save” button is invisible |  |  | |



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| --- | --- |
| **Use Case ID** | **T-006** |
| **Use Case Name** | **6 – Assign Task** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | This function allows users assign a task to member of project |
| Actors | Users |
| Preconditions | Task has created before |
| Post-conditions | Task is assign to member |
| Flow of Events: Assign Task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a task on stateboard | “Edit Task” screen appear |  |  | | 2 | Touch button “Assign to” | “Assign task” screen appear | | 3 | Choose members from member list to assign |  | | 4 | Touch Assign button | “Assign task” screen close | |



|  |  |
| --- | --- |
| **Use Case ID** | **T-007** |
| **Use Case Name** | **7 – Comment in task** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | This function allows users comment in a task |
| Actors | Users |
| Preconditions | Task has created before |
| Post-conditions | Comment will be display on comment board |
| Flow of Events:Comment in task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a comment icon on task card | “Comment task” dialog box display |  |  | | 2 | Comment on textbox |  | | 3 | Touch button “Post” | The comment is post to comment board on task card | |



|  |  |
| --- | --- |
| **Use Case ID** | **T-008** |
| **Use Case Name** | **8 – View my task** |
| Date | 6/1/2013 |
| Author | SonLA |
| Brief Description | This function allows users view task you have assigned |
| Actors | Users |
| Preconditions | User have assigned at least 1 task |
| Post-conditions | Sort tasks’ userhas assigned |
| Flow of Events:View my task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch member manage icon on project screen | Member mage screen is appear |  |  | | 2 | Touch button “View my task” | The list of task’ user has assigned display | |

1. **User Management Function**



|  |  |
| --- | --- |
| **Use Case ID** | **U-001** |
| **Use Case Name** | **Login by Gmail** |
| Date | 5/31/2013 |
| Author | HungLT |
| Brief Description | This function allows to members access application by Gmail |
| Actors |  |
| System | Google service |
| Preconditions | Access in application |
| Post-conditions | Display projects management screen. |
| Flow of Events : Login by Gmail. | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch “Login by Gmail” button. | Display a sub box. |  |  | | 2 | Use Gmail to login | Google service response |  |  | |



|  |  |
| --- | --- |
| **Use Case ID** | **U-002** |
| **Use Case Name** | **Login by User ID** |
| Date | 5/31/2013 |
| Author | HungLT |
| Brief Description | This function allows to members access in application by use a id has registered before. |
| Actors |  |
| System | Mobile Project Management |
| Preconditions | Access in application. User logged out or has not login to system yet . |
| Post-conditions | Display projects management screen. |
| Flow of Events : Login  By User ID | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Enter ID, l and Password correctly. | Access in application successful |  |  | |
| Exceptions: | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Do not enter ID or Password correctly. | Login fail, display warning message |  |  | | Do not enter ID or Password | Login fail, display warning message |  |  | |



|  |  |
| --- | --- |
| **Use Case ID** | **U-003** |
| **Use Case Name** | **User Logout** |
| Date | 6/3/2013 |
| Author | HungLT |
| Brief Description | This function allows to members access application by Gmail |
| Actors |  |
| System | Mobile Project Management. |
| Preconditions | Access in application |
| Post-conditions | Display projects management screen. |
| Flow of Events : User Logout | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Access in project management screen |  |  |  | | 2 | Touch user icon seriatim in 2 times | Display a sub drop down box. |  |  | | 3 | Touch Logout | User access in application no more. |  |  |  |  |  |  | | --- | --- | --- | | Step | Actor input | System response | | 1 | Access in “Organize” screen |  | | 2 | Touch “ Log out” | User access in application no more. | |



|  |  |
| --- | --- |
| **Use Case ID** | **U-004** |
| **Use Case Name** | User registration |
| Date | 5/31/2013 |
| Author | HungLT |
| Brief Description | This function allows registering a user to use application. |
| Actors |  |
| System | Mobile Project Management |
| Preconditions | Access to Sign up screen or access in to Login screen, then touch “Create an Account” button . |
| Post-conditions | A user was created successful, a mail has been sent to email of registration user. |
| Flow of Events : User registration | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Enter ID, Email and Password correctly. |  |  |  | | 1 | Touch “Create” | A mail has been sent to email of registration user. |  |  | |
| Exceptions: | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch “Create an Account” button. | Display a sub box. |  |  | | 2 | Do not enter name, or password, or email | Display warning message, a confirmation  Email cannot be send. |  |  | | Do not enter or wrong input in password confirmation | Display warning message, a confirmation  Email cannot be send. |  |  | |



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| --- | --- |
| **Use Case ID** | **U-005** |
| **Use Case Name** | **Add Member** |
| Date | 5/29/2013 |
| Author | HungLT |
| Brief Description | The main function for a group to manage their project. |
| Actors |  |
| System | Mobile Project Management |
| Preconditions | Touch User icon in project management screen. |
| Post-conditions | The application will be add a user name to database of project management. |
| Flow of Events : Add User | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 2 | Select “Add Member” | Display a text box. | | 3 | Enter a user name | Display some similar user name in drop list | | 4 | Touch a user name in list | A user name will be added to database | |
| Exceptions : | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Select “organize member” | Display project manage ‘screen | |  |  | | 2 | Select “Add Member” | Display a text box. | | 3 | Do not enter a user name | Drop list does not appear | | |



|  |  |  |
| --- | --- | --- |
| **Use Case ID** | **U-006** | |
| **Use Case Name** | **View Member** | |
| Date | 5/29/2013 | |
| Author | HungLT | |
| Brief Description | This function allows users view all public information of a user. | |
| Actors | Users | |
| System | Mobile Project Management |
| Preconditions | User is added to Project or assigned tasks. | |
| Post-conditions | The application will be displayed information of user | |
| Flow of Events : View | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a user icon | Display information of user in sub box |  |  | | |



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| --- | --- | --- |
| **Use Case ID** | **U-007** | |
| **Use Case Name** | **View Task Member** | |
| Date | 5/29/2013 | |
| Author | HungLT | |
| Brief Description | This function allows users view all assigned tasks of a member | |
| Actors | Users | |
| System | Mobile Project Management |
| Preconditions | User is added to Project or assigned tasks. | |
| Post-conditions | The application will be displayed information of user | |
| Flow of Events : View Task | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a user icon | Display information of user in sub box |  |  | | 2 | Touch “<” button on sub box | Display assigned tasks of member |  |  | | |



|  |  |  |
| --- | --- | --- |
| **Use Case ID** | **U-008** | |
| **Use Case Name** | **Remove Member from Project** | |
| Date | 5/30/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remove a member that was added from project. | |
| Actors |  | |
| Preconditions | Access in project member management ‘screen  User was added to Project. | |
| Post-conditions | User removed from Project, if user was assigned one or more tasks before, member will be removed from list member of that tasks | |
| Flow of Events : Remove Member from Project | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a user icon | Display information of user in sub box |  |  | | 2 | Touch ”Remove from Project” | Display message “are you sure”. |  |  | | 3 | Touch “Yes” | Member was removed from Project. |  |  | | |
| Exceptions : | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a user icon | Display information of user in sub box |  |  | | 2 | Touch ”Remove from Project” | Display message “are you sure”. |  |  | | 3 | Touch “No” | Member was not removed from Project. |  |  | | |



|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID** | | **U-009** | |
| **Use Case Name** | | **Create Group Member** | |
| Date | | 5/30/2013 | |
| Author | | HungLT | |
| System | Mobile Project Management | |
| Brief Description | | This function allows organizing members by making a group. | |
| Actors | |  | |
| System | | Mobile Project Management | |
| Preconditions | | Access in project list screen.  .Touch “organize”. | |
| Post-conditions | | A group member will be created. | |
| Flow of Events : Create Group | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Touch “Group” button. | Display a sub box about group management. | |  |  | | 2 | Touch “Create group member” | Display a text box | |  |  | | 3 | Enter name |  | | 4 | Touch “Create “ | A group will be created in group member list | | |
| Exception: | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Touch “Group” button. | Display a sub box about group management. | |  |  | | 2 | Touch “Create group member” | Display a text box | |  |  | | 3 | Do not Enter name | “Create” button is not appear | | |



|  |  |
| --- | --- |
| **Use Case ID** | **U-010** |
| **Use Case Name** | **Add Member to Group** |
| Date | 5/30/2013 |
| Author | HungLT |
| System | Mobile Project Management |
| Brief Description | The main function for a group to manage their project. |
| Actors |  |
| System | Mobile Project Management |
| Preconditions | Access in project group management screen and create a group successful |
| Post-conditions | A member will be added to a current group. |
| Flow of Events : Add User | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Touch a group on group member list | Display a sub box. | |  |  | | 2 | Touch “Add Member” | Display a text box. | | 3 | Enter a user name | Display some similar user name in drop list | | 4 | Touch a user name in list | A user name will be added to group | |
| Exceptions : | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Touch a group on group member list | Display a sub box. | |  |  | | 2 | Select “Add Member” | Display a text box. | | 3 | Do not enter a user name | Drop list does not appear | | |



|  |  |  |
| --- | --- | --- |
| **Use Case ID** | **U-011** | |
| **Use Case Name** | **Remove Member from Group** | |
| Date | 5/30/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remove a member that was added from group | |
| Actors |  | |
| System | Mobile Project Management |
| Preconditions | Access in project member management ‘screen  User was added to group. | |
| Post-conditions | User removed from Group. | |
| Flow of Events : Remove Member from Group | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a group on group member list | Display a sub box |  |  | | 2 | Touch a user icon | Display information of user in sub box |  |  | | 3 | Touch ”Remove from Project” | Display warning message. |  |  | | 4 | Touch “Yes” | Member was removed from Project. |  |  | | |
| Exceptions : | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a group on group member list | Display a sub list. |  |  | | 2 | Touch a user icon | Display information of user in sub box |  |  | | 3 | Touch ”Remove from Group” | Display message “are you sure”. |  |  | | 4 | Touch “No” | Member was not removed from Project. |  |  | | |



|  |  |
| --- | --- |
| **Use Case ID** | **U-012** |
| **Use Case Name** | **Add Group to Project** |
| Date | 5/30/2013 |
| Author | HungLT |
| System | Mobile Project Management |
| Brief Description | This function allows to add a group of member to Project |
| Actors |  |
| System | Mobile Project Management |
| Preconditions | Access in “Edit Task” screen  A group member is created successful. |
| Post-conditions | The application will be add all users of group to database of project management. |
| Flow of Events : Add Group User | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Select “Add Group Member” | Display a text box. | | 2 | Enter a group name | Display group name in drop list | | 3 | Touch a group name in list | All users of group will be added to users list. | |
| Exceptions : | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Step | Actor Input | System Response | |  |  | | 1 | Select “Add Group Member” | Display a text box. | | 2 | Do not enter a user name | Drop list does not appear | | |



|  |  |  |
| --- | --- | --- |
| **Use Case ID** | **U-013** | |
| **Use Case Name** | **Delete a Group** | |
| Date | 5/30/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to delete a group was created before. | |
| Actors |  | |
| Preconditions | Access in “Organization “screen then touch “Group”  A group was created successful. | |
| Post-conditions | Group will be deleted, if user was assigned one or more tasks before, member will not be removed from list member of that tasks | |
| Flow of Events : Delete group | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a group icon in group list | Display a sub box |  |  | | 2 | Touch ”Remove from Project” | Display warning message. |  |  | | 3 | Touch “Yes” | Member was removed from Project. |  |  | | |
| Exceptions : | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a user icon | Display information of user in sub box |  |  | | 2 | Touch ”Remove from Project” | Display warning message. |  |  | | 3 | Touch “No” | Member was not removed from Project. |  |  | | |

1. **Message Management Function**



|  |  |  |
| --- | --- | --- |
| **Use Case ID** | **M-001** | |
| **Use Case Name** | **Send Message to Member** | |
| Date | 5/30/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to communicate between two of members | |
| Actors | Users | |
| Preconditions | User is added to Project or assigned tasks. | |
| Post-conditions | A notification will be sent to a member | |
| Flow of Events : Send message to a member | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a user icon | Display information of user in sub box |  |  | | 2 | Click “Send Message” | Display a sub box |  |  | | 3 | Enter some notes in the message field |  |  |  | | 4 | Touch “Send” | A notification include message will be sent to a member |  |  | | |
| Exception:: | |  |  |  | | --- | --- | --- | | Step | Actor Input | System Response | | 1 | Touch a user icon | Display information of user in sub box | | 2 | Click “Send Message” | Display a sub box | | 3 | Do not enter note in the message field | “Send” button is invisible | | |



|  |  |  |
| --- | --- | --- |
| **Use Case ID** | **M-002** | |
| **Use Case Name** | **Send Message to Group Member** | |
| Date | 5/30/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to send a message to all members were added to group. | |
| Actors | Users | |
| Preconditions | User is added to Project or assigned tasks. | |
| Post-conditions | A notification will be sent to all members | |
| Flow of Events : Send message to a member | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a group on group member list | Display a sub box |  |  | | 2 | Click “Send Message to All” | Display a sub box |  |  | | 3 | Enter some notes in the message field |  |  |  | | 4 | Touch “Send” | A notification include message will be sent to a member |  |  | | |
| Exception:: | |  |  |  | | --- | --- | --- | | Step | Actor Input | System Response | | 1 | Touch a group on group member list | Display a sub box. | | 2 | Click “Send Message to All” | Display a sub box. | | 3 | Do not enter note in the message field | “Send” button is invisible | | |



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| **Use Case ID** | **M-003** | |
| **Use Case Name** | **Send Over Due Task Message** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind users about over due task. | |
| Actors | Users | |
| Preconditions | A task was set due date | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : Send message **when a task over due** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Do not touch compete on all check list tasks in task at over due time | A notification will be sent to all assigned member and leader. |  |  | | |



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| **Use Case ID** | **M-004** | |
| **Use Case Name** | **Send a Message about Warning Over Due Task Message** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind users about over due task. | |
| Actors | Users | |
| Preconditions | A task was set due date | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : Send message **when a task at the approach of over due** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Do not touch compete on all check list tasks in task when current time is 12 hours left to overdue time | A notification will be sent to all assigned member and leader |  |  | | |



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| **Use Case ID** | **M-005** | |
| **Use Case Name** | **Send a Message about Adding Member** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind users about adding to a project | |
| Actors |  | |
| Preconditions | User has not added yet to Project | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : **Send message when add a member** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Add member/ add group member from Project member management screen | A notification will be sent to all member who are added to project. |  |  | | |



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| **Use Case ID** | **M-006** | |
| **Use Case Name** | **Send a Message about Removing a Member** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind users about removing from a project | |
| Actors |  | |
| Preconditions | User was added to Project | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : **Send message when remove a member** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Remove member from Project member management screen | A notification will be sent to member who is removing to project. |  |  | | |



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| **Use Case ID** | **M-007** | |
| **Use Case Name** | **Send a Message about Assign Task** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind members about assigned a task in project | |
| Actors |  | |
| Preconditions | Member was added to Project  Member has not assigned yet in that task. | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : **Send message when assign a task to a member** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Assigned a task for one or more member in “Assign Task” in Edit Task Screen | A notification will be sent to member who is added to project. |  |  | | |



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| **Use Case ID** | **M-008** | |
| **Use Case Name** | **Send a Message about Removing Assign Task** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind members about removed assign a task in project | |
| Actors |  | |
| Preconditions | Member was assigned a task | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : **Send message when removing assign a task to a member** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a member icon in assigned member list | Display a sub box |  |  | | 2 | Touch “remove assign” | A notification will be sent to member who is removed assign from project |  |  | | |



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| **Use Case ID** | **M-009** | |
| **Use Case Name** | **Send a Message about completing a Task** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to remind members when a member complete a task | |
| Actors |  | |
| Preconditions | Members were assigned a task | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : **Send message when a member change status of task** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a “Compete task” check box in Edit Task | A Message has been sent to user |  |  | | |



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| **Use Case ID** | **M-010** | |
| **Use Case Name** | **Send a Message about completing a Task** | |
| Date | 5/31/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to sent a notification when another users send a message to user | |
| Actors |  | |
| Preconditions | Members were added to project. | |
| Post-conditions | A notification will be sent to members | |
| Flow of Events : **Send message when a member change status of task** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch a “ User” icon | Display a sub box |  |  | | 2 | Send a message | A message and a notification will be sent to that user |  |  | | |



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| **Use Case ID** | **M-011** | |
| **Use Case Name** | **View System Message** | |
| Date | 3/6/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to user view all message has been sent by system. | |
| Actors |  | |
| Preconditions | Access in Project list screen or Project Management screen. | |
| Post-conditions | The message has been displayed. | |
| Flow of Events **View System Message** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch “Notification” icon | Display all messages had been sent by system before. |  |  | | 2 | Touch a message | Display contents of message. |  |  | | |



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| **Use Case ID** | **M-012** | |
| **Use Case Name** | **View User Message** | |
| Date | 3/6/2013 | |
| Author | HungLT | |
| System | Mobile Project Management |
| Brief Description | This function allows to user view all message has been sent by another user. | |
| Actors |  | |
| Preconditions | Access in Project list screen or Project Management screen. | |
| Post-conditions | The message has been displayed. | |
| Flow of Events **View User Message** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Actor Input | System Response |  |  | | 1 | Touch “Message” icon | Display all messages had been sent by users before. |  |  | | 2 | Touch a message | Display contents of message. |  |  | | |

1. **DESIGN & IMPLEMENTATION**
2. **TEST DOCUMENTATION**
3. **USER’S MANUAL**
4. **APPENDIX**