# B. Software Project Management Plan

## Problem Definition

* 1. **Name of this Capstone Project**
* Official name: **Mindef Inventory System**
* Abbreviation: MIS
  1. **Problem Abstract**

Increasing amount of computer items in DITU Mindef need an upgrade by adapting latest technology and hardware use. Due to the lack of Storage space to store phase out and damage computer half of the item need to be relocated to a temporary storage. This is where the current system maximum capability are identified. Requirement for a robust and scalable system are in need to effectively tackle this problem. This is where Mindef Inventory System come up to the picture

* 1. **Project Overview**
     1. **Current Situation**

Due to the relocation of the storage area to an new temporary place, and the lack of proper management are at the minimum, all the returned item are in a state of chaos. Add up to the current problem there will be random auditing conducted by the audit department that usually took place twice every year, tracking each item for audit requirement usually involve very tedious work that also require huge amount of manpower, and usually takes minimum of a week to find and locate the serial number of each hardware for final validation before disposal or auction.

* + 1. **The Proposed System**

To create an app that scans a QR code to retrieve information of the asset where the admin can edit or add the asset information. System will automatically generate a QR code that will be printed to a sticker or a special tag and attached to the item before storing it. Having the QR tag will ease the store keeper or whoever is assign to locate the item only required to Scan the QR code in order to verify the returned item.

A web application can be use to provide the same function accessible using a computer browser. Functions such as adding users (admin or end-user), generating reports and statistics can also be implemented.  
  
End-User - Able to access the asset information and update certain information such as the status or if there is an issue with the asset that requires maintenance such as slow performance, virus, upgrading, servicing and others

* + 1. **Boundaries of the System**

This section provide the perquisites that this system will need mindef closed network to run

**The system can:**

* + - Allow generating a printable QR code for tagging.
    - Allow scanning the QR code to locate any computer item
    - Allow inventory unit to produce detail report.
    - Allow to track who the item is issued to
    - User for this system need to be registered by this section for access

**The system cannot:**

* + - Can be access without connecting first to mindef closed network.
    1. **Future Plan**

Further development can be added for future plan to provide more value to Mindef as a whole.

* Support multiple languages.
* Able to cater and provide access to other department such as Finance and Acquisition department for better budgeting projection and plan
* Ability to integrate with other system with ease
  1. **Development Environment**

#### **Hardware Requirements**

|  |  |  |
| --- | --- | --- |
| **Server** | **Minimum Requirements** | **Recommended** |
| **Internet Connection** | Cable, Wi-Fi (4 Mbps) | Cable, Wi-Fi (8 Mbps) |
| **Operating System** | Window Server 2008 | Window Server 2008 |
| **Computer Processor** | Intel® Xeon ® 1.4GHz | Intel® Xeon ® Quad Core (12M Cache, 2.50 GHz) |
| **Computer Memory** | 1GB RAM | 2GB or more |

Table 2. Hardware requirements for server

|  |  |  |
| --- | --- | --- |
| **PC** | **Minimum Requirements** | **Recommended** |
| **Internet Connection** | Cable, Wi-Fi (4 Mbps) | Cable, Wi-Fi (8 Mbps) |
| **Operating System** | Window 7 | Window 7 or more. |
| **Computer Processor** | Intel® Core i3 1.4GHz | Intel® Core i5 2.50GHz |
| **Computer Memory** | 1GB RAM | 2GB RAM or more |
| **Web Browser** | Firefox (v52 or higher), Chromes (v28 or higher) | Chrome latest stable version |

Table 3. Hardware requirements for PC

#### **Software Requirements**

|  |  |  |
| --- | --- | --- |
| **Software** | **Name/ Version** | **Description** |
| **Operating System** | Windows 8 or above | Operating system and platform for development |
| **IDE** | Visual Studio 2017 | Used for implementing website and mobile apps xamarin |
| **Design Model Tool** | Microsoft Visio 2013 | Used for creating model and diagram |
| **DBMS** | SQL Server 2017 | Used for creating & managing database |
| **Document storage** | Google Drive | Used for storing documents |
| **Store and manage source code** | GitHub | Used for storing source code |
| **Communication** | Email, whatsapp, Terello | Used for exchanging information, online meeting, communication |
| **Web browser** | Chrome 28 or higher | Testing browser |

Table 4. Software requirements

1. **Project Organization**
2. **Software Process Model**

Software development process for this project will be using agile framework which we agreed are the best development approach. System development will have several sprint iterated until both party agree which will resulted in its release number or version. Selection of this model are due to the following reasons:

* User Friendly: number of meeting during sprint will ensure accurate and more user oriented development.
* Time Constraint: Short amount of time to complete the project.
* Fast response to changes: product owner may change requirements or extend / reduce scope and we can adapt better.
* Encourage teamwork: roles and tasks are divided and assigned efficiently.
* Functional tests are frequent in the entire process.

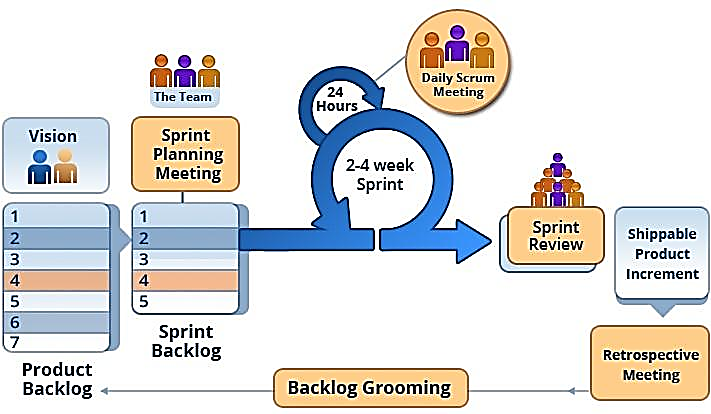


Figure 1. Scrum framework

1. **Roles and Responsibilities**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Full name** | **Role in Group** | **Responsibilities** |
| 1. | Tôn thất bảo | Team Leader,  Vietnam,  Developer,  Project Manager | * Manage process * Plan Scrum implementations * Code * Task Delegation * Clarify requirements * Create Ui Function |
| 2. | Masdey | Team Leader  Brunei  Developer  Project Manager | * Specify user requirements * Control the development process * Support in technique and business logic. * Arrange Meeting with Client * Code |
| 3. | Nguyễn Trung Tín | Team member,  Developer  Documenter | * Design database * Code * Clarify requirements |
| 4. | Anas | Team member,  Developer  Documenter | * Design GUI * Code * Create test plan |
| 5. | Aidee Suherman | Team member,  Documenter  Tester | * Design database * Write document and report * Test |

Table 5. Roles and responsibilities details

### Tools and Techniques

|  |  |
| --- | --- |
| **Tool/Technique** | **Name/Version** |
| Front-end | HTML5, CSS3, Bootstrap, Javascript/jQuery |
| Back-end | C#, .NET Framework |
| Managing Database | Microsoft® SQL Server® 2017 Management Studio |
| Source Control | Sourcetree (server github.com) / Tortoise GIT |
| Modeling Tool | Microsoft Visio 2013 |
| Web Browser | Google Chrome |

## Project Management Plan

1. **Product Backlog**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Story** **ID** | **Features** | **Task** **ID** | **Task description** | **Sprint** |
| 1 | Create Product Backlog | 1.1 | Create product backlog | 1 |
| 2 | Create Introduction document | 2.1 | Create introduction document | 1 |
| 2.2 | Review introduction document | 1 |
| 3 | Learning MVC, Entity Framework | 3.1 | Learning MVC, Entity Framework | 1 |
| 4 | Create UI mockups | 4.1 | Search for suitable UI | 2 |
| 4.2 | Login and register UI | 2 |
| 4.3 | Admin UI | 2 |
| 4.4 | Staff UI | 2 |
| 4.5 | Customer UI | 2 |
| 4.6 | Manager UI | 2 |
| 5 | Create Software Project Management Plan | 5.1 | Problem definition | 2 |
| 5.2 | Project organization | 2 |
| 5.3 | Project management plan | 2 |
| 5.4 | Coding convention | 2 |
| 6 | Create Software Requirement Specifications | 6.1 | User requirement specification | 3 |
| 6.2 | External interface requirement | 3 |
| 6.3 | Use case diagram | 2 |
| 6.4 | Software system attributes | 3 |
| 6.5 | Database diagram | 3 |
| 7 | Create Software Design Description | 7.1 | Design overview | 4, 5 |
| 7.2 | System architectural design | 4, 5 |
| 7.3 | Component diagram | 4, 5 |
| 7.4 | Detailed description of components | 4, 5 |
| 7.5 | Sequence diagram | 4, 5 |
| 7.6 | User interface design | 2 |
| 7.7 | Database design | 4 |
| 7.8 | Coding | 5 |
| 8 | Create Software Test Documentation | 8.1 | Test Plan | 12 |
| 8.2 | Test Cases | 12 |
| 8.3 | Checklists | 12 |
| 9 | Software User’s Manual | 9.1 | Installation Guide | 13 |
| 9.2 | User’s Guide | 13 |

Table 7. Product backlog

1. **Deliverables**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Deliverable** | **Delivery date** | **Delivery location** | **Note** |
| 1 | Introduction Document, Task list | 02/10/2018 | Email | Report No.1 |
| 2 | Software Project Management Plan | 14/10/2018 | Git Hub | Report No.2 |
| 3 | Software Requirements Specification |  |  | Report No.3 |
| 4 | Software Design Description |  |  | Report No.4 |
| 5 | Software Test Documentation Guide Implementation (Coding) |  |  | Report No.5 |
| 6 | Software User’s Manual |  |  | Report No.6 |

Table 8. Deliverables

\* For each sprint, deliverables are potentially shippable products, which can be a part of documents or runnable software application which is implementation of some program features.

\* Each sprint is completed in 1 week.

## Coding Convention

* **Naming conventions:**
  + Standard naming conventions adhering to the standards set by Microsoft C# development.
* **Layout conventions:**
  + Tabs must be set exactly 4 spaces.
  + Avoid lines longer than 80 characters.
  + Vertically align curly brackets.
  + Write only one statement per line.
  + Write only one declaration per line.
  + Add one blank line between method definitions and property definitions.
* **Declaration:**
  + Use implicit type ‘var’ for local variable declarations. Except: primitive types (int, string, double, etc.) use predefined names.
  + Organize namespaces with a clearly defined structure.
* **Commenting conventions:**
  + Place comment on a separate line.
  + Begin comment text with an uppercase letter and end with a period.
  + Add one space between comment delimiter (//) and comment text.