**Document History**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Document Name** | **Detail** | **Status** | **Date** | **View able** | **Reviewer& Responsible** |
| **HanDIYcraft-SDD-V.0.1.docx** | -Introduction  -Overall Description  -System Architecture | Draft | 30/4/14 | Advisor | NK, PS |
| **HanDIYcraft -SDD-0.2.docx** | -Update Introduction | Draft | 8/2/14 | Advisor | NK, PS |
| **HanDIYcraft -Project Plan-0.3.docx** | -Update Business Review  - Quality Standard | Draft | 27/2/14 | Advisor | NK, PS |
| **HanDIYcraft -Project Plan-0.4.docx** | -Deliverables and Limit  -Future Work | Draft | 28/2/14 | Advisor | NK, PS |
| **HanDIYcraft -Project Plan-0.5.docx** | - Motivation  - Aim and Object  - Architecture Review  - Schedule and Milestone | Draft | 3/2/14 | Advisor | NK, PS |
| **HanDIYcraft -Project Plan-0.6.docx** | -Update Aims and Object  -Abstract  - References | Draft | 4/2/14 | Advisor | NK, PS |
| **HanDIYcraft -Project Plan-1.0.docx** | -Update Architecture  -Update Aims  -Update Features  -Update Milestone | Release | 26/3/14 | Advisor | NK, PS |

**NK : Nahathai Kaewtatib**

**PS : Pimchanok Sripraphan**

**…………………………**

**Ms. Nahathai Kaewtatib**

Project Proposal Writer

**…………………………**

**Ms. Pimchanok Sripraphan**

Project Proposal Writer

**28th May 2014**

Table of Contents

Chapter One| Introduction4

1.1 Objective4

1.2 Intended Audience and Reading Suggestions4

1.3 Project Scope5

1.4 Acronyms and Definitions5

Chapter Two | Overall Description6

2.1 Product Perspective6

2.2 Product Features6

2.3 User Classes and Characteristics7

2.3.1 Users7

2.3.2 Bloggers7

2.3.3 Shopkeepers7

2.4 Operation Environment8

2.5 Design and Implementation Constraints8

Chapter Three | System Architecture9

Chapter Four | Detailed Design10

4.1 Class Diagram10

4.1.1 Web Application Class Diagram10

4.1.2 Android Application Class Diagram10

4.2 Class Diagram Description11

4.2.1 Web Application Class Diagram Description11

4.2.2 Android Application Class Diagram Description21

4.3 Sequence Diagram22

Chapter Five | Data Architecture20

5.1 ER Diagram20

5.2 Database Design21

**Chapter Six | User Interface Design18**

**Chapter One | Introduction**

**1.1 Objective**

HanDIYcraft is a web application, and mobile application for smartphone that supports Android operating system. It is an application that guide users the method how to recycle things by themselves. This application provides several tutorials for users to learn. Moreover, in case the users do not have the needed materials and have no idea where to buy, this application provides a feature to let the users check out the shops that sell related materials for making their DIY artworks and find the location of the shop via Google Maps. Apart from just exploring, the bloggers can directly communicate with the shopkeepers by sending private messages, and among each other by the comment. They can also share their favorite DIY tutorial to the social network like Facebook too.

This Software Design document contains the design of HanDIYcraft system, including the deep description for each design. So that, the developer could develop the system correctly towards the Software Requirement Specification.

* 1. **Intended Audience an Reading Suggestions**

This Software Design Document is designed for the people who are involved and related with the HanDIYcraft project. It may benefit to these people as followed:

**Development Team**

* Specifies the abilities and actions, including the scope of the system. From this point, it helps everyone to have the same understanding towards the project.
* Verifies and validates the working of software whether it works as it is defined in the document or not.
* Helps in achieving the quality of the product as much as possible.
* Used for the discussion among the related people about the project.

**Customer**

* Ensure that the development team understands and interprets in the same thing, in order to satisfy the customer needs.
* Helps customer to understand the technical things such as the quality, scope and limitations.
  1. **Project Scope**
* Available only in English.
* Provide understandable symbols and language.
* Provide member system
* Able to work with Google Maps to pin and see shops’ location.
* Able to work with Facebook in order to share tutorials.
* Provide communication system to make an interaction among bloggers, and also with the shopkeepers.
* Provide the tutorial management system on mobile application, and web application for bloggers to manage their tutorials easier.
* Provide tutorials for users and bloggers to explore.
* Let shopkeepers manage their shops in order to advertise them.
  1. **Acronyms and Definitions**
* Acronyms

PMP = Project Management Plan

SDD = Software Design Document

SRS = Software Requirement Specification

URS = User Requirement Specification

UC = Use Case

AD = Activity Diagram

SQ = Sequence Diagram

DB = Database  
 UI = User Interface

SW = Siraprapa Wattanakul

NK = Nahathai Kaewtatib

PS = Pimchanok Sripraphan

**Chapter Two | Overall Description**

* 1. **Product Perspective**

HanDIYcraft is a software system that able to operate as web and Android mobile application. It helps users to obtain ideas to build DIY artworks. Plus, it also helps user to save their time to find the right place via Google Maps in order to get the material the want. More than that, it also helps the shopkeepers who sell DIY materials to advertise their shops too.

* 1. **Product Features**

Main features of HanDIYcraft are listed as follows:

**Feature 1:** Authorization Management

* Develop register, log in, and log out system for bloggers. (On both web and mobile)
* Develop register, log in, and log out system for shopkeepers. (On mobile)
* The system can display user’s (blogger/shopkeeper) profile and let the users edit their information.

**Feature 2:** Tutorial Management (On both web and mobile)

* Bloggers can manage tutorials.
* Bloggers can add detail of the tutorial step by step.
* Bloggers can pictures for the tutorial.
* Bloggers can add a video for the tutorial.
* Bloggers and users can search tutorials by keyword.
* The system can display tutorials that exist in the database.

**Feature 3:** Shop Management (On mobile)

* Shopkeepers can manage shops.
* Shopkeepers can add information of the shop.
* Shopkeepers can add pictures of the shop.

**Feature 4:** Map Management

* Develop Map using Google Maps API. (On both web and mobile)
* Bloggers can see the location of shops. (On both web and mobile)
* Shopkeepers can pin the location of the shop. (On mobile)

**Feature 5:** Communication Management

* Bloggers can communicate to each other via comment. (On both web and mobile)
* Bloggers and shopkeepers can communicate to each other via private message. (On both web and mobile)
* Shopkeepers can search bloggers using their username. (On mobile)
* Bloggers can give likes on tutorials. (On both web and mobile)
* Bloggers can follow other bloggers. (On both web and mobile)
* Bloggers can share a tutorial on Facebook. (On both web and mobile)

**Feature 6:** The system provides notifications. (On both web and mobile.

* 1. **User Classes and Characteristics**

There are three types of users for our system. Information and characteristics are listed below:

* + 1. ***Users***

These are the general users that did not register to the system. What the can do the most is just exploring the DIY tutorials that exist in the system.

* + 1. ***Bloggers***

These are the people who have registered as a blogger. Apart from just exploring, they are able to create their own tutorials and manage it. Besides, they can do the communication through comments and private messages too.

* + 1. ***Shopkeepers***

These are the people who have registered as a shopkeeper. They can advertise their own shops via the application. Apart from that, they can communicate with the bloggers through private message.

* 1. **Operation Environment**

HanDIYcraft operates on both web and mobile application. Whenever the user requests any information to perform some tasks, the information will be requested from web application and response back to the mobile application.

***Server Environment***

Windows server platform is supported for this system. It is capable for web-server, database-server, and internet connection.

***Client Environment***

The system supports only Android OS, which has version 4.2 or later in order to run the system properly and be able to connect to the internet. It also requires GPS to identify location from Google Maps.

* 1. **Design and Implementation Constraints**
* The mobile application of the system is able to operate only on Android platform, version 4.2 or later.
* Require the internet connection.
* There is no security for inappropriate information.
* The users that did not log in can visit only some part of the system.

**Chapter Three | System Architecture**

**Figure 1: System Architecture**

HanDIYcraft application is a social application on Android OS smart phones and web application. Whenever the user interacts with the application, the system will query data through JSON from MySQL database system and response the result back to the user via the application’s user interface.

Users, bloggers and shopkeepers can access to the data differently.

* Users will be able to only explore tutorials and shops’ location that are provided in the application.
* Bloggers can manage (create/edit/delete) tutorials. They can communicate among each other via the comments, and to the shopkeepers via private messages. Also, be able to explore others’ tutorials just like the users. On the other hand, they can do those activities on the web application, and be able to interact with Facebook too.
* Shopkeepers can manage shops, and be able to communicate with the bloggers via private messages. They can search to a specific blogger by username.

**Chapter Four | Detailed Design**

* 1. **Class Diagram**

****

**Figure 3: Android Application Class Diagram**

* 1. **Class Diagram Description**
  2. **Sequence Diagram**

**SQ-01 Registration**

****

**Figure 4: SQ-01-Registration**

**SQ-02 Log in**

**Figure 5: SQ-02-Log in**

**SQ-03 Log out**

**Figure 6: SQ-03-Log out**

**SQ-04 View profile**

**Figure 7: SQ-04-View profile**

**SQ-05 Edit profile**

**Figure 8: SQ-05-Edit profile**

**SQ-06 Delete account**

**Figure 9: SQ-06-Delete account**

**SQ-07 Explore tutorials**

**Figure10x: SQ-07-Explore tutorials**

**SQ-08 View tutorial detail**

**Figure 11: SQ-08-View tutorial detail**

**SQ-09 Create tutorial**

**Figure 12: SQ-09-Create tutorial**

**SQ-10 Edit tutorial**

**Figure 13: SQ-10-Edit tutorial**

**SQ-11 Delete tutorial**

****

**Figure 14: SQ-11-Delete tutorial**

**Chapter Five| Data Architecture**

* 1. **ER Diagram**

****

**Figure 15: ER Diagram**

* 1. **Database Diagram**

**DB-01 Registered User**

This database stores information of the user who has registered as a member (either blogger or shopkeeper) of the system.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Username | varchar(20) |  |
| Password | varchar(20) |  |
| Email | varchar(30) |  |
| User\_Pic | varchar(500) |  |
| Creation\_Time | time |  |
| Role | varchar (50) |  |

**DB-02 Tutorial**

This database stores information of each tutorial that blogger creates.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Title | varchar(50) |  |
| Category | varchar(30) |  |
| Tutorial\_Pic | varchar(500) |  |
| Material\_Pic | varchar(500) |  |
| Material\_Des | varchar(255) |  |

**DB-03 Step**

This database stores information of each step for a tutorial.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Step\_Number | int(3) |  |
| Step\_Des | varchar(255) |  |
| Step\_Pic | varchar(500) |  |
| Step\_Vdo | varchar(500) |  |

**DB-04 Message**

This database stores information of messages between bloggers and shopkeepers.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Message\_Detail | varchar(500) |  |
| Sender | varchar(20) |  |
| Receiver | varchar(20) |  |

**DB-05 Notification**

This database stores information of new activities that happens with the blogger or shopkeeper.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Activity | varchar(20) |  |

**DB-06 Shop**

This database stores information of a shop that shopkeeper creats.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Shop\_Name | varchar(20) |  |
| Shop\_Info | varchar(255) |  |
| Shop\_Pic | varchar(500) |  |

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Tel | int(10) |  |
| Location | varchar(500) |  |

**DB-07 Branch**

This database stores information of each branch for a shop.

**DB-08 Picture**

This database stores picture of shop for each branch.

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Extra** |
| Id (PK) | int(10) | Auto increment |
| Picture | varchar(500) |  |

**Chapter Six| User Interface Design**

* 1. **Web Service**

|  |  |  |  |
| --- | --- | --- | --- |
| **URS Id** | **UI Id** | **UI** | **Description** |
| W-URS-01 | W-UI-01 |  |  |
| W-URS-02 | W-UI-02 |  |  |
| W-URS-03 | W-UI-03 |  |  |
| W-URS-04 | W-UI-04 |  |  |
| W-URS-05 | W-UI-05 |  |  |
| W-URS-06 | W-UI-06 |  |  |
| W-URS-07 | W-UI-07 |  |  |
| W-URS-08 | W-UI-08 |  |  |
| W-URS-09 | W-UI-09 |  |  |
| W-URS-10 | W-UI-10 |  |  |
| W-URS-11 | W-UI-11 |  |  |
| W-URS-12 | W-UI-12 |  |  |
| W-URS-13 | W-UI-13 |  |  |
| W-URS-14 | W-UI-14 |  |  |
| W-URS-15 | W-UI-15 |  |  |
| W-URS-16 | W-UI-16 |  |  |
|  |
| W-URS-17 | W-UI-17 |  |  |
| W-URS-18 | W-UI-18 |  |  |
| W-URS-19 | W-UI-19 |  |  |
| W-URS-20 | W-UI-20 |  |  |
| W-URS-21 | W-UI-21 |  |  |
| W-URS-22 | W-UI-22 |  |  |
| W-URS-23 | W-UI-23 |  |  |
| W-URS-24 | W-UI-24 |  |  |
| W-URS-25 | W-UI-25 |  |  |
| W-URS-26 | W-UI-26 |  |  |
| W-URS-27 | W-UI-27 |  |  |
| W-URS-28 | W-UI-28 |  |  |
| W-URS-29 | W-UI-29 |  |  |
| W-URS-30 | W-UI-30 |  |  |
| W-URS-31 | W-UI-31 |  |  |
| W-URS-32 | W-UI-32 |  |  |
| W-URS-33 | W-UI-33 |  |  |
| W-URS-34 | W-UI-34 |  |  |
| W-URS-35 | W-UI-35 |  |  |

* 1. **Mobile Application**

|  |  |  |  |
| --- | --- | --- | --- |
| **URS Id** | **UI Id** | **UI** | **Description** |
| M-URS-01 | M-UI-01 |  | This UI let user who does not have his/her own account to register. He /She can register either as a blogger or shopkeeper. |
| M-URS-02 | M-UI-02 |  | This UI let user who has registered with our system, log in to use the system as either a blogger or shopkeeper. |
| M-URS-03 | M-UI-03 |  |  |
| M-URS-04 | M-UI-04 |  |  |
| M-URS-05 | M-UI-05 |  |  |
| M-URS-06 | M-UI-06 |  |  |
| M-URS-07 | M-UI-07 |  |  |
| M-URS-08 | M-UI-08 |  |  |
| M-URS-09 | M-UI-09 |  |  |
| M-URS-10 | M-UI-10 |  |  |
| M-URS-11 | M-UI-11 |  |  |
|  |
| M-URS-12 | M-UI-12 |  |  |
| M-URS-13 | M-UI-13 |  |  |
| M-URS-14 | M-UI-14 |  |  |
| M-URS-15 | M-UI-15 |  |  |
|  |
|  |
| M-URS-16 | M-UI-16 |  |  |
| M-URS-17 | M-UI-17 |  |  |
| M-URS-18 | M-UI-18 |  |  |
| M-URS-19 | M-UI-19 |  |  |
| M-URS-20 | M-UI-20 |  |  |
| M-URS-21 | M-UI-21 |  |  |
| M-URS-22 | M-UI-22 |  |  |
| M-URS-23 | M-UI-23 |  |  |
|  |
|  |
| M-URS-24 | M-UI-24 |  |  |
|  |
| M-URS-25 | M-UI-25 |  |  |
| M-URS-26 | M-UI-26 |  |  |
| M-URS-27 | M-UI-27 |  |  |
| M-URS-28 | M-UI-28 |  |  |
| M-URS-29 | M-UI-29 |  |  |
| M-URS-30 | M-UI-30 |  |  |
| M-URS-31 | M-UI-31 |  |  |
| M-URS-32 | M-UI-31 |  |  |
| M-URS-33 | M-UI-32 |  |  |
| M-URS-34 | M-UI-33 |  |  |
| M-URS-35 | M-UI-34 |  |  |
| M-URS-36 | M-UI-35 |  |  |
|  |
| M-URS-37 | M-UI-36 |  |  |
| M-URS-38 | M-UI-37 |  |  |
| M-URS-39 | M-UI-38 |  |  |
| M-URS-40 | M-UI-39 |  |  |
| M-URS-41 | M-UI-40 |  |  |
| M-URS-42 | M-UI-41 |  |  |
| M-URS-43 | M-UI-42 |  |  |

**Figure 16: Home Page for unlogged in user**

This UI let user that did not log in explore tutorials. The user can explores randomly, by popular tutorials, by searching and by categories. However, due to user has not logged in to the system as a blogger, he/she cannot explore tutorials by the following people.

**Figure 17: Register Page**

This UI let user who does not have his/her own account to register. He /She can register either as a blogger or shopkeeper.

**Figure 18: Log in Page**

This UI let user who has registered with our system, log in to use the system as either a blogger or shopkeeper.

This UI displays the blogger’s (account owner) information, including picture, username, Email, number of follower/following people, and the tutorials that he/she has made.

**Figure 20: Edit Profile Page**

This UI allows the blogger (account owner) to edit his her information, including let him/her change the password and delete his/her account.

This UI allows the blogger (account owner) to change his/her password.

**Figure 22:**

This UI is the home page for user that has logged in as a blogger. The blogger can explore tutorials randomly, by popular tutorials, by following people, and by searching.

**Figure 23: Menu Page for Blogger**

This UI is the menu page. The user/blogger can explore tutorials by categories, explore shops, see the shops that exist around him/her, and log out. However, for the user that has not logged in, he/she cannot use Shops, Around Me, and Log out functions.

**Figure 24: Tutorial Categories Page**

This UI displays categories for the user/blogger to select and explore tutorials on that category.

**Figure 25: Tutorial Detail Page**

This UI let user/blogger to see the detail of a particular tutorial. However, for the user that has not logged in, he/she cannot like or share the tutorial.

**Figure 26: Create Tutorial Page 1**

This UI let blogger create his/her own tutorial by first input the tutorial picture, title, and defines a category for the tutorial.

**Figure 27: Create Tutorial Page 2**

This UI let blogger add information of the tutorial step by step.

**Figure 28: Create Tutorial Page 3**

This UI let blogger input detail for each step of the tutorial.

**Figure 29: Manage Tutorial Page**

This UI let blogger edit or delete the tutorial that he/she has made.