1. Introduction

1.1 The Extend of the Work

This master thesis satisfy two things: one is applying knowledge of software engineering and management in a real project. The other is deploying a runnable web site for business purpose. Problem is discussed in the abstract section above.

1.2 Objectives of the Thesis

As in short description in sub-section 1.1 on thesis's scope, as discussed in abstract section, and as written in business requirements in section 3, objectives of the thesis is the combination of the project's results which company expected from the beginning, and thesis's paper work.

- Project's results
    - Asset statistics function
        - An admin has asset statistics view to manage all products they sold. "Manage" means viewing in use condition of all products at current time, in next 6 month, in next 12 months, and in next 18 months; knowing and predicting the amount of money which company needs to upgrade old products at current time, in next 6 month, in next 12 months, and in next 18 months. Tables, graphs, and charts are used.
        - A customer has asset statistics view to manage all products they bought. "Manage" means viewing using condition of all products at current time.
    - Contract statistics function

- An admin has contract statistics view to manage all contracts of all customers. “Manage” means viewing all products in a particular contract of a particular customer in a time perspective.
- A customer has contract statistics view to manage all contracts he has had so far. “Manage” means viewing all products in a particular contract in a time perspective.

- Customer statistics function
  - An admin has customer statistics view to add new customer, to modify all information of customers, to view, and to delete customer.
  - An admin can set username, and password for customer.
- Shopping function
  - An admin has shopping view to add new products, to modify all information of products, to view, and to delete products.
  - System automatically notices by email to admin when a customer wants to buy products.
  - System automatically prepares contract with all products a customer wants for final confirmation, modification and acceptance.
  - A customer has shopping view to view, and buy products.
- Search function
  - An admin has search view to search every products based on its series code (hardware), and product key (software); to check using history of every product.
- Products description function

        - An admin has product description view to modify all information of a particular product he sold.
        - A customer has product view to view all information of a particular product he bought.
    - Account management function
        - An admin has account management view to modify all information of his account.
        - A customer has account management view to modify all information of his account.
    - System security function
        - All inputs from customer are checked for allowable data such as maximum length of login name, special characters to prevent DoS[1] attack, etc.
        - All pages in site work in a particular user's session and expire immediately after logging out.
    - Languages
        - Pages for admin are showed in English.
        - Pages for customer are showed in English and German.
    - Company has all project's source code and documents.
- Thesis's paper work
    - Advisor has all project's source code and documents.
    - A hard copy is handed to university.

[1] DoS: Denial of Service

1.3 Document Outline

This paper is structured into sections and sub-sections. After table of content is introduction section. The following section describes methodology and technique which are used the project. More precisely, sub-section 2.1 expresses software engineering blueprint. Next, sub-section 2.2, 2.3, and 2.4 introduce some techniques and software used such as PHP and MySQL, XAMPP, Adobe Photoshop CS5 and Adobe Dreamweaver CS5, and a barcode reader. In section 3 and its sub-sections, we know the business requirements. Section 4 is database design. Section 5 is site structure and wireframing design. Next, site navigation and browsing are discussed in section 6. Section 7 shows the idea of system testing. A project discussion is expressed in section 8. Then, section 9 is conclusion. Next, references with books, tutorials are listed in section 10. The final section, section 11 is appendices.

2. Methodology and Technique

2.1 Software Engineering Blueprint

2.1.1 General Discussion for Methods Selection

Web sites, web products, or, in general, web applications which are software that run on World Wide Web or network platform. To compare with older traditional platforms which are related to “local” or “group” mind set, we realize that the development processes of web applications are different duo to a lot of obvious reasons. First of all, it is the platform that web applications are configured in. Web applications are physically or virtually delivered over a network rather than installed in desktop or mainframe. As the result, network considerations such as responsiveness, bandwidth, throughput, availability, and security are much greater and more attentive. Web

applications now serve a global audience, not the local users, with diverse computer skills, requirements, and needs. A lot of new issues are now added into consideration box such as language, presentation, culture (in term of cognition of color and content presentation) and ease of use. Moreover, these requirements are continuously changing, thus web applications need to be deployed much quicker and engineered for more adaptability and flexibility in response for new changing requirements, new updating content, new content presentation and new customization. When content presentation such as color, text, and position is taken into account, web applications naturally manage visual design and user interface, not just data. Web applications are document centric versus data centric. Further, web applications have not only a software development lifecycle, but also a content management lifecycle. Since there are many more stakeholders involved in definition, design, deployment, development, and testing, the problems on the Web become quickly visible and frustrate the system users, heavily cost the enterprises in terms of financial loss, extra financial support for fixing errors, lost customer and, gravely, loss of reputation. To sum up, web applications have some following characteristics:

- Web applications are union of database-driven, visual creativity-driven, and presentation-driven.
- Web applications are living system. They continue to evolve, change, and grow. New functionalities and requirements are emerging after the system is put into use.
- Web applications are manipulated by a vast user community with varying expectations and skill sets, thus the user interface and usability features are much taken care of.

Now, we need web applications which have better quality, cheaper cost and faster time of market. And new process is invented to achieve these is proposed in [1]: