DEVELOPMENT OF CUSTOMIZED LOGISTIC SYSTEM USING ASP

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This thesis is dedicated to my beloved parents who have offered me unconditional trust, support and encouragement. In addition, this thesis is also dedicated to my respected supervisor, Puan Zarina Bt. Baharudin Zamani, and lecturer, Encik Sani Irwan for their valuable guidance.

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ABSTRACT

The development of customized logistic system using Active Server Page (ASP) is a project that builds a Web application providing cross-platform compatibility and high degree of application availability by using ASP. This system is developed by using several types of program scripting like Cascading Style Sheet (CSS), HTML tags, Visual Basic Scripting Edition Language (VBScript), JavaScript, Structured Query Language (SQL) and ASPScript. Moreover, Microsoft SQL Server and Internet Information Services (IIS) are implemented in the project for handling the database management, administration and security effectively. The system is applicable to user without having to install it on a local hard drive, so it is portable and controllable, yet could be implemented anywhere. For the hardware part, a barcode scanner is used to perform stock in and stock out transaction. In the field of business, this project allows the user to obtain detailed real-time and accurate information. The use of the barcode scanner reduces the probability of making errors and allows users to work effectively. On key aspects of the business, it enables decisions to be made much more quickly.

ABSTRAK

Pembangunan sistem logistic dengan menggunakan 'Active Server Page' (ASP) adalah projek untuk membangunkan sebuah aplikasi Web yang boleh digunakan dalam pelbagai jenis sistem operasi dan boleh digunakan di mana sahaja. Sistem ini disediakan dengan menggunakan beberapa jenis 'program scripting' seperti 'Cascading Style Sheet' (CSS), 'HTML tags', 'Visual Basic Scripting Edition Language' (VBScript), 'JavaScript', 'Structured Query Language' (SQL) dan 'ASPScript'. Tambahan lagi, 'Microsoft SQL Server' dan 'Internet Information Services' (IIS) digunakan dalam projek ini untuk menguruskan pangkalan data, pentadbiran dan keselamatan data secara berkesan. Sistem ini boleh digunakan oleh pengguna tanpa membuat pemasangnan ke dalam komputer, maka ia adalah mudah alih dan mudah dikawal. Untuk bahagian perkakasan, pengimbas kodbar telah digunakan untuk melaksanakan transaksi penambahan dan pengeluaran stok. Penggunaan pengimbas kodbar mengurangkan kebarangkalian membuat kesilapan dan ia membolehkan pengguna menjalankan tugas dengan lebih cekap. Dari segi perniagaan, ia membolehkan keputusan dibuat dengan lebih cepat.

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LIST OF ABBREVIATIONS

AIDC   - Auto ID Data Capture

ANSI   - American National Standards Institute

ASP   - Active Server Pages

BAL   - Business Application Language

BPE   - Business Process Engineering

CCD   - Charge Couple Devices

CSS   - Cascading Style Sheet

DOM   - Document Object Model

DTD   - Document Type Definitions

FTP   - File Transfer Protocol

HTML   - Hypertext Markup Language

HTTP   - Hypertext Transfer Protocol /HTTPS

IIS   - Internet Information Services

ISO   - International Organization for Standardization

MIME   - Multipurpose Internet Mail Extensions

NNTP   - Network News Transfer Protocol

OS   - Operating System

PHP   - PHP : Hypertext Preprocessor

PLC   - Programmable Logic Controller

PO   - Purchasing Order

RDBMS   - Relational Database Management System

SGML   - Standard Generalized Markup Language

SMTP   - Simple Mail Transfer Protocol

SQL   - Structured Query Language

SVG   - Scalable Vector Graphics

UOM   - Unit of Measurement

UPC	- Universal Product Code
USB	- Universal Serial Bus
VBScript	- Visual Basic Scripting Edition Language
W3C	- World Wide Web Consortium
WAN	- Wide Area Network
WEBAPP	- Web Application
XHTML	- Extensible Hyper Text Markup Language
XML	- Extensible Markup Language
XUL	- XML User Interface Language

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CHAPTER I

INTRODUCTION

1.1 Overview

The development of customized logistic system using Active Server Page (ASP) is a project that builds a Web-based enterprise business application software specifically designed and developed for local production industries. This system is suitable for all kinds of production industries.

The system consists of typical production business administration such as business deals, deliveries, inventory status, and stock ordering among others. The system is user-controlled since most of the functions are flexible and easily altered without having to modify the coding. Since the data and the information are varied and not fixed, the system will operate using the data entered by the user. The system will also produce reports based on the inputs, helping user keep track of all the business deal and stock necessities.

1.2 Objectives

This system is intentionally designed and developed to overcome and improve shortcomings of the software in the market. The objectives of this project is to develop a Web-based logistic system by using ASP which are :-

i. To provide typical production business administration.

The developed logistic system provide some tools for business administration such as business deal, stock ordering, stock purchasing, deliveries, inventory status, stock control and so on.

ii. To provide system that uses barcode scanner with USB (Universal Serial Bus) interface and computer as the input devices.

The developed logistic system uses barcode scanner with USB interface and computer to perform stock in and stock out operation. Indirectly, it reduces the probability of saving unusable data and increases the accuracy.

iii. To provide customized application environment.

The system is user-controlled since most of the functions are flexible and easily altered without having to modify the coding.

iv. To provide useful reports

Automate reports to help user keep track of all the business deals and stock necessities.

v. To provide user-friendly system.

This system provides high application availability, reachable by user anywhere, portable and controllable, yet could be implemented in any computers since it is a Web application (Webapp).

vi. To master knowledge and skills related to the Web-based technology such as internet information service (IIS), database, Web design, Web development and so on.

vii. To introduce the use of program scripting such as HTML scripting, cross-site scripting, browser scripting and server scripting in Web development.

1.3   Problem Statements

Most of the companies spend millions on purchasing reliable application software that helps to increase and measure productivity. For example, Microsoft CRM Customer Service Professional cost for $ 1349 per license [1]. In a large company where there may be thousands of desktops, distributing software (even some software as simple as Microsoft Office for small business cost for $ 449.95 per license) can cost a large amount of money [2]. While most of the software available in the market only being supported by either Linux or Windows-based platform, instead of providing cross-platform compatibility. For example, a same version of Microsoft Office is not applicable for both Windows and Mac platform [3]. For using the software that can only operate in Windows-platform, company will firstly have to purchase Windows licenses for each desktop where the license should be renewed at the end of the subscription period [4].

Besides that, most of the business application in the market is software-based application which users need to install it in every computer in order to use it. Most of these applications consume more memory resources [2]. These applications only applicable in the computers that are connected to the company's server and installed with the application installer, thus it may fail to provide real-time information.

Thus, the idea of developing a cost-efficient and user-friendly business application using ASP which is able to operate in different types of platform was born. ASP is the Microsoft's implementation of server-side scripting for dynamically-generated Web pages, where this server-site scripting basically means that a script is parsed and executed by the server when a user requests a Web-page containing ASP. This logistic system differs from other with these advantages :-

i.   Reduce cost.
ii.   Provide cross-platform compatibility.
iii.   Installation is not required.
iv.   Application availability.
v.   Increase data accuracy.
vi.   Enable user to export report.

1.4   Scope of the Project

Logistic System is a Web-based enterprise business application software developed in ASP which input the stock in and stock out information to the system by using barcode scanner and computers. The flow of the entire system is developed according to the research from a local factory.

1.4.1   Hardware

Barcode scanner with USB interface and computers are used as the main input device of the system to perform the stock in and stock out operation. Argox 99-81101-000U Model AS-8110U Long Range Imagers CCD Handheld Barcode Scanner with USB interface was chosen. It consist of some specification such as :-

i.   Scan speed 50 scans/sec.

ii.   Light source 660 nm visible red LED

iii.   Optical system 2048 pixel CCD (charge-coupled device).

iv.   Depth of scan field 0-50 mm.

v.   Scanning width 80 mm.

vi.   Resolution 0.125mm(5mils) - Code 39, PCS=45 %, on contact.

vii.   Scanning angle Front: 60° Rear: 60° Yaw: 75°.

1.4.2   Software / scripting :-

The entire system is programmed in ASP by using several types of scripting and programming language. Microsoft SQL Server 2000 to perform database management. The data portion of a database cannot exceed 2 GB in size when using the SQL Server 2000 Desktop Engine (MSDE 2000) or the Microsoft Data Engine (MSDE) 1.0 [5]. The total size of the database, including log files, can exceed 2 GB provided the sum of the sizes of the data files remains 2 GB or lower [5]. Database objects include all tables, views, stored procedures, extended stored procedures, triggers, rules, defaults, and constraints [5]. The sum of the number of all these

objects in a database cannot exceed 2,147,483,647 [5]. Rows per table in database are limited by available storage. And finally, the maximum tables that can be joined in a SELECT statement is limited to 256 tables. Types of scripting and programming language used in ASP are :-

i.   HTML Tags.
ii.   CSS (Cascading Style Sheets).
iii.   JavaScript.
iv.   VBScript.
v.   SQL (Structured Query Language).

1.5   Methodology

i.   Literature reviews

Information of barcode scanner which is commonly used as input device in a Logistic System was gathered. Then, scripting involved for writing an ASP file is studied. And at the same time the correct method to be implemented for developing a business application is also studied from software engineering reference book.

ii.   Hardware Development

Barcode scanner which is compatible to be used in this project was studied, compared, chose and purchased. Then, method used to implement the barcode scanner into the project was studied.

iii.   Software / System Development

Business logic was studied from a local factory. According to the studies, system, flow and database structure were designed and formed. Refer to Appendix A and Appendix B for the draft plan of the system. After that, the process of development began. Refer to Appendix C for the flow chart of the software development.