DRUG MANAGEMENT SYSTEM
(DMS)

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ABSTRACT

Every organization possesses its own method in managing and controlling the inventory system. A study over inventory management has been carrying out at Pharmacy, Klinik Kesihatan Beris Panchor in order to develop a Drug Management System (DMS). This system therefore will resolve and replace the current system process besides increasing the inventory management system in order to produce an effective and efficient system. DMS is equipped with the automated alert features. It able to remind the admin (pharmacist officer) about list of the drug reached the minimum quantity and also support reminder for the expired date for each drug. This system is a web based system that will be developed using Adobe Dreamweaver CS4, Hypertext Preprocessor (PHP), Apache Web Server and MySQL as the system's database. The system development methodology that will be used is System Development Life Cycle (SDLC). Hopefully, this system that will be developed can help Pharmacy, Klinik Kesihatan Beris Panchor to handle the incoming and outgoing inventories more smoothly and in a better way.

ABSTRAK

Setiap organisasi mempunyai kaedah tersendiri dalam mengurus dan mengendalikan sistem inventori. Kajian ke atas pengurusan inventori telah dilakukan di Farmasi, Klinik Kesihatan Beris Panchor dalam membangunkan "Drug Management System (DMS)". Oleh itu, sistem ini akan menggantikan sistem yang sedia ada selain meningkatkan proses pengurusan sistem inventori untuk menghasilkan sistem yang berkesan dan cekap. DMS ini dilengkapi dengan pelbagai ciri dimana ia membenarkan Pentadbir (Pegawai Farmasi) mengetahui senarai ubat telah mencapai tahap minimum melalui amaran yang disediakan dan juga menyokong peringatan untuk tarikh tamat bagi setiap ubat yang terdapat di dalam stok ubat. Ia juga memudahkan klinik desa sebagai pelanggan untuk menempah ubat di farmasi ini melalui sistem atas talian. DMS adalah sistem berasaskan web yang telah dibangunkan dengan menggunakan Adobe Dreamweaver CS4, Hypertext Preprocessor (PHP), Apache Web Server dan MySQL sebagai database sistem. Pembangunan sistem metodologi yang telah digunakan adalah Kitaran Hidup Pembangunan Sistem (SDLC). Diharap sistem yang dibangunkan dapat membantu Farmasi Klinik Kesihatan Beris Panchor untuk menangani proses aliran masuk dan keluar ubat dengan lebih efektif dan efisyen.

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LIST OF ABBREVIATIONS

DMS	Drug Management System
FCSSE	Faculty of Computer Systems Software Engineering
PHP	Hypertext Preprocessor
SQL	Structured Query Language
DFD	Data Flow Diagram
HCI	Human Computer Interaction
SDLC	System Development Life Cycle

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CHAPTER 01

INTRODUCTION

1.1 Introduction

An organization requires a system which is dedicated to facilitate and expedite the work process to increase efficiency and productivity of the organization. The existence of a good system, systematic and safe requires the management organization to oversee all information management effectively.

A system should be analyzed and designed to ensure future implementation of the system is easily understand by the end users. Drug Management System (DMS) is equipped with the automated alert features. It will remind the administrator (Pharmacist Officer) about the list of the drug that reached the minimum quantity and it also support reminder for the expired date for each drug. The web based system which is implementing in DMS is suitable to be used for rural clinic to order the drug through an online system. For administrator page, admin can access all records related to drug stock and related information in the user equipment to store and update if there are any changes to the inventory records.

1.2 Problem Statement

According to this problem, research will be made to overcome it and one of the best solutions is build a system that enable user to manage the drug through online system. There are three foremost statements of the problem which is to be solved by the developed system:

i. Currently, Pharmacy at KK Beris Panchor does not have a computerized system. All the process has been done manually. If the pharmacy department wanted to know the drug, they can find the data through manual system and all drugs information were recorded in file.
ii. Pharmacist always does the common mistake such as making multiple order for the same product:
    a. No alert message to remind for the critical quantity of each drug.
    b. No alert message to remind for the expired data of each drug.
    c. No automated process to manipulate data such as add, delete and searching record.
iii. Rural clinic as customer to make order the drug from this pharmacy by filling in order drug form manually.

1.3 Objectives

The objectives of this project are:

i. To transform the manual task and track record of the stock drug.
ii. To develop prototype for drug reference in web based system.
iii. To improve the process of managing drugs.

1.4 Scopes

In order to achieve the project objectives above, the scopes of the DMS development is stated as below:

i. System

a. DMS is a prototype application for Pharmacy Klinik Kesihatan Beris Panchor.
b. The system will be able to remind the administrator (Pharmacist Officer) about list of the drug reached the minimum quantity and also support reminder for the expired date for each drug.
c. The system can produce ordering drug status by customer either is it approved or rejected.

ii. User

a. Administrator (pharmacist officer) can manage the record of the drug stock, order the drug, and view the report to ensure the drug are managed systematically.
b. Customers (rural clinics) can view the drug that available and make drug ordering activities through the web based system.

1.5 Thesis Organization

This thesis organized into 5 main chapters which consist of Chapter 1 (Introduction), Chapter 2 (Literature Review), Chapter 3 (Methodology), Chapter 4 (Implementation), Chapter 5 (Result and Discussion) and Chapter 6 (Conclusion).

Chapter 1 explains about the project background of the system, and identifies the current system problems. Thus an objectives and scopes of the system were drawn in order to develop a new system which is more secure and reliable.

In chapter 2 the background information of the system that related to development of the project is studied and discussed. Review on current examples system is important to achieve DMS development.

Methodology is in Chapter 3 which discusses the method that used throughout the project and defined as a guideline in development of the system. During development and implementation of the system, some phases take into consideration such as planning, analysis, design, implementation, testing and maintenance.

This chapter 4 documented every process involved during the development of the project. Generally, it explains the development of the developed DMS and gives details on the data dictionary of the database in the system.

In Chapter 5, the result and discussion are presented in well manner, besides that it shows the output of the new prototype system after the implementation. The strengths and limitations of the system are discusses as well as with the further research technique to enhance the prototype system.

Lastly, Chapter 6 explains about the conclusion of the Drug Management System development and its future expectations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The use of computers in pharmacy has expanded rapidly over the last 10 years. They have changed both institutional and community practice dramatically. They have changed both institutional and community practice dramatically. [2] Computers have automated many of the traditional technical functions of pharmacist, enabling them to increase their clinical activities. The working conditions of the community pharmacist have also undergone unprecedented changes as a result of computerization. For example, prescription refills, which may account for three quarters or more of drug stores. As the 1990s begin, it is difficult to find many drug stores which do not have some sort of computer. Many, in fact have several. Computerization has extended beyond the pharmacy department into the remainder of the store. Inventory management, point-of-sale information and virtually any other function within a drug store which lends itself to automation has been computerized.

Generally, Pharmacy Management System is a system that consists of data entry, retrieval and stock monitoring facility, tracking drug dispensing pattern, generating of reports and other. Pharmacy Management System focuses on pharmacy store operation

and how it manages the inventory flow with suppliers (external) and department dispensary (internal). The system covers typical operations like receiving information from suppliers, processing departments' medication requests, distributing medication to departments, returning expired medication to suppliers [3].

Pharmacy Management System is drug stock inventory system that consists of data entry, retrieval and monitoring stock facility, alert of minimum quantity of each drug. This system always triggered to remind the pharmacist if the certain of the drugs reached the minimal quantity. This system gives an alert message so that pharmacist able to control and monitor the drug stock very well.

2.2 Inventory Management

Every organization should be sensitive and wise in dealing with their inventory. Systematic and efficient management in managing inventory will benefit not only from the aspect of management but also other aspects such as reduce costs and production organization.

Thomas C. Harrington (1990) in articles related to "Implementing an Effective Inventory Management System" emphasizes the element of control important in effective inventory management.[6]

"A professional discipline that is primarily concerned with the management of document-based information systems. [7]The application of systematic and scientific controls to recorded information required in the operation of an organization's business" (Priscilla Emery, 2005)

From the quotes above, we conclude that the control element inventory management is an important aspect in developing the system associated with inventory management. [7] Effective inventory control and systematically in an organization can facilitate the management of the organization in manage inventory, make decisions, plan and control the flow or stock articles and reports.

2.3 Terminology in the Inventory

According to Waters (1999) there is some terminology commonly used in inventory. [8] Table 2.1 shows some of the terminology summarized in table form.

Table 2.1: Terminology in the Inventory

Term	Summary of purpose
Stocks	All items or materials stored within the organization.
Inventory	List of items contained in the stock. Refer to the list of stocks and the stock itself.
Item	One of the products kept in stock, is an input in inventory.
Unit	Standard size or quantity of the items in the catalog.
Control Inventory	Activities or procedures used to ensure that the correct amount should be kept in stock.

2.4 Comparison of Current System

Evaluation of the inventory systems are already in the market are intended to identify relevant information such as features and certain elements in the inventory system to be applied in DMS development will be developed soon.

Identifying needs is important in the development of the system. According to Holbrook (1990), it can be defined as the desire to identify user in determining what needs to be developed in the system [4]. Some specific method and approaches used to obtain information suitable to be applied in the development of DMS. [1] Developers have used benchmarking method to analyze the existing inventory systems has developed or sold by developers. Benchmarking is defined as the process of identifying, learning and modifies the normal processes of other organizations in which only help organizations improve performance (AQPC, 2005).

Comparison was carried out on the current inventory system was developed which will provide guidance in applying best feature of the current inventory system (AQPC, 2005). Developers will focus on the two current inventory systems such as MyHome Inventory System and iMagic Inventory Software

2.4.1 MyHome Inventory System

MyHome Inventory System is software produced by ExecutivePro.com for organizations to manage and control inventory more systematic. Use of this system is also integrated with the various parties as vendors and other entities involved in the inventory.[9]

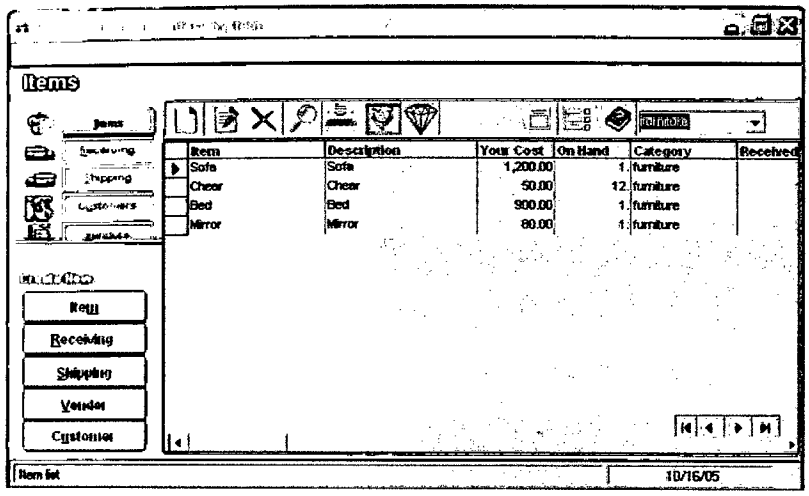

Figure 2.1: Main Page MyHome

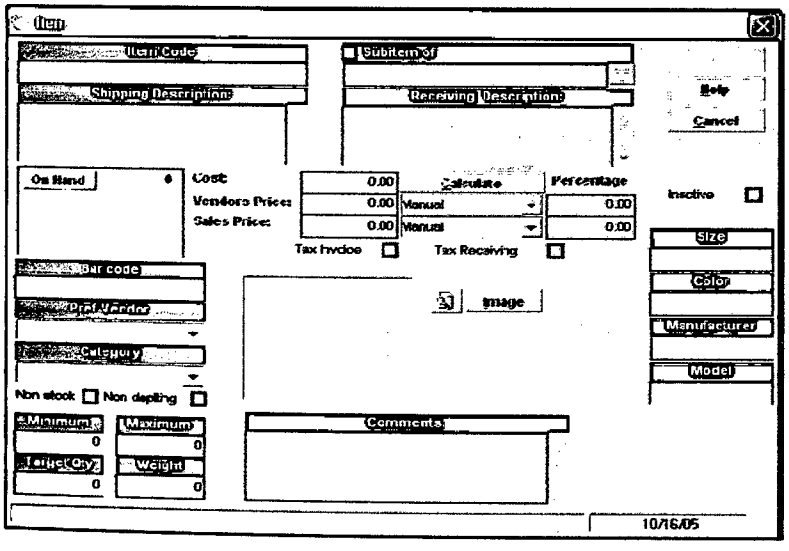

Figure 2.2: Item Registration Module

Summary:

System Name	URL Address
1. MyHome Inventory System	http://www.executivpro.com
Strength/Weakness : i. Designed for businesses to control stock levels and inventory. ii. Used for office use and personal use. iii. Characteristics: - Recording of information items, invoices, purchase, service, inventory control, barcode system, order. - Features a more focused system for business use.	

2.4.2 iMagic Inventory Software

iMagic Inventory is designed to make inventory management as simple as possible. With easy to use wizards and an easy to use invoice system that will get up and running in no time. Expandable and customizable, create items with custom fields, allowing you to record information that is specific to your business. Compatible with existing MS Office software or export out to standard CSV files for use in existing software.[10]

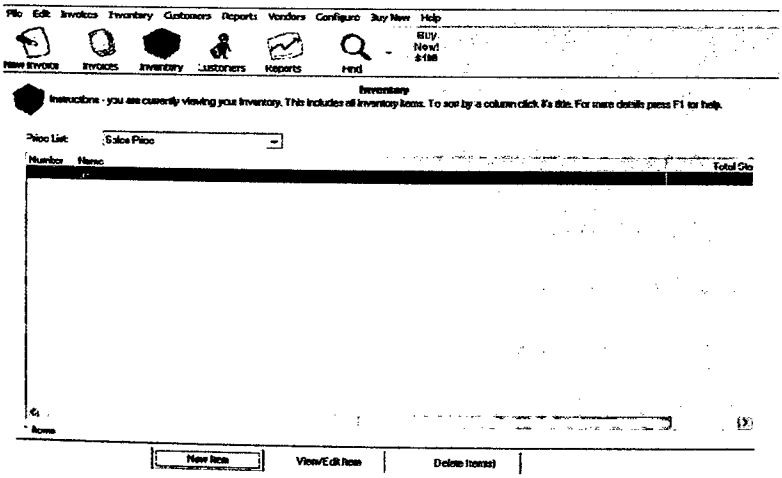

Figure 2.3: Main Page iMagic Software

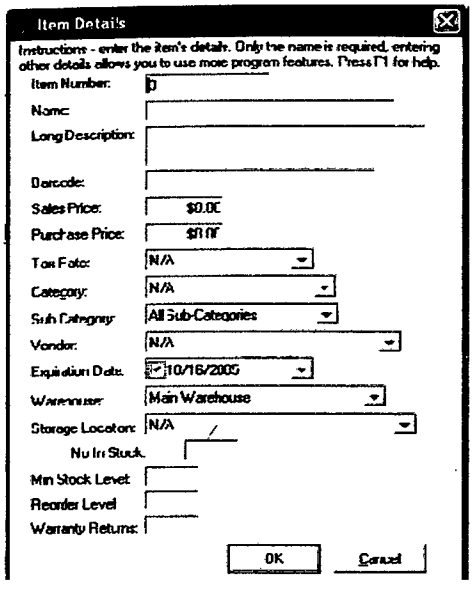

Figure 2.4: Item Registration

Summary:

System Name	URL Address
iMagic Inventory Software	http://www.imagicinventorysoftware.com/

i. **Strengths / Weaknesses:**

- Developed for the purpose of managing stocks.
- Equipped with barcode scanners, generate reports per specifications.
- Used for office and personal.
- Intelligent re-Ordering system.

ii. Characteristics:

- Recording of information items, invoices, purchase, service, inventory. control, barcode system, order.

iii. Publisher: iMagic.