INTEGRATED SUPERMARKET MANAGEMENT SYSTEM (ISMS)

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INTEGRATED SUPERMARKET MANAGEMENT SYSTEM
(ISMS)

MUHAMMAD FAREED ABU KASIN

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Database Management)

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DECLARATION

I hereby declare that this project report entitled
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SUPERVISOR : [Signature] DATE: ______
(PUAN ZAHRIAH BT OTHMAN)
DEDICATION

To both my parents, my supervisor and friends. Without continuous support from you, I would not have completed this project.
ACKNOWLEDGEMENT

I would like to thank and express my gratitude towards my supervisor, Puan Zahriah bt Othman which guide me patiently throughout the process of completing this project. I have learnt a lot under her guidance. My system would not come to this stage without her advice.

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Also special thanks to my beloved parents and friends. They motivate me the most and make my feet strong in completing this final year project. The moral support they gave had drive me to give all my best in developing this project.
ABSTRACT

Inventory management is a complex task, thus it requires precise system such as Integrated Supermarket Management System (ISMS) to ensure that inventory is managed properly. The requirement for this type of system becomes more critical when it comes to large-sized market; it is hard to monitor and trace item movement from the moment it arrives in the premise until it is sold to the customer. The objectives of developing this system are to integrate several tasks that is co-related, to generate significant report, to increase staffs’ awareness about inventory and to prepare data backup in case of system failure. ISMS implements client-server architecture, heterogeneous database integration and real-time data processing features to ensure that the system can be deployed in real environment. In the end, the objectives of developing the system have been achieved successfully, with addition of several extra features such as barcode generator and receipt printing. With all these features, ISMS development is a success and it is ready to be implemented in the real environment.
ABSTRAK

Pengurusan inventori merupakan suatu tugas yang rumit, justeru itu, sebuah sistem yang tepat amat diperlukan, misalnya Integrated Supermarket Management System (ISMS) demi memastikan inventori diuruskan dengan sebaik mungkin. Keperluan terhadap sistem ini semakin meningkat khususnya untuk pasaraya besar; yang mana kerja pemantauan barangan dari proses ketibaannya di premis perniagaan hingga ke tangan pengguna; menjadi semakin mencabar.

Tujuan pembangunan sistem ini adalah untuk menggabungkan beberapa tugas yang memiliki skop kerja yang sama, menjana laporan yang sewajarnya, meningkatkan kepekaan pekerja terhadap inventori dan juga mewujudkan data sandaran seandainya sistem gagal berfungsi. Sistem ini akan mengaplikasikan arsitektur pelayan-pelanggan, integrasi pelbagai pangkalan data dan pemprosesan data semasa. Pada penghujung projek ini, semua objektif project dapat dicapai dengan jayanya, dengan tambahan beberapa ciri-ciri misalnya penyajian barkod and pencetakan resit.

Dengan semua ciri-ciri tersebut, pembangunan ISMS merupakan suatu kejayaan dan berpotensi untuk digunakan di situasi sebenar.
TABLE OF CONTENTS

CHAPTER                                PAGE

1 INTRODUCTION                          1
   1.1 Project Background               1
   1.2 Problem statement                2
   1.3 Project Objective                3
   1.4 Project Scope                    4
   1.5 Project significance             5
   1.6 Expected output                  5
   1.7 Conclusion                       6

2 LITERATURE REVIEW AND PROJECT METHODOLOGY 7
   2.1 Introduction                     7
   2.2 Facts and findings               7
   2.2.1 Domain                         7
   2.2.2 Existing system                8
   2.2.3 Technique                      10
   2.3 Project Methodology              14
   2.4 Project Requirements             16
   2.5 Project Schedule and Milestone   16
   2.6 Conclusion                       16

3 ANALYSIS                              18
   3.1 Introduction                     18
   3.2 Problem analysis                  18
   3.3 Requirement analysis             20
   3.4 Conclusion                       30

4 DESIGN                                31
   4.1 Introduction                      31
   4.2 High-level design                 31
      4.2.1.1 Navigation Design          40
      4.2.1.2 User Interface and Output design 41
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2.2</td>
<td>Conceptual and Logical Database Design</td>
<td>44</td>
</tr>
<tr>
<td>4.2.2.1</td>
<td>Conceptual database design</td>
<td>44</td>
</tr>
<tr>
<td>4.2.2.2</td>
<td>Logical database design</td>
<td>46</td>
</tr>
<tr>
<td>4.2.2.3</td>
<td>DBMS Selection</td>
<td>48</td>
</tr>
<tr>
<td>4.3</td>
<td>System Architecture</td>
<td>49</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Software design</td>
<td>50</td>
</tr>
<tr>
<td>4.3.2</td>
<td>Physical Database Design</td>
<td>61</td>
</tr>
<tr>
<td>4.4</td>
<td>Conclusion</td>
<td>67</td>
</tr>
<tr>
<td>5</td>
<td>IMPLEMENTATION</td>
<td>68</td>
</tr>
<tr>
<td>5.1</td>
<td>Introduction</td>
<td>68</td>
</tr>
<tr>
<td>5.2</td>
<td>Software Development Environment Setup</td>
<td>69</td>
</tr>
<tr>
<td>5.2.1</td>
<td>Environment setup</td>
<td>70</td>
</tr>
<tr>
<td>5.3</td>
<td>Database Implementation</td>
<td>71</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Data loading</td>
<td>71</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Sample of database access</td>
<td>71</td>
</tr>
<tr>
<td>5.4</td>
<td>Software Configuration Management</td>
<td>75</td>
</tr>
<tr>
<td>5.4.1</td>
<td>Configuration environment setup</td>
<td>75</td>
</tr>
<tr>
<td>5.4.2</td>
<td>Version Control Procedure</td>
<td>76</td>
</tr>
<tr>
<td>5.5</td>
<td>Implementation Status</td>
<td>77</td>
</tr>
<tr>
<td>5.6</td>
<td>Conclusion</td>
<td>77</td>
</tr>
<tr>
<td>6</td>
<td>TESTING</td>
<td>78</td>
</tr>
<tr>
<td>6.1</td>
<td>Introduction</td>
<td>78</td>
</tr>
<tr>
<td>6.2</td>
<td>Test Plan</td>
<td>79</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Test Organization</td>
<td>79</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Test environment</td>
<td>80</td>
</tr>
<tr>
<td>6.2.3</td>
<td>Test Schedule</td>
<td>80</td>
</tr>
<tr>
<td>6.3</td>
<td>Test Strategy</td>
<td>81</td>
</tr>
<tr>
<td>6.3.1</td>
<td>Classes of tests</td>
<td>81</td>
</tr>
<tr>
<td>6.4</td>
<td>Test Design</td>
<td>82</td>
</tr>
<tr>
<td>6.4.1</td>
<td>Test Description</td>
<td>82</td>
</tr>
<tr>
<td>6.4.2</td>
<td>Test data</td>
<td>83</td>
</tr>
<tr>
<td>6.5</td>
<td>Test Result and Analysis</td>
<td>86</td>
</tr>
<tr>
<td>6.6</td>
<td>Conclusion</td>
<td>88</td>
</tr>
<tr>
<td>7</td>
<td>PROJECT CONCLUSION</td>
<td>89</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>7.1</td>
<td>Observation on Weakness and Strengths</td>
<td>89</td>
</tr>
<tr>
<td>7.1.1</td>
<td>System strength</td>
<td>89</td>
</tr>
<tr>
<td>7.1.2</td>
<td>System weaknesses</td>
<td>90</td>
</tr>
<tr>
<td>7.2</td>
<td>Propositions for Improvement</td>
<td>91</td>
</tr>
<tr>
<td>7.3</td>
<td>Contribution</td>
<td>91</td>
</tr>
<tr>
<td>7.4</td>
<td>Conclusion</td>
<td>92</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

Table 2.1 Comparison between WMS, Symbol MC50 and ISMS  
Table 3.1 STAFF database: Staff table  
Table 3.2 ITEM database: Item table  
Table 3.3 ITEM database: Shelve table  
Table 3.4 ITEM database: Stock table  
Table 3.5 ITEM database: Stock_Shelve table  
Table 3.6 ITEM database: Sale table  
Table 3.7 ITEM database: Expired table  
Table 4.1 Staff Manager Panel  
Table 4.2 Item Panel  
Table 4.3 Stock Panel  
Table 4.4 Delete Panel  
Table 4.5 Item on Shelve Panel  
Table 4.6 Shelve Panel Input Design  
Table 4.7 Expired Item Panel Input Design  
Table 4.8 Reset password input design  
Table 4.9 Search window input design  
Table 4.10 Cashier Input Design  
Table 4.11 Output Design for Search  
Table 4.12 Output Design for Barcode Generation  
Table 4.13 Output design for Cash Calculation  
Table 4.14 Output design for Receipt Printing  
Table 4.15 Output Design for Profit Viewer  
Table 4.16 Logical database design: Staff  
Table 4.17 Logical database design: Item  
Table 4.18 Logical database design: Stock  
Table 4.19 Logical database design : Shelve  
Table 4.20 Logical database design: Stock_shelve
Table 4.21 Logical database design: Expired
Table 4.22 Logical database design: Sale
Table 4.23 Pseudo code: Login process
Table 4.24 Pseudo code: Admin main menu
Table 4.25 Pseudo code: Cashier main menu
Table 4.26 Pseudo code: Stock keeper main menu
Table 5.1 Environment setup of ISMS
Table 5.2 Server Configuration (SQL Server)
Table 5.3 Server Configuration (Oracle)
Table 5.4 Database Environment Setup (SQL Server)
Table 5.5 Database Environment Setup (Oracle)
Table 5.6 Computer environment setup
Table 5.7 Version Control Procedure for ISMS
Table 5.8 Implementation Status
Table 6.1 Test Organization
Table 6.2 Test environment
Table 6.3 Test Schedule for ISMS
Table 6.4 Classes of test
Table 6.5 Test Description: Login
Table 6.6 Test description: Admin menu
Table 6.7 Test description: Stock Keeper
Table 6.8 Test Description: Cashier
Table 6.9 Test Result and Analysis [Scale: 5 for Best, 1 for Worst]
LIST OF FIGURES

Figure 2.1 WMS in action 9
Figure 2.2 Mobile device that works with Symbol MC50 9
Figure 2.3 Basic concept of heterogeneous database integration 12
Figure 2.4 Client-server model 12
Figure 2.5 Diagram of exploratory development 14
Figure 3.1 Basic DFD of cashier 19
Figure 3.2 Basic DFD of stock keeper 19
Figure 3.3 Context diagram of ISMS 23
Figure 3.4 Composition diagram of ISMS 24
Figure 3.5 Level zero login system flow 24
Figure 3.6 Level one log in system flow 25
Figure 3.7 Level one Admin main menu 26
Figure 3.8 Level one Cashier Main Menu 26
Figure 3.9 Level one Stock Keeper Main Menu 27
Figure 4.1 ISMS client/server architecture 32
Figure 4.2 Interface Design for Login 33
Figure 4.3 Interface Design for Staff Manager 33
Figure 4.4 Interface Design for Item Manager 34
Figure 4.5 Interface Design for Stock Manager 35
Figure 4.6 Interface Design for Delete Panel 35
Figure 4.7 Interface Design for Item on Shelve Manager 36
Figure 4.8 Interface Design for Shelve Manager 37
Figure 4.9 Interface Design for Expired Item Manager 37
Figure 4.10 Interface Design for Reset Password Window 38
Figure 4.11 Interface Design for Search Window 39
Figure 4.12 Interface Design for Cashier Menu 39
Figure 4.13 Navigation design: Administrator 40
Figure 4.14 Navigation design: Stock Keeper 41
Figure 4.15 Navigation design: Cashier 41
Figure 4.16 Output design for Search process 42
Figure 4.17 Output Design for Cash Calculation 43
Figure 4.18 ERD for ISMS 45
Figure 4.19 ISMS detailed architecture 50
Figure 4.20 Backup/Restore Data menu 66
Figure 4.21 Database backup 66
Figure 4.22 Database restore 66
Figure 5.1 Environment Setup for ISMS 69
Figure 5.2 Search interface 72
Figure 5.3 Sample result 72
Figure 5.4 Query interface 73
Figure 5.5 Sample output 73
Figure 5.6 Sample of purchased items 74
Figure 5.7 Total price 74
Figure 5.8 Profit Viewer Menu 75
Figure 5.9 Profit viewer result 75
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Operating System</td>
</tr>
<tr>
<td>ERD</td>
<td>Entity Relationship Diagram</td>
</tr>
<tr>
<td>DBMS</td>
<td>Database Management System</td>
</tr>
<tr>
<td>DFD</td>
<td>Data Flow Diagram</td>
</tr>
<tr>
<td>ISMS</td>
<td>Integrated Supermarket Management System</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>P2P</td>
<td>Peer to Peer</td>
</tr>
<tr>
<td>SQL</td>
<td>Structured Query Language</td>
</tr>
</tbody>
</table>
## LIST OF ATTACHMENTS

<table>
<thead>
<tr>
<th>ATTACHMENT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Proposal form</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Gantt Chart</td>
<td>7</td>
</tr>
<tr>
<td>1.3 ISMS Interface</td>
<td>9</td>
</tr>
<tr>
<td>1.4 SQL Server Configuration</td>
<td>19</td>
</tr>
<tr>
<td>1.5 ISMS User Manual</td>
<td>35</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

1.1 Project Background

As the time goes by and technology evolves quickly, people manage to create an easier life in every aspect by manipulating the rapid growth of technology. Modern market has become mega-sized along with the population growth. It is impossible to rely boldly on human effort to successfully manage these huge sized markets. A storekeeper faces difficulty in keeping track of stock movement and many more troubles. Thus, a very handy system is compulsory in order to ease the burden of market management.

Stock management is the most essential part in a market, regardless of its size. Since stock is the heart of a market, inaccuracy, even in minor scale can bring catastrophic consequences to a particular market. Conventionally, stocks are managed manually. Nowadays, many have changed to digitalized method of managing stock. The shift really has made stock management a lot easier.

The system is about management of a supermarket. It integrates some of the basic marketing task into one system. As we always know, integration will make things easier because everything goes on as a single system. As an example, a cashier which is responsible in handling the bought items of customer will help a stock keeper does his work because through a cashier, a stock keeper will be able to know how the
items in the market move. The system with similar functionality actually existed, but it is not implemented in this country anymore. As an example, MYDIN has been using integrated warehouse management in their marketing management system. However, it is not the whole-market-level integration as been proposed by this system. What the system tries to achieve is to bring inventory management to a higher level of application.

1.2 Problem statement

Among the most common problem that appears in any mega-sized market nowadays is the frequently changing product price. Price always changes especially when the market is having promotion in conjunction with festival such as Hari Raya and Chinese New Year. At these seasonal festivals, price will drop for specific interval of time. When promotion ends, price of item will be back to normal again. Thus, an easy price assignment system is very handy in this situation.

Besides that, sometimes items on shelve has finished without being refilled instantly. Imagine the disappointment of a customer who desired to buy a particular item but it is unavailable on shelve. The problem here is that the stock keeper is not notified about the emptiness of item on shelve, so that the stock keeper can take instant action. Hence, a notification to stock keeper is very crucial to solve this problem. Furthermore, a notification about fast-moving item in warehouse is also crucial, so that the stock keeper can make orders on new stock quickly.

In addition, the problem that appeared is staff works separately although they are using the same system. This is quite inefficient because if all the co-related staff tasks are integrated, a one-point item management system can be created. The most important feature that emerges from this integration is the ability of item tracking. The integration of works reduce the cost of management, because everything happens simultaneously without having the same record to be rewritten repeatedly.

Sometimes, finding a specific item can be very tedious in large market, especially when the price tag or the barcode of that item is missing. In normal case, the customer only realize that when they come to the cashier for payment. In order to
solve this, accurate item-on-the-shelve-positioning should be implemented, so that finding the desired item becomes effortless.

In a nutshell, this system is the improvement of the currently existing system in market. At the same time, this project must have the same basic functionality as performed by current systems.

1.3 Project Objective

The objectives of the project are:

- To overcome the frequently changing price situation by easy price assignation.
  
  With one click, the price can be increased or reduced, at the same time, keep price history for future reference

- To monitor stock movement in warehouse by tracing significant activities related to stock management.

 Some the important activities are arrival of new stock from supplier, depletion of specific item in warehouse, stock placement on shelves and many more.

- To provide one-point item management system by integrating works from several department.

 Works that seen as co-related, such as stock keeper and cashier, will be integrated. When a cashier works, he is actually helping the task of stock manager and vice versa. All these process happen seamlessly, without being noticed by the staff himself.

- To ease the process of item search in the market.

 Make search process easier by providing specific location of item, such as on which floor, in which shelves and so on.
To generate significant report

Generate important report that may assist management personnel in managing the market and make crucial decision about their business.

1.4 Project Scope

1.4.1 System scope:

- Log In function
  - Only registered users are allowed to use the system
  - The system will detect user role in the system based on username, without having user to choose it manually

- Warehouse items manager
  - Ability to add new items, update item stock and its price, and delete the non-existing item in the system

- Warehouse stock tracer
  - Detect the movement of items in warehouse; it can notify user(stock keeper) whenever stock is critically low

- Search function
  - Search the whole database for a particular item based on given criteria, and give the proper answer

- Calculation function
  - Calculate the sum of money to be paid by the customer
  - Calculate stock addition or depletion, whether stock on shelve or stock inside the warehouse

- Barcode generator function
• Generate barcode that is totally unique to differentiate identical items that have different stock id

• Report function
  o Display total profit gained from sale based on date of sale
  o Print receipt after transaction with customer finish

1.4.2 Target user:

This project can be implemented in market regardless of any size, such as mini market, supermarket and many more. Meanwhile, the users of this system are:
  • Stock keeper
  • Cashier
  • IT staff (administrator)

1.5 Project significance

The completion of this project is a must in order to reduce time and cost consuming. The implementation of this project make price assignation easy and help customers find any item in the market. At the same time, by promoting resources sharing, the management cost can be reduced tremendously. The integration of works as suggested by the project will create one-point inventory management system. Meanwhile, the project also helps management personnel make vital business decisions that may expand their business to further level. Report that is generated from the project will provide important information about the business performance.

1.6 Expected output

A system that support market management that can be implemented across the country.
1.7 Conclusion

Throughout the whole chapter, the discussion of project background explains the origin of idea that drives the development of ISMS. The problem statement reveals about the problems that is experienced in most markets nowadays. All these problems will be resolved with the objectives of ISMS development. Meanwhile, project scope is about the entire task that will be done by ISMS, and target user is the expected user of ISMS. Project significance explains more about the importance of developing ISMS.

Next chapter will explains about literature review and project methodology, which include facts and findings, project methodology, project requirement and schedule.
CHAPTER 2

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

Previously on chapter 1, a brief introduction on ISMS has been made. Some of the aspects that have been explained are project background, project objective, project scope and etc. Its purpose is to give user the basic idea about ISMS, at the same time provide overview about the whole system. In this chapter, further explanation about ISMS domain will be made. Several case studies will be made in order to identify and compare currently existing system domain with ISMS. By doing so, suitable techniques can be adopted in order to develop ISMS. Besides that, this chapter also discussed the project methodology and requirements.

2.2 Facts and findings

2.2.1 Domain

After conducting several researches and information findings regarding to the inventory management system that is implemented in hypermarket, the main issues that is detected in the currently existing systems are lack of item tracking and stock depletion notification.

As been mentioned in retailtechnologyreview.com, despite many state-of-the-art features introduced in Symbol MC50 for Tesco hypermarket, it does not provide