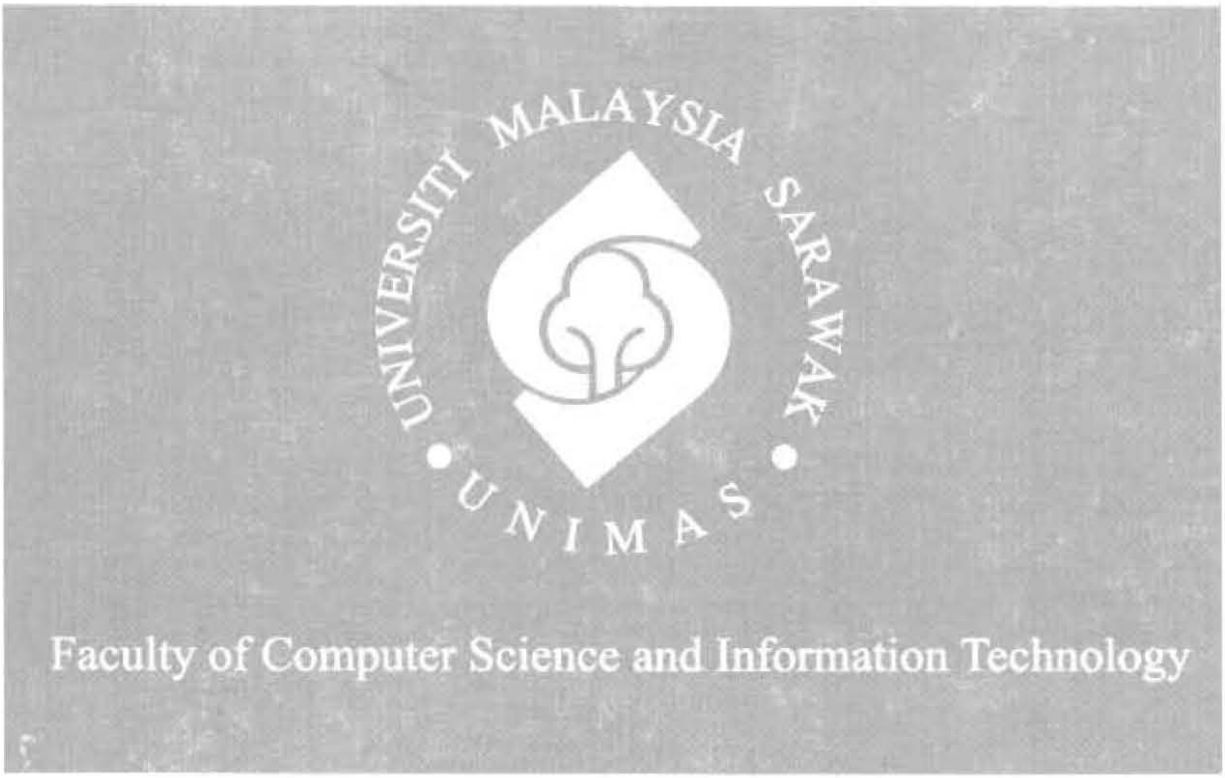

Star Optics: A Web-Based Point of Sales (POS) System for Standard Optical Centre Mukah

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Bachelor of Computer Science with Honours
(Information System)
2019

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

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ACKNOWLEDGEMENT

My first personal highest gratitude and appreciation is to give to my supervisor, Mdm Amelia Jati Robert Jupit who guided me through thick and thin in developing this project.

Besides, I want to thank my supporting roommate, Devaraj A/L Ramakrishnan for giving me motivation through my stress time. Also, I want to thank my very supportive church members from Kuching 611 Bread of Life and my spiritual father, Mr. Sia Teck Chai who gave me enormous encouragement and confidence towards finalizing my project.

Once again, a great applaud for both of my parents who thoroughly support my decision and provide significance view of the business so that I can successfully develop this project.

Finally, I express deep and sincere gratitude to my God for constant love and truth no matter how difficult the task was.

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ABSTRACT

Optician business is a technical specialize business. It involves many technical terms. Hence, storing data for each customer is sometimes a tedious works.

Standard Optical Centre Mukah (SOCM) is a family owned optical centre located in Mukah, Sarawak. SOCM sell and prescript eyewear to their customer. The optical centre has been established for 20 years and still using the traditional filing system. While the centre did try to adopt Microsoft Excel to store and categorize customer's information, the method is still very inefficient. Therefore, a web-based system called Star Optics will be developed to assist the centre in their daily business.

Star Optics is a web application point of sales system specifically designed for Standard Optical Centre to maximize their business operation using web-based technology. Star Optics can store customer's eyesight information into online database for data storage and future data retrieve. Besides, it also able to track inventories of the business. Additionally, the android application for Star Optics is used as a barcode scanner for sales purposes.

ABSTRAK

Perniagaan optik adalah perniagaan yang memerlukan khusus pakar. Ia melibatkan banyak istilah teknikal. Oleh itu, penyimpan data untuk setiap pelanggan kadang-kadang merupakan kerja yang menyakitkan.

Standard Optical Centre Mukah (SOCM) adalah sebuah pusat optik milik keluarga yang terletak di Mukah, Sarawak. SOCM menjual dan mengecat kacamata kepada pelanggan mereka. Pusat optik ini telah ditubuhkan selama 20 tahun dan masih menggunakan sistem pemfailan tradisional. Walaupun pusat tersebut cuba mengadopsi Microsoft Excel untuk menyimpan dan mengkategorikan maklumat pelanggan, kaedah itu masih amat kurang cekap. Oleh itu, sistem berasaskan web yang bernama Star Optics akan dibangunkan untuk membantu pusat tersebut dalam perniagaan harian mereka.

Star Optics adalah sistem penjualan yang direka khusus untuk Standard Optical Centre Mukah untuk memaksimumkan operasi perniagaan mereka dengan mengaplikasikan teknologi web. Star Optics mampu menyimpan maklumat penglihatan pelanggan ke dalam pangkalan data dalam talian untuk penyimpanan data dan menguna balik data di masa depan. Selain itu, Star Optics juga dapat semak inventori perniagaan tersebut. Di samping itu, aplikasi android untuk Star Optics digunakan sebagai pengimbas kod bar untuk tujuan jualan di SOCM.

CHAPTER 1: INTRODUCTION

1.1 Introduction

An optician is a businessman who provides services to sell and prescript eyewear to the customer. For instance, spectacles, sunglasses, contact lenses, and so on. Opticians are mostly trained technical practitioner who modify and fit eyeglass lenses and frames, contact lenses, and other devices to correct eyesight problem. Optician has a growing number of customers over the year and he needs a system to help in storing the customer information. An optician mainly will use physical files to store customer information to overcome this difficulty.

Standard Optical Centre Mukah (SOCM) is a family owned optical centre located in Mukah, Sarawak. SOCM sell and prescript eyewear to their customer. The optical centre has been established for 20 years and still using the traditional filing system. Besides, the centre is still using the manual way to keep track the sales records. The centre main way to earn revenue is by providing service to prescribe eyeglass to customer. Moreover, the centre also sells sunglass, contact lense and other miscellaneous product related to eyewear such as eyeglass cleaner, eyeglass case etc. The supplier of the centre is provided by authorized suppliers from all over Malaysia, and each supplier only supplies certain brand or product. Figure 1.0 shows the owner of SOCM.

Figure 1.0: Owner of Standard Optical Centre Mukah

The centre did try to adopt Microsoft Excel to store and categorize customer's information, but the method is still very inefficient. Therefore, a web-based system called Star Optics will be developed to assist the centre in their daily business.

Star Optics is a web-based point of sales system that able to store customer information in a more effective manner. Besides, the system will be able to calculate SOCM daily sales and perform inventory checking. Lastly, Star Optics will be able to perform sales for SOCM by using a specifically built android barcode scanner application to scan item that customer chose.

1.2 Problem Statement

Opticians business is a unique business. They are required to store their customers' eyesight information for further examination. Besides, opticians also need to store the customer's personal information like phone numbers, home address for future follow up. Figure 1.1 shows the physical paper used to store customer information in SOCM.

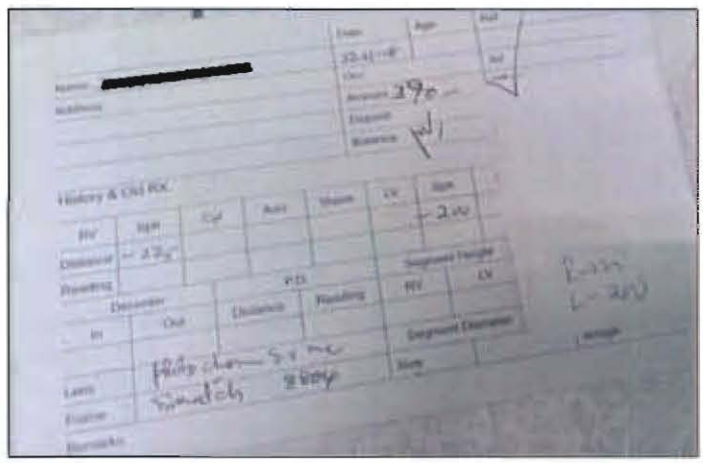

Figure 1.1: Customer's information in physical paper

However, in this digital age, SOCM still operate their business using the traditional pen-and-paper method to record the customers' information and jot down sales records. This method also leads to increasing number of paper usage. Figure 1.2 shows the stack of customer information in the physical paper format. Due to the large amount of customer's information in paper format, SOCM has a hard time to retrieve customers information. SOCM also facing difficulties in tracking inventory and monthly sales records.

Figure 1.2: Stack of customer information in physical paper

Therefore, for this project, a web-based point of sales (POS) system with an android barcode scanner application will be developed to assist the business owner to store customers' information, perform inventory tracking online, and tracking sales records.

1.3 Project Aims and Objectives

The main objectives of this system are:

1. To perform CRUD (create, read, update, and delete) on the customer(s) records.
2. To record and transact the daily sales of the business.
3. To perform inventory checking and notify optician on which item is low in stock.

1.4 Project Scope

1. This web-based POS system only develops for the firm, Standard Optical Centre Mukah.
2. This web-based POS system only involves in the matter concerning customer information, sales and inventory.
3. This web-based POS system is only involved in the optician business of the firm. The non-optician business will not be cover in this system.
4. The android barcode scanner application for this project is only develop for Star Optics as a solely barcode scanner.

1.5 Detailed Project Methodology

Iterative and incremental model will be applied in the development of this project. Iterative and incremental model is a model that iterate analysis and design, implementation, testing and evaluation phase before deployment. User requirement can be refining, and specific functionality is added in each iteration (Trivedi and Sharma,2013). This model has been chosen as the methodology over the traditional waterfall model because the system user seldom knows all the needed requirements (Parnas and Clement, 1986). Since software development tends to be repetitive and complicated, waterfall model does not fit in this project. Figure 1.3 shows the iteration and iterative model.

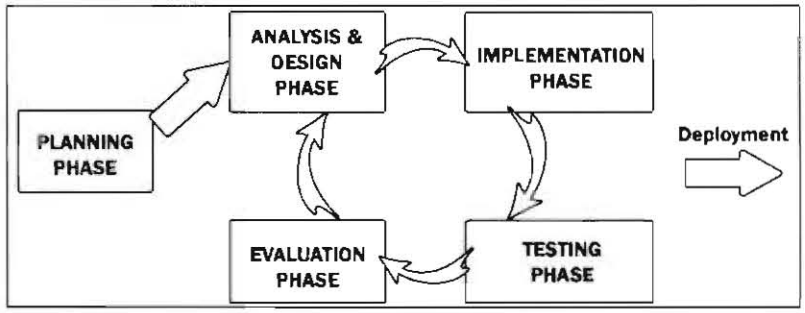

Figure 1.3: Iterative and Incremental model

a. Planning phase

The planning of the whole project is a crucial phase before any development involves. The planning of the project is carried out by identifying the business problems of Standard Optical Centre Mukah. The objectives and the scope of the project is defined after. Lastly, the detailed comparison of three existed system will also be covered at this stage.

b. Analysis and Design phase

The analysis of the business process is carried out before any programming begins. The analysis of business process is firstly carried out by site visit and interview. The required programming language, hardware and software will also be determined in this phase. The design phase is followed up by the designing of database using entity relationship diagram (ERD) and designing of the whole system using data flow diagram (DFD) and flowchart. Lastly, the prototype of the system is also developed in this phase.

c. Implementation phase

All the planning, hardware and software requirement will be implemented with the programming language specified before. The design of the database and the whole system will be based on the entity relationship design (ERD) and data flow diagram (DFD) respectively.

d. Testing phase

Testing will be carried out after the adequate system is done. Testing of the system will be carried out to detect the bug or error. The debugging process will also be done here.

e. Evaluation phase

The optician will be asked to examine the module and further changes from the optician will be requested here.

1.6 Expected Outcomes

This project is expected to become a fully functional point of sale (POS) system specifically for Standard Optical Centre Mukah. The outcome of this system should be able to maximize business efficiency by replacing the pen-and-paper method to store customer's records and store daily sales with the web-based system. An android barcode scanner will be developed and is expected to able to scan the barcode of every items in SOCM inventory. Moreover, this system is expected to perform inventory checking and notify the user about which product is low in stock.

1.7 Significance of Project

1. Reduce paper usage by storing customers' information online.

2. Increases business productivity by not wasting time finding customer information manually.

1.8 Project Schedule

Please refer to Appendix A.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Three existing POS system related to this project has been reviewed in this section. These existing systems are xeyex, VisionPro POS, and Eye Cloud Pro. Explanations and descriptions of each system with their functions and screenshots is also being included here.

2.2 Existing Systems

2.2.1 xeyex

xeyex is a web-based POS optician system based in the United Kingdom. The optician able to access the system in multiple devices like Android, iOS, Mac and Windows. xeyex has a simple interface to let optician interact with the system easily. The main menu is at the left side of the system. A calendar is provided at the main menu under the diary section. Since xeyex is a web-based POS system, optician only needs to install a web browser to access the system.

In Figure 2.1, xeyex allows optician to perform CRUD on customer details. Customer's details are categorized into different sections, namely patient details, contact details, notes, background, appointment history, orders, sales and documents.