

FAST TRACK ONLINE SHOP

REI



OBJECT CHARACTER

KHAIRUNNISAK NOORDIN

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ABSTRACT

Mobile application is one of the new technologies in information technology. Recent developments in the mobile phone industry created a lot of technologically that updated many applications of mobile that make our life easier than ever. The study of this application is between retail store sector and the application in mobile. Based on observation, the application in mobile at retail store is less uses or do not have been apply yet. The existing that using manually system in payment at retails store give less effectiveness of time. While in using pamphlet at retail store also give waste of paper and high budget. The aim and objective is for create application that can give advantage and facility to admin and customer. The objective is to create checkout shopping list in retail sector with barcode using mobile application and to develop an online catalog from QR code using mobile application. The methodologies that have been use in this application are software development life cycle.

ABSTRAK

Telefon aplikasi mudah alih adalah salah satu teknologi baru dalam teknologi maklumat. Perkembangan terkini dalam industri telefon mudah alih mencipta banyak teknologi yang banyak aplikasi terkini mudah alih yang menjadikan kehidupan kita lebih mudah berbanding sebelum ini. Kajian ini berkaitan antara sektor kedai runcit (supermarket) dan aplikasi didalam telefon. Berdasarkan pemerhatian, aplikasi telefon mudah alih di kedai runcit adalah kurang penggunaan atau tidak digunakan lagi. Sedia ada yang menggunakan sistem manual dalam pembayaran di kedai runcit memberi keberkesanan kurang masa. Walaupun dalam menggunakan risalah di kedai runcit juga memberi sisa kertas dan bajet yang tinggi. Tujuan dan objektif adalah untuk mewujudkan aplikasi yang boleh memberi kelebihan dan kemudahan kepada admin dan pelanggan. Objektifnya adalah untuk mewujudkan senarai membeli-belah checkout dalam sektor runcit dengan kod bar menggunakan aplikasi mudah alih dan untuk membangunkan katalog dalam talian dari kod QR menggunakan aplikasi mudah alih. Metodologi yang telah digunakan dalam permohonan ini adalah pembangunan perisian kitaran hayat.

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LIST OF ABBREVIATIONS

App Store	Application Store
QR code	Quick Response Code
UPC	Universal Product Code
WAP	Wireless Application Protocol
HTTP	Hyper Text Transfer Protocol
WML	Wireless Markup Language
SMS	Short Message Services
EMS	Enhanced Messaging Service
MMS	Multimedia Messaging Service
Gmail	Google mail
IBM Corp	International Business Machines Cooperation
SDLC	Software design development life cycle
OCR	Object Character Recognition Image

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Nowadays information technology becomes the most of important in the world. Information technology (IT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. Several industries are associated with information technology, including computer hardware, software, electronics, semiconductors, internet, telecom equipment, e-commerce and computer service.

Information technology gives people easiest nest to people to simplify their work. Without information technology people must have do their work in manually. Manual definition is controlled or manipulated by a human operator not automatically by a computer and powered by human or animal muscle power not by an inanimate source of power such as an electric motor. It can cause by more time to use and energy.

Mobile application is one of the most using information technologies. Recent developments in the mobile phone industry created a lot of technologically updated gadgets that make our life easier than ever. Cell phones nowadays are not limited to just calling and sending the usual message but is now capable of taking picture, paying for bills, communication, and business purposes. A mobile applications, most commonly referred to

as an app, is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer. Mobile applications frequently serve to provide users with similar services to those accessed on PCs. Apps are generally small, individual software units with limited function. This use of software has been popularized by Apple Inc. and its App Store, which sells thousands of applications for the iPhone, iPad and iPod Touch. Mobile applications are a move away from the integrated software systems generally found on PCs. Instead, each app provides limited and isolated functionality such as a game, calculator or mobile Web browsing. Although applications may have avoided multitasking because of the limited hardware resources of the early mobile devices, their specificity is now part of their desirability because they allow consumers to hand-pick what their devices are able to do. From my observation we can see in retail store less use of application in mobile. Because of that I would like to implement the application of mobile in retail store

1.2 PROBLEM STATEMENT

The majority of supermarkets have a barcode scanning system; this has come to be expected in the busy supermarket checkout areas of today. A barcode system in a supermarket is a system that allows you to efficiently manage your inventories in a store, track your goods within the store, and make correct decisions based on your current stock that you have.

In case of a supermarket, a barcode can make the running of a supermarket easier. In payment the cashier takes the items shows the barcode on the item to a device barcode scanner, the system calls up the product, item number, price and other information related to the item and notes it.

The cashier shows the other items to the system and the system calls up the product in list. After the cashier has shown the last item to the scanner, the total cost will be displayed on the screen. Then the total payment will be paid to cashier. Their problem that can be seen is through consuming time that customer have to wait to pay. Payment using cashier manually it can causes of the less effectiveness of time. Customer has to wait and get in line for paid the payment.

Machine Price checkers also one of the offering services in the supermarket. The functionality of the machine price checkers is customer scan the code and it will be display the details information of the product and the price of the product. The problem that can be seen in the machine price checker is difficult to find at supermarket and to buy this machine it can cause highest price. Customers always have to ask promoter where the place of the Machine Price checkers. Other than that if we are going to the supermarket we can also get a catalog promotion. The functionality of this catalog is customer can see the latest promotion that has been offer. From admin side it becomes higher consuming of money in given this catalog.

The ways to solve of this problem through payment is development of application using mobile application. It can make be faster payment for customer.

1.3 AIM AND OBJECTIVE

The aim of this project is to improve the checkout payment process in the retail sector. To achieve this goal, the following objectives have been formulated:

- 1) To develop online shopping for retail sector
- 2) To implement price checking using object character recognition image (OCR).

1.4 SCOPE

This project development work is focused on give easiness to the customer and admin. The major finding is more for retail sector in shopping online. The application that have been use to develop this system is from using mobile application and web based. The location is more for delivery the product item on that time. The development of the system also study about barcode scanner that available in retails store. Prototype of this development will be developing within two semesters. The development will focus on enhancement of online shopping in retail sector.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discussed, the explanation about what is retail store and what retail store sector provide. Then it will be discuss about the issues payment in the retail store that can be seen. This issues also have been provide the figure of the flow system using customer pay manually trough cashier and what the problem can get from this. Then it will be continue about the details of barcode. This sub topic will be discussed of relationship of barcode and retail store sector. Some brief history of development barcode in a retail store sector. How them get idea to develop barcode for retail store sector. In sub topic of mobile application will be discuss on history development of mobile and mobile application. After that it will be continue on the research that what area of mobile application have been develop. The last sub topic is the research relationship between mobile and retail store sector.

2.2 RETAIL STORE SECTOR

A retail store is a business that deals with retailing of a wide variety of goods. It also provides advice as well as comprehensive information on the goods that are normally sold at retail prices via their sales teams. Retail also the store that sells smaller quantities of products or services to the general public. A business that operates as a retail outlet will

typically buy goods directly from manufacturers or wholesale suppliers at a volume discount and will then mark them up in price for sale to end consumers.

2.3 EXISTING SYSTEM

In case of a supermarket, a barcode can make the running of a supermarket easier. In payment the cashier takes the items shows the barcode on the item to a device barcode scanner, the system calls up the product, item number, price and other information related to the item and notes it.

The cashier shows the other items to the system and the system calls up the product in list. After the cashier has shown the last item to the scanner, the total cost will be displayed on the screen. Then the total payment will be paid to cashier. Their problem that can be seen is through consuming time that customer have to wait to pay. Payment using cashier manually it can causes of the less effectiveness of time. Customer has to wait and get in line for paid the payment.

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The ways to solve of this problem through payment is development of application using mobile application. It can make be faster payment for customer.

2.4 PAYMENT ISSUES IN RETAIL STORE

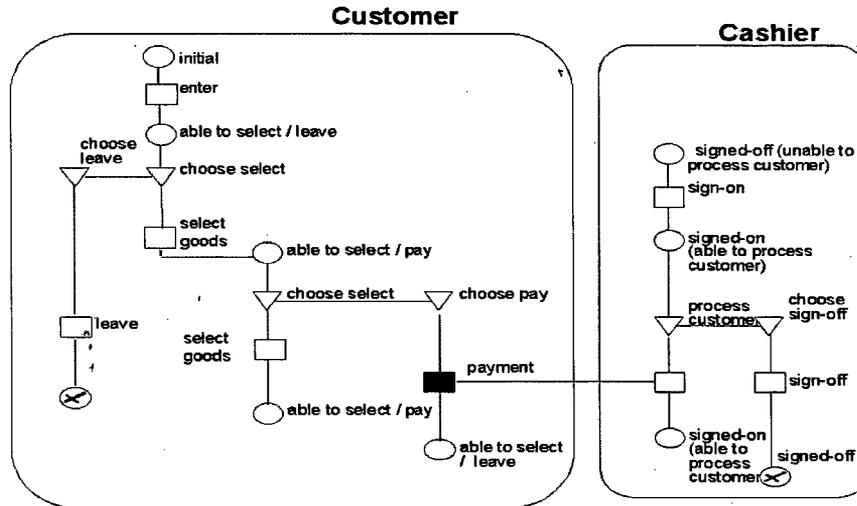


Figure 2.1: Class diagram of manually system payment at retail store

Figure 1 show the flow customer pay manually through cashier of a supermarket, a barcode can make the running of a supermarket easier. Payments systems are the methods used by customers to pay. In payment the cashier takes the items shows the barcode on the item to a device barcode scanner, the system calls up the product, item number, price and other information related to the item and notes it. The cashier shows the other items to the system and the system calls up the product in list. After the cashier has shown the last item to the scanner, the total cost will be displayed on the screen. Then the total payment will be paid to cashier. Problem that can be seen is using manually cashier it make problem through less effectiveness of the time. Customer must in line to pay the payment of the item. In admin side they must hired workers as a cashier to give more effectiveness to a customer.

2.5 ONLINE SHOPPING

According to business dictionary definition of online shopping is the act of purchasing products or services over the Internet. Online shopping has grown in popularity over the years, mainly because people find it convenient and easy to bargain shop from the comfort of their home or office. One of the most enticing factor about online shopping, particularly during a holiday season, is it alleviates the need to wait in long lines or search from store to store for a particular item. According to Wikipedia online shopping or e-shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser. Alternative names are: e-web-store, e-shop, e-store, Internet shop, web-shop, web-store, online store, online storefront and virtual store. Mobile commerce (or m-commerce) describes purchasing from an online retailer's mobile optimized online site or app.

An online shop evokes the physical analogy of buying products or services at a bricks-and-mortar retailer or shopping center; the process is called business-to-consumer (B2C) online shopping. In the case where a business buys from another business, the process is called business-to-business (B2B) online shopping. The largest of these online retailing corporations are Alibaba, Amazon.com, and eBay.[9] Retail success is no longer all about physical stores. This is evident because of the increase in retailers now offering online store interfaces for consumers. With the growth of online shopping, comes a wealth of new market footprint coverage opportunities for stores that can appropriately cater to offshore market demands and service requirements.

2.5.1 History of Online Shopping

English entrepreneur Michael Aldrich invented online shopping in 1979. His system connected a modified domestic TV to a real-time transaction processing computer via a domestic telephone line. He believed that videotex, the modified domestic TV technology with a simple menu-driven human-computer interface, was a 'new, universally applicable, participative communication medium — the first since the invention of the telephone.' This enabled 'closed' corporate information systems to be

opened to 'outside' correspondents not just for transaction processing but also for e-messaging and information retrieval and dissemination, later known as e-business.[10] His definition of the new mass communications medium as 'participative' [interactive, many-to-many] was fundamentally different from the traditional definitions of mass communication and mass media and a precursor to the social networking on the Internet 25 years later.

The first World Wide Web server and browser, created by Tim Berners-Lee in 1990, opened for commercial use in 1991.[11] Thereafter, subsequent technological innovations emerged in 1994: online banking, the opening of an online pizza shop by Pizza Hut,[11] Netscape's SSL v2 encryption standard for secure data transfer, and Intershop's first online shopping system. The first secure retail transaction over the Web was either by NetMarket or Internet Shopping Network in 1994.[12] Immediately after, Amazon.com launched its online shopping site in 1995 and eBay was also introduced in 1995.[11] Alibaba's sites Taobao and Tmall were launched in 2003 and 2008, respectively.

2.5.2 Shopping Cart systems

- Simple systems allow the off-line administration of products and categories. The shop is then generated as HTML files and graphics that can be uploaded to a webspace. The systems do not use an online database.[citation needed]
- A high-end solution can be bought or rented as a stand-alone program or as an addition to an enterprise resource planning program. It is usually installed on the company's webserver and may integrate into the existing supply chain so that ordering, payment, delivery, accounting and warehousing can be automated to a large extent.
- Other solutions allow the user to register and create an online shop on a portal that hosts multiple shops simultaneously from one back office.
- Commercial systems can also be tailored so the shop does not have to be created from scratch. By using an existing framework, software modules for various functionalities required by a web shop can be adapted and combined

2.6 AREA OF MOBILE APPLICATION

The area that has been use mobile application is medical, educational, gaming, shopping online and etc. As we can see in the retail store less of uses application in mobile. So it can be implement the application in mobile for retail store. Table 1 shows the available or none through application and payment.

Table 2.0: Type of field in mobile application

Mobile Application	Payment	Catalog
Medical	None	Available
Educational	Available	Available
Gaming	Available	Available
Shopping online	Available	Available
Government	Available	Available
Retail area	Available	None

2.7 THE USE OF BARCODE IN RETAIL SECTOR

According to Concise Encyclopedia, the definition of barcode is printed series of parallel bars of varying width used for entering data into a computer system, typically for identifying the object on which the code appears. The width and spacing of the bars represent binary information that can be read by an optical (laser) scanner that is part of a computer system. The coding is used in many different areas of manufacturing and marketing, including inventory control and tracking systems. The bar codes printed on supermarket and other retail merchandise is those of the Universal Product Code (UPC) [1].

According to National Barcode website ,the use of barcodes in the retail industry all started back in the late 1940's and early 1950's when the head of a grocery store chain wanted a technical college to figure out a way to acquire product information when a customer

checked out groceries. This company president wanted to find a simple way to track his inventory. Two technical students took the idea and ran with it. Before long, these two students had a working prototype using drawn patterns made from special inks that could only be seen by an ultraviolet light. The concept worked but was riddled with problems. So back to the drawing board, a code made out of a series of lines was implemented next. It was based on Morse code and movie equipment. Next this technical duo built the very first bar code reader. It was big and bulky and used an incandescent light bulb, photo multiplier tube from some movie equipment and an oscilloscope. A piece of paper with lines drawn on it was passed over the incandescent light source and the oscilloscope “read” the lines and thus, a barcode was born. Unfortunately, this very first barcode technology was unwieldy and not practical to reproduce on a grand scale. It was not until the 1960’s when lasers were more common and the integrated circuit was born that the barcode idea really got off the ground. A committee from the grocery retail industry was created to study the new barcode technology and decide how they were going to integrate it into stores. They made several guidelines that would have to be met in order to determine the feasibility of the barcode. First, the barcode had to be read from any direction and angle. The job of the cashier had to be made easier, not harder, with this new technology. In addition, the labels used to print the barcodes on had to be inexpensive and easy to do. These barcodes were circles in the beginning, concentric like a bulls-eye. However, problems with printing these barcode labels arose. Ink would smear, obliterating the circles and machines could not scan the smears. Soon, other technical companies got into the act to create a more effective and efficient barcode. They strove to standardize everything from the ink colors to the paper and equipment used to scan the barcodes. This new standard was called the UPC or Universal Product Code and it is still in use today [2].

2.7.1 Scanner Using OCR (Optical character recognition)

Optical character recognition (OCR) is the mechanical or electronic conversion of images of typewritten or printed text into machine-encoded text. It is widely used as a form of data entry from printed paper data records, whether passport documents, invoices, bank statement, receipts, business card, mail, or other documents. It is a common method of digitizing printed texts so that it can be electronically edited,

searched, stored more compactly, displayed on-line, and used in machine processes such as machine translation, text-to-speech, key data and text mining. OCR is a field of research in pattern recognition, artificial intelligence and computer vision.

There are two basic types of core OCR algorithm, which may produce a ranked list of candidate characters.[14] Matrix matching involves comparing an image to a stored glyph on a pixel-by-pixel basis; it is also known as "pattern matching", "pattern recognition", or "image correlation".[15] This relies on the input glyph being correctly isolated from the rest of the image, and on the stored glyph being in a similar font and at the same scale. This technique works best with typewritten text and does not work well when new fonts are encountered. This is the technique the early physical photocell-based OCR implemented, rather directly. Feature extraction decomposes glyphs into "features" like lines, closed loops, line direction, and line intersections. These are compared with an abstract vector-like representation of a character, which might reduce to one or more glyph prototypes. General techniques of feature detection in computer vision are applicable to this type of OCR, which is commonly seen in "intelligent" handwriting recognition and indeed most modern OCR software.[16] Nearest neighbour classifiers such as the k-nearest neighbors algorithm are used to compare image features with stored glyph features and choose the nearest match.[17] Software such as Cuneiform and Tesseract use a two-pass approach to character recognition. The second pass is known as "adaptive recognition" and uses the letter shapes recognized with high confidence on the first pass to recognize better the remaining letters on the second pass. This is advantageous for unusual fonts or low-quality scans where the font is distorted (e.g. blurred or faded).[17]

2.8 MOBILE APPLICATION

2.8.1 History

According to Safari book online, the first-generation mobile phones were designed and developed by the handset manufacturers. Competition was fierce and trade secrets were closely guarded. Manufacturers didn't want to expose the internal workings of their handsets, so they usually developed the phone software in-house. As a developer, if you weren't part of this inner circle, you had no opportunity to write applications for the phones.

It was during this period that we saw the first "time-waster" games begin to appear. Nokia was famous for putting the 1970s video game Snake on some of its earliest monochrome phones.

These early phones were flawed, but they did something important—they changed the way people thought about communication. As mobile phone prices dropped, batteries improved, and reception areas grew, more and more people began carrying these handy devices. Soon mobile phones were more than just a novelty. [6]

The Wireless Application Protocol (WAP) standard emerged to address these concerns. Simply put, WAP was a stripped-down version of HTTP, which is the backbone protocol of the Internet. Unlike traditional web browsers, WAP browsers were designed to run within the memory and bandwidth constraints of the phone. Third-party WAP sites served up pages written in a markup language called Wireless Markup Language (WML). These pages were then displayed on the phone's WAP browser. Users navigated as they would on the Web, but the pages were much simpler in design. [5]

The WAP solution was great for handset manufacturers. The pressure was off—they could write one WAP browser to ship with the handset and rely on developers to come up with the content users wanted. The WAP solution was great for mobile operators. They could provide a custom WAP portal, directing their subscribers to the content they wanted to provide, and rake in the data charges associated with browsing, which were often high. Developers and content providers didn't deliver. For the first time, developers had a chance to develop content for phone users, and some did so, with limited success. Most of the early

WAP sites were extensions of popular branded websites, such as CNN.com and ESPN.com, which were looking for new ways to extend their readership. Suddenly phone users accessed the news, stock market quotes, and sports scores on their phones. [5]

Commercializing WAP applications was difficult, and there was no built-in billing mechanism. Some of the most popular commercial WAP applications that emerged during this time were simple wallpaper and ringtone catalogues that enabled users to personalize their phones for the first time. For example, a user browsed a WAP site and requested a specific item. He filled out a simple order form with his phone number and his handset model. It was up to the content provider to deliver an image or audio file compatible with the given phone. Payment and verification were handled through various premium-priced delivery mechanisms such as Short Message Service (SMS), Enhanced Messaging Service (EMS), Multimedia Messaging Service (MMS), and WAP Push. Customers began pushing for more features and more games. But there was a problem. The handset manufacturers didn't have the motivation or the resources to build every application users wanted. They needed some way to provide a portal for entertainment and information services without allowing direct access to the handset. [5]

Nowadays mobile apps are used to describe Internet applications that run on smartphones and other mobile devices. Mobile applications usually help users by connecting them to Internet services more commonly accessed on desktop or notebook computers, or help them by making it easier to use the Internet on their portable devices. A mobile app may be a mobile Web site bookmarking utility, a mobile-based instant messaging client, Gmail for mobile, and many other applications. [5]

2.9 MOBILE APPLICATION AND RETAIL STORE SECTOR

Retail store is the one of business section. Retail is the sale of goods and services from individuals or businesses to the end-user. Retailers are part of an integrated system called the supply chain. A retailer purchases goods or products in large quantities from manufacturers directly or through a wholesale, and then sells smaller quantities to the consumer for a profit. Retailing can be done in either fixed locations like stores or markets, door-to-door or by delivery. As more people turn to their smartphones and tablets when