FOOD ORDERING SYSTEM USING IPAD

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ABSTRACT

Food Ordering System (FOS) using iPad is a management system that helps ordering in restaurants or any food business that has ordering services. The system implements the concept of electronic menus by using iPad tablet as a platform. Beautiful interface and easy to understand is the main strength of the application. The system is operated online where the data connection is done by the web services. Features of this system is location detection that help customers find the restaurants, table status that help customer to check the availability of the table, menus with picture, price and time to cook that help customer understand more about the dishes and how long should he or she wait. The manager can use the system to manage the menus. Disable the food if the supply no longer enough to make it. Manage the order without seeing the customer face by face. With this system waiter no longer needed to take an order. Customer directly order to the system and chef or cook can see the order on the kitchen directly. Order is now easy.

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ABSTRAK

Sistem pengawalan yang membantu pesanan makanan di restauran atau peniagaan makanan yg mempunyai perkhidmatan pesanan. Sistem ini mengaplikasi consep menu elektronik yang menggunakan iPad sebagai pengantara. Antaramuka yang cantik dan senang difahami adalah kekuatan utama system ini. Sistem ini beroperasi menggunakan talian online dimana ia menggunakan web services sebagai mengantara maklumat di talian. Kelebihan system ini ialah pengesan lokasi dimana ia membantu pelanggan untuk mengesan dimana restaurant terdekat, keadaan meja dimana ia membantu pelanggan untuk mengetahui sama ada meja tersebut boleh digunakan atau tidak, dan menu yg bergambar, berharga dan masa untuk siap yg membolehkan pelanggan tahu lebih mengenai makanan tertentu dan berapa lama mereka harus tunggu. Pemilik boleh mengurus menu dengan mudah, tidak perlu berhadapan dengan pelanggan secara bersemuka untuk mengurus makanan. Pelanggan kini hanya pesan dari system dah pesanan sampai ke chef di dapur. Pesanan makanan kini mudah.

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CHAPTER 1

INTRODUCTION

1.1   Introduction

With the technology we achieve today, there is one invention that changes the world of computer science that is the tablet. In 2010 Apple Inc. release the first successful tablet iPad which get criticism for many people. iPad is similar to the previous Apple product that is iPod touch which only different in size. The screen diagonals of iPad are 9.7 inch while iPod touch is 3.5 inch. It seems that Apple only made a bigger iPod touch. But from that criticism iPad has change the world of computer science because tablet has its own role. Tablet are more suitable for Internet browsing and business matter than the smartphone because of it large screen, with existing of Wi-Fi and 3G iPad become more efficient for Internet experience. With the introduction of iPad, there are daring developer who choose to make tablet application that make iPad is the first choice gadget for education and business.

The successful of iPad in the year 2010 give the life of tablet industry. Famous electronic manufacturer company like Samsung, Acer, HP, Dell, Motorola, HTC and many other starts make their move on tablet. Samsung has produced the Galaxy Tab, which run an Android OS different to iPad witch using iOS. HP also creates a tablet that run a new OS that is webOS which the development has been stop due to poor feedback from the developer.

In this day, there been a lot of restaurant open and offer a good meal for the customer. But people always complain about the ordering services. The current method of ordering services is using paper and pen, which is manually done by the waiter with the help of menu. This method surely takes time for the waiter to take order and give it to the

kitchen. If there are many customer this ordering method are not effective. With the help from the tablet as a medium for ordering this problem can be solved. Imagine that tablet becomes a menu and customers can directly order from it.

1.2 Problem statements

The current ordering method in the restaurant needed for the waiter to take the order with paper and pen than deliver it to the kitchen. With this method the waiter takes longer time for ordering. What if there are a lot of customers? The time taken for the waiter to deliver the order to kitchen will slow down the flow of ordering, this is the common problem occur in every restaurant.

Since waiter is a human, there will be a chance for the waiter to take a wrong order. This problem can occur when there a lot of foods order in one time. This problem will make customer uncomfortable with the services given. This problem will reduce the popularity of the restaurant.

Every restaurant has their own kind of food and they list it down on a menu. The problem about the current menu is sometimes there are no pictures or information about the food. Sometime customer will ask waiter about the food.

1.3 Objectives

i. To create a menu that more interactive by display it on tablet/ipad instead on a card or menu book. Customer can directly see the information about the menu.

ii. To avoid the wrong order, the customer will order the menu on the tablet/ipad instead of waiter take order with paper and pen.

iii. To remove the time for waiter to deliver the order to the kitchen by using a tablet/ipad as a medium. The order will be send to the server and viewed by the kitchen in the display.

1.4   Scopes

i.   This system will provide a web based application for user to order directly on a tablet/ipad.

ii. The target user of this system is restaurant customer and waiter.

iii. This system is developing to improve the ordering system in a restaurant.

1.5   Thesis Organization

This thesis contains 6 chapters. Chapter 1 Introduction gives an overview of the study conducted, which consists of introduction, problem statement, objectives, scopes and thesis organization. Chapter 2 Literature Review reviews the previous research that was conducted. All the relevant books and report from those researches will be discussed in detail. Chapter 3 Methodology tells the techniques that will be used in performing this research and discuss about the process flow in detail of this study. Chapter 4 Implementation discussed the detail of the implementation. Chapter 5 Result & Discussion showed the result of the implementation and the testing about this research. Chapter 6 Conclusion concludes the complete thesis.

CHAPTER 2

LITRATURE REVIEW

2.1   Existing System Review (Snapfinger)

Ordering Food using iPad has become the hottest topic in early 2011 when many iOS developer come up with idea where iPad can be excellence device for ordering food in restaurant. The idea is good but many developers not willing to do it because the app only focuses on restaurant not the iPad users. (State the word from ios business). There is one app that still standing on Apple App Store that is Snapfinger.

Snapfinger is the only food-ordering app that includes information for every restaurant nationwide (iTunes review)[1]. Snapfinger started back in 2004 when the founder and CEO Jim Garrett developed the first online ordering platform for the restaurant industry. He has since propelled the company to the top of the industry with multiple remote ordering applications for major restaurant brands (snapfinger website)[2].

### 2.1.1 Screenshot review
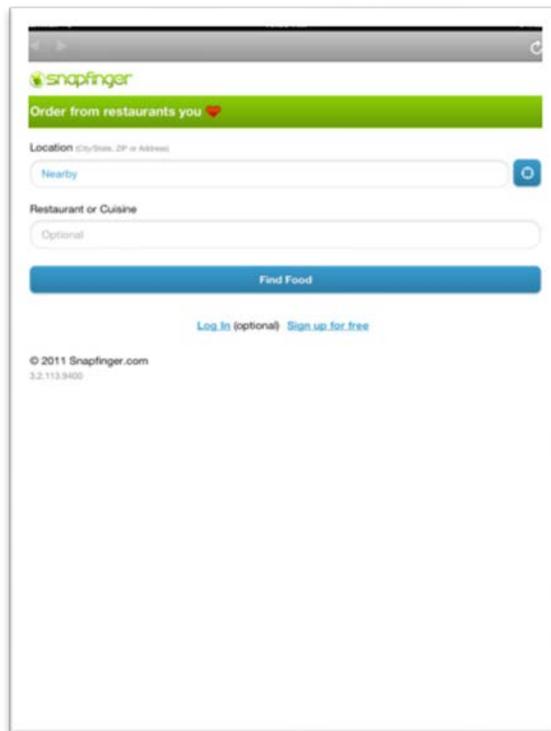
Figure 2.1.1: Snapfinger page 1
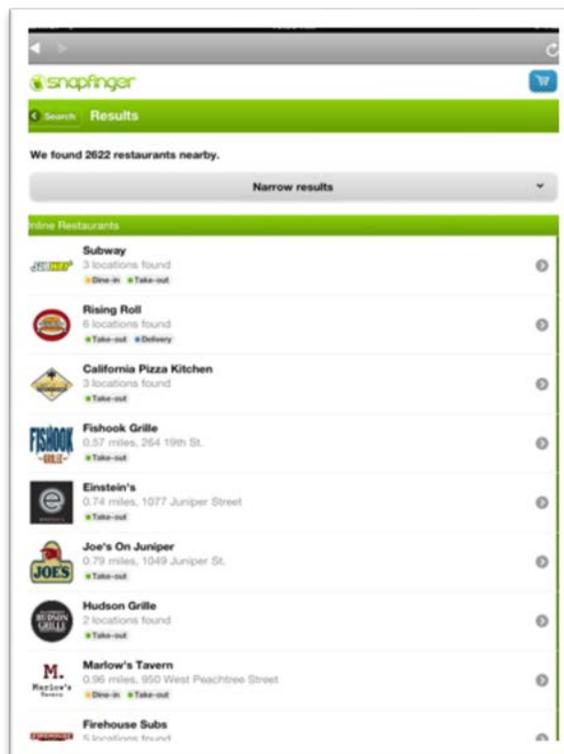
Figure 2.1.2: Snapfinger page 2
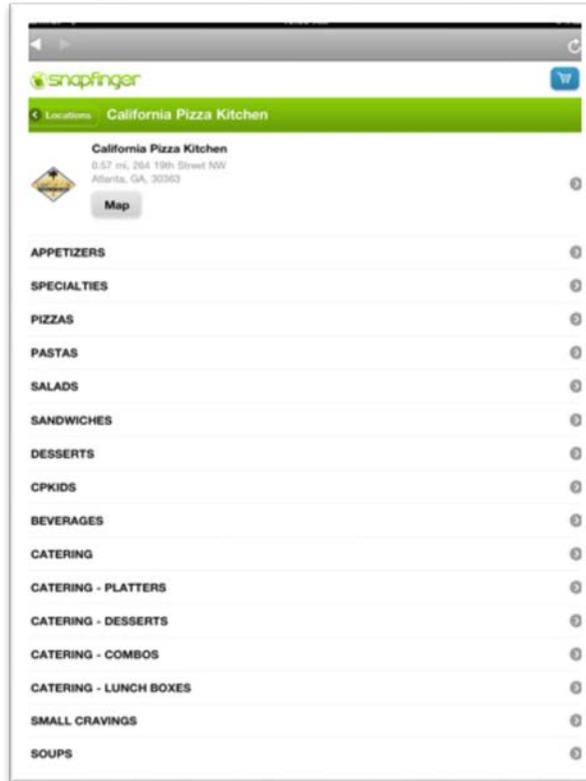
Figure 2.1.3: Snapfinger page 3

Figure 2.1.4: Snapsinger page 4

Figure 2.1.5: Snapfinger page 5

2.1.2   Features

Snapfinger provide online ordering for a restaurant that registered to their system. Snapfinger have same concept as this project where restaurant will be provided with online ordering using an iPad. Before that they need to register their restaurant and provided menu with price to the system. Snapfinger is well establishing online ordering in America where over 28000 restaurants use their system.

One of the features in Snapfinger is user-friendly interface. The interface is simple and easy to understand. This allow user to quickly adapt to the interface and easily used the system. The disadvantage of Snapfinger is lack of image to impress the user about the food. This disadvantage makes the user experience decrease.

The best feature of Snapfinger is the menu is running in real-time. If the restaurant out of something the menu will not be appear. This will counter an ordering problem where user orders something that runs out. These features also will be added in this project application. Snapfinger is multiplatform iOS applications that run every iOS devices. This give more advantages because they're a lot user using iPhone and iPod.

2.2   Existing System Review (iMenus)

In Apple App Store there is 200,000 apps for iPad and the number keep growing bigger and bigger. There is other app that provide an electronic menus features. It called iMenus. iMenus can make an electronic menus for you restaurant with stylish design. Same as snapfingger the target user for this application is for the restaurant. iMenus is developed by Chinese developer and the system currently operated only in China. The application is release on December 2011.

2.2.1   Screenshot Review

Figure 2.2.1: iMenus Page 1

Figure 2.2.2: iMenus Page 2
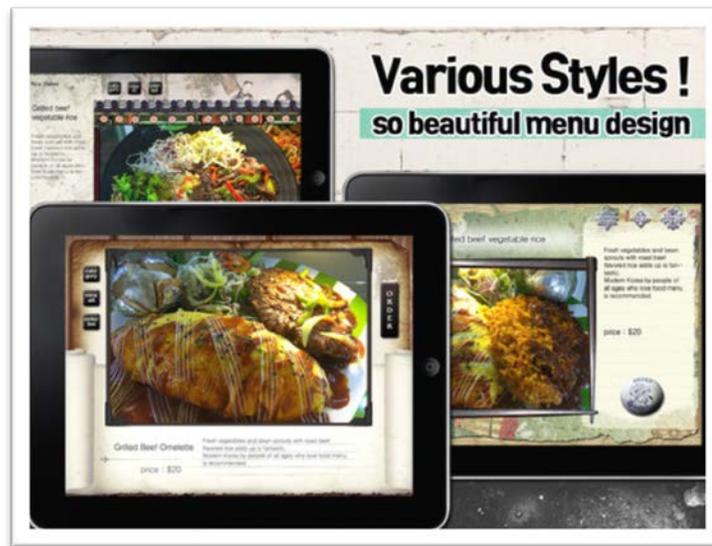
Figure 2.2.3: iMenus Page 3

Figure 2.2.4: iMenus Page 4

Figure 2.2.5: iMenus Page 5

2.2.2 Features

There is three main features that listed in the App Store for this application. One is the application is easy edit mode. User will find out that the editing system for the iMenus is easy. The second feature is iMenus provided 7 stylish and luxury menu designs. This makes the menus more easy to construct and user have many option for the design. The last feature is the application using iTunes files sharing for easy pictures transfer. User will be able to transfer any images to the menus via iTunes sharing.

2.3 Techniques

Technique is important part in application development. This section will review the technique that will be used in this project and why they are chosen. For this project web services techniques will be review together with the iOS application development.

2.3.1 Web Services

A Web service is a method of communication between two electronic devices over the web [3]. This technique is the safest way for communicating a mobile device to web. With web services developer should not worry about securities of the devices network.

There a lot of web services technique, for this project Representational State Transfer or REST. REST has become the preferred technology for web services [4].

2.3.1.1 RESTful

RESTful is a software architecture style that can be followed while designing software system [5]. REST uses a HTTP method for transport protocols. The extensibility and flexibility of the HTTP protocol has contributed a great deal to the success of the web. Since REST is widely used it is easy to apply it inside the project. RESTful web service is easy to apply inside the web server make it popular.

2.3.1.2 PHP 5

PHP is a general-purpose server-side scripting language originally designed for web development to produce dynamic web pages [6]. Out of the web applications we use today, a great majority of applications are written using PHP [7]. Thus for creating RESTful web services PHP 5 will be used. PHP is commonly used and it becomes the 4 most used programming languages. With PHP, REST programming is easier and strong.

2.3.1.3 JSON

JavaScript Object Notation (JSON) is the popular message format other than XML in term of sending data through HTTP protocol [8]. The other reason is JSON is easy to parse than XML and it vary compatible with iOS web protocol. There even a open source JSON engine for iOS.

2.3.2 iOS application development

For this project, iPad is used as a main device, thus the development of iPad must be review clearly. The iOS application development is conduct and lead by Apple Inc. itself [9]. The main Integrated Development Environment (IDE) for iOS development is Xcode and of course it only can run on mac OS X. The new mac OS X supports the new Xcode 4, which is very easy and friendly IDE.

2.3.2.1 GUI

Apple Inc strictly guides Graphical User Interface (GUI) in iOS. They provided the developer with guide and framework so the developers do the write GUI. iOS mainly use COCOA interface as they used in mac OS X[10]. The framework such as UIKit is the main framework for GUI [11].

2.3.2.2 Touch Application

Since iPad is an iOS device, surely they using touch screen. There are deferent between touch application and normal Application. Usually touch application need bigger interface for user to react such as bigger button. Touch application also need more space than normal application if not the application will ineffective [11].

2.3.2.3 Framework

For developing iOS application that used network and web services there a several frameworks that should be used for example CFNetwork for network connection between applications to server via REST. MobileCoreServices is important framework to enable any services to run inside iOS device.

Standard framework that usually used is UIKit, CoreData, CoreGraphic, and Foundation is important as the basic or backbone of the application.

2.4   Tools

The review of the tools is necessary for better understanding about the project. Since this project mainly about the iPad thus this section will review about the device. There also a web server that keeps the application running in cloud.

2.4.1   iPad

Apple CEO Steve Jobs unveiled the company's new tablet, the iPad, on 27 Jan, 2010. At first glance, the iPad looks like an iPhone or iPod touch on steroids. It's much larger than those two related devices, yet smaller than a notebook computer [12]. For the beginning usage, people didn't like iPad. Because iPad just another iPod touch that become bigger in size. But the release of iPad 2 on 11 March 2011 changes everything. Other electronics companies start copying iPad and tablet become famous around the world.

2.4.1.1 iPad Design

iPad design is almost the same as iPod Touch with different in screen size. iPad has 9.7 inch screen where they are support with multi-touch and one button located on the center below of the screen. The volume button located at the side and power button on the top of iPad. The home button, which is round in shape, is a trademark from apple where all iOS device has it.

2.4.1.2 iPad Features

The feature that comes with iPad is Wi-Fi and Bluetooth connectivity. The Wi-Fi enables iPad run a browser and surf the web wirelessly. The experience of internet

browsing on iPad is the best and that why tablet become more popular now's a day. iPad also have 3G connectivity that receive and accept the AT&T network worldwide. iPad 2 has a 2 camera in front and backside. This allow user to video chat using it and also take picture.

2.4.1.3 iPad as a Digital Reader

The iPad is more than just a digital e-reader, and Apple hopes to tap into the growing digital media market currently dominated by Amazon [13]. Since iPad screen make e-book reading more interesting the reader change their trust to iPad as e-book reader.

2.4.2   Web Server

2.4.2.1 Apache

Apache is a software foundation that develops and provides open source software that is meant to run web servers. Their primary product is HTTP server which is the most popular HTTP server used today. Apache is totally free of charge. The advantages of Apache are the API source codes are open to public. Apache also run faster and consume less resource. Apache can run on variety operating system.

2.4.2.2 MySQL

MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases (Naim, Yassin, Zamri & Sarnin, 2011) [14]. MySQL is welcomed by most developers for it open source and efficient. MySQL is perfect database server software for medium and small application system. It also support many platforms, relatively light-weight and extremely fast.

2.4.2.3 phpMyAdmin

phpMyAdmin is an open source tool written in PHP intended to handle the administration of MySQL with the use of a Web browser. It can perform various tasks such as creating, modifying or deleting databases, tables, fields or rows; executing SQL statements; or managing users and permissions [15].

2.5   Software Development Methodology

This part is a discussion about the Rapid Application Development (RAD) methodology that used in this project and how it related to the development of this project. This methodology will describe all the detail process for completing this project. RAD usually used by software developer that new to development environment. RAD phases can be seen below:
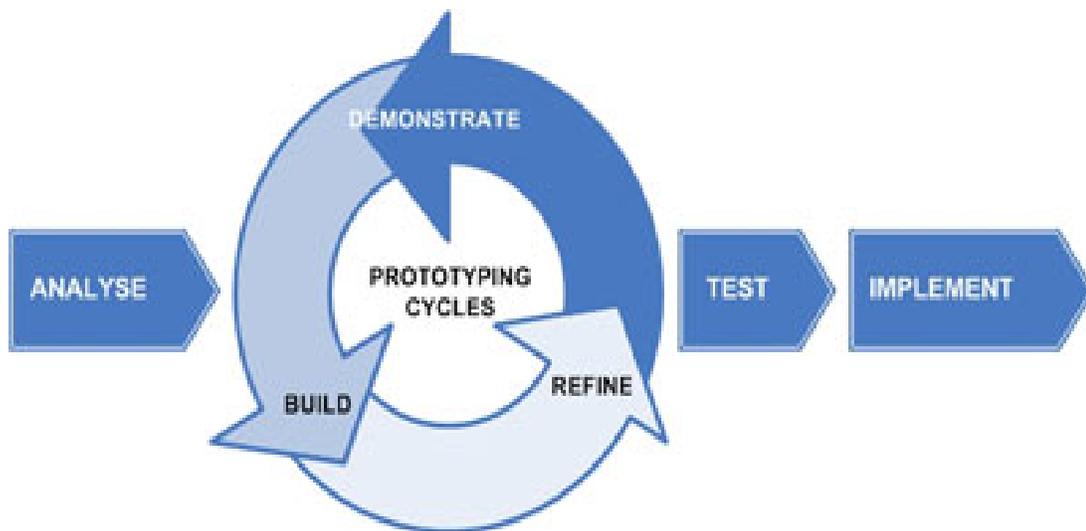
Figure 2.5: Rapid Application Development (RAD)

2.5.1   Analyze

Analyze is the first phase in RAD. In this phase the developer will analyze all the requirement of the project. The analysis will be done in detail and carefully to make sure there will be no requirements are missing in the project. After check the requirement the developer will doing some research in order to fulfill the implementation of the requirement inside the project. Assume developer did not know how to implement one of the requirements then this phase is very important.

After done the some research, the requirement above can be fulfill by only using one Integrated Development Environment (IDE) that is Xcode. Xcode is one and only development tools used by Apple Inc. to create the software for Apple device. Xcode is powerful tools that release free by Apple Inc. to their developer. The supporting software to finish this project is Adobe Photoshop. Adobe Photoshop is Image Processing Software that widely used for image editing. Photoshop is used to create the graphical element inside the application for example the Graphical Interface.

The application in this project must connect to the web services. For this requirement, representational state transfer (RESTful) web service is used because is easy to implement for iOS application. RESTful is web sevice that transfer the data from the server to the mobile device either via XML or JSON. For this project JSON will be used. Other requirement can be fulfill by using existing framework inside the Xcode such as touch detector, graphical animation and other.