WEB BASED INTEGRATED FOOD ORDERING SYSTEM

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Executive summary

As the internet technology has become essential for human life, diversity of web based system or online system has been created to fulfill increasing customer demand. Nowadays, variety of existing manual system was replaced by a web-based system due to the time-consuming manual systems and unsolvable limitations appeared. In this paper, a web based ordering system is proposed for replacing existing manual system. This system will allowed user to make order, updating menu, uploading file, submitting document and so on. The main user requirement collection method is by interviewing users and stakeholders. Based on the research, mostly web based system has been used for business and education that beneficial to business people, students and lecturers. Therefore, lecturers and students can easily access the web based system through internet by using computer or mobile device to get the latest information or announcement. On these few years, the development of system has been dramatically influenced by web technology as a platform for different types of system. The web based system development has been growing due to the highly recommended from user in order to replace the non-web based system or manually system.

Ringkasan Eksekutif

Seperti teknologi internet telah menjadi penting untuk kehidupan manusia, kepelbagaian sistem berasaskan web atau sistem dalam talian telah diwujudkan untuk memenuhi permintaan yang semakin meningkat pelanggan. Kini, pelbagai sistem manual yang sedia ada digantikan dengan sistem berasaskan web disebabkan oleh sistem manual yang memakan masa dan batasan unsolvable muncul. Dalam kertas kerja ini, satu sistem berasaskan web pesanan adalah dicadangkan untuk menggantikan sistem manual yang sedia ada. Sistem ini akan membolehkan pengguna untuk membuat pesanan, mengemas kini menu, fail muat naik, mengemukakan dokumen dan sebagainya. Pengguna kaedah pengumpulan keperluan utama adalah dengan menemuramah pengguna dan pihak yang berkepentingan. Berdasarkan kajian, kebanyakannya sistem berasaskan web telah digunakan untuk perniagaan dan pendidikan yang memberi manfaat kepada orang-orang perniagaan, pelajar dan pensyarah. Oleh itu, pensyarah dan pelajar boleh mengakses sistem berasaskan web melalui internet dengan menggunakan komputer atau peranti mudah alih untuk mendapatkan maklumat terkini atau pengumuman. Pada beberapa tahun, pembangunan sistem telah secara mendadak dipengaruhi oleh teknologi web sebagai platform untuk pelbagai jenis sistem. Pembangunan sistem berasaskan web telah berkembang akibat yang sangat disyorkan dari pengguna dalam usaha untuk menggantikan sistem yang bukan berasaskan web atau manual sistem.

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Introduction

With rise of internet has brought a different vision to the world since there are many websites has been created that providing variety of useful information for us. Thus, the websites are become increasingly interest among the youngsters. Through the websites, it allowed us to access social network, information sources, web based system, blogging, business, online shopping and so on. Nowadays, most of the companies are using websites or providing a web-based system and messaging technology to access and manage their data effectively and efficiency. Websites or web based system was owned by millions of businesses as an effective channel for communication and information exchange or transactions with customers.

In the business world, time is money. The creation of websites or web based system will greatly beneficial to both companies and customers which allowed them to skip the queue and save their precious time without going to the store, some more those companies can expand their business widely. Through the web based system, company having capability to keep updating and maintain the customer's custom, habit and interest. Furthermore, food orders can be easily made by customer with their own mobile device or computer from everywhere that having internet even when they are traveling. They will receive different choices to compare menu and prices from variety of food stores and their monthly specials or offers.

Therefore, the web based integrated ordering system is created for FSKKP (Fakulti Sistem Komputer & Kejuruteraan Perisian) and cafeterias in order to replace the existing manual ordering system. Being web based makes this system available everywhere through internet. This web based system will be fully integrates all the ordering in three cafeterias (kk1, kk2 and café executive) for banquet reservation or food ordering in Universiti Malaysia Pahang (UMP) Gambang only.

1.1 Problem Formulation

1.1.1 Objective

i. To develop integrated ordering system for banquet reservations or food ordering in UMP Gambang.

ii. To develop system that replaces the manual procedure of faxing invoice for cafeterias and FSKKP UMP.

iii. To test the system function with user.

1.1.2 Problem Statement

The existing manual system for banquet reservations or food ordering for FSKKP has high limitation and inconvenience to the staff or lecturer and cafeterias owner. The manually ordering procedures are very time consuming task with the risk of human error. Those staff FSKKP and cafeterias have to fax or sending those receipt, invoice and ordering information to each other and confirmed by assistant registrar. The manual procedure on budget of banquet reservations or food ordering is time consuming and complicated due to the budget is required confirmation by treasurer after the validation of assistant registrar. Furthermore, lecturers or staff faculty are wasting time in directly facing cafeteria owner for banquet reservation or ordering. The risk of human error or mistake is getting serious due to the mobile phone has become an inconsistent way for them to communicate in ordering and information update.

1.2 Previous work and relationship to current project

Unconsciously, the web based technology is becoming famous and making a large impact on our lives. At present, few web based ordering system are available in the market such as manual food ordering system, waiter paging system, touch screen ordering system and wireless food ordering system based on web services. In this section, those available web based ordering system will be briefly explained.

1.2.1 Manual Food Ordering System

The traditional method for food ordering that customer orders are taken by waiter or waitress is known as manual food ordering system. They found, "most of the restaurant around the world using the manual ordering system. This system is using a waiters and waitress to take an order from the customers. This system relies on large numbers of manpower to handle customer reservation, inquiry, ordering food, placing order, reminding dishes" (Noor et al., 2012). This kind of ordering system is consuming and wasting time or resources when having a lot of customers at that time. Other than that, waiting for a long queue is one of the inevitable processes in manual ordering system that face by customer during peak hour. It will increase the human risk and misunderstanding between customer and waiter. Thus, the existing manual system that applies by FSKKP for banquet reservation or food ordering should be replaced by web based system. If having any banquet in UMP, cafeteria and staff has to spend a lot of time on manually procedures for banquet reservation or food ordering.

1.2.2 Waiter Paging System

Waiter paging system shown in figure 1 and figure 2 is one of the food ordering systems available in the market that allows customers to notify or call for a waiter. They stated, “The pager unit notifies the waiter via a vibrator or buzzer that a request has been received and displays the request” (Yong Chai et al., 2010). This system helps restaurant to improve the customer service and manage restaurant staffs more efficiency and effectively. With this system, restaurant staffs and managers can manage and spend more quality time with customers for keeping customer satisfied. Whether large or small restaurant, it can be handled ordering more productively and effectively. Through this system, waiter can instantly page when food is ready for pick up while it’s still hot and fresh. Furthermore, good quality of foods and services can be maintained and improved by restaurant. The notification function on the waiter paging system is related and similar on sending message to user or client in the web based ordering system for any ordering information updated.

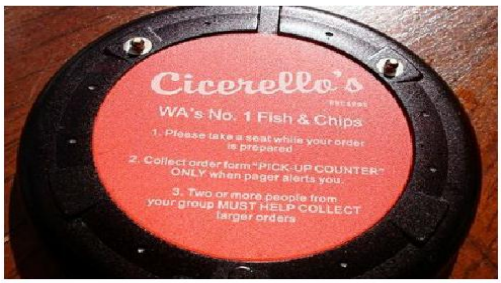

Figure 1.1: Waiter Paging System

Figure 1.2: Waiter Paging System

1.2.3 Touch Screen Ordering System

Nowadays, the touch screen technology has become widespread among the youngster. This technology has been widely applied in mobile phone or smart phone, tablet, laptop and computer. The restaurant is trying to capture the demands of customers with innovation in computing and technology. Thus, the touch screen ordering system has been available in the market that allow customer make order by own self using touch pad that provided in every table dining. With this system, the process of food delivery and food ordering became much simpler. Incorporating the advances in technology and computerization, better customer service is now much more achievable with the touch screen system. Therefore, restaurant may not hire too much waiters to reduce the waste of resources and customers' dissatisfaction during peak hour (Yong Chai et al., 2010). For example, company Sakae Sushi is using touch screen ordering system that provides for every customers to make their own order as shown in figure 3.

Figure 1.3: Sakae Sushi’s Touch Screen System

1.2.4 Wireless Food Ordering System Based on Web Service

Wireless communication or WIFI technology has become an essential service for customer that supplied by most of the food and beverage company. They found, "current wireless communications technology enable people easily to exchange information, while web services provide a low coupling coefficient or called loosely-coupled and platform-independent ways of linking applications or system across the Internet or Intranet." (Hong Zhen et al, 2009). Wireless technology allows customer easily accesses the website and web based system through internet rather than depending on wired data access or mobile data access. Combining advance mobile device and wireless technology, extra features that allow the customers themselves to place an order, review the menu and food ordering updated by using smart phone or computer. By integrating the wireless and web service technology, real world business can be carry out or fulfill on a wide various of devices, not only implement on mobiles devices operating system, but also implement on computer, laptop and tablet (Hong Zhen et al, 2009). Therefore, the web based integrated ordering system should be applied that allowing staff or lecturer FSKKP and cafeteria owner using WIFI for accessing internet to make any banquet reservation or food ordering in UMP Gambang.

1.2.5 Mobile Food Ordering System (MFOS)

The modern mobile devices offer different types of mobile phone for a wide variety of customer lifestyles and tastes. It has become a necessity and plays an important role in our life. They found that "it feels so strange when we hear that it is only 25 years since the first commercial cellular call was made in the United States, and today there are more than 262 million wireless subscribers in this country, 83% of the total Unites States population." (HRISHIKESH, K et al., 2009). Therefore, mobile food ordering system has been developed for food ordering due to the growing popularity and ability of mobile devices and various of new system or technology are being launched every day as shown in figure 4 and 5 (HRISHIKESH, K et al., 2009). At present, all the web based systems are trying to compatible their system on mobile device platform for customers' convenience. The capability of PDA (Personal Digital Assistant) and current smart phone are benefit the end user on mobile shopping and ordering. This system is using PDA or smart phone for user to place an order. It can provides variety of food stores for a user's selection, option of delivery for a user's order, list of cities, display the prices of different food items and so on. Currently, various types of applications are compatible and supporting the Android operating system mobile phone, Windows phone and I-phone.

Figure 1.4: MFOS

Figure 1.5: MFOS using I-Phone

1.2.6 The Development of Self-service Restaurant Ordering System (SROS)

SROS is one of the ordering systems that reducing the dependence of resource and manpower for customer's order. Meanwhile, restaurant can minimize the monthly cost expenses and the waste of resources. SROS is designed using Microsoft Visual Studio 2008 and Microsoft Office Access 2007 to replace the manual restaurant ordering system. This system using Microsoft Visual Studio 2008 to develop a graphical user interface (GUI) and Microsoft Office Access 2007 used for the system database (Noor et al., 2012). With the system, customers are allow placing an order, viewing the menu, and observe the food preparation at kitchen. The work flow of the SROS is the system home page will appeared when customers start using the system. This home page contains the navigation, special offer prices or promotion and restaurant information. After this, customers able to navigate to the menu page to view the food menu and prices, then customer can be continue to place their order. The total price or cost is automatically counted (Noor et al., 2012). The functional correlation of SROS is shown in figure 7. The server and user are connected by the router with LAN (Wired) cable and database in the admin computer will store all the user orders. It's a very useful and functional self-service ordering system should applied by restaurant to maintain the high level customer service during peak hour.

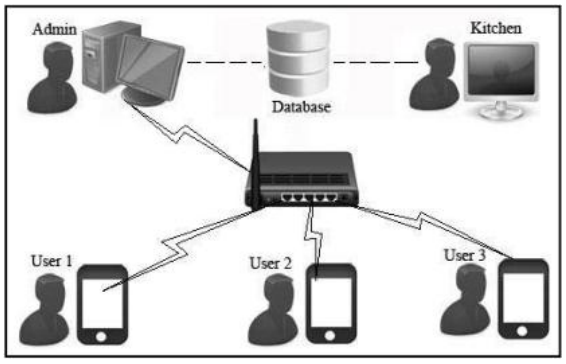

Figure 1.6: SROS functional correlation

1.3 Limitation of current system

The current manual ordering system is applied for banquet reservation or food ordering. Time consuming is one of the biggest impacts in the manual system. Lecturer or staff has to waste a lot of time for banquet reservation due to the inefficiency and inconsistent in manual system. They have to pass through a lot of complicated manual procedures if having any changes on menu and prices. Furthermore, each of the cafeterias having their different ordering method and management pattern. That's impossible for lecturer or staff to accustom all the different ordering method and management style

1.4 Terminology

Web based – It's an application that is usable and accessed over a computer network such as the internet or an intranet and uses HTTP as its primary communication protocol.

Platform – It is the combination of hardware architecture and a software framework (including application framework) that allow software or application software to run.

System prototype – It is a first model of hardware or software. It involve the useful production of functionally and trustworthy system through experiment. For example, the incomplete versions of the software / system being developed.

WIFI – It refer to the wireless networking technology that allows computer or other electronic device to communicate, exchange and assemble data over a wireless signal (using radio waves) or computer network, including high-speed internet connections.

1.5 Method approach

Hypertext Preprocessor (PHP) is used to design the web based integrated ordering system. PHP chosen for this project due to the PHP is a multiple scripting language that was designed or created for providing a web server side language that allows web page builds and it's to be faster, efficient and flexible for complex programming tasks.

1.6 Scope or limitation of study

Nowadays, multitude of people start using integrated ordering system to do ordering on consumer marketing, hotels or resorts, food and beverages, automobile and so on. This integrated ordering system typically focuses on food and beverages for FSKKP banquet reservations or food ordering. This system will fully integrate all the ordering with three cafeterias (kk1, kk2 and café executive) in UMP Gambang only. Banquet reservation or food ordering can be made within the UMP Gambang area. The users will be classified in three that are admin, admin user and general user. The user requirement and existing manual procedures of ordering will be collected through interview and observation for applying into the system.

1.7 Outline of material presented in rest of report

On this technical report, part 1 will discuss about the introduction of the web based system, objective, scope or limitation of study and the previous work. Part 2 will discuss about the user requirement, process flow of the project and method and materials used.

Report Body

Chapter 2 is explaining the specification and function of the Web Based Integrated Food Ordering System (WBIFOS) will be briefly explained and justify here. It aims to explicitly list the requirement for WBIFOS that assuring the client or stakeholder has well understood the requirement documentation and meets customer needs. The following subsections include in these sections are: detail user requirement from client, diagram about the system function and method and materials used.

2.1 User Requirement

The user requirements are collected by interviewing cafeteria owners in UMP Gambang with their official sign. Once the interview end, the requirement specification of the system will be documented and the description will be briefly explained. The complete description and explanation of the requirement specification on WBFIOS are documented in Software Requirement Specification (SRS). The SRS is including the functional and non-functional requirement, performance requirement and so on. The SRS document and user requirement are being signed by client to ensure they fully understand about the specification and function of the WBIFOS are fulfill their needs.

2.1.1 Types of user

The WBIFOS users are classified into three types; there are

- Administrator or Admin

Most of the functions on WBIFOS can be operated by administrator or FSKKP (treasurer and assistant registrar) such as updating system information, edit user information, check faculty budget and confirm the ordering.

- Admin user

Cafeterias owner are considered as admin user. Admin user is having small portion of admin function but limited on their own cafeteria part only. For example, they are able to update their own cafe information, latest promotion and menu.

- General user.

FSKKP staffs and lecturers are become the general user on the WBIFOS. Food ordering and information viewing function are provided by WBIFOS for general user.

The additional description will be stated in the SRS part 2.3.

2.1.2 Software

During the development of the WBIFOS, few types of software are involving in the development. The following software's are involved in the development of WBIFOS are:

- Mozilla Firefox
- Google Chrome

The Mozilla Firefox and Google Chrome web browser are highly recommended install in the client side computer for using the WBIFOS.

- XAMPP
- MySQL
- FileZilla

For the data and information storing in the system, MySQL will be used as a database to store all the data for WBIFOS. FileZilla will used to upload the website to UMP server and accessible by general user within the UMP.

- Hypertext Preprocessor (PHP)
- Notepad ++

Furthermore, Hypertext Preprocessor (PHP) is used to design the WBIFOS for providing a faster and flexible website. The PHP code write and edit by using notepad ++ in the development. Further explanation on the software may refer to the SRS part 2.1.4.

2.1.3 Hardware

During the development of WBIFOS, laptop is one of the most important hardware that used as a tool for the development. Other than that, UMP server will be used as server database for UMP users able to access the system.

2.2 Design Description

In this section, several diagrams are shown to enhance the users understanding of the specifications and functions on WBIFOS.

2.2.1 Context Diagram

A context diagram is the top level of data flow diagram. Data flow diagram level 0 of WBIFOS is shown in next page. The data flow diagram is a graphical technique that describes the flow of information and the transform that are applied as data move from input to output.