UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Faculty of Electrical and Electronic Engineering Technology

DEVELOPMENT OF ORDERING SYSTEM FOR RESTAURANT BASED ON ANDROID APPLICATION

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Bachelor of Computer Engineering Technology (Computer Systems) with Honours

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A project report submitted
in partial fulfillment of the requirements for the degree of
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I declare that this project report entitled "Development Of Ordering System For Restaurant Based On Android Application" is the result of my own research except as cited in the references. The project report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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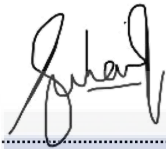
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APPROVAL

I hereby declare that I have checked this project report and in my opinion, this project report

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Name (if any)

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DEDICATION

First of all, I would like to express a deeply thank to my supervisor, Dr. Suhaila Binti Mohd Najib for his guidance, useful advice, and conceptualization of the project, which enabled me to have a clear understanding of my final year project. Lastly, special thanks to my supportive parents for their continuous support and compassion throughout my project.

ABSTRACT

The restaurant ordering system based on the Android application is an ordering system designed for the use of various restaurants. This system can be assessed through two mediums which are mobile application and website. It is designed to allow waiters to takes customer orders at the restaurant through Android mobile appliaction. The wireless connection is used by the mobile device to connect to the server. This system also designed for restaurant manager to manage their menu and order that has been send by waiters. This can be assessed through the website by the manager. They were allowed to add, update or remove items from menu. Besides that, this system is designed to calculate customer billing automatically and make the restaurant system more systematically. This will help reduce the delays of queuing for processing orders and will result in improved work organisation
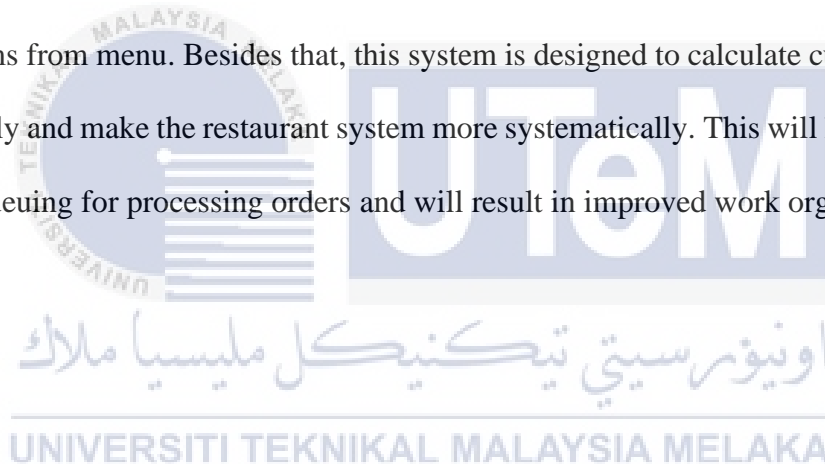
ABSTRAK

Sistem pesanan restoran berdasarkan aplikasi Android adalah sistem pesanan yang dirancang untuk penggunaan berbagai restoran. Sistem ini dapat dinilai melalui dua medium iaitu aplikasi mudah alih dan laman web. Ini dirancang untuk membolehkan pelayan menerima pesanan pelanggan di restoran melalui aplikasi mudah alih Android. Sambungan tanpa wayar digunakan oleh peranti mudah alih untuk menyambung ke pelayan. Sistem ini juga dirancang untuk pengurus restoran untuk menguruskan menu dan pesanan mereka yang telah dihantar oleh pelayan. Ini dapat dinilai melalui laman web oleh pengurus. Mereka diizinkan untuk menambah, mengemas kini atau membuang item dari menu. Selain itu, sistem ini dirancang untuk mengira penagihan pelanggan secara automatik dan menjadikan sistem restoran lebih sistematik. Ini akan membantu mengurangkan kelewatan beratur untuk memproses pesanan dan akan menghasilkan organisasi kerja yang lebih baik

ii

TABLE OF CONTENTS

LIST OF TABLES

TABLE	TITLE	PAGE

LIST OF FIGURES

FIGURE	TITLE	PAGE

LIST OF SYMBOLS

δ -   Voltage angle
         -
         -
         -
         -
         -
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         -

LIST OF ABBREVIATIONS

V   -   Voltage
          -
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LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1   Background

Since the entire restaurant operation has now been automated, this has allowed restaurants to expand their reach and push their limits. Most industries nowadays are very concerned with good systems and effective company management. This aims to ensure that the product or their business runs smoothly according to a well-planned system. This is especially true when it comes to how a restaurant's ordering system can help increase sales. A restaurant ordering system is a system that allows restaurants to accept customer orders. With the rise of automated ordering system nowadays, it becomes essential that the ordering system becomes an alternatively to business management. Managing a restaurant involves many different responsibilities, from planning menus, to tracking sales and basic accounting. So, incoming customers definitely want better service from the restaurant owner. Based on the issue, restaurant owners require specialized software to assist them in restaurant management. Development of ordering system for restaurant based on Android application is the key to solve this.

1.2   Problem Statement

Recently, many restaurants continue the traditional method of taking customer orders, in which the waiter takes customer orders by pen and paper. This method is inefficient, inconvenient, and may contain errors. For example, if the waiter misplaced his order paper in the rush, or if the waiter's writing is difficult to understand, the kitchen and

cashier may mess up the orders, resulting in calculation errors. In addition, mistakes such as mistakenly sending an order at the guest table are a problem that is often faced by restaurant staff nowadays. Especially in restaurants that have a large guest capacity. The use of an ordering system based on an Android application increases the efficiency of the service and can assist the manager to easily manages table-based orders. Moreover, this cause of lack information because the restaurant is unable to provide information about the availability of its food menu and save the time for waiter to checking the available of the food in the menu. Aside from the efficiency of service, using this system can provide a higher quality of service to customers, attracting more customers to the restaurant to take advantage of this quality of service.

1.3   Project Objective

The general objectives of the project is to develop a reliable, convenient and accurate ordering system. Specifically, the objectives are as follows:

a)   To develop ordering system that can be assessed through Android mobile application and website.

b)   To analyze the effectiveness of the proposed system for ordering purposes.

1.4   Scope of Project

To achieve the project objectives, several software are required for developing this system such as Android Studio, MySQL, PHP, HTML CSS, Xampp, Sublime Text, Java Script, Bootstrap and jQuery. This proposed system used centralised management of operations. Ordering and administration are part of the module consists in this system. The waiter and manager will use this system. Administrator is for the manager, and Users are for the waiters. Administrator has the ability to manage all menus include add, delete, update,

and search information, as well as perform an action on the system's order process. The waiter can take customer orders and send the order information to administration.

1.5   Project Significance

The reason this project is created to help restaurants handle orders with more accuracy and increase their productivity. When providing exceptional service, order accuracy is always critical, but it is especially critical when staff is taking to-go orders over the phone. This system will change form manual system to a computerized system. Manual order entry by waiters or waitresses may result in a slow response time in customer service. As a result, if the restaurant implements the proposed system, manipulating orders for customers will be simple and quick by simply touching the android device and selecting the desired menu. By using this application, it provides the ultimate comfort, not only for the customers but for the staffs as well. Besides, the administrators do not have to record and manage orders manually. Lastly, the target of this project is to help restaurants manage all of their operations in a centralized systematically.

CHAPTER 2

LITERATURE REVIEW

2.1   Introduction

This chapter describes the review on existing techniques related for this project. It will covers about the study and idea based on the previous project as well as the hypothesis accomplish of this project. Lastly, by analyzing the previous projects, the possibilities that affect the quality in their project can be analyzed and reviewed.

2.2   Overview of Ordering System

Ordering is the process of customers specifying what customer want. A note, form, or computer system can be used to record the order then passed to the appropriate department for processing. Thus, delivery of services or products to customers based on the order. An ordering system is a collection of detail methods used to manage the ordering process. Food ordering can be done either manually or automatically.

Based on paper written by (Doug Doran, 2010) everything was done by hand with a simple cash register to collect the receipts for the till. There was no Point Of Sale (POS), no reservations system, and no web ordering. By the late 1976s, the biggest chains such as Red Lobster and Fridays restaurants managed to success with rudimentary ordering, accounting, and food preparation systems where that restaurant introduced the first-ever restaurant POS system. However, manual methods such as taking orders traditionally are still used today because there are several economic factors and the development of a restaurant. Therefore, the previous system will be reviewed to identify the significant of the online ordering system for the customer and the restaurant owner

2.2.1　Digital Food Ordering System for Restaurant

(Tembhekar *et al.*, 2020) developed a digital food ordering system based on Android application where it is fully computerized and mobilized. New Order, Order Status, Order History, Menu, Add Menu, Order Status, Action and Checkout are features that were offered in this application for customer. Figure 2.1 shows a flow of the system where it starts with the customer orders food from the touchpad by looking at various combinations of food, which was then carried to the kitchen for fulfilment and then passed to the customer's tablet for billing.
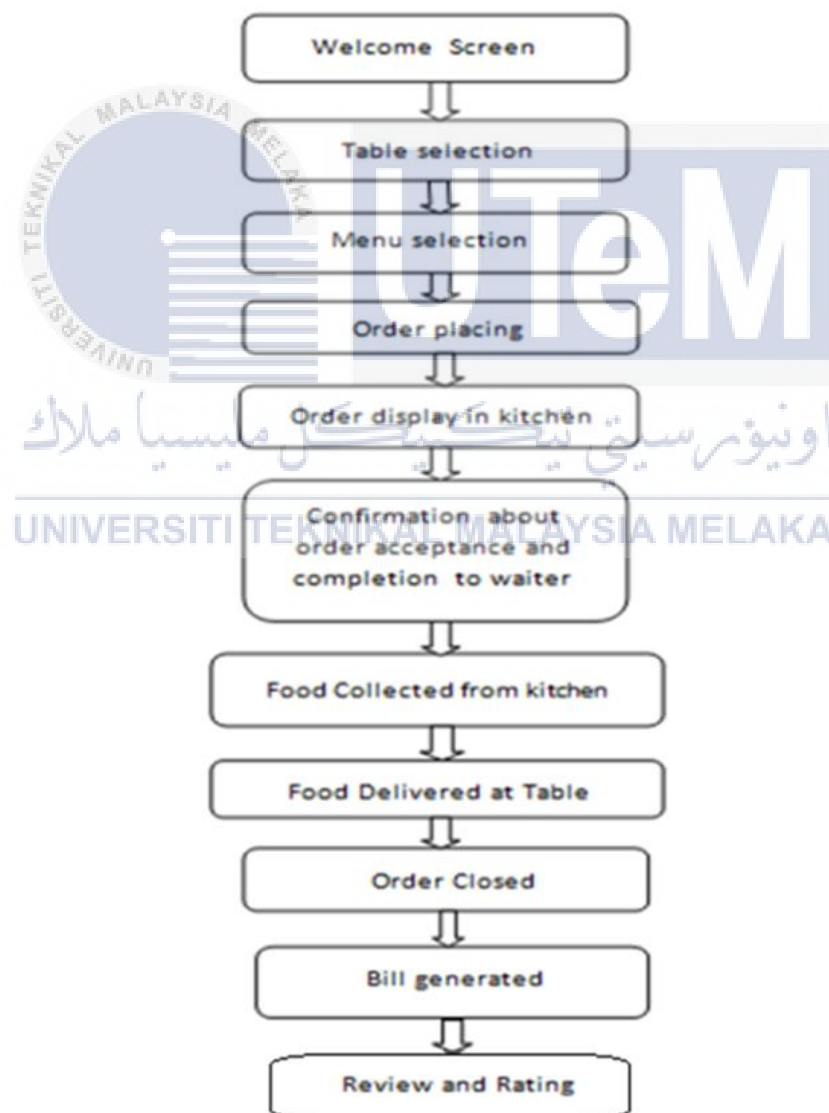

Figure 2.1　Flow Chart of Digital food ordering system for restaurant

After that, the application will carried out the following tasks which were store records, control staff and their shifts, control orders and service, control multiple shifts and billing. The system application is written in Android, PHP, HTML and the datasets are stored in a MySQL database. It was created a web-based application and then used Android Studio to create a hybrid Android application. From the result, this system settings were successful, and the signal was received on both the computer and the mobile device. Application run was successful during testing of the second function, where the software was the primary focus. It comes with real images. The Figure 2.2 shows the connection process for the ordering process between the PC as the administration end and the mobile application in the mobile.
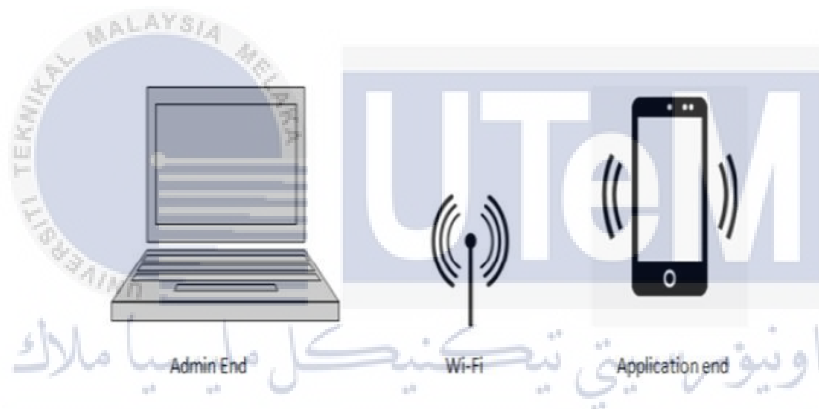

Figure 2.2 The connection between the admin and the application

2.2.2 Android Application in Food Ordering System (cAPPeteria)

(Garcia, Agron and Lim, 2018) proposed "cAPPeteria", a food ordering system where the users can directly order through the application, customize the food quantity, confirm order and generate a one-dimensional barcode on device A which controlled by the user, then the simulated code will be scanned by the device B, and decrypt the information to the image as shown in Figure 2.3. This system using the image processing offer by the barcode scanner to decrypts the data and displayed in human language. (Pariyar, 2015) stated barcodes are the efficient way to encode the machine-readable information on most books

14

and products. The image captured by a mobile's embedded camera device has a distorted shape. To normalise that image an algorithm known as inverse perspective transformation was used. The order can be made anywhere as long as the device used by the customer was connected to the internet connection. The barcode formed will be scanned by the device B in the counter enable the decryption of the data, so that the payment can be made. The database that hosts the information by both admin and kitchen were stored in the Graphical User Interface (GUI) developed under Microsoft Office applications while the application was written in PHP and JavaScript.
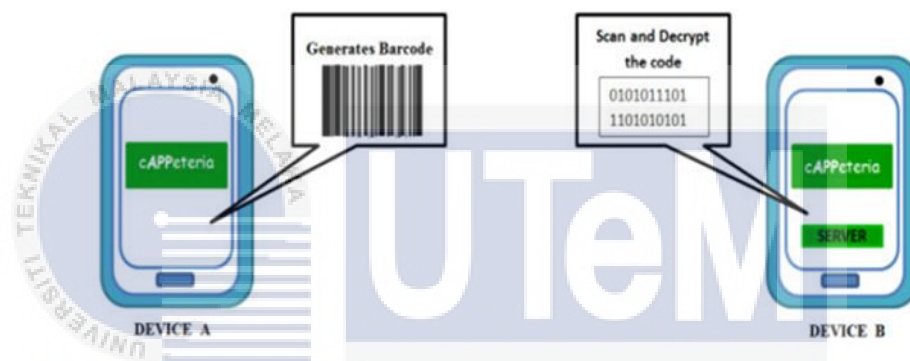

Figure 2.3 Barcode generation and information decryption in cAPPeteria application

2.2.3 Intelligent e-Restaurant using Android OS

(Bharadi, Ranjan and Varma, 2013) developed an ordering system using a tablet menu that suggests dishes which has not been implemented elsewhere. Orders were created one at a time for each customer. Items can also be easily shared by the entire table, moved or modified, and noted, and the cost can be calculated in real time. The mobile device-based service unit allows for the immediate transmission of customer orders to the kitchen for meal preparation via the Internet. Furthermore, the expenditure data can be sent to the cashier for bill pre-processing. The system depicts the components as shown in Figure 2.4 where the

backend is consisting of the web server and the database while the frontends include both the patron which delivered as a native mobile application and the administration or kitchen delivered as a web application This application allow multiple menus for user based on various dimensions. The system application was written in Android, PHP, ORM and the datasets were stored in a MySQL database. OAuth and SSL were used for the security purposes.
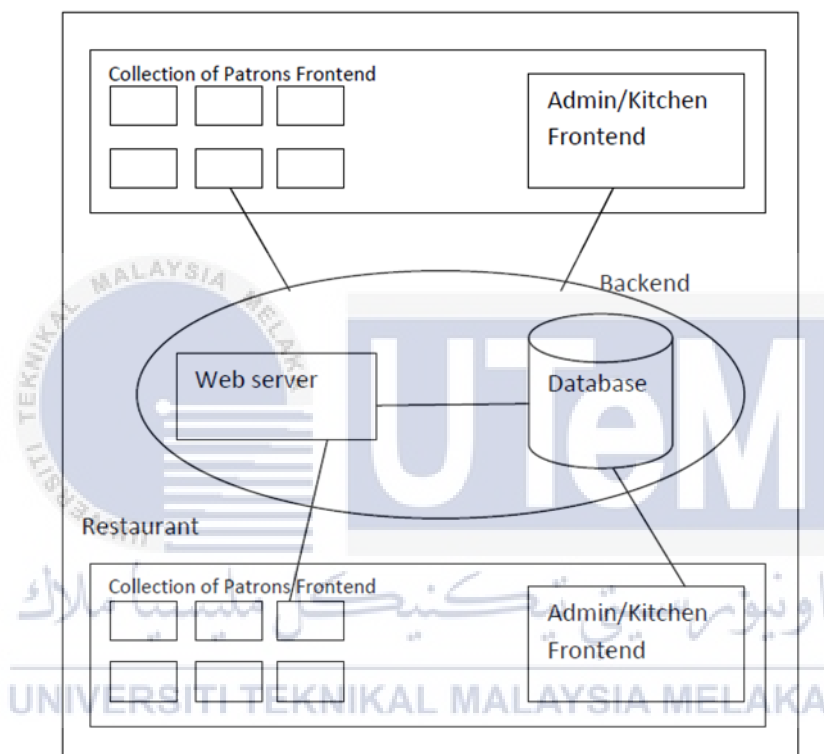

Figure 2.4 The architecture of the Intelligent e-Restaurant System

2.2.4   Digital ordering system for restaurant using Android

Digital ordering system for restaurant using Android (DOSRUA) is one of the application that improve the quality and speed of service which has been developed by (Qamar *et al.*, 2019). This system helped restaurant management by allowing customers to place orders on their own from dining, ordering, payment and feedback. Android smart phone, Eclipse Indigo, JSP/SERVLET, and SQLite were among the technologies used to