



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

RESTAURANT ORDERING AND REPORTING SYSTEM

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Electronic Engineering Technology (Telecommunication) with Honours.

By

MUHAMMAD SYAHEEN BIN TAJUDDIN

B071510503

961011-14-6519

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MUHAMMAD SYAHEEN BIN TAJUDDIN		MOHD KHANAPIAH BIN NOR
Alamat Tetap:		Cop Rasmi Penyelia
NO 60, JALAN TPS 2/12 TAMAN PELANGI SEMENYIH 2 43500, SEMENYIH, SELANGOR		
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DECLARATION

I hereby, declared this report entitled “Ordering and Reporting System” is the results of my own research excepts as cited in references.

Signature :

Author’s Name : MUHAMMAD SYAHEEN BIN TAJUDDIN

Date : 3 December 2018

APPROVAL

This report is submitted to the Faculty of Engineering Technology Electric and Electronic of UTeM as a partial fulfilment of the requirement for degree of Bachelor of Electronics Engineering Technology (Telecommunication) with Honours. The member of the supervisory is follow:

.....

(Mr Mohd Khanapiah Bin Nor)

ABSTRAK

Sistem ini adalah satu sistem pesanan dan laporan untuk sesebuah restoran. Sistem ini dihasilkan bagi mengurangkan masalah masalah utama yang berlaku di dalam sesebuah restoran, contohnya kekurangan kertas, pelayan restoran terlupa akan pesanan yang dilakukan oleh pelanggan, pelayan restoran tersilap menulis pesanan yang dilakukan oleh pelanggan dan pelanggan perlu menunggu lebih lama untuk memesan makanan. Objektif projek ini adalah untuk mengkaji keberkesaan sistem yang sedia ada di dalam restoran, untuk menghasilkan sebuah sistem pesanan dan laporan menggunakan Visual Studio dan untuk mengkaji dan mengesahkan fungsi sistem ini di dalam sebuah restoran. Sistem ini menggunakan dua buah komputer riba yang mengandungi aplikasi yang terhasil daripada Visual Studio dan komunikasi antara dua komputer riba ini terlaksana daripada "TCP/IP Communication". Sistem ini sangat berkesan untuk kegunaan sebuah restoran dan sistem ini mampu untuk melengkap liputan sesebuah restoran.

ABSTRACT

This system is one system that use in a restaurant for Ordering and Reporting. This system is developed to reducing the problem that happen in restaurant for example limitation of the papers, waiter cannot recall the order of customers, waiter mistakenly recording the order and customer need to wait longer for the food. Main objective of this project is to study the effectiveness of restaurant ordering and reporting system implemented currently, to develop the ordering system based on using Visual Studio and to analyse ad verify the functionality of the system. This system uses two PCs as ordering and reporting devices that have been develop using Visual Studio and this two PCs communicating with each other using TCP/IP Communication. This system is effectively for a restaurant because the coverage can cover up one whole restaurant.

DEDICATION

Special thanks to my parents, Tajuddin Bin Hassan and Maimon Aidah Binti Zamberi for supporting my degree life in UTeM. Not forget to my friends for helping me finishing this project and for the encouragement. Finally, special thanks to my supervisor, Mr Mohd Khanapiah Bin Nor for all the guidance and advices.

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CHAPTER 1

INTRODUCTION

This chapter will briefly discuss on the overview of research. This chapter also emphasizes the problem statement, research objective, scope, and the organisation of the whole report.

1.1 Overview of Research

Recently, restaurants in Malaysia are using outdated service for example, they are still using the pen and paper. Even in big restaurants such as Nando's, Boat Noodle and Tony Roma's are behind the time which pen and paper is used as their main ordering system. This outdated service has more disadvantages than advantages. The type of service leads to the waste to the uses of paper and the main problem is, customer need to wait for the foods in a bunch of times. This can cause the satisfaction of the customer decreasing.

Without using the technology, the common problems restaurant owners face is the menu. The customer will need to take time to check for every page in the menu before making an order. One more problem is when owner want to change the price of the food, the owner needs to spend amount of money to edit and change the whole menu. In the other hand, the kitchen has some trouble with the list of order. Sometimes, the kitchen did not understand the writing of the waiter and will wrongly cook the customers' food.

Furthermore, problem that cashier will face is the cashier need to calculate each of the price of the food and it will extend the waiting time of the customer. In addition,

without the restaurant ordering and reporting system, the total amount of ordered food highly probability will be different from the actual amount when the cashier make an error in calculate the total price. This project can be reducing the possibility of human error can that occur.

1.2 Problem Statement

Without the “Restaurant Ordering and Reporting System”, the customer will not be able to get food on time when there is to many people entered a restaurant in one time.

The common problems are:

1. Limitation of the papers.
2. Waiter cannot recall the order of customers.
3. Waiter mistakenly recording the order.
4. Customer need to wait longer for the food.

1.3 Objectives

The objectives that should be achieved from this project which restaurant ordering and reporting system are as follows:

1. To study the effectiveness of restaurant ordering and reporting system implemented currently.
2. To develop the ordering system based on using Visual Studio.
3. To analyse and verify the functionality of the system.

1.4 Scope

Restaurant needed a system that reduce the time taken for customer waiting for the food. Project included software that used in this project. The focus of this project is to develop a Restaurant Ordering and Reporting System using a Visual Studio. The scope of this project is to create an interface named Visual Studio to develop the ordering application in a PCs are act as ordering and reporting device.

1.5 Summary

This chapter mostly covers the background project, problem statement, objectives and scope of the project. The background of the project is relating to decreasing the wasting time of the customer waiting the food. This project is designed to increase the restaurant services by using android application as ordering system.

1.6 Report Outline

This report consists of five chapters. The first chapter is describing the project background, problem statement, objectives and the scope of this project. Chapter 2 discusses the literature review of the project and related works correlate to this project. In addition, in this chapter, various methods and approaches that related to the project are discussed and reviewed. Next, in chapter 3, more into exploring the research methodology used in the project development, including collecting the data and analysis, flow charts and diagrams related to the project. Chapter 4 discusses the results and discussion related to the projects outcome. Finally, the fifth chapter conclude and summarize the overall project implementation, outcome and also include some future recommendation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter's goal is to establish the significance of the theory and fundamentals knowledge of ordering and reporting system of restaurant of the project that has been led by a different researcher in this field of study on the previous years. Based on the literature review, the research and procedure of analysing the scientific will be profited in delivering the result of this project. Hence, the literature review assumes a noteworthy part during the time spend of studying the technical of this project.

2.2 Restaurant's Problem

Foodservice can evaluate the customer satisfaction through varies ways which is service quality and product quality. Employee's attitude plays a big role in maintaining customer's satisfaction (Alhelalat, Habiballah and Twaissi, 2017). (Mishra, Choudhary and Bakshi, 2015) reported that pen and paper are the simplest and it is widely used. Even today, this system is used in every restaurant. The time taken for the waiter to taking the orders is very long although the is very easy.

In this new era, customers are intended to get better services during the ordering phase in a restaurant. The present of human errors when writing the orders with pen and limitation of the papers, this could be delaying the process of the food ordering (Sci *et al.*, 2014). Sometimes, the waiter cannot recall or forgets the order of the customer or the waiter is mistakenly recording the order.

(Mukhopadhyay *et al.*, 2017) stated that many eateries still using papers as menu cards, hindrances will occur when the changes in the menu happen and it will require to

republishing whole menu card even there is a little change in it. The changes of menu card also can increase the wastage of papers.

2.3 Related Work

There are several ways to improve the services in restaurant. According to (Tanizaki and Shimmura, 2017), by remodelling process of restaurant and reducing the vacant seat waiting of crowded restaurant can contribute to improve the management efficiency. This way is more to the structure of the restaurant.

In this project, it is focusing more on technologies. In the past 10 years, the technology in the restaurant changes over time. (Sci *et al.*, 2014) implemented the uses of table pc wireless communication technologies as wireless food ordering system. Based on the Figure 2.3.1, it is shown the architecture of wireless food ordering system using pc touch screen. To easier the sharing of information between client (requester) and server (provider), the system used standard communication method which is TCP/IP.

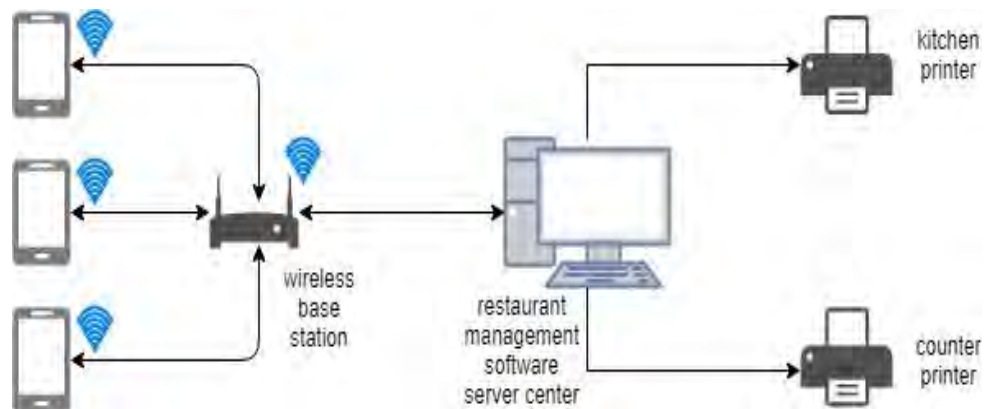


Figure 2.3.1: The system Architecture

An ordering system using an intelligent terminal platform which is android. Android is widely used to develop application. As can be seen in Figure 2.3.2, the information of food for Android client is obtain with the help of third-party server. This type of online ordering system is easier to be update and maintain (Li, 2013). The

Cashier's computer and Kitchen's computer are connected to printer, it can print the customer's order right away after an order has been made.

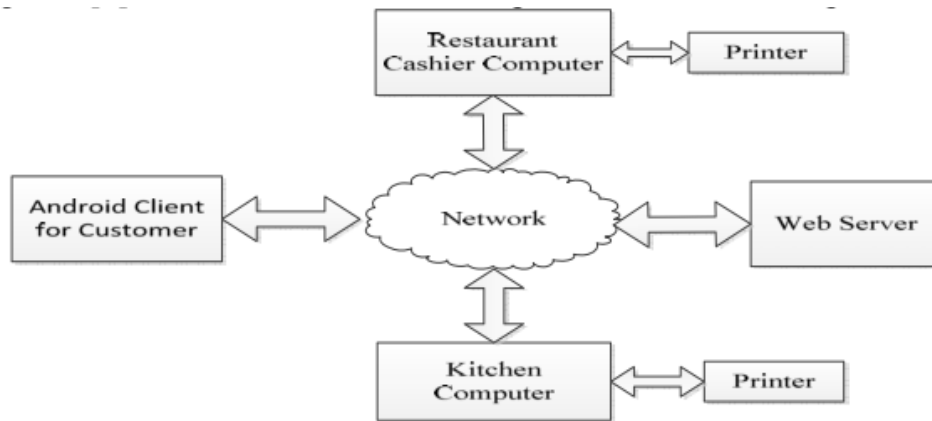


Figure 2.3.2: Structure Diagram of Online Ordering (Li, 2013)

A group of researchers that proposed a project which is “Touch Based Digital Ordering System on Android using GSM and Bluetooth for Restaurants”. Basically, in this research it is focusing on using the GSM and Bluetooth as the medium of wireless communication. This ordering system uses multiple android apps which is Customers App and Restaurant App. The Customers App is made only for customer and at the table which the app is install, it can identify the table number. On the Restaurant App, it is consisting three different type of users and functionalities. The manager has administrative access and can control the entire system. The cashier only can view the order status and the order's price. While the chef can only mark the order when it is ready. The both Customer App and Restaurant App are divided with GSM Layer as shown in Figure 2.3.3. The order from the customers are sent wirelessly via GSM connection to the Restaurant App which is manager, chef and cashier (Mishra, Choudhary and Bakshi, 2015).

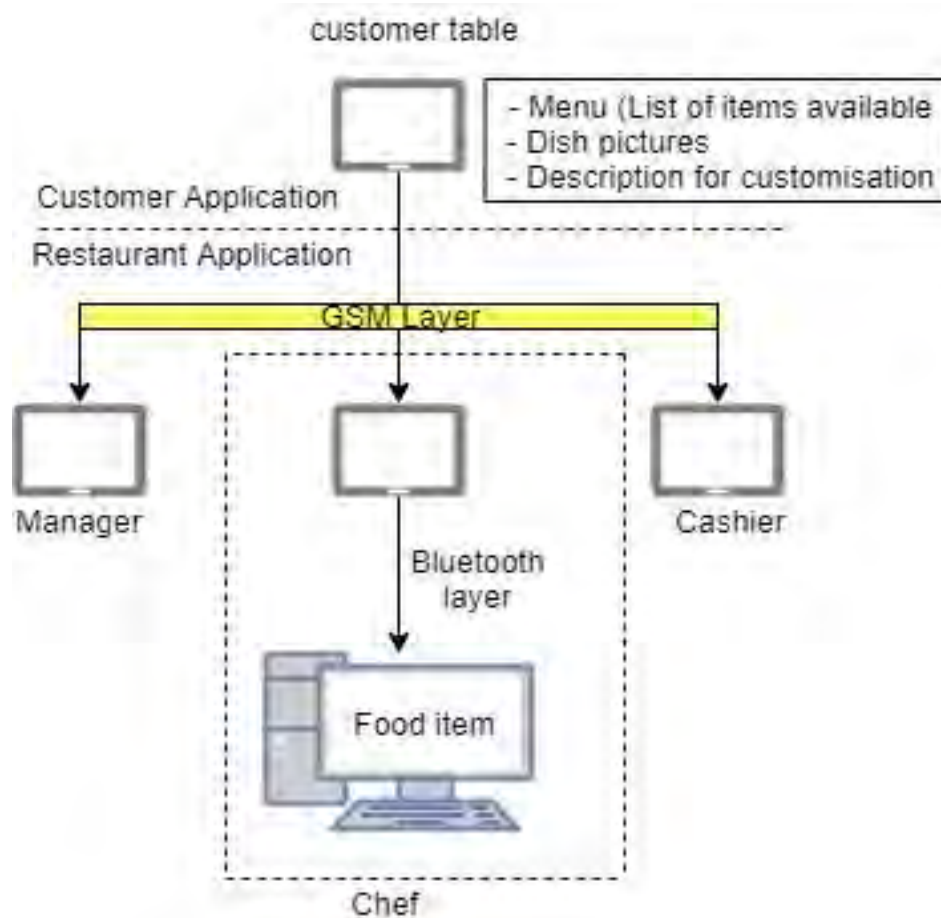


Figure 2.3.3: System architecture for “Touch Based Digital Ordering System on Android using GSM and Bluetooth for Restaurants” (Mishra, Choudhary and Bakshi, 2015)

Next, (Maind *et al.*, no date) proposed a project which is Food Ordering Smart System by using Android based application. Android based mobile devices is used to achieve this project. The researcher stated that this project consists of Wi-Fi module that will allow manager can update of modify the dishes on the online database. By using this application, customer can place a pre-order from anywhere in order to reserve a table.

(Gayke *et al.*, 2017) this paper written by Gayke Deepali, Gorhe Tejashri, Kaur Amnit and Kore Diksha in 2017. The researchers come out with a project to improve a restaurant management that enable the customer to order dishes wirelessly from the table

that accompanied with a smartphone or android tablet. All the devices such as smartphone and android tablet that containing the menu app are connected to the Wi-Fi network.

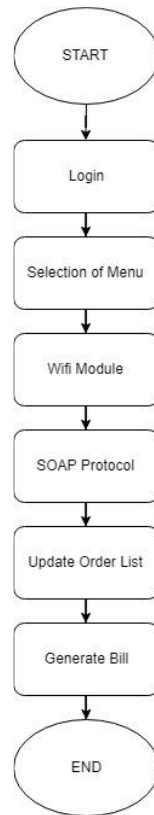


Figure 2.3.4: Flow for Smart Restaurant Management. (Gayke et al., 2017)

The working of the flow above (Figure 2.3.4):

- Login: Details of the customer will be given to the system
- Selection of Menu: Order list of the dishes
- Wi-Fi Module: To transmit the data
- SOAP Protocol: Protocol that allows programs run on difference operating system.

A restaurant named Subaidah located at Melaka International Trade Center (MITC), Melaka used the iOS app as wireless ordering system. The iOS is an operating system that manufactured by Apple Inc. The app is installed in the devices use by the waiter to takes the customers' order. The devices sent the ordered food directly to the

cashier's touch screen PC by Wi-Fi. With this technology, it is easier for the customer to pay for the foods without telling cashier the listed foods ordered.

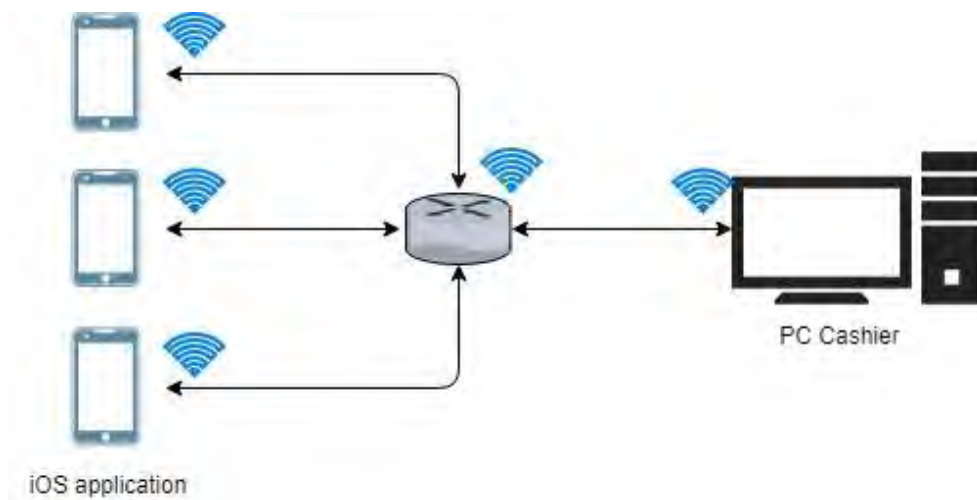


Figure 2.3.5: System architecture in Subaidah Restaurant.

Ameerali is a restaurant located at Seksyen 7, Bangi, Selangor implement the technology of Radio Frequency Identification (RFID) card as part of the restaurant ordering system. The restaurant uses Android app that installed in the mobile devices. The App sent the ordered information to the cashier's PC via Bluetooth and the RFID is act as identification of the customer's table. When paying is occurred, the RFID card is placed on a device connected to the cashier's PC and the PC automatically shows the list of order.

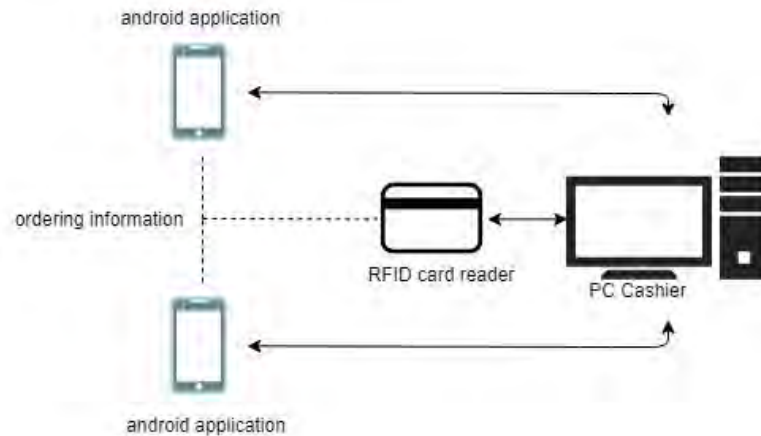


Figure 2.3.6: System architecture in Ameerali Restaurant.

Other research was conducted by Kossonon B. Eric and Wang Hong Ya titled IoT Based Smart Restaurant System Using RFID (Ya and Eric, 2017). This system allowed the customer browse the menu using a touch screen board at the table which is wirelessly connected to the kitchen. The RFID chip that have been register the identity are implanted to the plates thus it can be tracked. The smart table consist the Wi-Fi enabled the device as mentioned above with an RFID reader. The RFID reader is for the plates identify and delivery notify. Figure 2.3.7 below shows he system architecture of IoT Based Smart Restaurant System Using RFID.

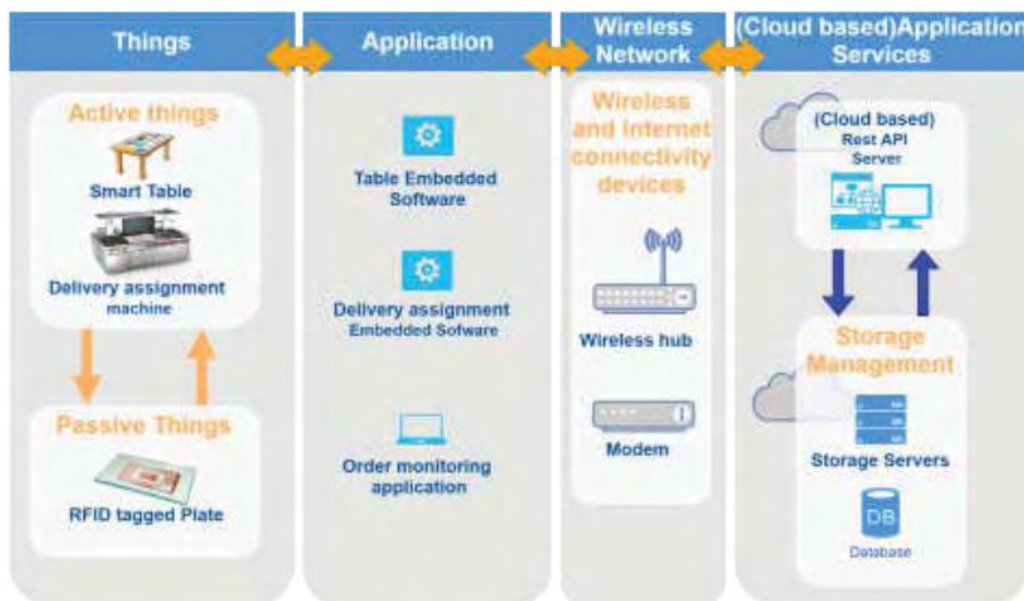


Figure 2.3.7: System architecture (Ya and Eric, 2017).