

# KANBAN FOOD ORDERING SYSTEM

ANDI RAZIF BIN ANDI RAHIM

A thesis submitted in fulfillment of the  
requirements for the award of the degree of  
Degree of Computer Science

Faculty of Computer Systems & Software Engineering  
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**LIST OF ABBREVIATION/ACRONYM**

<b>ABBREVIATION</b>	<b>TITLE</b>
KanbanFOS	Kanban Food Ordering System
FIFO	First In First Out
JIT	Just-In-Time
PC	Personal Computer
CEO	Chief Executive Officer
PDA	Personal Digital Assistant
RAD	Rapid Application Development
CASE	Computer-aided software engineering
WYSIWYG	What You See Is What You Get
XAMPP	X( any Operating System), Apache(Web server), MySQL Database, PHP Language and PERL
MySQL	My Structured Query Language
CRUD	Create, Read, Update and Delete
JSON	JavaScript Object Notation
GPL	General Public License
SQL	Structured Query Language
PHP	Hypertext Preprocessor
HTML	Hypertext Markup Language
CSS	Cascading Style Sheet
APK	Android application package
GUI	Graphical User Interface

CEF	Chromium Embedded Framework
API	Application Program Interface
UI	User Interface
UX	User Experience

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## **ABSTRACT**

The emergence and the growth of mobile devices and wireless technologies in this era has created a great impact to our lives especially in business industries. This project aims to implement these technology to restaurant business industries. This paper discussed the designs and implementations of a customizable wireless food ordering system, “Kanban Food Ordering System (KanbanFOS)”. Currently, most restaurants are still using the traditional techniques of order taking and management. The traditional techniques of order taking and managements was entirely a manual process which is simple yet has numerous downsides. Some of the downsides are, the order taken are not in sequences and the traditional technique is prone to human errors. The objectives of this project are to study the development of mobile-based applications and wireless technology, to develop a wireless food ordering system for the use of restaurants and to test the functionality of the system based on its scopes. The system contains three main modules which are Waiter Module, Kitchen Module and Admin Module. Each of these modules are developed specifically for different types of users, which are Waiters, Kitchen Staff/Chef and Admin/Cashier. Rapid Application Development (RAD) Cycle methodology has been chosen as the software development methodology for this project. The end product of this project has been developed and tested in real situations. The end product has fulfilled the objective of this project and has been distributed to the clients.

## ABSTRAK

Kemunculan dan pertumbuhan peranti mudah alih dan teknologi tanpa wayar di era ini telah memberikan kesan yang besar kepada kehidupan kita terutamanya dalam industri perniagaan. Projek ini bertujuan untuk mengimplimentasikan teknologi ini didalam industri perniagaan restoran. Kertas kerja ini membincangkan rekaan dan perlaksanaan sistem pesanan makanan tanpa wayar yang boleh di ubahsuai, “Kanban Food Ordering System (KanbanFOS)”. Kini, kebanyakan restoran masih menggunakan teknik tradisional untuk pengambilan dan pengurusan pesanan. Teknik tradisional untuk pengambilan dan pengurusan pesanan adalah proses manual yang mudah tetapi mempunyai banyak kelemahan. Antara kelemahan-kelemahannya adalah, pesanan yang diambil tidak berada dalam urutan dan teknik tradisional tersebut terdedah kepada kesilapan manusia. Objektif projek ini adalah untuk mengkaji pembangunan aplikasi berasaskan mudah alih dan teknologi tanpa wayar, untuk membangunkan satu sistem pesanan makanan tanpa wayar untuk kegunaan restoran dan untuk menguji kefungsi sistem berdasarkan skop-skop projek. Sistem ini mengandungi tiga modul utama iaitu Modul Pelayan, Modul Dapur dan Modul Admin. Setiap modul ini dibangunkan khusus untuk jenis pengguna yang berbeza, yang Pelayan, Kakitangan dapur / Chef dan Admin / Juruwang. Metodologi Rapid Application Development (RAD) Cycle telah dipilih sebagai metodologi pembangunan perisian untuk projek ini. Produk akhir projek ini telah dibangunkan dan diuji dalam situasi sebenar. Produk akhir telah memenuhi objektif projek ini dan telah diedarkan kepada klien.

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 INTRODUCTION**

Kanban Food Ordering System (KanbanFOS) is a wireless food ordering system developed in order to provide an efficient and accurate orders management for the use of restaurants. The project's aims is to digitize the current traditional techniques of order taking and management; and improve restaurants' reputation for providing quick and excellent services to customers and also improve the dining experience of its customers.

This system implements wireless data access to servers. There are three type of users for this system, which are Waiters, Chefs and Admin/Cashier. The Android application on waiters' mobile will have all the menu details. This enables the waiters to take orders using their Android-based mobile phone easily. The order details from waiters' mobile are updated wirelessly in the system's central database and is subsequently sent to the kitchen and cashier. The chefs will view the orders using a desktop application while the admin/cashier will view the orders using a desktop application for billing purpose. The admin/cashier can also manage the menu modifications easily.

By using this system, the orders management efficiency and accuracy will be improved. This system will helps restaurants to organize the orders taken by waiters. The orders taken will be in sequence using the method of First In First Out (FIFO), and this



will help to increase customer satisfactions. The application on mobile devices will provide convenience to restaurant, and improving order management efficiency and accuracy. And, it will also help saving time and reduce human errors.

## **1.2 PROBLEM STATEMENT**

The advancements in food ordering techniques has contributed to the increase of competition in restaurant business. Currently, most restaurants are still using the traditional techniques of order taking and management. The traditional techniques of order taking and managements was entirely a manual process which involved waiters, pen and paper. Traditional method of order taking and managements phase are described as follows:

- i. Waiters take orders and write it on orders sheet
- ii. Waiters bring the orders sheet to the kitchen
- iii. Chefs review the orders sheet
- iv. Chefs prepare the orders
- v. Chefs call for the waiters once the orders are ready
- vi. Waiters bring the orders sheet to the cashier for billing purpose.
- vii. Waiters send the ordered food and drinks to the customer

Even though this techniques is simple, there are numerous downside of this techniques. One of them is the orders are not in sequence. Customers that arrived early are sometimes get their orders late and customers that arrived late are sometimes get their orders early. This techniques may also involve human errors in noting down the orders. In results, some customers will be less satisfied with the restaurants' service.

In this project, the problems are investigated according to these questions:

- i. What is the best solution to replace traditional techniques of order taking and management for restaurants?

- ii. What is the best and simplest ways to manage and organize orders and improve the efficiency and accuracy?
- iii. How the Kanban Food Ordering System will be implemented to save time and effort?
- iv. How the Kanban Food Ordering System will help to improve orders management efficiency and accuracy?

### **1.3 OBJECTIVES**

The main objectives of developing this system are:

- i. To study the development of mobile-based applications and wireless technology.
- ii. To develop a wireless food ordering system for the use of restaurants.
- iii. To test the functionality of the system based on its scopes.

### **1.4 SCOPE**

The scope of this project has been researched before the system is built. The scope project is important to make sure the system meets the requirements. The scopes for this project are:

- i. This system is only for the use of restaurants.
- ii. This system implements wireless data access to servers.
- iii. There are three type of user for this system. Which are waiters, chefs, and cashiers.
  - a. Waiters are using Android Applications. Only waiters can place and add orders. Waiters can also check the ordered foods and drinks availability (if and only if the orders are already placed).

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