

# EFFICIENT WAY OF HANDLING THE KITCHEN ORDER

Pranay Meshram\*<sup>1</sup>, Prachi Ramteke\*<sup>2</sup>, Srushti Natiye\*<sup>3</sup>, Pratiksha Lambat\*<sup>4</sup>, Rutuja Wagh\*<sup>5</sup>

<sup>1</sup> Engineer, Computer Science and Engineering, PJLCE, Maharashtra, India

<sup>2</sup> Student, Computer Science and Engineering, PJLCE, Maharashtra, India

<sup>3</sup> Student, Computer Science and Engineering, PJLCE, Maharashtra, India

<sup>4</sup> Student, Computer Science and Engineering, PJLCE, Maharashtra, India

<sup>5</sup> Student, Computer Science and Engineering, PJLCE, Maharashtra, India

## ABSTRACT

The rampant growth of mobile and wireless technology is making a large impact in our lives. Nowadays people are looking forward for an application that satisfies their needs even more comprehensibly. Most of the restaurants industries are looking for any mobile application that enhances the dining experience as well as that increase the profit. This paper presents an easy and more subtle way of communicating to realize a wireless food ordering system. This system, implements wireless data access to the servers and food ordering functions through both desktops and mobile devices such as tablets over a wirelessly integrated local area network. This application runs on devices such as tablets which provides convenience, improves efficiency and accuracy of restaurants by saving time and reducing human errors.

**Keyword:** - Restaurant Management, Recommendation, Tablet, Menu, Intelligent, Android application etc....

## 1. INTRODUCTION

Businesses in hospitality industry based on food services have grown significantly in India. In the last few years where many restaurants have opted for offering various types of menus for the customers, this has increased the competition in the hospitality industry [1]. The restaurants have to provide the best services and maintain relationships with their customer in order to survive in this competition.

In any restaurant when a waiter takes an order from the customer he must write down the order on a piece of paper and then enter it into a computer. The order is then taken to the kitchen, the current system wastes a lot of time as the waiter keeps going to and from the customer. It also wastes a lot of paper since the order must be written down, printed out for the order to be given to the kitchen, and finally a paper receipt must be given to the customer.

With the upsurge in Information and Communication Technology, many industries use web as a medium of exchanging the information. To overcome the problems faced by the restaurants, a wireless application could be designed and implemented in any medium or large scale restaurant. The application is installed on each of the tablets; the customer selects the food from the menu provided to him and gives the order to the waiter. The orders from the customer's tablet are sent wirelessly to the kitchen as well as updated on a central database. The following are some merits of a using such an application:

- Due to the tablets, the waiters need not leave the table to process the order.
- The waiters can spend more time in satisfying the customers and there will be no mixing of order.
- The waiter will know the availability of food, as messages can be sent from the kitchen to the waiter's tablet.
- Status of the ordered food can be checked at any time by the waiter as well as customer.

## 2. RELATED WORK

### Tablet

Tablets are a mobile computer mainly functioned by touching the screen instead of using a physical keyboard. A tablet features both a stylus as well as an on screen keyboard.

### Background

Before developing any application, a comprehensive and systematic research needs to be done so as to target the market needs [6]. A number of wireless applications for restaurant ordering have been analyzed, developed and implemented in restaurants. These have been implemented using PDA's (Personal Digital Assistant), Windows Mobiles or Android Mobiles. Also many wireless technologies are available today. This application is developed specifically for medium and large scale restaurants using Wi-Fi (Wireless Fidelity) system and Android-4.0 as a working platform.

A web based ordering system named CaptainPad [2], is the wireless technology solution for automating the ordering system in the hotels and restaurants. Using a Captain Pad, orders can be sent directly from the table to the kitchen, which ensures that customers receive their orders faster. Developers used MS Dos, Win 3.11, Win95, 98 and Win NT, Win XP, Linux as operating systems, C, C++, Java, XML, HTML and Pl/Sql as programming language and web based technologies like (Java Servlets, JSP, EJB, HTML, XML, Struts, and Hibernate). They also used My Sql and Oracle 8 for databases and for web servers JBoss, Apache and Tomcat. The whole menu is loaded in the CaptainPad device. With the use of CaptainPad the overall efficiency increases.

There are many computerized restaurant management systems available but for each system there exist disadvantages or missing features. The most common type of restaurant management system contains a static order entry computer system usually in the shape of a desktop computer with a touchscreen. Typically this common approach is adequate to the restaurants requirements but still requires handwritten orders to be relayed to the order entry computer system. A table comparing features of existing solutions will be presented in Section 2.3. A slightly different approach was implemented in a restaurant in Nuremberg, Germany, named Baggers [12]. The restaurant utilizes a roller coaster approach to serving the food and an order entry system fully operated by the customer. As reviewed by the BBC [11], there is no need for any waiters as the customers use touch-screen monitors to browse the menu. This new invention can save operating costs, but the initial injection of cash required is substantial as every table requires the necessary hardware.

## 3. PROBLEM STATEMENT AND OBJECTIVE

### 3.1 Problem Statement

In this system customer orders the food by using android based touchpad. Figure shows the system architecture, which cover three main areas of the restaurant: the serving area, the restaurant owner's working desk (cashier table), and the kitchen. Customer first orders the food from the touchpad looking at various combination of food which is further carried to the kitchen for fulfilling the order and the same is passed for billing at the each customer's tablet.

Problem Statement that occurs in the current system in the restaurant are such as follow: The current ordering system for the restaurant uses the traditional method, for taking order is done manually by the waiters it introduces human errors like order mismatch, billing problem, etc. The problems arise to admin/owner during payments because of the order is taken manually by the waiter in a paper. During peak hours the service response time is slow because an order is taken manually by a waiter. Keeping track of empty, clean, and reserved tables within a restaurant. Managers have to analyze hundreds of paper receipts to determine best-selling items, popular hours, and customer satisfaction. They need to re-print the menus when food is not available. This makes it more costly and time-consuming for a restaurant.

### 3.2 Objectives

- To develop android application for restaurant ordering system and provides facility to update the menu.
- To develop a software at kitchen and cashier to receive order from server.
- To establish network for kitchen, cashier and android device and print the bill at customer side.

- Customer should be able to enter the feedback about the service and the food served by e-restaurant android application.
- QR code scanning system
- Higher efficiency, better time and resource management
- Easy to use
- Multiple payment options
- Automatic bill generated
- For placing any orders customers have to visit hotels or restaurants to know about food items and then place order and pay. In this method time and manual work is required.
- While placing an order over the phone, customer lacks the physical copy of the menu item, lack of visual confirmation that the order was placed correctly.
- Every restaurant needs certain employees to take the order over phone or in-person, to offer a rich dining experience and process the payment. In today's market, labor rates are increasing day by day making it difficult to find employees when needed.

#### 4. FLOWCHART

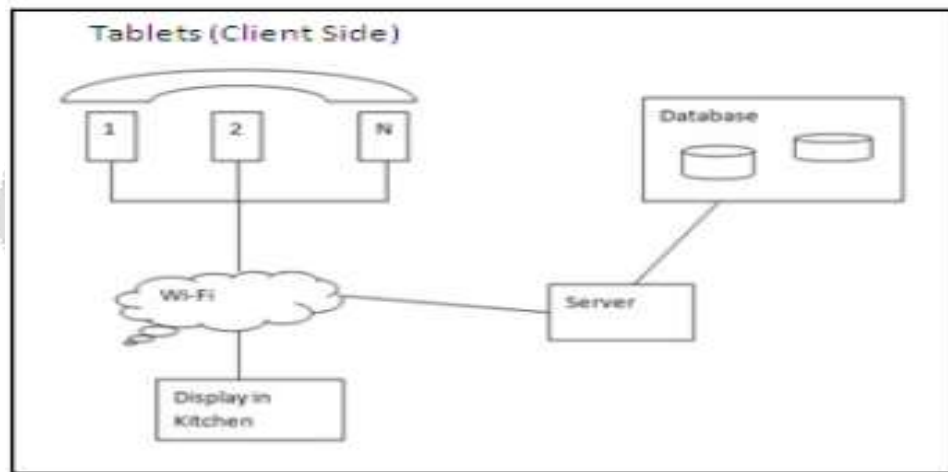


Figure 1. System Flow Chart

#### 5. PROPOSED WORK

Our main aim is to increase the efficiency of the food ordering and reduce human errors and provide high quality services to the customers of the restaurants. The application on the tablets must be able to communicate with the other devices. Fig.1 shows flow chart of the android application. As shown in flowchart below, firstly the customer or visitor will open the application and searches for food item menus from nearby available location of customer.

The customer sees the categorized menu card on the android app. The selection of food items is done by person if He/she visiting our application with or without login and registration module. At this stage, the registered and non-registered.

Persons can add food items in their shopping kart for temporary purpose. If the customer wants to buy selected items then condition will be checked weather customer login is done or not. If login is not done then application will force customer to login first before ordering something.

For performing all activities in project we will create one database consists of all restaurants listed along with their daily food items and costs. Once completing login task, the customer will place order from his nearest searched local restaurants searched via server. After this the verification of customer order will be done by making call given by customer at the time of login registration. After successful verification admin will check is the order is confirmed by customer if not the whole process begins from start.

## 6. IMPLEMENTATION

To implement this purposed system, we have to build an online based food ordering system for the cafes and in this system, and we aim to provide transparency between customers, chief, and managers. Anyone can do signup and order the food and they will also be able to track the status of ordered items we have included two payment modules such as online payment and offline payment as well and it has three different modules such as admin, user, and chief. To build this application we have utilized the Java language as a programming language and we have used the Android studio platform to build the app Sun Microsystems first published Java in 1995 as a programming language and computing platform. It has grown from humble origins to power a significant portion of today's digital world by offering a secure platform on which many services and applications are built. Java is still used in new, innovative goods and digital services that are being developed for the future.

And for the storage purpose, we have used the modern no SQL-based online cloud database which is firebase and it provides runtime interaction with the application Backend-as-a-Service provider Firebase (Baas). It offers a number of tools and services to assist developers to create high-quality apps, expanding their user base, and making money. It is based on Google's technology. Firebase is a NoSQL database application that saves information in JSON-like documents.



Figure: Architecture

**Buyers:** When the buyer wants to order some food from a cafe they can easily go to the application and select the food item as per quantity and order the food and they can select offline or online payment and the system will generate a unique QR code of order and that QR code buyer can refer for order information.

**Admin:** When the Admin wants to add dishes, “Add Product” just needs to be Clicked, on that page, the detailed information of existing dishes will be shown, such as Product Name, Category Belong, Sell Price, etc. and according to that seller can add new food item. Admin is responsible for validating the orders and managing all the food items and prices and is responsible to check whether the user has done payment or and they can cross-check with the chef as well.

**Chef:** The chef is responsible for accepting or rejecting the request of the buyer. After acceptance of the buyers, the chef gets details and the table number of buyers. And a chef can update the order status continuously and the user will get notified once the chef updates the order.

## 7. MODULES

In this system, customers order food using an android-based touchpad in a kind of big way. Figure 1 specifically shows the restaurant's system design, which includes three kind of main areas: the service area, the restaurant owner's working station (cashier table), and the kitchen, which really shows that figure 1 particularly shows the restaurant's system design, which includes three pretty main areas: the service area, the restaurant owner's working station (cashier table), and the kitchen. The key system functionalities in the proposed system are as follows:

#### A. USER MODULE:

##### 1. Login Page



**Figure:** Login Page

First user has to login in the system using correct credentials.

##### 2. Menu Page



**Figure:** Menu Page

After successful login then user has to create an order by selecting the foods he needs to order and place the order.

##### 3. Order Page



**Figure: Order Page**

After placing the order user can review the order and proceed to the payment page.

#### 4. Product Summary



**Figure: Product Summary**

After reviewing the order and doing payment user can track the order by summary page created and get the overall breakup of the bills.

#### 5. QR Page

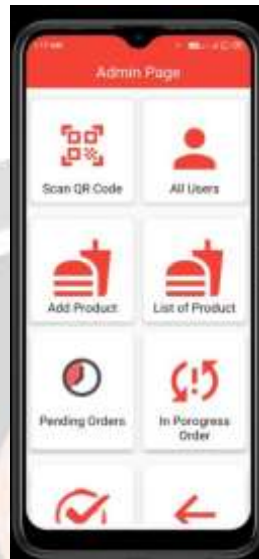


**Figure: QR Page**

QR code will be displayed which contains the order details.

**B. ADMIN MODULE:**

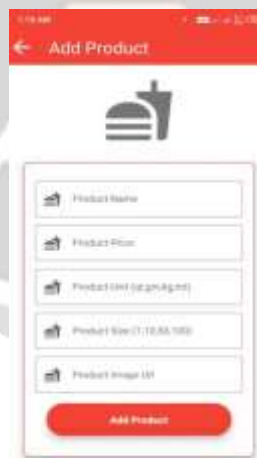
**1. Admin Dashboard**



**Figure: admin dashboard**

Admin can login and access the dashboard and access some major functionalities which can be reflected in the user side.

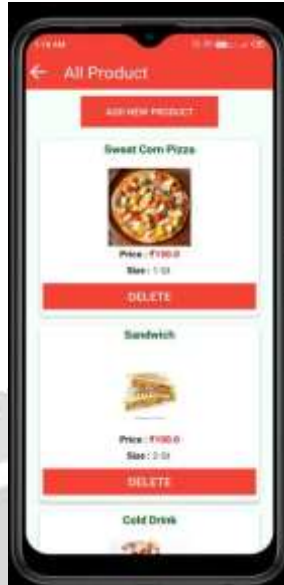
**2. Add Product**



**Figure: Add Product**

In this page admin and add product and that product will be displayed to user.

**3. Product**

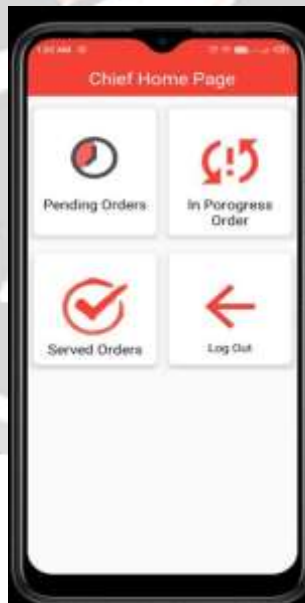


**Figure:** Product

Admin can delete the product and update them as per the new requirements.

### C. CHEF MODULE

#### 1. Chef Dashboard



**Figure:** Chef Dashboard

In chef dashboard chef can check pending dashboard and in progress orders also can check history of serve order.

#### 2. In progress Order





**Figure:** In progress Order

Chef can check in progress order which ones are completed and which ones are not.

## 8. APPLICATION

In future, work can be done on providing provisions to accept different types of payments like credit cards, debit cards, tips, etc. The system can be further extended to register and link multiple restaurants to enhance the dining experience of customers.

## 9. CONCLUSIONS

By implementing this system, it will minimize the number of Employees at the back of the counter. Also the system will help to reduce the cost of labour. As there are lot of orders at the restaurants, there is possibility of human errors during calculations or taking orders. By using this system, such type of errors can be eliminated and controlled up to some level. But by using this system it will be less probable to make such mistakes. Addition to this, this will avoid long queues at the counter due to the speed of execution and number of optimum screens to accommodate the maximum throughput. And last but not the least the system will be available 24 hours for 365 days, because the machine is not going to take any sick or vacation leave.

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