

Smart Phone Application for Menu Card in Restaurant.

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Abstract: *The simplicity and ease of access of a menu are the main things that facilitate ordering food in a restaurant. A Tablet menu completely revolutionizes the patron's dining experience. In this paper we proposed an app that restaurants can use to feed their menus into Android based tablets and make it easier for the diners to flip, swipe & tap through the menu. We here aim to provide the restaurants with a tablet menu that would recommend dishes based on a recommendation algorithm which has not been implemented elsewhere. In addition to this we run the app on an Android based tablet which is more expensive alternative. The e-Menu provides additional information about menu items and drinks than a traditional paper menu. With interactive pictures it gives additional information about the food item. Tablets are said to eliminate order-taking errors from the waiters. In the kitchen, there is less confusion as everything is now written clearly. Developers of similar applications maintain that customers who seat at tables outfitted with tablets spend about 20% more than those at other tables. With the visuals, you know exactly what you're going to get in your plate. The service goes quicker. We use a cloud-based server for storing the database which makes it inexpensive & secure.*

Keywords: *Tablet, menu, Intelligent, Android application, restaurant.*

1. INTRODUCTION

Over the years, technology has tremendously revolutionized the restaurant industry. But much of the innovation has been with point-of-sale (POS) operations. Yet other areas of a restaurant are ripe for innovation, such as the menu. Traditional restaurant service requires waiters to interact with customers directly before processing their orders. However, a high quality recommendation service system would actively identify customers and their favorite meals and expenditure records. There is a famous saying that "People eat with their eyes". The e-Menu provides additional information about menu items and drinks than a traditional paper menu. With interactive pictures it gives additional information about the food item. Tablets are said to eliminate order-taking errors from

the waiters. In the kitchen, there is less confusion as everything is now written clearly. Developers of similar applications maintain that customers who seat at tables outfitted with tablets spend about 20% more than those at other tables. With the visuals, you know exactly what you're going to get in your plate. The service goes quicker. Tablets are said to allow cutting the labor expenses. Customers feel more involved in the process. Restaurants can build their e-reputation and customer community in live. The restaurant menu has evolved from its humble beginnings on carte chalkboards and imageless print to today's detailed, colourful displays. With the emergence of digital tablets and user-friendly touch screen technology menus can move to a whole new surface. With this electronic menu, orders can be taken correctly the first time. There is no need to run back and forth to a distant terminal, because the terminal is always with the server. Every order is associated with an individual seat at the table, and orders are built one customer at a time, just like on paper, but with greater accuracy. Items can also easily be shared by the whole table, moved or modified, and noted and the cost can be calculated in real time. The Recommendation algorithm suggests dishes to the patrons based on previous orders. It makes it easier for the customer to build his/her order and also view the most popular dishes. Moreover, various dimension filters can be used according to individual preferences e.g. Price, taste, quantity, etc. There are several restaurants in Mumbai which have replaced the traditional paper menus with the digitized tablet menu. But none of the apps let the patron place an order directly to the kitchen. The tablet's use is restricted to simple viewing of the menu.

2. Existing Systems

Dominos Pizza App

This is an official Mobile Ordering application of Dominos Pizza India. It allows you to view and use the complete menu and content for the purpose of placing an order directly at Dominos Pizza Restaurants. The application accepts all the valid coupons introduced by Dominos Pizza India only. The delivery promise of 30 minute guarantee is application for all orders placed through this Mobile Application. For more details please refer to information and T&C section while placing your order with the mobile application.

2.1 Conventional Systems

Restaurant services such as making reservations, processing orders, and delivering meals generally require waiters to input customer information and then transmit the orders to kitchen for meal preparation. When the customer pays the bill, the amount due is calculated by the cashier. Although this procedure is simple, it may significantly increase the workload of waiters and even cause errors in meal ordering or in prioritizing customers, especially when the number of customers suddenly increases during busy hours, which can seriously degrade the overall service quality.

2.2 Electronic POS Terminals

A very commonly implemented system, currently being used by numerous restaurants and chains all over the world, is the electronic point-of-sale terminal system. Here, the servers/waiters generally take the order from the customer and head onto a terminal, where they can feed the order into a computer.

2.3 Tablet Based Menus

The current onslaught and popularity of touch based devices, especially the Apple iPad, it did not take long for the tablet based menus to make an entrance in to the market. In their current state, these menus are just a glorified version of their paper based counterparts. The workflow, even with these tablet menus, remains the same as the one mentioned in section or a combination of the previous two. There is very little value addition to the customer and the establishment or its staff. The available technology is definitely not being utilized to its maximum potential. Authors are free to extend the main body text and sections as appropriate with suitable section/subsections. Do not include unnecessary spaces or indentations between or within paragraphs, sections or subsections other than what have been included in this template. Do not use additional styles or font settings other than the use please refer the for further details on font styles and sizes.

3. Proposed System

We propose this integration of touch technology in restaurants based on android technology. It is a wireless food ordering system using android devices. Android devices, in the past few years, have reached the pinnacle of popularity and have revolutionized the use of mobile technology in the automation of routine task in wireless environment.

3.1 System Architecture

The following figure3.1 demonstrates the basic architecture of our system. Understanding the other intricacies and details of the system will become a lot easier if one goes through this figure, before diving into the rest of it. The system will consist of the following main components: The backend, which is made up of the web server and the database, and the frontends that include both the patron frontend (delivered as a native mobile application) and the administration or the kitchen frontend (delivered as a web application). This system is based on the very popular Model-View-Controller (MVC) architecture. MVC is most commonly used in websites, very popular and tried and tested. None of the frontends directly “talk” to the database. They instead rely on REST ful web services that can be used to perform CRUD operations on the database.

3.2. System Overview

The most important components of this system are the database and the patron frontends or the tablet applications. Providing value to both the business and its patron is an important objective, but we believe that one follows the other. Following that belief, the customer is given a whole lot of importance. The following demonstrates the flow of our tablet application the patron will be presented with a tablet, running the Android OS. This tablet will be synchronized with the database running on our centralized cloud powered servers.

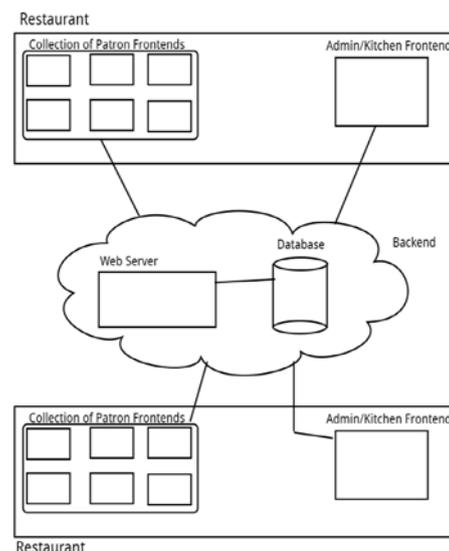


Fig.3.1. System architecture & the main components

The menu data, upon synchronization, is stored on locally on the tablets so that the user, i.e. patron, need not wait for the menu to be downloaded from the servers. This will allow faster access to the menu. The

user can then browse the menu however they want to, sorting the items on various dimensions like price, popularity, ratings, etc. The user can also click through to view more information about any item like nutritional information, ingredients, trivia and any other content that the restaurant administration may feel like including. The user can also view personalized recommendations for items that they may like. This is one of the most important aspects of our system that not only enhances the customer experience but can also help increase revenue for the business. While browsing through the menu, the customer may add items to his/her order. This process is commonly known as “building the order”. After the order is built and read, the user may go ahead and place the order. The staff will automatically and almost instantly be notified about the new order so that they can act on it. If the establishment allows, the user may even track the status of their order so that the customer may know when to expect their food and drinks to land up on their table.

3.3 Comparison of Existing vs. Proposed systems

	Existing System	Proposed System
Operating Systems	iOS	Android
Communication Channel	Communication between the customer & the waiter	Communication between customer & the terminal
Customer identification	RFID used to identify customers Additional hardware required	User accounts maintained in the database server
Server location	Localized server	Centralized server
Exclusivity	Exclusive to every establishment	Can be extended to be used by multiple establishments

4. Technologies Used

The technologies being used to build the system are cutting and largely open source. Open source technologies help in keeping the costs in check, thus enabling the various establishments to use this setup without any cause of concerns with regards to the costs involved. Amazon Web Services has a very effective and inexpensive service known as Elastic Cloud Compute which allows one to setup servers on the fly with the specifications one requires. We will be using the same (or similar) service to keep the costs down and maintain scalability. Android is the name of the mobile operating system made by American company; Google. It most commonly comes installed on a variety of smartphones and tablets from a host of

manufacturers offering users access to Google’s own services like Search, YouTube, Maps, Gmail and more.

5. Conclusion

Many times in hotel we have to wait for a waiter to give our order for food. This creates problem when there is rush in hotel especially in festival seasons and generally on weekends. Main intention of our project is to avoid such problems and to give solutions to such problems. In this project a Touch screen panel will placed on every table. Whenever customers come to their table then they will select the desired order menus from the touch screen. For example: suppose users have selected menu no 1,5,3 so on and once he or she is done then he/she can press enter confirm key. At this time information will be sent to the kitchen of the hotel. All this information will be displayed on a computer display. For this purpose we have used a wireless RF transmitter at the customer table side. And wireless RF receiver at the kitchen side. So orders will be directly sent to the kitchen and users dont have to wait for the waiter. And at the same time LCD will display the total billed amount directly to the user.

References

[1] Tan-Hsu Tan, Ching-Su Chang, Yung-Fu Chen, Yung-Fa Huang, Tsung-Yu Liu, “Developing an Intelligent e-Restaurant With a Menu Recommender for Customer-Centric Service”, Systems, Man, and Cybernetics, Part C: Applications and Reviews, IEEE Transactions.

[2] Tomoko Kashima, Shimpei Matsumoto, and Hiroaki Ishii, “Recommendation Method with Rough Sets in Restaurant Point of Sales System”, PIMECS 2010 Vol III

[3] Ali Akhtarzada, Cristian S. Calude and John Hosking, “A Multi-Criteria Metric Algorithm for Recommender Systems”, CDMTCS-400

[4] M.H.A. Wahab, H.A. Kadir, N. Ahmad, A.A. Mutalib and M.F.M. Mohsin, “Implementation of network-based smart order system,” International symposium on Information Technology 2010.

[5] Cormac O’Connell, Restaurant Assignment.

[6] “QOrder” The portable ordering system for Android devices.

[7] PAR PixelPoint “PixelPoint POS Brochure”, Available <http://www.pixelpointpos.com>