

SMART RESTAURANT SYSTEM USING ANDROID

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Abstract — In most of the restaurants meal ordering is relying on the interaction with waiters to place order into the kitchen. In busy hours of restaurant this coordination is a challenge result in un-satisfaction to the customer. To realize this, Smart Restaurant System is designed. The system covers the whole order process of a restaurant includes the interaction between customer, the waiter, the kitchen and the cashier through android application and desktop based software. The system will also include a database maintaining the record of employees. Digital Smart Menu could be replacement to paper-based menu. We conducted a survey concerning perception of paper-based menus and their expectation to digital menus. The digital menu will provide interactive user interface with which user will easily place his order by itself.

Index Terms — Interactive User Interface, Intelligent Restaurant Systems, Digital Menu, Smart phone, Wireless food ordering system, Mobile application.

I. INTRODUCTION

Restaurants nowadays need to be able to serve food in relatively short time frame to large number of people in busy hours in order to survive. Manual Food Ordering System uses waiter to take order from customers. During rush hour, customers may be too many to be served by waiters. The quality of the service may drop thus causing unsatisfactory of customers. However, if there are too many waiters are hired, it may be a waste of resources during non-busy hour.

The Smart Restaurant System allows customers to choose their desired food via the menu shown on the screen of Tab. The choices made by the customer will be sent to a kitchen assistant. The digital menu will simply provide 4 operations i.e. menu, food ordered, confirm and bill request. If the menu is selected, it will go to the food menu screen, customers can choose the type of food they wanted to order, that is food(Veg. or Non-Veg.), dessert, drinks, etc. When a food is clicked, the photos and description of the food will be display. Customers will be able to choose everything they wanted and select.



confirm. The confirm screen will pop out to repeat what they ordered. They will be required to press the confirmation button and the list of the food they ordered will be send to the kitchen. After the meal is over, customer will send a request for bill by Bill Request.

II. LITERATURE SURVEY

[3] It elaborates a method of how smart menu can be used in a restaurant system to remove a bottleneck of current paper-based menu in restaurant. This paper is narrated by S. Pieska, M. Liuska and J. Jauhiainen. This paper shows the result of online survey which significantly shows that peoples are not satisfied with paper-based system. Intelligent restaurant system are on interesting application area for merging and extension of cognitive capabilities with both intra-cognitive and inter-cognitive communications.

[1]This paper describe the Touch based Digital Ordering System on Android for Restaurant by B.K. Mishra ,B.S. Choudhary and Tanmay Bakshi . This works aim to substitute the traditional pen and paper method by automating the food ordering process in restaurant and thus improving the dinning experience of customer.

This paper proposes an digital system that uses wireless communication, a centralized database and an android application to place the order without even waiting for waiter. The android application installed in the touch screen device ,fitted at the table ,contain all the menu details with picture of items. Their are different components use to make this system that are android operating system , touch-screen tab ,desktop based operating system.

[4]This paper describes the smart phone based menu system for immersive virtual environment by S. Gebhardt ,S. Pick ,T. Oster and T. Kuhlen. For immersive virtual environment(IVRs) ,system control interfaces are often realized as context menus that can be implemented in several way. One approach is the use of handheld devices , like smartphones, to provides users with a 2D GUI that is used to manipulate system.

This paper describes how mobile menus system was developed in order to provide a generic , easy to use and platform independent menu system for VR applications. This smart mobile menu can be easily integrated in any VR or also non-VR application and that it is intended to work with all modern smartphones.

[2]This paper provides a wireless food ordering technique along with customer's feedback for restaurant by Noor Azah Samsudin, Shamsul Kamal Ahmad Khalid, Mohd Fikry Akmal Mohd Kohar, Zulkifli Senin, Mohd Nor Ihkasan. The CWOS-RTF enables restaurant owners to setup the system in wireless environment and update menu presentations easily. The aim of the system is to obtain the customer's feedback after serving the food, which will ultimately help the restaurant owner to improve the quality of their food as well as service.

[5]This paper elaborates the requirements of users and design guidelines for digital menus used in restaurants by Pascal Lessel,Matthias Böhmer,Alexander Kröner,Antonio Krüger,In this paper authors presented results from three different studies(Online Survey, Interview with restaurant employees and Prototype)on digital restaurant menus.The online survey showed that, albeit most people are satisfied with paper-based menus.At the same time, restaurant employees stated that additional functionality could help guests to choose a dish, especially for health-related decision making.The prototype evaluation revealed that nearly all participants preferred digital over paper-based menus. Even more, participants preferred the prototype designed as full application.

III. SYSTEM ARCHITECTURE

Architecture of Smart Restaurant System consists of different modules.

A. Admin Application

Admin application is basically desktop based application which serves a different responsibilities of administrator like a.Add/Manage dishes , b.Add dish details/Images, time req. ,Recepies) , c. Add/Manage employee details(Name , Add. ,

Age , Salary , Designation). IDE used for this application is Netbins and development language is JAVA.

B. User Application

User/Table application is an android application.

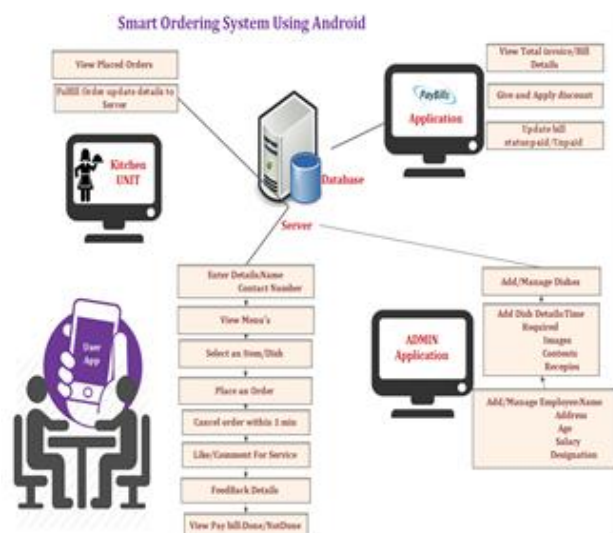
This application provides user friendly GUI to users

ADT bundle(Eclips) is an IDE used for this application and development language is Android.

It provides menu cards in digital form. It also has different options such as a. Details of Customer , b. Digital Menu Card. C. Place an Order. d. Feedback , e. Pay bill.

C. Kitchen Unit

Kitchen unit is basically desktop based application which displays placed orders to kitchen team. IDE used for this application is Netbins and development language is JAVA. It also has an option to fulfill order update details to server.



D. PayBill Application

Paybill application is basically desktop based application which serves a different responsibilities of cashier like a. Total bill details, b. Give Discounts, c. Update bill. IDE used for this application is Netbins and development language is JAVA.

IV. MANUAL PAPER_BASE MENU

Manual Food Ordering System uses waiter to take order from customers. During busy hour, customers may be too many to be served by waiters. The quality of the service may drop thus causing unsatisfactory of customers. However, if there are too many waiters are hired, it may be a waste of resources during non-busy hour.



V. DIGITAL SMART MENU

The Touch Pad allows customers to send food orders directly to the kitchen. Each table has its own image projector, projecting the menu on the table allowing customers to make an order by touching the table surface. The Digital Smart Menu using Android application allows customers to choose their desired food via the menu shown on the screen of Tab.



Digital Smart Menu is having number of advantages over earlier traditional methods such as Pen & Paper method and PDA-based system etc.

VI. ANDROID SOFTWARE DEVELOPMENT

Android software development is the method by which new android applications are created for the Android O.S. Applications are usually developed in the Java programming language using the Android Software Development Kit, but other development tools are available.

The Android software development kit includes a comprehensive set of development tools. These include a debugger, libraries, a handset emulator based on documentation, sample code, and tutorials. Currently supported development platforms include computers running Linux (any modern desktop Linux distribution), Mac OS X or later, Windows XP or later. Android is a Linux-based operating system primarily designed for mobile devices such as smartphones and tablet computers utilizing ARM processors. A secondary target for the light weight operating system is embedded systems such as networking components, smart TV systems including set top boxes and built in systems and various devices as varied as house hold appliances.

VII. FUTURE SCOPE

In future this system can be extended for lodge management, Pre-booking of table & parking , Home Delivery option. In future, the ordering system can also be made to be speech recognize ordering system.

VIII. CONCLUSION

Smart Restaurant system is compared with earlier traditional methods such as Pen & Paper method and PDA-based system etc. This will remove the manual process of food ordering and thus reduces the number of restaurant staffs saving cost of labor to a great extent. In future, the ordering system can also be made to be speech recognize ordering system. The user can just say the thing they wanted and the computer will automatically order for them.

IX. ACKNOWLEDGMENT

The authors would like to thank the MINT Social Media for allowing them to carry out this research.

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