Touch Based Digital Ordering System Using Android And Wi-Fi For Restaurents

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Abstract **- The research work aims for the betterment of hospitality industry by incorporating technology. In Touch based digital ordering system, it is discussed about the design and implementation of digital dining in restaurants using android technology. The system is a basic dynamic database utility system which fetches all information from a centralized database. The tablet at the customer table contains the android application with all the restaurant and menu details. The customer tablet, kitchen display and the cashier counter connects directly with each other through Wi-Fi. This wireless application is user-friendly, improves efficiency and accuracy for restaurants by saving time, reduces human errors and provides customer feedback. The automated food ordering systems is less expensive as it requires a one-time investment for gadgets.**

Keywords—Wireless Food Ordering, User-friendly, Android App, Tablet, Wi-Fi, Customer App, Restaurent App.

I. INTRODUCTION

A touch based digital ordering using an android application is proposed to automate the food-ordering process. The system provides an attractive user interface through the android application. It also provides the images of all the menu items along with their prices so that it becomes easier for the customer to order. It has the facility to give customized personal message to the manager for the food order. It allows the customer to give feedback to the manager. It also allows the customer to call a waiter, using the android application for help. The system makes the dining experience of the customer much more convenient than before. System provides a functionality to get real time feedback from customers and allows managers to announce various offers or special food items instantly through the app. The system becomes easy to use for managers also. Since the menu lists and transactions of food items are stored in a centralized database, it becomes very easy for managers to analyze the best-selling items by getting those values from the database. The system is cost effective, as it only requires one time investment in installing android device at each table. Since this automates the food-ordering process in a restaurant, it therefore reduces the manpower that saves a lot of money of the restaurant.

II. LITERATURE SURVEY

The automation system is used to capture the food order from guests ranged in many forms but mostly comprise of an electronic device with a screen presenting the menu.[1] The disadvantages of the system was the user interface of the system is not so attractive. At the peak time, if large number orders the menu there would be problem in the system and can't manage the orders.

Online Food Ordering System using Web Based Application system was built using Zigbee Technology.[2] ZigBee is not secure as well as the coverage is limited and hence cannot be used as outdoor wireless communication system. It can be used in indoor wireless applications.

Electronic Menu card For Restaurants system was computer based food ordering.[3] When customer enters the restaurant, he has to orally tell the orders to the waiter. After placing the order the customer has to wait in his table. The waiter sends the order to the chef in the kitchen. If a large number of customers come in the restaurant then it would become difficult for the waiters to take the orders from each customer and send to the kitchen.

III. PROPOSED SYSTEM

The propose system design touch based digital ordering systems for restaurants using Android, Wi-Fi and GSM. The system provides an attractive user interface through the android application and removes the manual process of food ordering. It reduces the number of restaurant staffs saving cost of labour to a great extent.

i. System Architecture

The system consists of four different areas:

- Customers Dining Area
- Manager Area
- Kitchen Area
- Cash Counter

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Customers Dining Area - The customers dining area contains android touch device installed on every table. These devices have an app already installed in them and they will be always open. The app has an attractive, simple and user-friendly interface. It contains the list of all the food items available at the restaurant with their images. It also has a feature to call a waiter, at any time, for help by just a click. Customers can also write a brief description about their preference towards the food items and also can give reviews.

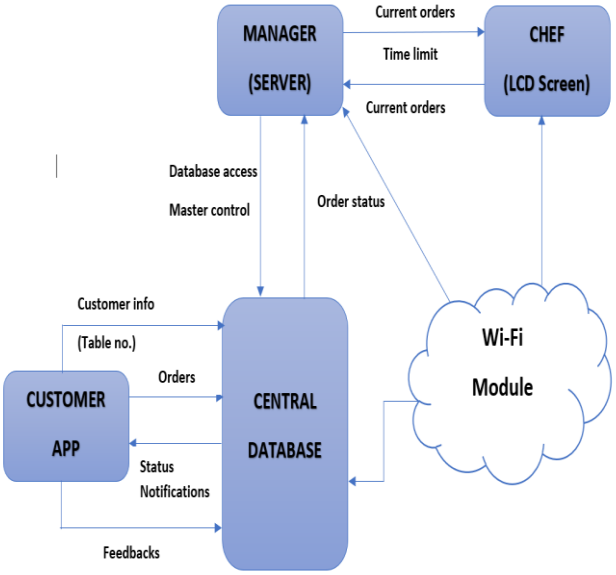

Fig. 1 System architecture

Manager Area – There is a separate android application for manager. Manager has access to the order details of each and every tables of the restaurant. From this app he can identify all the empty tables and the reserved tables too. He can also send any personal message to any customer at a particular table via the app. He edits or updates the menu list through the app after which the menu list gets updated in the centralized database and is then reflected in the customers android app. The app also allows the manager to announce any special offers on a particular day.

Kitchen Area – The kitchen area contains a LCD screen in front of the chef. The screen displays the ordered items along with the table number. When a customer places the order, it is sent via wireless GSM to the server and stored in the database. Then the chef prepares the order and when the order is ready, he marks it completed on the app. The manager then gets notified through his app by the chef and can ask the waiter to serve it on the particular table.

Cash Counter Area – The cash counter area has 'read' access to view the orders which are being placed on various tables. The job of this application is to collect order placed table wise and prepare bills at the end of the meal for the customer.

ii. System Design

The manager/administrator logs into the system, through the restaurant app. and updates the available menu items along with their prices. He also advertises the various offers of the day. He has a list of all empty and the reserved tables. On arrival a customer is assigned one of the empty tables from where he can access his own application. He then selects the items through the app and places the order along with the description for customization of dishes. Order is sent wirelessly via GSM connection to chef in kitchen, manager and cashier. Manager can update the status of order. Customer can also view their order status in their app. When order is ready, chef notifies manager through the app about completed order. Manager then asks waiter to serve order at appropriate table. After having food, the customer gives the review through app and then he can pay at cash counter.

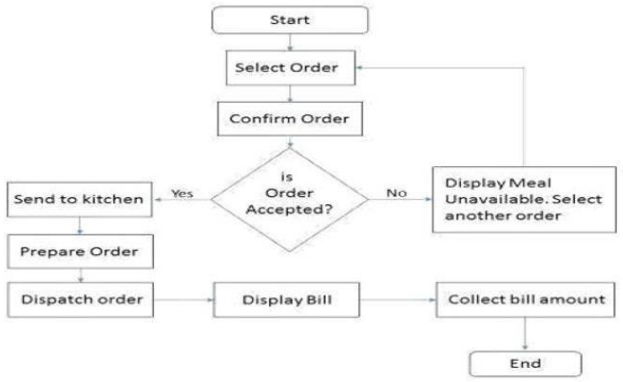

Fig 2 System Flow

The requirements used to make this system are:

Android Operating System - Android is a Linux-based operating system designed primarily for touchscreen mobile devices such as smartphones and tablet computers.

Touch screen - Touch screens are a clear sheet of plastic with tiny sensors that detect pressure from either a fingertip or a pointing device.

LCD – It is Liquid Crystal Display. In the proposed system, LCD is used to display the orders along with table number to the chef; so, it should be big enough to accommodate the textual information of the order on screen.

Arduino - Arduino is a tool for making computers that can sense and control more of the physical world. It is used in the system to connect chef's android device to LCD screen via Wi-Fi.

GSM – GSM is used as a means of wireless communication in the proposed system.

IV. CONCLUSION

The system removes manual process of food ordering and thus reduces the number of restaurant staffs saving cost of labour to a great extent. Implementing this system only requires one time investment in installing the necessary

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devices in the restaurant. It saves human errors to a great extent as this whole process is automated and does not involve manual pen and paper methods. It also saves time by making the food ordering process independent of restaurant staffs. Since this system makes the food ordering fast, it prevents forming of a long queue in front of the counter. Manager can use his app and database transactions information to determine the bestselling food items, peak hours of restaurants and hence can increase the productivity and revenue of his restaurant. The customers can also give reviews through the app that helps manager to get the dining experience of the customers and remove the problems faced by them. System provides customers a convenient, user friendly and attractive user interfaces with images of every food item, through which he can easily place an order without any difficulties. The system brings advancement in the field of food industry by automating the system through mobile and wireless technology. It has the potential to attract customers and changing their dining experience in a better and efficient way.

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