RESTAURANT MANAGEMENT SYSTEM

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Abstract: By providing a customer-friendly online meal ordering platform, our technology addresses the shortcomings of traditional queening systems. It makes it easy for customers to order food from restaurants and mess services. The technology enhances the process of receiving customer orders by providing an online food menu that makes it easy for customers to select what they want and track their orders. Additionally, patrons have the option to review the food they have consumed, which aids hotel staff in identifying areas for improvement. The system can also recommend restaurants and accommodations based on user reviews. There are options for online or pay-on-delivery payment methods, and each user has an account, guaranteeing safe ordering with distinct IDs. And passwords.

Keywords: food ordering system, dynamic database management, and smartphone.

I.   INTRODUCTION

The restaurant industry has been greatly impacted by technological advancements, particularly in point-of-sale processes. E-menus are changing how customers interact with menus by providing them with more thorough information about menu items and beverages than traditional paper menus. The ordering process is now more convenient and user-friendly as a result.

E-menus offer more benefits than just improving the ordering process. Restaurants can now build their online reputation and engage with customers in real time. Thanks to digital tablets and touch screen technologies, menus have evolved from simple chalkboards and printouts to complex and colourful displays. Orders can be taken exactly the first time, saving servers from having to run back and forth to a distant terminal. E-menus also make it possible to associate orders with particular table seats, which improves accuracy and reduces errors. Real-time cost calculations are possible, and order modifications are easy to make. Recommendation algorithms, which can even make dish suggestions based on previous orders, make it easier for customers to view the most popular dishes and build their orders. Price, taste, and quantity are just a few of the filters that can be used, depending on individual preferences.

In conclusion, e-menus have transformed the restaurant industry by providing patrons with more comprehensive information and expediting the ordering process. They have also enabled restaurants to improve their online reputation and engage with customers in real time.

II.   LITERATURE SURVEY

[1] A snack organizing scheme has been developed in order to organize the process of detecting orders in different outlets. The system is built to efficiently handle customer orders by providing the choice to order pre-set parts or custom-make orders with a single click. For tablet computers, the entire thing has been implemented as an Android application. The display control application was created with Java and Android, and the back end advertises a MySQL table.

[2] The system makes the assumption that consumers will use cellphones to place their orders. When the customer gets to the store, they can show their fully preserved order on the screen of their smartphone. An order sheet will be impressed for additional handling following approval. On the cooking food screen, the pre-selected article list will expand or fan out. Customers can place preorders more easily with this solution, making it a more convenient choice.

[3] A mathematical dining arrangement for inns was created and put into use to advertise Android devices. This structure is stimulated by a critical table serviceability that pulls all the relevant information out of a condensed table. It has been demonstrated that the practical request reduces human error while increasing joint movement skill and accuracy. This structure has overcome the shortcomings of earlier mechanized fare arranging structures and only requires the best quality-period device. According to Netting Tasks Electronics, inn management strategies are combined with

[4] A number of inn spreadsheet strategies that enable the integration of the Digital Hotel Management arrangement between the Ordering System, Kitchen Order Ticket (KOT), Billing System, and Customer Relationship Management plan (CRM). Due to its compatibility with the addition or expansion of lodging operating system architecture, this

resolution is appropriate for certain lodge chains. The study's objective, as stated in

[5] Find and design a Wi-Fi drink holder that dining rooms can use. The Wireless Ordering System (WOS) was developed and expanded in tandem with a concerted effort to create something that will attract mechanics movements, plans, design, functions, constraints, and advice. Pd is meant to be used as a portable ploy by the authors. As they become more common in hotels, widespread applications like WOS will enhance more and more primary finishes for restoring administration effectiveness, minimizing human error, and improving the department's customer service attributes. In

[6] A Wi-Fi cooking organizing scheme and a consumer response plan were created and put into use for use in saloons. This order undoubtedly starts bureaucracy in a Wi-Fi environment and enables the outlet partner to restore card performances as desired. Additionally, the system integrates cellphones into a customizable menu arrangement plan and uses honest-opportunity client response to enable real-time suggestions between dining room landowners and their clients. The study's objective, as stated in

[7] search for and analyze the elements that influence the opinions of Turkish Academy students who connect to the internet via computer networks. The authors did this by using the Technology Acceptance Model (TAM), initially created by Davis in 1986 to examine the maintenance of netting-located atmospheres for food arrangement. In addition to TAM, the authors found that novelty, trust, and extrinsic factors were important model determinants.

[8] The study aims to automate the meat authorization process in establishments and increase consumers' overall eating awareness. The authors present a compelling argument for inns to provide Wi-Fi dossiers to their servers. The system's Android application stores all cuisine assessments and allows customers to place orders wirelessly using their portable devices. The main table has been updated because the cashier and food preparation room accept these order analyses. Furthermore, there is no doubt that the hotel partner can alter the card using this whole.

[9] Focuses on the works created by cafeteria holders to choose news and ideas sciences to a degree PDAs, Wi-Fi LANs, and damaging multi-touch screens. A low-cost touch screen-based restaurant management system that can be used with an Android smartphone or tablet is also offered in the article, along with a discussion of the drawbacks of using outdated paper-based and PDA-based food ordering systems.

III. METHODOLOGY

3.1 Synopsis

The methodology explains how the Restaurant Management System (RMS) was designed, developed, and put into use. The project aims to create an efficient, user-friendly, and automated system to handle restaurant operations like order taking, billing, kitchen management, and report production. The Agile software development methodology was used to ensure flexibility and continuous improvement throughout the development cycle.

3.2 System Design

The RMS was designed using a modular architecture, where each module handles a specific restaurant operation. The major modules are:

1. Customer Module: Allows customers to view the digital menu, place orders, and request services directly through a digital interface or mobile app.

2. Waiter Module: Displays active tables and customer orders; allows waiters to update order status and communicate with the kitchen.

3. Kitchen Module: Receives real-time order notifications, displays order details, and updates the order status after preparation.

4. Billing Module: Automatically generates bills based on orders and applies taxes or discounts.

5. Admin Module: Enables restaurant managers to view daily reports, track inventory, manage staff accounts, and analyze performance.

3.3 Development Methodology

The Agile Software Development methodology was used:

1. Requirement analysis: gathered requirements from restaurant staff and management.
2. System Design — created UI mockups, Data Flow Diagrams (DFD), and ER diagrams.
3. Implementation: Following an iterative development process, modules were integrated.
4. Testing: Performed system, integration, and unit tests.
5. Installation and Maintenance: Set up on a cloud or local server.

IV. RESULTS

A restaurant management system development and implementation project was successfully finished. Among the crucial restaurant operations that the system efficiently manages are table reservations, menu management, order processing, billing, and customer data handling. The completed system achieved the following results:

✅ **Streamlined Operations:** By automating order taking, billing, and record keeping, manual labor was reduced.

✅ **Improved Accuracy:** Errors in order management and billing were decreased by utilizing a digital interface.

✅ **Better Customer Experience:** Happy customers were the result of accurate service and speedy order processing.

✅ **Centralized Data Management:** Orders, menus, and customer information are all stored in a single database for reporting and convenience.

Staff and administrators can browse and perform their duties with ease thanks to the user- friendly interface, which requires minimal training.

V. DISCUSSION

After the RMS was put into place, restaurant efficiency dramatically increased. Automation reduced human labor and order delivery errors. Real-time data synchronization between the billing, kitchen, and customer devices improved coordination and decreased delays. However, system performance is impacted by internet stability and device maintenance. Future enhancements could include mobile payment integration, AI-based demand forecasting, and cloud data analytics for large restaurant chains.

VI. CONCLUSION

Among the crucial tasks that the restaurant management system efficiently automates are order processing, invoicing, and reporting. It improves service quality, reduces errors, and boosts operating efficiency. The system's scalability and flexibility make it suitable for restaurants of all sizes. Future studies can focus on integrating AI features, predictive analytics, and customer feedback systems to further enhance restaurant performance.

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