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Automated Restaurant Management System

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Abstract: ***The Restaurant Management System will provide the user a new experience in the restaurant. It will allow a manager and an owner to store the data and transactions made by customer. The System will allow user to order the food by scanning QR code placed on the table. It will manage the employee master and stock details and also produce the bill receipt a per the customer convenience(i.e. via Whatsapp, Email, SMS). It will manage the workload of chefs also. That will be very beneficial for the restaurant to give more better service to their customer.***

I. INTRODUCTION

In the ever-evolving world of technology, restaurants are embracing automation to streamline their operations and enhance the dining experience for customers. An Automated Restaurant Management System with Online Payment and Digital Menu Card is a cutting-edge solution that revolutionizes the way restaurants manage their operations and interact with customers.

This advanced system combines the power of automation, online payment integration, and digital menu cards to create a seamless and efficient dining experience. Let's take a closer look at the key features and benefits of this system:

Automated Operations: The system automates various restaurant operations, such as order management, inventory tracking, table management, and staff scheduling. By digitizing these processes, it minimizes manual errors, reduces wait times, and increases overall operational efficiency.

Digital Menu Card: The digital menu card replaces traditional paper menus with an interactive and visually appealing digital interface. Customers can browse through the menu, view detailed descriptions, check ingredient lists, and even see real-time images of the dishes. This feature enables customers to make informed decisions and enhances the overall dining experience.

Order Customization: The system allows customers to customize their orders based on their preferences or dietary requirements. They can make modifications to dishes, select portion sizes, or add special instructions, ensuring their orders are prepared exactly as desired.

Seamless Integration: The Automated Restaurant Management System can seamlessly integrate with other restaurant This work was equally contributed by the first four authors and was supervised by Dr. Satish N Gujar technologies and third-party services. For example, it can synchronize with a POS (Point of Sale) system, online food delivery platforms, or customer relationship management (CRM) software, providing a unified platform for managing various aspects of the business. Data Analytics and Insights: The system collects and analyzes data from various touchpoints, such as customer orders, feedback, and transaction history. This data can provide valuable insights into customer preferences, popular menu items, peak hours, and overall business performance. Such insights enable restaurant owners to make data-driven decisions, optimize their menu offerings, and enhance customer satisfaction. Enhanced Customer Experience: By leveraging automation, online payments, and digital menu cards, this system enhances the overall customer experience. It reduces waiting times, enables easy payment options, offers an interactive menu browsing experience, and ensures accurate order fulfillment. These features help in building customer loyalty and generating positive reviews and recommendations.

II. METHODOLOGY

When implementing an automated restaurant management system, the following methodology can be followed:

Begin by conducting a thorough assessment of your restaurant's specific needs and requirements. Identify pain points, inefficiencies, and areas where automation can bring the most significant benefits. This assessment should involve key stakeholders, such as managers, staff, and IT personnel.

Research available restaurant management systems in the market. Evaluate their features, functionalities, scalability, user-friendliness, and compatibility with your existing infrastructure. Consider factors like cost, vendor reputation, customer reviews, and support services. Shortlist a few options that align with your needs

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III. EXISTING SYSTEM

In the existing system everything is to be done manually either by the waiters or the managers by pen-and-paper based operations which also leads to the wastage of paper as well as inks. Here in the existing system the table reservation has to be done either by contacting the restaurant at the reception or by walking to the hotel which leads to the wastage of time if the table are not available at the time of visit. The menus in the existing system are in the form of pen and paper based which again leads to the wastage of paper whenever the update is required even if small change is required. To manage all the stuff like accepting the table booking and rescheduling the table booking if required by the customer a person has to be allotted and to watch the payments and the taking the reviews and the billing counter as well which leads to much man power than required and also the salary for them and also we need to interact with the server or waiter for every small doubt or inquiry.so to conquer these problems we need to develop a platform which overcomes all the problems in keeping in mind all classes of the restaurant including low end and high end without any help of third party

IV. PROPOSED SYSTEM

The aim of this project is to create a restaurant management system that can incorporate the benefits of all the existing solutions but without any of the drawbacks as well as including many new features. Many of the existing solutions to POS (Point-of-Sale) systems are sold with the required expensive hardware so for any business looking to work to a budget, the more enriched software solutions are just out of their range.

This project has QR code for each and every table with each having different table no. and the Order will goes to the Chef and also the same order will be able ton visible to the Admin . This all process will go paperless and smoothly without adding more resourses like waiter and extra chef. Athe work balance will get maintained with out any intruption.

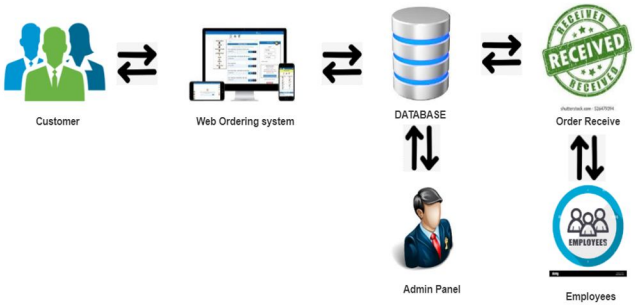
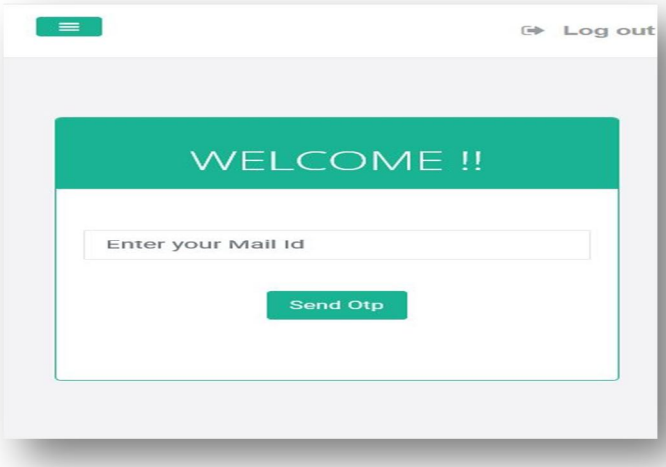


Fig. System Model Design

V. *RESULTS*

In the project, the Customer scans the QR code given on the table and enters the particular details to sign up and get associated with the app needed to be used in the Android App. This will let the customer reserve an OTP and place order. The results and output screens are shown in the following figure:



1) User login



Fig. User login

2) Admin login

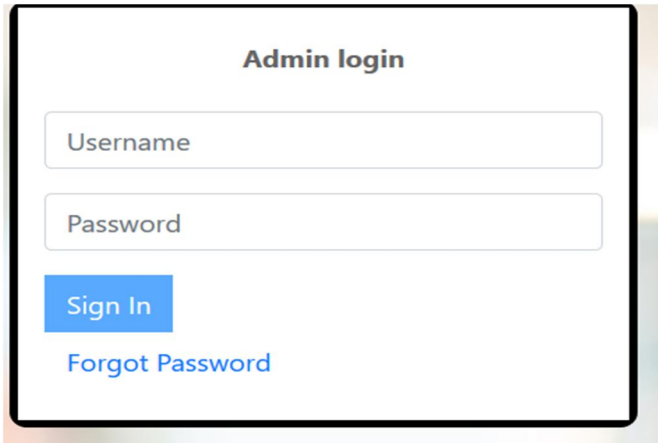


Fig. Admin Login

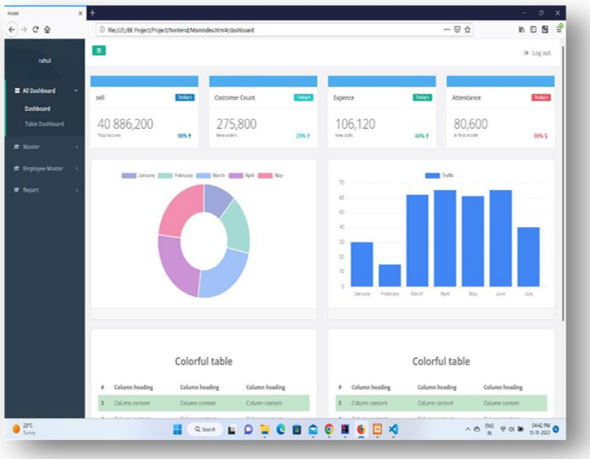


Fig. Customer UI

VI. CONCLUSION

The conclusion of this project is to create a restaurant management system that can incorporate the benefits of all the existing solutions but without any of the drawbacks as well as including many new features.

By implementing an automated restaurant management system, restaurant owners and staff can experience increased productivity, reduced errors, better inventory management, improved customer service, and enhanced financial control. The system enables seamless communication and coordination between different departments and provides real-time data for informed decision-making.

Additionally, the system's features, such as online ordering, mobile app support, and integration with payment gateways, cater to the evolving needs and preferences of modern customers. It enhances the overall dining experience and enables restaurants to stay competitive in a technologically advanced market.

However, it's important to conduct thorough requirements analysis, consider hardware and software requirements, and follow a well-defined software development life cycle for successful implementation. Risk analysis and risk management should also be prioritized to mitigate potential challenges and ensure the smooth operation of the system.

In summary, an automated restaurant management system empowers restaurants to optimize their operations, enhance customer experiences, and achieve long-term success in an increasingly digital and competitive industry.

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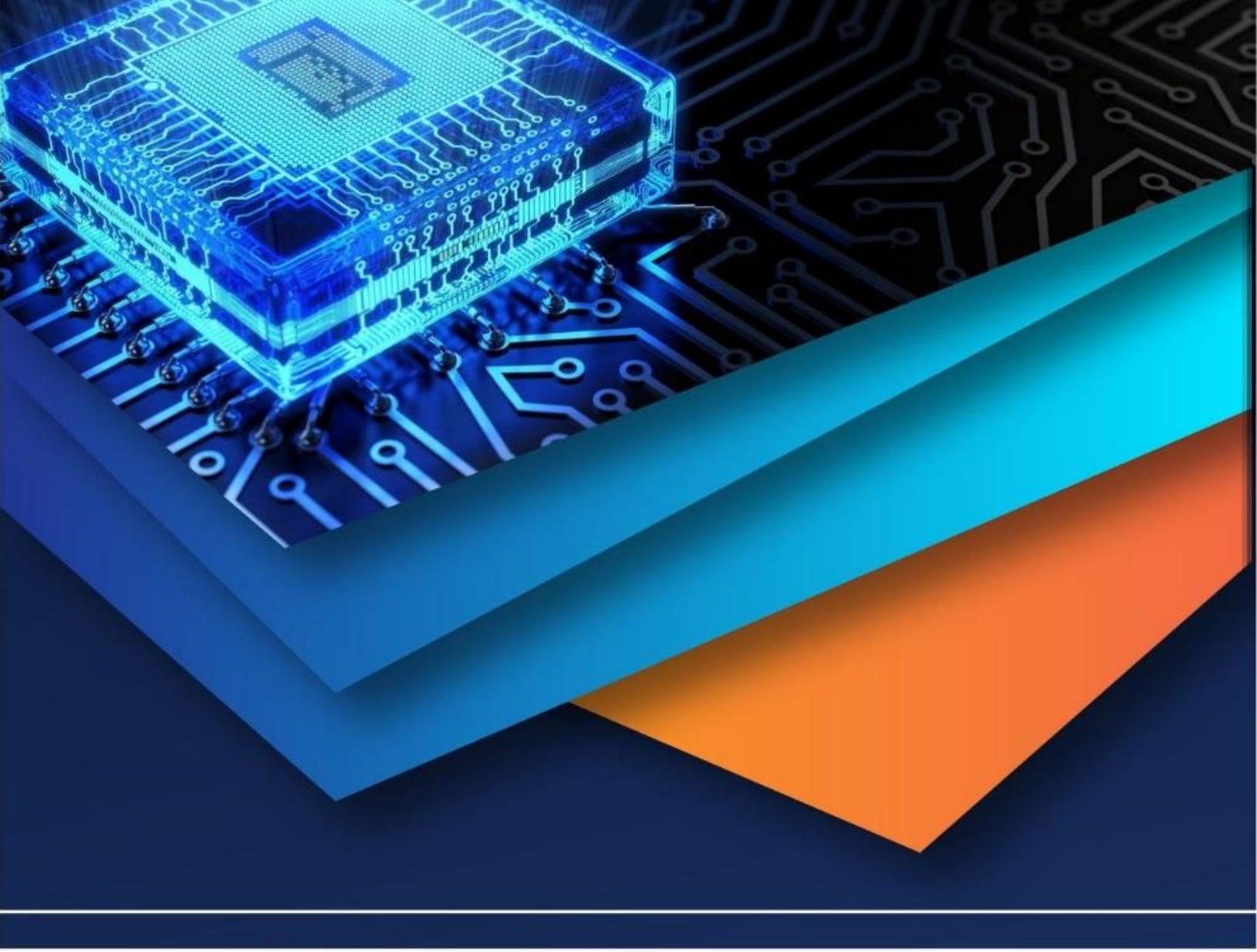
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