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# Restaurant Web Application with Integrated Dine-in Self Service

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**Abstract:** *This paper explores the use of automated technologies in the food service industry, with a focus on automating the food ordering process in restaurants using QR code scanning technology. The project aims to improve the dining experience of customers by providing a more personalized and efficient service through the design and implementation of a Digital Food Ordering Web application. The system includes a dynamic database utility, enabling the retrieval of data or information from a centralized database. Once the customer selects the food items using the QR code scanner, the ordered list is directly sent to the room and the bill counter, thereby increasing the quality and speed of service. The system offers a cost-effective chance to provide a personalized service experience to customers from feeding to ordering to payment and feedback. The paper highlights the efficiency and accuracy of the system by reducing human effort, providing customer feedback and accepting different types of payment. The system is designed to connect multiple restaurants to provide seamless services to customers, and all communication between the customer, kitchen display, and the cashier counter are done through a Web Application.*

**Keywords:** QR code, Dynamic Database, Online food Menu, Web Application

## I. INTRODUCTION

This Customers play a vital role in the contemporary food industry when determining the quality of the restaurant and its food. Restaurants give considerable attention to customers' feedback about their service, since the reputation of the business depends on it. Key factors of evaluating customer satisfaction are, being able to deliver the services effectively to lessen the time of consumption, as well as maintaining a high quality of service.

In most cases customers focus on their choice of favourite food in addition to available seating and space options. Long waiting times and serving the wrong order is a common mistake that happens in every restaurant that eventually leads to customer dissatisfaction.

This issue of overloading customers' needs a system which can handle it and comes with other new features. This project helps the restaurant manager to manage the restaurant more effectively and efficiently by just computerizing the meal, billing, and automated inventory controls. This WebApp has various features such as QR scanner, Menu Viewing, ordering meal and adding it to cart, Payments, Dream coins (offers and coupons), Menu and recipe management and also an estimated time for a particular special meal etc. Using QR Code the customer can directly visit the restaurant website and he can register himself and can look for today's special, discount coupons, meals and beverages etc. website.

## II. LITERATURE SURVEY

### 2.1 Modern Restaurants Using QR Code with Android

This System provides Food Ordering through QR Code. It provides a dashboard consisting of Customer Login and Admin Login. It does not provide payment gateway nor Feedback form. This project was made using HTML/CSS and MySQL. The administrator of the restaurant can update the food menu and make changes anytime. The user can add the food item of their choice into the cart and can place the order. The system doesn't consist of the payment method and is the major drawback found.

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Future improvements of this paper:

1. Inclusion of feedback mechanism.
2. Payment gateway.
3. Billing system.
4. Interactive Interface.

**2.2 Implementing Digital Restaurants and Inter- Restaurant Navigation using Smartphones.**

This System provides customers to view order details and receive updates in real-time. It allows restaurant owners to manage orders from customers immediately whenever he or she logged in into the system. This system does provide waiting time for specific food.

This paper proposed an android application combination with wireless technology for automating the food ordering process. It minimizes the imperfection in the conventional system by reducing the working of a restaurant. This also includes feedback which the restaurants may take as a review. Payment method is also included in this paper, which includes credit card, debit card, etc. The project was made using Java, android, SQLite database.

**2.3 Food Kiosk: Smart Food Ordering System for Restaurants**

This System provides food ordering through IOT as well as Cloud computing. This system changes the manual process of food ordering and thus reduces manpower and saves cost of labour but this system does not provide email billing for their customers. Kiosk system is used for placing orders in the restaurant. It requires only one time investment in installing the devices in the restaurant. It also simplifies the overall food ordering process with real time feedback from customers making the system more dynamic.

## III. SYSTEM DESIGN

To overcome the limitations of the above systems, we are proposing a Web Application for automating the Food Ordering process in Restaurant.

Goal modelling has been used to approach the system design. The first phase collects the 'Wish List' or Goals from all sources and provides the overall context of the system. The 'Wish List' was riddled with inconsistencies, ambiguities, and gaps. 'Project Objectives' are used to resolve these issues and conflicts. Objectives are more immediate than goals. Goals without objectives will never meet the needs of the client. The objectives are linked to the requirements, which are divided into Stakeholder needs and SRS, as shown below. The needs are functional behaviors that are depicted in Figure2 using a UML behavioral diagram.

**3.1 Customer Module**

- Scans QR code to redirect on the Web App for ordering their meal.
- Having a food menu with the estimated time mentioned of respected food items.
- Unique user ID.
- Selected items are placed into cart
- Cart items viewed by the customer to do modifications if necessary.
- Order confirmed by the customers.
- Payment gateway for cashless transactions.

**3.2 Storekeeper Module**

- Manages food delivery from kitchen to customer’s table.
- Views ordered food by respected table number.
- Order completion confirmation.

**3.3 Admin Module**

- Restaurant for major Operations on Restaurant.
- Update menu card.

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- Customer's personal details are maintained with confidentiality.
- Provides estimated cooking time for food items.
- Can view orders by respected table number.
- Can add today's special food menu.

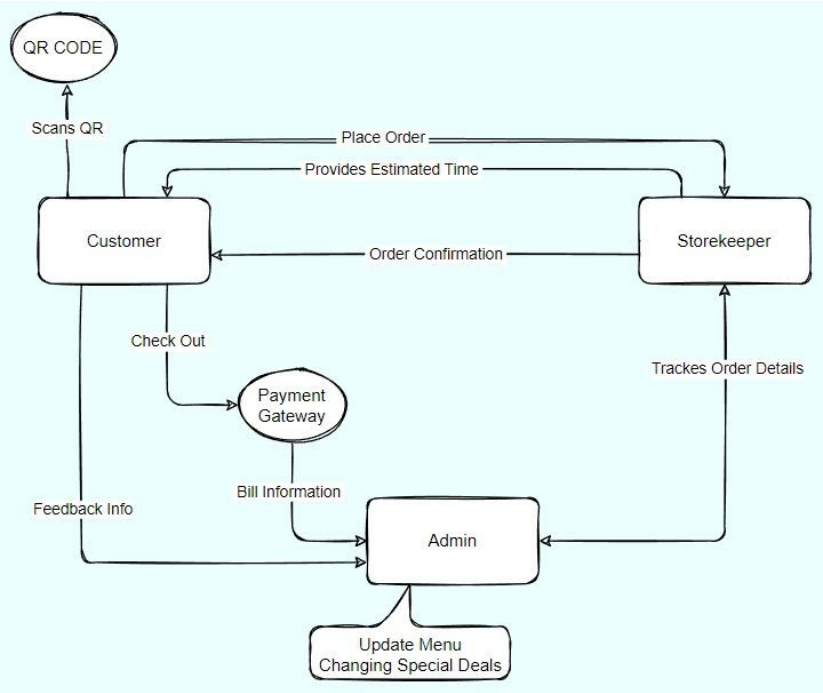


**Figure 1:** System Flow Diagram

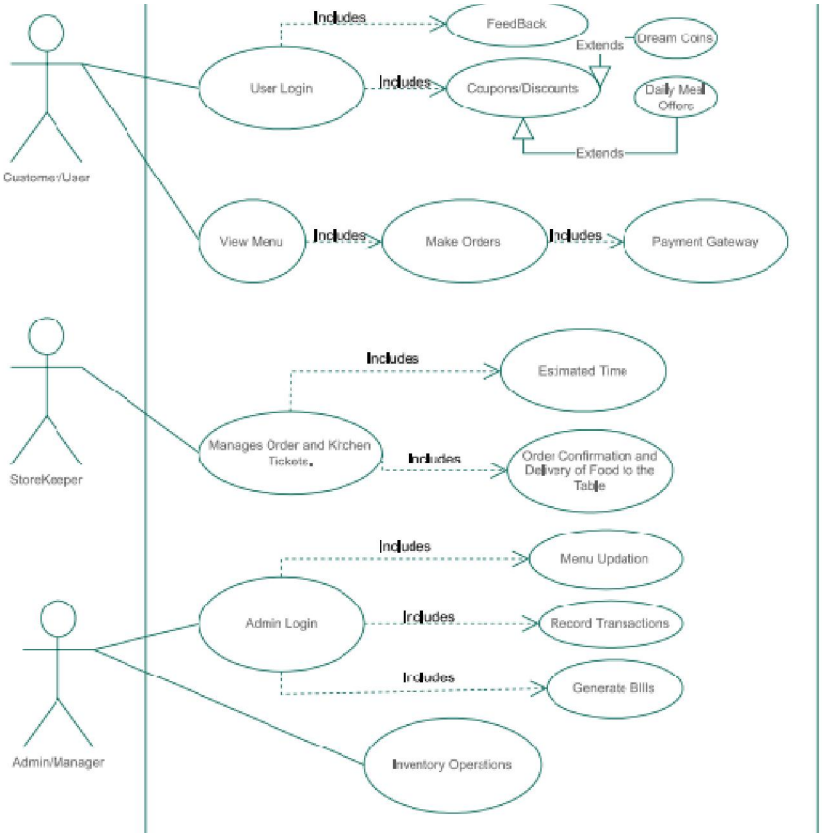


**Figure 2:** Use Case Diagram

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## IV. SYSTEM IMPLEMENTATION

The proposed system includes a main page (Figure3) that is designed to provide an attractive user experience. The main page includes a “Menu” and an "about us" section. Additionally, the main page includes a login functionality that enables users to access their accounts and engage with the system's features.

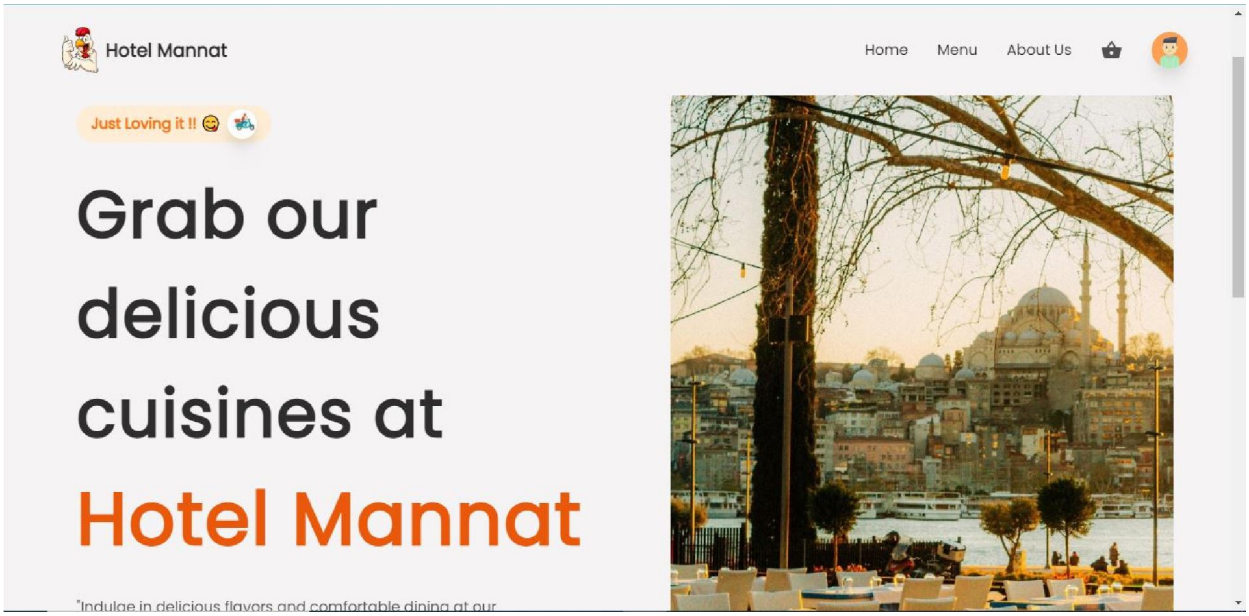


**Figure 3:** Main page

Figure 4 displays the menu section of the proposed system, which allows users to navigate through all available items and place an order. This section provides a clear and concise layout of the menu items, making it easy for users to make their selections and place an order with the system.

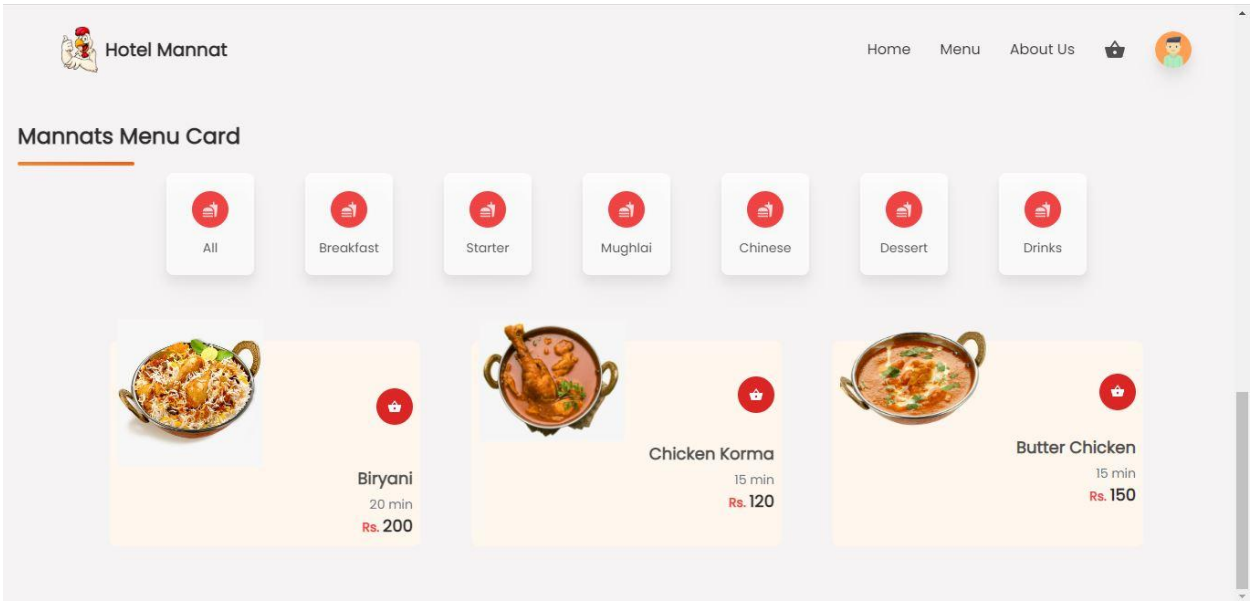


**Figure 4:** Menu Section

## V. FUTURE SCOPE

The present study has provided a foundation for further exploration of various features to enhance the user experience in our restaurant food ordering management software. Several potential avenues for future research are highlighted below.

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Firstly, the integration of online hotel lodging and boarding facilities can be considered to increase the number of visitors in our software. This would allow customers to easily make reservations for both accommodation and dining, providing a more comprehensive experience for users.

Secondly, the implementation of an online food delivery system could be explored, taking into consideration the growth of online food delivery platforms. This feature could attract a larger customer base and increase the revenue of the restaurant.

Thirdly, online restaurant table booking can be incorporated, providing customers with a seamless and efficient way to book a table in advance. This would enhance the user experience and reduce wait times, leading to greater customer satisfaction.

Lastly, integrating the software with in-store contact screens like tablets or iPads can be explored to provide more flexibility in user management. By assigning each device a unique ID, restaurant staff can manage orders more effectively and reduce wait times, providing a more streamlined experience for customers.

In conclusion, these potential features can further enhance the restaurant food ordering management software, attract more customers, and increase overall revenue. Further research is needed to explore these areas in depth and evaluate their potential benefits.

## V. CONCLUSION

In conclusion, the Restaurant Web Application with Integrated Dine-In Self Service system developed in this project is customer-centric and aimed at solving the critical issue of Mess/Tiffin service. The system provides an easy way for customers to place orders, access information, and track their orders. It also enables restaurant owners to manage their menus, receive and process orders, and improves food serving. The system's scope is acceptable, and it has the potential to attract a wide range of customers. The database is the essential part of the system, and additional features may be added in the future. Overall, the system has the potential to be an excellent tool for improving food ordering and delivery services.

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