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Online Food Ordering System

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Abstract: Online Food Ordering App is an application designed primarily for use in the food delivery industry. This system will allow hotels, restaurants and food courts to increase the scope of business by reducing the labour cost involved.
The system also allows to quickly and easily manage an online menu which customers can browse and use to place orders with just few clicks. Admin employees then use these orders through an easy to navigate graphical interface for efficient processing.
The online food ordering system provides convenience for the customers. This system increases the takeaway of foods than visitors. The online food ordering app set up menu online and the customers easily places the order with a simple click. Also, with a food menu online you can easily track the orders, maintain customer s database and improve your food delivery service.
The proposed system leverages the latest in mobile technology to bridge the gap between restaurants, food enthusiasts, and delivery services. It offers a user-friendly interface that allows users to browse a wide range of cuisine options, explore restaurant menus, customize orders, and place them seamlessly. The system is powered by trending Artificial Intelligence Technologies like Machine Learning, Recommendation Engine, Route optimization for delivery and Image recognition for meal searching.
This system will be a culinary companion that will connect users to their favourite food experiences without leaving the comfort of their homes or offices. Its dynamic features make it an indispensable tool for food enthusiasts and a valuable asset for the restaurant industry, creating a win-win situation for all stakeholders involved in the modern gastronomy ecosystem.

Keywords: SDK (Software Development Kit), AVD (Android Virtual Device), RAM (Random Access Memory), DFD (Data Flow Diagram).

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1. INTRODUCTION

In today's age of fast food and take-out, many food joints around the world have chosen to focus on quick preparation and speedy delivery of orders rather than offering a rich dining experience. Until very recently, all of these delivery orders were placed over the phone, but there are many disadvantages to this system:

First, the customer must have a physical copy of the food joint's menu to look at while placing their order and this menu must be up to date. While this expectation is not unreasonable, it is certainly inconvenient.

Second, the orders are placed using strictly oral communication, which makes it far more difficult for the customer to receive immediate feedback on the order they have placed. This often leads to confusion and incorrect orders. The current system is also inconvenient for the restaurant itself, as they must either have a dedicated staff member to answer the phone and take orders, or some employees must perform double-duty, distracting them from their regular tasks.

The system recommended is an easy-to-use online meal ordering system and food delivery for customers. It overcomes the disadvantages of traditional queueing systems. The system is both a convenient way to order food from food joints. The procedure of taking a customer's order is made easier with this technology.

Customers may place orders fast utilising the online meal ordering system, which generates an online menu. Customers can also use a meal menu to keep track of their orders by sending them to cart. Users can also rate the food goods using this system's feedback feature.

In addition, based on the user's ratings, the proposed system can recommend hotels and meals, and the hotel staff will be notified of any quality adjustments.
This study lays out a framework for a new system to be developed and brought to the market for maximum use and to create an avenue through the web where users can log on to our server and make a selection of whatever goods or food they like and subsequently pay via the internet.

2. RELATED WORKS

R. Andithya et al, proposed to develop a system that is reliable, convenient and accurate by designing a system that is able to accommodate huge amount of orders at a time and automatically compute the bill. To evaluate its performance and acceptability in terms of security, user-friendliness, accuracy and reliability is an important objective. To improve the communication between the client and customers is one of the objective. The figure.1 below represents the simple system architecture of the system proposed:

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Fig.1: System Architecture

R. Aulia et al, proposed a system that can facilitate the waiters in making food orders in a restaurant. Orders inputted to the system by using tablets/smartphones, then submit it to the kitchen with a wireless network. It connects the tablets /smartphones device to the server computer located in the kitchen. The incoming order data is displayed on the LCD screen to make it easier the chefs to detect it. After the order is processed, then the kitchen informs them by updating its status through the system. The status indicates that it is ready to be served to the consumers and they immediately pick up and delivers it.
Dr. V.A Bharadi et al proposed a system that will consist of the following main components: The backend, which is made up of the web server and the database, and the frontends that include both the patron frontend (delivered as a native mobile application) and the administration or the kitchen frontend (delivered as a web application).
J.M Gallera et al proposed a system that will provide a seamless and convenient way for users to order food from various restaurants and food establishments. The system aims to provide an easy-to-use and intuitive interface that enables users to browse restaurant menus, select dishes, customize orders, and make secure payments. The system will also include administrative features for restaurant owners to manage their menus, track orders, and update the status of deliveries.

Problem Statement
Malawi faces a huge lag in implementing trending technologies in various fields, including the food delivery service. Malawi is one of the least developed countries in the world, as such its most systems are also still analog in nature.
In the current analog food ordering landscape, traditional methods such as phone calls and physical menu browsing create significant challenges for both customers and food joints. The absence of a centralized and efficient ordering system results in manual errors, miscommunications, and prolonged waiting times.

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Customers often face difficulties in accessing updated menus, placing orders accurately, and tracking their deliveries. Simultaneously, food joints often grapple with the inefficiencies of manual order management, leading to order inaccuracies, increased operational costs, and a lack of data-driven insights. The pressing need for a modernized food ordering system becomes evident, seeking to replace analog methods with a digital solution that enhances communication, accuracy, and overall user satisfaction for both customers and businesses alike

3. METHODOLOGY

In the era of digital transformation, the food industry is witnessing a paradigm shift with the widespread adoption of online food ordering systems. These systems not only cater to the evolving preferences of tech-savvy consumers but also offer numerous benefits for restaurant owners in terms of efficiency and customer engagement. Implementing an online food ordering system involves a strategic approach to ensure seamless integration and optimal functionality.
In a world where convenience is key, the integration of online food ordering systems has become a game-changer for the food industry. Some of the methods that will be used are as follows:

1. User-Friendly Interface

A user-friendly interface simplifies the navigation and interaction process for users. It reduces the learning curve and ensures that customers can easily browse through the app, select items, and place orders without confusion.
An intuitive and user-friendly design encourages more users to adopt the app. When potential customers find an app easy to use, they are more likely to download it, explore its features, and become regular users.
The first impression matters significantly in the competitive app market. A user-friendly interface creates a positive initial experience, increasing the likelihood that users will continue to engage with the app and make repeat visits.
A streamlined and user-friendly ordering process saves time for customers. When users can quickly find what they want, customize their orders, and complete the checkout process without complications, they are more likely to use the app regularly.
Complicated or confusing interfaces can lead to frustration and high abandonment rates. A user-friendly design minimizes the chances of users abandoning their orders midway due to difficulties in navigating or understanding the app's features.

2. Personalized User Accounts

Personalized user accounts allow customers to view their order history and save favorite items. This feature streamlines the ordering process by enabling users to quickly reorder their preferred dishes without searching through the menu, promoting convenience and efficiency.
With personalized accounts, users can set preferences such as dietary restrictions, preferred spice levels, or specific delivery instructions. This customization ensures that orders meet individual preferences, leading to higher customer satisfaction.

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Saving delivery addresses and payment details in user accounts simplifies the checkout process. Customers don't need to enter this information for each order, reducing friction and making the ordering process faster and more user-friendly.
Personalized accounts enhance order tracking capabilities. Users can receive real-time updates and notifications about the status of their orders, creating a sense of transparency and improving the overall customer experience.
Personalized accounts enable the app to recognize users, providing a personalized experience. By analyzing order history and preferences, the app can offer tailored recommendations, promoting relevant menu items and increasing upsell opportunities.

3. Geolocation and Address Autofill

Geolocation and address autofill significantly enhance user convenience by automating the process of entering delivery addresses. Users can save time and effort, especially when placing orders from frequently visited locations.
Manual entry of addresses is prone to errors, such as typos or incomplete information. Geolocation and address autofill help reduce these errors, ensuring that accurate and complete addresses are provided, which is crucial for successful deliveries.
These features streamline the entire ordering process, allowing users to focus on selecting their desired items rather than spending time inputting address details. A simplified and efficient ordering process leads to a more positive user experience.
Geolocation data aids in optimizing delivery routes for drivers. This not only improves the efficiency of the delivery process but also contributes to faster delivery times and a more reliable service, ultimately enhancing customer satisfaction.
Providing users with a seamless and hassle-free experience is paramount. Geolocation and address autofill contribute to an enhanced user experience, making the app more user-friendly and encouraging users to return for future orders.

4. Real-Time Menu Updates

Real-time menu updates ensure that the displayed information, including item availability, prices, and promotions, is accurate at all times. This transparency builds trust with users and avoids confusion or frustration due to outdated information.
Food joints may change prices or introduce new promotions dynamically. Real-time updates allow the app to reflect these changes instantly, ensuring that users are aware of the latest pricing and promotional offers.
As items run out of stock or become unavailable, real-time updates help remove these items from the menu promptly. This prevents users from attempting to order items that cannot be fulfilled, improving customer satisfaction.
Special events or holidays may prompt changes to the menu, such as the introduction of seasonal items or special discounts. Real-time menu updates enable the app to adapt to these changes seamlessly, providing users with relevant and timely information.
Users appreciate a smooth and accurate browsing experience. Real-time menu updates contribute to an improved user experience by ensuring that users can make informed decisions based on the latest menu offerings and pricing.

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5. Advanced Search and Filters

Advanced search and filters streamline the user's journey through the app, allowing them to quickly locate specific cuisines or dishes. This efficiency contributes to a positive user experience.

Filters enable users to customize their search based on specific preferences, such as dietary restrictions, cuisine types, or price ranges. This customization ensures that users can find options that align with their individual tastes and requirements.

Users can save time by using filters to narrow down their choices. Instead of scrolling through an extensive menu, they can apply filters to see only the options that match their preferences, expediting the decision-making process.

Advanced filters allow users to consider dietary restrictions or preferences, such as vegetarian, vegan, gluten-free, or allergen-free options. This caters to a diverse user base with varying dietary needs.

Filters based on price ranges help users find options that fit their budget. This feature ensures transparency and allows users to make informed decisions without exceeding their desired spending limits.

6. High-Quality Food Imagery

High-quality images capture the visual appeal of food, making menu items look delicious and enticing. Users are more likely to be attracted to visually appealing dishes, leading to increased engagement with the app.

Quality food imagery stimulates users' appetites by showcasing the textures, colors, and presentation of dishes. Appetizing visuals can evoke a craving for specific foods, encouraging users to explore the menu and place orders.

Clear and detailed images help users make informed decisions about their food choices. Users can visually assess the appearance of dishes, making it easier for them to choose items that align with their preferences and expectations.

7. Multiple Payment Options

Offering a variety of payment options enhances user convenience. Users can choose the payment method that best suits their preferences, making the overall ordering process more user-friendly.

Different users have different payment preferences. Some may prefer using credit or debit cards, while others may prefer digital wallets or other payment methods. Providing multiple options accommodates this diversity.

8. Real-Time Order Tracking

Real-time order tracking provides users with a more interactive and engaging experience. Users appreciate being able to monitor the progress of their orders in real time, contributing to a positive overall experience.

Real-time tracking enhances transparency in the order fulfillment process. Users can see the status of their orders at each stage, from preparation to delivery, reducing uncertainty and providing a clear understanding of the timeline.

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Waiting for a food delivery can create anxiety for users. Real-time order tracking alleviates this anxiety by keeping users informed about the current status of their orders, including estimated delivery times.
Real-time tracking contributes to improved customer satisfaction. Users appreciate the convenience of knowing exactly when their food will arrive, and this transparency positively influences their perception of the app and the associated services.

9. Scheduled Orders
Scheduled orders allow users to plan their meals ahead of time, helping them manage their daily schedules more effectively. This feature is especially beneficial for users with busy lifestyles who want to ensure timely and convenient meal delivery.
Offering scheduled orders adds an extra layer of convenience for users. They can choose the exact date and time they want their food to be delivered, eliminating the need for last-minute decisions or rushed orders.
Scheduled orders support users in their meal planning efforts. Whether planning for a busy workweek or special occasions, users can schedule meals in advance, ensuring they have the desired food available when needed.

10. Customer Feedback and Ratings
Feedback and ratings provide businesses with insights into the quality of their products and services. Positive feedback assures potential customers of the restaurant's quality, while constructive criticism helps businesses identify areas for improvement.
Positive ratings and reviews build trust and confidence among users. Potential customers are more likely to order from a restaurant with positive feedback, and existing users gain confidence in their choices based on the experiences of others.
Constructive feedback serves as a valuable feedback loop for businesses. By understanding customer concerns and suggestions, restaurants can make necessary improvements, enhancing the overall quality of their products and services.

11. Promotions and Discounts
Promotions and discounts are effective tools for acquiring new users and retaining existing ones. Offering special deals attracts new customers, while providing discounts to loyal users encourages them to continue using the app.
In a competitive market, promotions and discounts provide a competitive edge. Users are more likely to choose an app that offers cost savings or special promotions, giving businesses a distinct advantage over competitors.
Businesses can leverage promotions and discounts for seasonal marketing campaigns or special events. Tailoring promotions to holidays, festivals, or local events creates a sense of relevance and encourages users to participate in the celebration.

12. Social Media Integration
Social media integration enables users to register and log in to the app effortlessly using their existing social media credentials. This streamlines the onboarding process, reducing friction and enhancing user convenience.

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Integrating social media features allows users to share their favorite dishes, reviews, or experiences directly from the app to their social networks. This promotes user engagement and word-of-mouth marketing, expanding the app's reach.

Users often rely on recommendations from friends and connections on social media. Integration allows users to share their orders, recommendations, and positive experiences, serving as social proof and influencing others to try the app.

13. AI-Powered Recommendations
AI algorithms analyze user preferences, order history, and behavior to deliver personalized recommendations. This customization creates a more tailored and enjoyable experience for users, increasing their satisfaction with the app.
Personalized recommendations keep users actively engaged with the app. By suggesting relevant information, users are more likely to explore new options and continue using the app regularly.

4. RESULTS AND DISCUSSIONS

The results of implementing this system is tremendous and overwhelming for both the user and the business owners. Some of the results that are associated with this system are as follows:
- Convenience and Time Savings
- Personalized Experiences
- Real-Time Order Tracking
- Access to Promotions and Discounts
- Flexible Payment Options
- Scheduled Orders for Planning

On the business side, the benefits are as follows:
- Increased Visibility and Reach
- Boost in Sales and Revenue
- Customer Retention and Loyalty
- Data-Driven Insights
- Enhanced Marketing Opportunities
- Efficient Customer Service
- Cost-Effective Advertising

5. CONCLUSION

In conclusion, the advent of online food order apps has revolutionized the way we approach dining and has become a staple in modern living. These apps seamlessly blend convenience, choice, and technology to enhance both user experiences and business operations.
For users, the convenience of browsing diverse menus, placing orders with a few taps, and tracking deliveries in real time has become an integral part of their dining routine. The

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personalized recommendations, access to promotions, and flexible payment options add layers of customization, making the entire process not just efficient but enjoyable.

Businesses, on the other hand, benefit from increased visibility, expanded reach, and a boost in sales. The wealth of data generated by these apps empowers businesses to make informed decisions, optimize operations, and stay attuned to evolving customer preferences. The integration of loyalty programs, promotions, and efficient customer service also fosters customer retention and brand loyalty.

As technology continues to evolve, we can expect online food order apps to further refine their offerings, incorporating innovations that elevate the user experience and provide businesses with even more effective tools for success. Whether it's through AI-powered recommendations, social media integration, or enhanced features for both users and businesses, the future of online food ordering looks promising, promising a continued evolution in the way we choose, order, and enjoy our meals.

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