International Journal of Research Publication and Reviews

An Expert System of Food Inventory

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ABSTRACT—

The advent of digital technology has changed the way individuals and businesses interact, especially in the food industry. Online grocery ordering systems have emerged as a convenient and effective solution, allowing users to browse menus, order products and pay from the comfort of their homes This paper is a framework new online food ordering platform aimed at enhancing user experience, The functionality is also presented. The proposed system combines user-friendly interfaces, advanced search functionality and secure payment gateways to simplify the ordering process. the system's interface has been optimized for easy navigation and easy interaction

Keywords—Online food ordering, Smart phones, Menu browsing, Order payment, Order history, User-Friendly interface, Payment gateway, Secure Transaction.

1. INTRODUCTION

The online food ordering system is a convenient web-based application that allows food enthusiasts to easily place their food orders through the internet. This system is a key component of e-commerce, providing restaurants with the opportunity to boost sales and grow their business by offering customers the option to order food online. By using an online food ordering system, customers have the flexibility to place orders at any time of the day, every day of the week. This method is not only simple and fast, but also gives businesses a competitive advantage at a reasonable cost. It is widely recognized that in today's competitive market, it can be challenging for new small businesses to survive and stand out among well-established competitors. In today's fast-paced world, where time is of the essence, having an online food ordering system is crucial for success.

The Online Food Ordering System's main purpose is to maintain track of information such as Item Category, Food, Delivery Address, Order, and Shopping Cart. It keeps track of information about the Item Category, the Customer, the Shopping Cart, and the Item Category. Only the administrator gets access to the project because it is totally built at the administrative level. The project's purpose is to develop software that will cut down on the time spent manually managing Item Category, Food, Customer, and Delivery Address. It saves the Delivery Address, Order, and Shopping Cart information.

For placing any orders customers have to visit hotels or restaurants to know about food items and then place order and pay. In this method time and manual work is required. While placing an order over the phone, the customer lacks the physical copy of the menu item, and lacks visual confirmation that the order was placed correctly. Every restaurant needs certain employees to take the order over phone or in-person, to offer a rich dining experience and process the payment. In today's market, labor rates are increasing day by day making it difficult to find employees when needed.

Hence, to solve this issue, what we propose is an "Online Food Order System, originally designed for small scale business like College Cafeterias, Fast Food restaurant or Take-Out, but this system is just as applicable in any food delivery industry.

The main advantage of my system is that it greatly simplifies the ordering process for both the customer and the restaurant and also greatly lightens the load on the restaurant's end, as the entire process of taking orders is automated with the help of this system, people can easily order food. It can also ensure that the people do not waste their precious time and use their time productively in the other works. In the long run, this will ensure that it helps to reduce labor cost. This system proves to be more cost effective and reliable over other systems. This system is difficult to forge or cheat when compared to other systems in terms of payment for the food. It is very easy to use and has the least maintenance. It does not require any human intervention and thus can be called fully automated. There aren't any limitations as such for this system, however one needs to take care of the smaller parameters like server breakdown while this system is implemented.

[4]In the proposed system, there will be no limitation on the number of orders the client wants. Having a café menu on the internet, implicit guests can easily pierce it and place an order at their convenience. Thus, an automated food ordering system is presented with features of feedback and wireless communication.

2. Problem Formulation

Problem Statement: For placing any orders customers have to visit hotels or restaurants to know about food items and then place order and pay. In this method time and manual work is required. The current manual data storage system in many restaurants, catering to a substantial number of daily customers, presents operational challenges. Managers face difficulty in overseeing tables, orders, kitchen operations, reception, and the counter simultaneously, necessitating the implementation of a robust software solution. The existing manual process for entering details consumes significant time and poses a risk of errors. There is a pressing need for a comprehensive software system that can efficiently manage: Customer Details, Order Details, Menu, payment methods.

Various case studies have highlighted the problems faced while setting up a restaurant. Some of the problems found during the survey in the existing system are listed below:

• To place the orders, the customer visits the restaurant, checks the menu items available in the restaurant, and chooses the items required, then places the order and then does the payment. This method demands manual work and time on the part of the customer.

• When the customer wants to order over the phone, the customer is unable to see the physical copy of the menu available in the restaurant, this also lacks the verification that the order was placed for the appropriate menu items.

Proposed Solution: With the help of this system, people can easily order the food. It can also ensure that they do not waste their precious time and use their time productively in the other works. This system greatly simplifies the ordering process for both the customer and the restaurant. System presents an interactive and up-to-date menu with all available options in an easy to use manner. Customers can choose one or more items to place an order which will land in the Cart. Customers can view all the order details in the cart before checking out. At the end, the customer gets order confirmation details. Once the order is placed it is entered in the database and retrieved in pretty much real time. This allows Restaurant Employees to quickly go through the orders as they are received and process all orders efficiently and effectively with minimal delays and confusion.

[3]Our system is an easy way to order food from restaurants and get a mess service online. This system enhances the process of taking consumer orders. Customers can easily place orders as they like using the online meal ordering system, which sets up a food menu online. Both online and pay-on-delivery payment methods are available. By giving each user a unique ID and password, separate accounts are maintained for each user for more secure ordering.

3. Literature Review

An automated food ordering system is being proposed to efficiently track user orders. [3]This system allows users to order a variety of different types of food with just one click, either from a preset menu or by creating a custom order. The system is operated through an android application. The system assumes that customers will be using smartphones to place their orders. When a customer arrives at the restaurant, they can easily confirm their pre-selected order by using their smartphone. The kitchen staff will see the list of pre-ordered items on their screen, and once confirmed, an order slip will be printed for further processing. This solution simplifies the pre-ordering process for customers by providing a convenient and intuitive way to place their orders. The review of literature leads to draw certain major findings which are as under:

• Customers: Focus on user experience, ease of ordering, payment options, and delivery tracking.

• Restaurant Owners: Consider menu management, order processing, inventory tracking, and reporting.

• Delivery Personnel: Look into order assignment, route optimization, and real-time tracking.

The goal of the research was to create a wireless system for food ordering in a mess. The study presented the technical aspects of the Wireless Ordering System (WOS) such as its architecture, functions, limitations, and recommendations. Based on customer feedback, a wireless food ordering system was designed and implemented for a mess. This system allows mess owners to easily set up and update menus in a wireless environment. The customizable system includes integration with smartphones for real-time customer feedback, promoting better communication between mess owners and customers.

The research paper focuses on automating the food ordering process in a mess by implementing a food ordering system. The system utilizes wireless data access to servers, allowing users to view the menu details on an Android application. Orders are transmitted wirelessly from the user's mobile to the kitchen and cashier, where they are then updated in a central database. The owner of the mess can easily make changes to the menu. The research also explores how mess owners have been incorporating technologies like PDAs, wireless LAN, and multi-touch screens to improve the dining experience.

 Current System: The current food ordering system is predominantly digital and mobile-based, allowing customers to browse menus, place orders, and make payments conveniently through apps or websites. These platforms often integrate with restaurants' systems to provide real-time updates on menu items, pricing, and availability. Customers can customize their orders, specify delivery or pickup options, and track the status of their food preparation and delivery. The system typically benefits from GPS technology for accurate delivery tracking and uses secure payment gateways to ensure transaction safety. Overall, this modern food ordering system enhances efficiency, transparency, and convenience for both customers and restaurants.

Limitations of Current System: The current food ordering systems face several limitations that impact user experience and operational efficiency. Firstly, many platforms struggle with inadequate integration between different stages of the ordering process, leading to delays and errors in order processing. Additionally, some systems lack sufficient customization options, which can hinder users' ability to specify dietary preferences or make

special requests. Another key limitation is the dependency on stable internet connectivity, often causing disruptions in service during network outages. Lastly, security concerns such as data breaches and privacy issues remain a significant challenge, impacting user trust in these systems. Addressing these limitations is crucial for enhancing the overall effectiveness and reliability of food ordering platforms.

4. Methodology

The system development process will follow the incremental model. The incremental model is a software development process where the product is designed, implemented, and tested incrementally until the product is finished. The development process is divided into smaller parts that are completed and tested separately. Once one part is complete, it is added to the whole product and tested again. The development process continues until the entire product is complete.

The advantage of using the incremental model is that it allows for better control and management of the development process. It also allows for the product to be tested at different stages of development, which ensures that any issues are caught early and can be rectified before they become major problems

The planning phase of the project will involve identifying the requirements of the system, dividing the development process into smaller parts, and setting timelines and milestones for each part. Each part will be tested before being integrated into the whole system.

During the development phase, the team will use agile development methodologies to build the system incrementally. Each iteration will involve designing, coding, and testing the software.The team will use automated testing tools and continuous integration to ensure that the code is error-free and meets the requirements.

Finally, the project will be completed when all iterations have been successfully completed, and the final product has been tested and validated. The project team will provide training and support to the stakeholders to ensure a smooth transition to the new system.

We chose to use an incremental development model for this project due to its iterative approach that allows for the system to be developed and tested in small increments, rather than attempting to complete the entire system all at once. This approach is beneficial for several reasons:

1. It allows for early feedback and testing, which helps to identify and address issues early on in the development process, reducing the risk of costly errors and rework later on.

2. It enables the team to respond to changing requirements by incorporating new features or changes in subsequent increments.

3. It breaks down the development process into manageable stages, which helps to simplify the overall process and make it easier to track progress and manage resources effectively.

4. It allows for the team to prioritize features and functionality based on their importance or complexity, ensuring that the most critical aspects of the system are developed first.

5. Result Discussion

The online food ordering system has had encouraging results, Users are able to register and have their personal profiles, which helps them keep their information safe and tailored for them. It also increases user confidence in trying to access their profiles. The navigation of the restaurant's menu is very easy, providing users with the ability to browse through the menu and add items to the order seamlessly. Users have the ability to view, edit, and delete items, which ensures accuracy in the order and customer satisfaction. The placing of an order is easy, with confirmation upon immediate submission and viewing options, giving the user assurance and confidence in the system. The menu management is easy, with order management and customer information all at the fingertips of an administrator, making effective management and optimization of business operations possible. Administrators benefit from efficient menu management, order tracking, and access to customer details, enabling effective oversight and optimization of operations. The system empowers restaurant users to view, add, edit, and delete food items with ease, facilitating dynamic menu maintenance and optimization. Moreover, restaurant users have real-time access to new order details, enabling prompt and informed decision-making. Overall, the system has successfully met its objectives in providing a user-friendly interface, secure functionality, and efficient management capabilities.

The expected outcome of the system is as follows:

- Users can create and manage personalized accounts securely.

- Secure log-in access to personalized profiles.

- Easy exploration and navigation of the restaurant's menu.

- Seamless item selection and addition to the cart.

- User ability to review, adjust, and remove items for order accuracy.

- Successful order placement with immediate confirmation and viewing options.

- Efficient management of menus, order tracking, and customer details for administrators

fig. 1.1

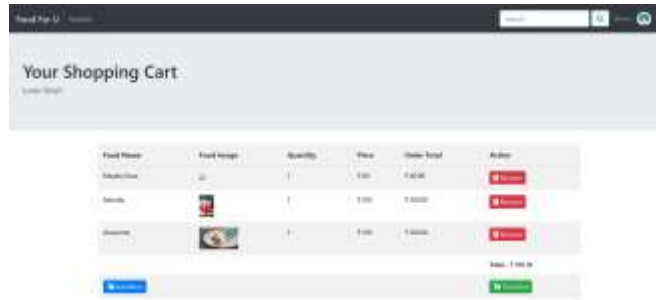

fig. 1.2

fig.1.3

fig. 1.4
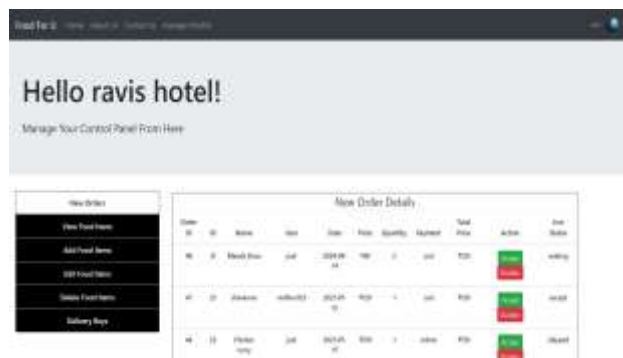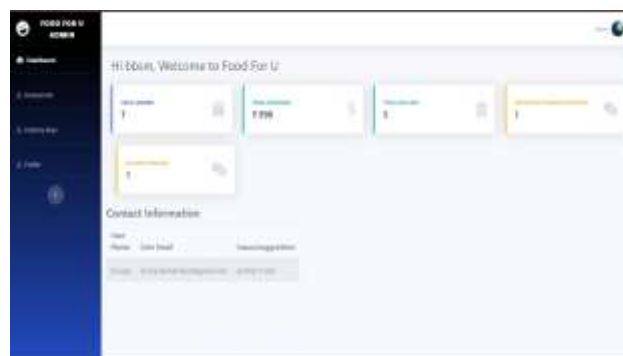
fig. 1.5

fig. 1.6

fig 1.7

fig 1.8

Figure 1.1 showcases the main home page of the system, presenting users with three distinct interfaces: user, restaurant, and delivery boy. Individuals can access their preferred interface with a simple click, directing them to the respective login pages tailored to their roles. Figure 1.2 illustrates the user login page, ensuring a secure and seamless entry for users. Upon successful login, Figure 1.3 displays the user interface post-login, providing easy access to browsing items and initiating orders. In Figure 1.4, users can explore available items and conveniently add them to their cart based on their preferences. Figure 1.5 showcases the user's cart page, offering flexibility to remove items or add more before proceeding to checkout. Figure 1.6 depicts the payment options page, where users can select their preferred payment method and complete the transaction, with a generated bill for reference. For restaurants, Figure 1.7 presents a dedicated interface with functionalities to manage orders, including viewing, adding, editing, and deleting food items, as well as handling new orders efficiently. In Figure 1.8, the admin page features a comprehensive dashboard displaying vital metrics such as total costs, earnings,

deliveries, and pending requests, along with access to restaurant and delivery boy profiles for seamless management. Throughout the interface design process, utmost attention was given to user-friendliness, ensuring all users can navigate the pages effortlessly and enjoy a pleasant interface experience.

6. Conclusion

The proposed food ordering system aspires to establish an efficient and user-centric platform catering to the needs of customers, restaurants, and administrators alike. By harnessing modern technologies, the system is poised to provide a seamless and convenient experience, revolutionizing the traditional food ordering process. Its implementation is geared towards simplifying and automating various aspects of food management, minimizing the need for manual interventions in handling orders and enhancing overall operational efficiency. This system's potential lies in not only improving the convenience and satisfaction of customers but also optimizing the processes for restaurants and administrators. With real-time features integrated into the system, it is expected to mark a significant stride towards a more technologically advanced and streamlined food ordering ecosystem, promising benefits for all stakeholders involved.

In conclusion an online food ordering system is proposed which is useful in small family run restaurants as well as in places like college cafeterias, etc. It is developed for restaurants to simplify their routine managerial and operational tasks and to improve the dining experience of the clients.

[1] In the "Online Food Ordering Project," we made every effort to meet all the demands of the restaurant. Because it is straightforward and adaptable, the project is successful. The biggest benefit of our project is that it draws plenty of users because of its simplicity. A novice user may operate it with ease. Any type of restaurant can utilize our software. By automating meal ordering, billing, and inventory control, the Online Food Ordering system assists the restaurant manager in managing the restaurant more successfully and efficiently. The system handles the transaction and stores the data produced. These data will be used to create reports that assist the restaurant manager in making wise business decisions.

8. References

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