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Food Ordering for Campus

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Abstract: Technological evolution has significantly modernized everyday processes, including food service systems within educational institutions. This project, titled "KDK College Canteen Ordering Portal / Web Server", introduces a QR-enabled digital menu and online ordering platform specially developed for the KDK College canteen. The system's core aim is to streamline and automate food ordering by integrating web technologies and online payment services. Users can scan a QR code to instantly view the menu, place their orders, make secure transactions, and receive a unique token for order pickup. This approach removes the need for manual order-taking, reduces long queues, and minimizes human error.

The portal also features an admin dashboard for managing menu items, tracking sales, and accessing order logs, thereby enhancing overall operational efficiency. The proposed solution supports cashless payments, eco-friendly digital menus, and quicker service delivery—aligning with smart campus initiatives. By digitizing traditional processes, the system enhances user convenience and contributes to a more organized and tech-driven campus environment.

I. INTRODUCTION

In the present era of digital innovation, automation has greatly transformed service delivery systems—especially within educational institutions. College canteens commonly face issues like long waiting lines, miscommunication in orders, and inefficiencies due to manual handling of payments and order management.

To address these challenges, this project introduces a QR-based Online Menu and Food Ordering Portal tailored for the KDK College canteen. By scanning a QR code displayed on tables or notice boards, users can instantly access a digital menu on their smartphones. They can browse available items, place orders, complete online payments, and receive a unique token ID for collecting their food.

This system significantly reduces waiting time and minimizes mistakes in order processing. It also benefits canteen staff by improving accuracy, transparency, and workflow management. Additionally, the admin panel provides insights into frequent orders, popular dishes, and transaction details.

Overall, the proposed system aims to digitize and modernize the canteen ordering process, promote digital payments, and enhance the overall dining experience inside the campus.

II. OBJECTIVES

The primary objective of this project is to design and implement a QR-driven Online Menu and Food Ordering System for the KDK College canteen, ensuring faster service, improved convenience, and better digital accessibility. The specific goals include:

1. Developing a mobile-friendly web application that allows users to browse the menu and place food orders easily.
2. Using QR codes to enable quick access to the digital menu without requiring any app installation.
3. Integrating secure online payment options to support cashless transactions.
4. Automatically generating unique token numbers to facilitate smooth and organized order pickup.
5. Enhancing operational efficiency by reducing human involvement in order taking and billing.
6. Providing an admin interface to manage menu items, monitor orders, and analyze sales.
7. Ensuring a responsive, interactive, and user-friendly interface for seamless user experience.
8. Supporting smart campus initiatives by promoting automation and digital solutions.

III. LITERATURE REVIEW

With increasing digital adoption, online food ordering systems have become widely used across various sectors, including educational campuses. Numerous research studies highlight the benefits of QR-based ordering systems, where customers can scan a code to view menus, place orders, and process payments digitally.

These systems help reduce manual workload, minimize errors, and improve service speed. They also support hygiene by eliminating printed menus and encourage contactless transactions—an essential requirement in the post-pandemic environment.

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Existing web-based canteen management solutions have proven effective in handling large user volumes, offering dynamic menu updates, automated billing, and order tracking features through admin dashboards. However, many such systems are built primarily for restaurants and lack customization for college environments, where peak rush hours and frequent menu changes are common.

To overcome these gaps, the proposed KDK College Canteen Ordering Portal is specifically designed for a college setup. Combining QR-based menu access, online payments, and automatic token generation, it improves convenience for students and enhances efficiency for staff.

IV. METHODOLOGY

The project follows a systematic development process based on the Waterfall Model, ensuring that each phase is completed before moving to the next.

1. Requirement Analysis

Functional and non-functional requirements were collected through discussions with students and canteen staff. This helped identify issues in the existing manual system and established the need for an automated, QR-enabled ordering platform.

2. System Design

The system architecture outlines the flow between users, the backend server, and the database.

- Frontend: Created using HTML, CSS, JavaScript, React, Next.js, and Bootstrap for responsive design.
- Backend: Developed using PHP / Node.js / Python (Flask or Django).
- Database: MySQL is used to store menu items, user details, orders, and payment records.
- QR Codes: Unique QR codes are assigned to each table or canteen area to redirect users to the online menu.

3. Implementation

The final system is a web-based platform accessible from both mobile and desktop browsers.

Users can:

- Scan the QR code to view the menu
- Add items to their cart
- Place and pay for orders using UPI or digital wallets
- Receive a token number for pickup

Admins can track ongoing orders and update their status from the backend panel.

4. Testing

Different testing strategies were used to ensure system reliability:

- Unit Testing for individual components
- Integration Testing for interaction between modules
- User Acceptance Testing (UAT) with real students and staff

5. Deployment & Maintenance

After successful testing, the system was deployed on a cloud or local server. Regular maintenance ensures smooth performance, security, and usability.

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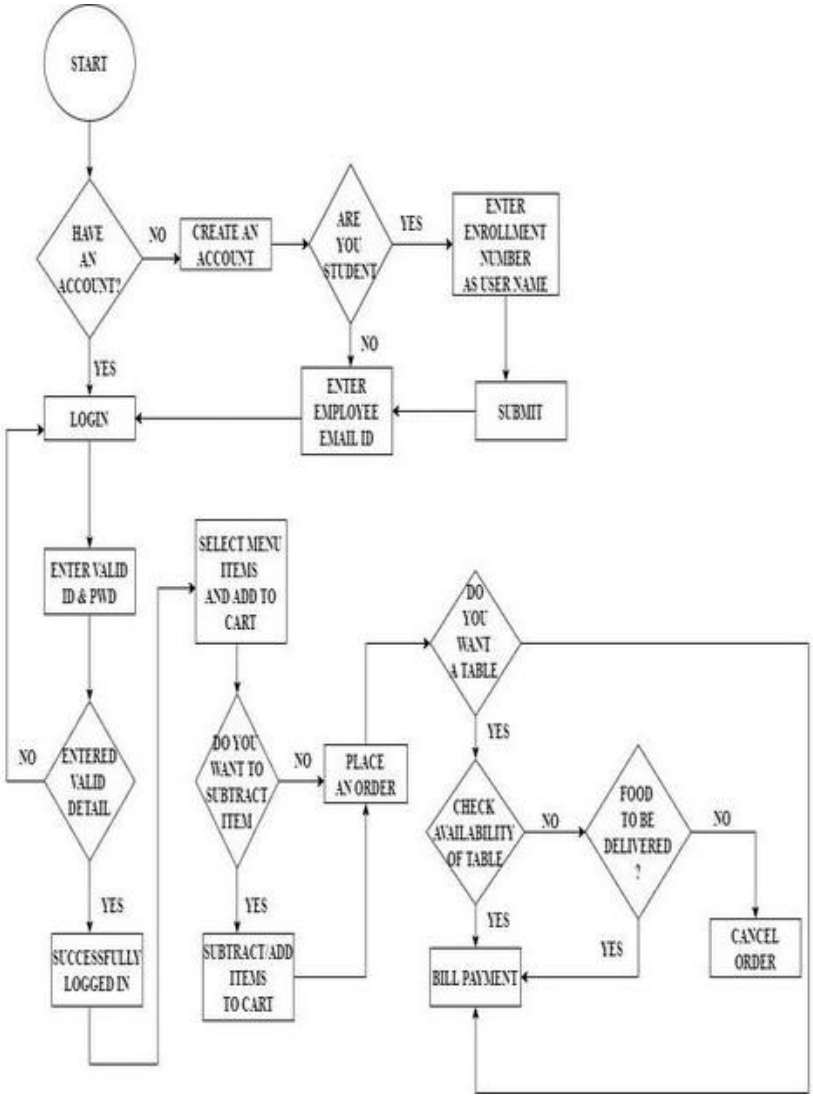

V. CONCLUSION

The KDK College Canteen Ordering Portal effectively demonstrates how digital technology can enhance routine campus services. Through QR-based menu access, online ordering, and cashless payments, the system provides a fast, convenient, and modern solution for canteen management.

By eliminating long queues and minimizing manual interference, the system ensures efficient order handling and improved user experience. The admin dashboard further supports better decision-making by offering insights into daily sales, popular items, and order patterns.

This solution aligns with smart campus principles and contributes to digital transformation within the institute. Future improvements may include mobile app integration, live order tracking, AI-based recommendations, and automated feedback collection.

Overall, the project successfully digitizes the canteen ordering workflow, making it more organized, time-efficient, and technologically advanced.

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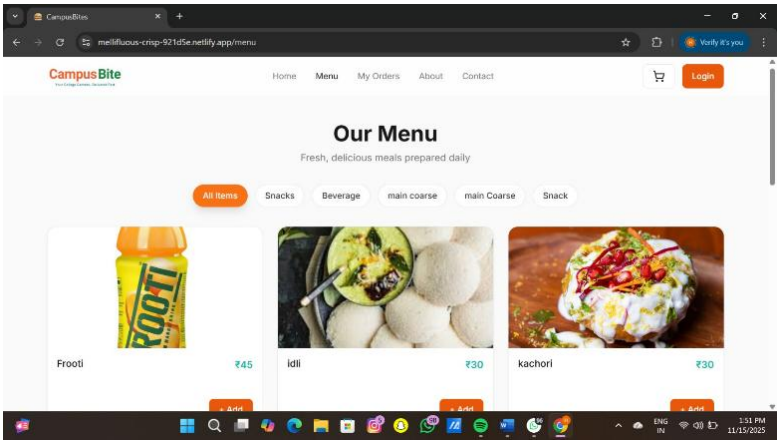

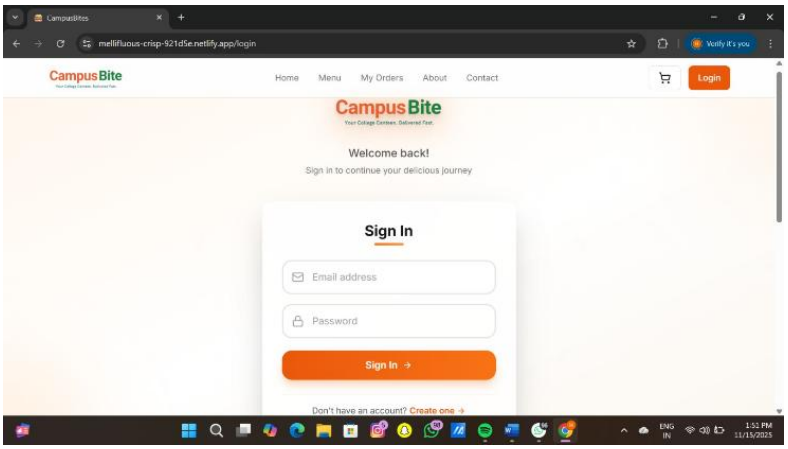

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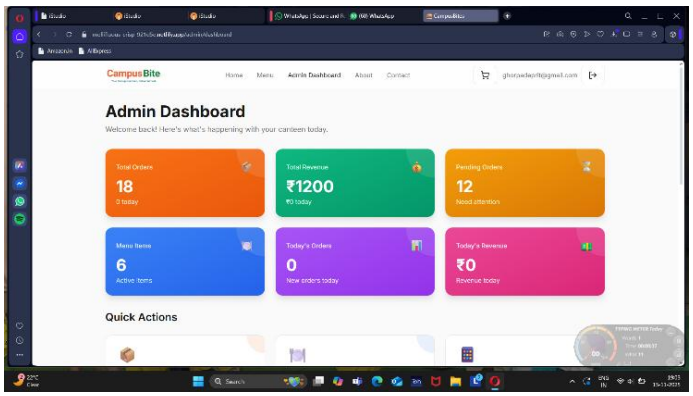

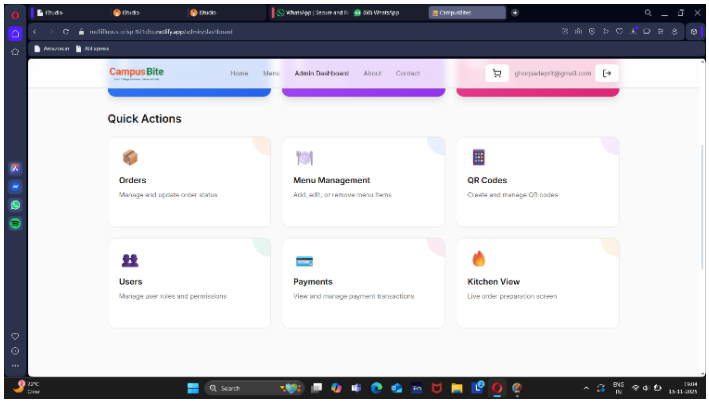

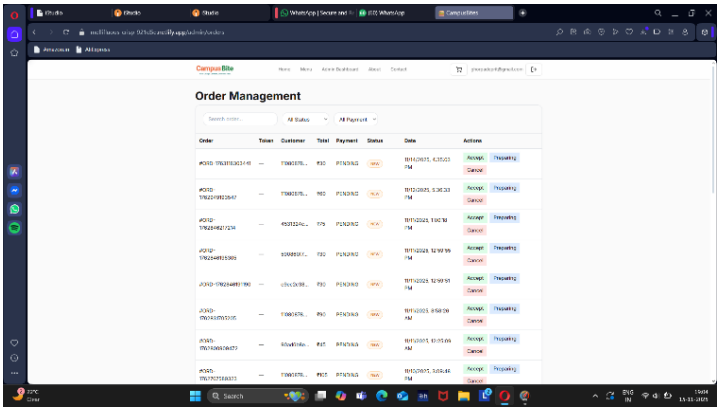

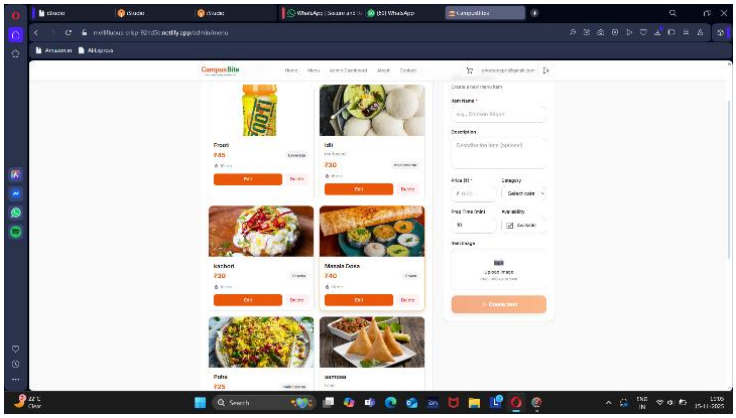

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