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Smart Food Ordering System For Restaurants

Ashwinikumar Sunil Jaiswal, Chinmay R. Kulkarni, Yashaswi Patil, Shrihari Ponde
Department of Information Technology
Sinhgad College of Engineering Pune, India - 411041

Renuka Bhokarkar Vaidya
Assistant Professor at Information Technology
Sinhgad College of Engineering Pune, India – 411041

Abstract:- In the modern food industry, the quality of the restaurant and its food is heavily influenced by its customers. Restaurants pay close attention to their customer's feedback regarding their services, as the company's reputation is at stake based on it. Important criteria for evaluating customer happiness being able to provide the services efficiently to reduce the amount of time while keeping a high level of service, usage. The ordering procedure is typically listed on the menu card in restaurants. This implies that the waiter must arrive and take the order after the consumer selects an item from the menu, which is a time-consuming process. This system needed a lot of staff to manage client reservations, food orders, food inquiries, placing orders on tables, and reminding customers to bring their plates. The goals of this project are to overcome these flaws and deliver efficient and accurate services to customers by providing personalized menus based on their preferences. On the user's device, a menu will be shown. the customer won't have to wait for the waiter to take their order. With wireless connectivity, the chef's display will receive the placed order directly. This approach improves service effectiveness and efficiency. Also, this technique makes the location more appealing to a broad spectrum of clients. The system completes data display, receiving, sending, storing, and analyzing automatically. It offers numerous benefits including excellent usability, time savings, portability, a reduction in human error, adaptability, and consumer feedback, among others. Here, we'll store the data in the cloud. New digital menus for clients are available through the interactive ordering system known as E-menu. "SMART FOOD ORDERING SYSTEM FOR RESTAURANTS" it is all about getting all your different touch points working together connected, sharing information, speeding processes and personalizing experiences.

Keywords:- *Smart Food Ordering, Web Development, Restaurant Management, Smart Menu.*

I. INTRODUCTION

Large number of restaurants occasionally face huge difficulties when satisfying the guests because of the rush. Also, the guests face a lot of difficulties when reserving a table and ordering food. Because of the rush, wrong orders can be served to the guests and there's a high possibility of losing the client base because of the poor client service. Your food may be outstanding, your table settings exquisite and your air pleasurable, but if your service is bad, guests will flash back. When you have too numerous different dishes cooking at the same time and not enough of the same particulars in the same kissers, you 'll spend further time producing orders. Each table takes longer to serve, and you 'll turn them over at a slower rate. Smart food ordering system is the result to minimize these problems and maximize the effectiveness of the restaurants. It'll streamline your systems in the kitchen. When guests are staying in ranges they order food on portal, it decreases the quantum of time the platoon can complete the way similar as cooking the food, it ensures that every mess is ready for your guests on time. Menu on portal give further information about food options, but it allows guests to take the time they need to browse the menu.

There exists result for this problem but they also come with their own debit.

A. Kiosk

A tone- service pavilion is veritably expensive, especially if the pavilion has a touchscreen point. Business possessors that are on a tight budget really can't venture into this type of bid yet. The list of charges just goes on and on, indeed after installation. conservation charges are high, especially since the system is automated.

B. POS

It's handheld device like tablet. as like all tackle device POS system providers will frequently come out with upgrades to ameliorate the system, which is great – still, it means you 'll frequently have to pay for upgrades. You 'll also have to buy new licenses and software, which can be time- consuming.

There are four primary factors that are handled in Smart food ordering system.

- Handling reservations and handling orders duly
- Recommendation operation System
- Seductive print menu
- Sentiment analysis and recapitulating principally, Smart food ordering system is a mobile/web application where guests can find near restaurants, find available tables, make a reservation, order food online, read reviews, and it has a print menu if each eatery, so the client can get a better idea of what the food particulars are. Smart food ordering system lets the guests add reviews on the menu particulars and it'll dissect the conditions and allow the restaurants to decide if they're keeping food particulars on the menu or replace with a different food item. the order handling part will consider all orders and make a que of orders so the orders can be handled duly that can reduce costs over time and enhance your beaneries' client service

experience. Which makes Smart food ordering system not only an order operation system, but also a business intelligence system.

This paper will explain the system enforced and the results attained throughout the exploration.

II. LITERATURE SURVEY

FOODS is a food-oriented ontology-driven system that was developed to help people make informed decisions about their food choices. The system uses an ontology, which is a formal representation of knowledge, to organize information about different foods and their nutritional content. The ontology used in FOODS is designed to capture information about different food categories, such as fruits, vegetables, and meats, as well as specific foods within those categories, such as apples, spinach, and chicken. Each food is described in terms of its nutritional content, including information about its macronutrients (such as protein, fat, and carbohydrates) and micronutrients (such as vitamins and minerals). Users of FOODS can search for specific foods or food categories, and the system will provide information about their nutritional content. In addition, the system can provide personalized recommendations based on a user's dietary preferences and health goals. FOODS also includes a feature that allows users to create meal plans based on their nutritional needs and preferences. The system will suggest meals that meet the user's requirements and can provide recipes and shopping lists to help them prepare the meals. Overall, FOODS is designed to help people make more informed and healthy food choices by providing them with accurate and personalized information about the nutritional content of different foods.[1]

FoodX is a system designed to reduce food waste by using technology to streamline the food donation process. The system consists of three main components: a mobile app for donors, a web-based platform for food banks, and an intelligent routing algorithm. The mobile app allows donors, such as restaurants and grocery stores, to quickly and easily report food that is available for donation. The app uses image recognition technology to identify the type and quantity of food being donated, and donors can also specify pick-up times and locations. The web-based platform is used by food banks to manage and track incoming donations. The platform allows food banks to view available donations in real-time and coordinate pick-up and delivery schedules. The platform also provides analytics and reporting tools to help food banks track their donation activity and identify areas for improvement. The intelligent routing algorithm is used to optimize the donation process by finding the most efficient routes for pick-up and delivery. The algorithm takes into account factors such as the quantity and location of donations, as well as the capacity and availability of food bank trucks and volunteers. Overall, FoodX is designed to make it easier for donors to donate food and for food banks to receive and distribute donations more efficiently. By reducing the amount of food that goes to waste, the system can help address the issue of food insecurity and reduce the environmental impact of food waste.[2]

Foody is a smart restaurant management and ordering system that uses technology to streamline the ordering process and improve the customer experience. The system consists of a mobile app for customers and a web-based platform for restaurant managers. The mobile app allows customers to browse menus, place orders, and make payments directly from their smartphones. Customers can also track their orders in real-time and receive notifications when their food is ready for pickup or delivery. The web-based platform is used by restaurant managers to manage orders, track inventory, and analyze sales data. The platform provides real-time updates on order status and inventory levels, and allows managers to make adjustments to menus and pricing on the fly. Foody also includes features to help restaurants manage their operations more efficiently, such as automatic order printing and integration with third-party delivery services. The system can also provide insights and analytics on customer behavior and preferences, allowing restaurants to make data-driven decisions to improve their business. Overall, Foody is designed to improve the customer experience and help restaurants operate more efficiently by leveraging technology to streamline the ordering process and provide valuable insights into customer behavior.[3]

The **Self-Ordering Concept Food Ordering System** in restaurants is a technology-based solution designed to streamline the food ordering process and enhance the customer experience. The system includes a self-ordering kiosk that allows customers to place orders directly without the need for a server. The self-ordering kiosk features an intuitive interface that makes it easy for customers to browse menus, select items, and customize their orders. The system can also provide recommendations based on the customer's previous orders or popular menu items. Once the customer places their order, the system sends it directly to the kitchen, eliminating the need for a server to manually enter the order. This can help reduce errors and improve order accuracy. The system also includes features such as payment processing and order tracking, allowing customers to pay for their orders and track their progress in real-time. Additionally, the system can provide valuable data and analytics on customer behavior and preferences, allowing restaurants to make data-driven decisions to improve their business. Overall, the self-ordering concept food ordering system is designed to enhance the customer experience, reduce errors, and increase efficiency in restaurant operations by leveraging technology to streamline the ordering process.[4]

The **Smart Menu Card System** is a technology-based solution designed to enhance the dining experience for customers in restaurants. The system replaces traditional paper menus with digital menus displayed on tablets or other devices. Customers can browse the menu, view pictures and descriptions of dishes, and customize their orders directly from the device. The system can also make recommendations based on the customer's previous orders or popular menu items. The Smart Menu Card System can also provide valuable data and analytics on customer behavior and preferences, allowing restaurants to make data-driven decisions to improve their business. For example, the system can track which dishes are most popular, which ingredients

are used most frequently, and which items generate the most revenue. In addition to enhancing the customer experience, the Smart Menu Card System can also improve the efficiency of restaurant operations. Orders can be sent directly to the kitchen, reducing the need for servers to manually enter orders and reducing the potential for errors. The system can also streamline the payment process, allowing customers to pay for their orders directly from the device. Overall, the Smart Menu Card System is designed to enhance the dining experience for customers and improve the efficiency of restaurant operations by leveraging technology to automate and optimize the ordering process.[5]

III. PROPOSED METHODOLOGY

- The restaurant will offer a SMART FOOD MENU to customers via a QR code system, which can be scanned using their mobile devices.
- Each table will be assigned a unique QR code, enabling the restaurant to identify and manage each table separately.
- The menu will display all the items currently available in stock.
- The system ensures that the food is delivered to the correct table without any confusion.
- Customers can make a reservation before arriving at the restaurant.
- Additionally, the system offers online payment options.
- Customers have the option to donate a specific order to feed those in need.
- Customers can leave comments on individual food items.

A. Customer Modules

The application's customer modules provide all necessary features for customers visiting the restaurant, including viewing the digital menu, placing orders, and making online payments. The modules include:

➢ *Scanning module:*

This is the first step, where the customer scans the QR code on their table to be redirected to the restaurant's website. The QR code contains a unique table ID on top of a URL, which is stored for later use.

➢ *Login/ Registration module:*

Returning customers can log in using their unique username, while new customers must complete the registration process before proceeding. After logging in, the customer must select the number of people in their party.

➢ *Menu display module:*

This module displays the current restaurant menu, including top-selling and recommended dishes with images, names, prices, and descriptions.

➢ *Cart module:*

Customers' carts are updated automatically when they add items, and customers can edit their cart at any time before ordering. Previous orders can also be viewed in detail.

➢ *Payment module:*

Once customers click the 'PAY' button, they can view their final bill and proceed with payment. The module is integrated with a secure payment gateway, and receipts are sent to the customer's registered email address.

➢ *Feedback module:*

Customers can evaluate each dish, comment on the ordering process, and suggest improvements to the restaurant's hospitality.

➢ *Notification module:*

Customers receive notifications via WhatsApp with order details, and after successful payment, customers receive notifications with the amount received and payment receipts.

B. Manager Modules

The manager modules include analysis of orders, product management, and order and sales management, with the following modules:

➢ *Analysis module:*

This module provides a variety of data visualizations, including customer and product statistics, order information, and daily and monthly revenue estimates.

➢ *Product management module:*

Managers can perform CRUD operations on products, such as adding and updating products based on categories and managing the current date's menu.

➢ *Sales module:*

Managers can view detailed sales information, including customer IDs, order IDs, and order dates.

➢ *Bill history module:*

This module allows managers to view all billing information, including past orders, and delete them.

➢ *Report module:*

This module helps the manager to download sales, order, and customer reports in various formats.

C. Chef Modules

The chef modules enable the chef to view incoming orders and update their status, with the following modules:

➢ *View orders module:*

Chefs are notified with a beep sound when an order comes in and can view detailed order lists.

➢ *Update Status module:*

Chefs can update each order's status to 'Accepted', 'In Progress', or 'Rejected'.

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IV. SYSTEM ARCHITECTURE

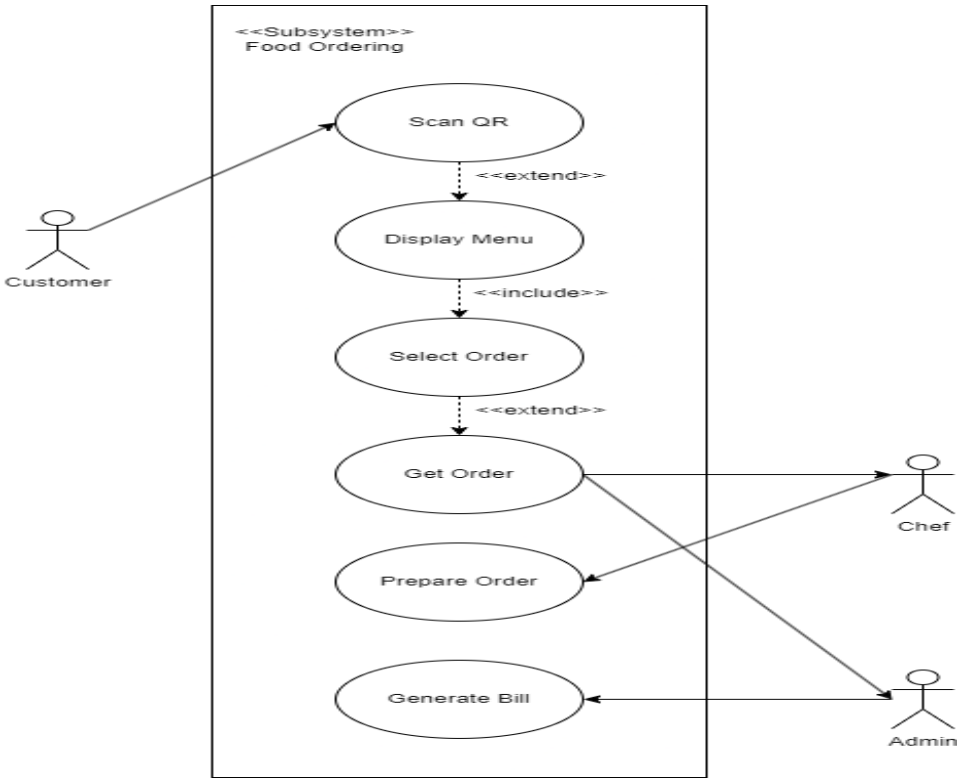

Diagram 1: Use Case Diagram

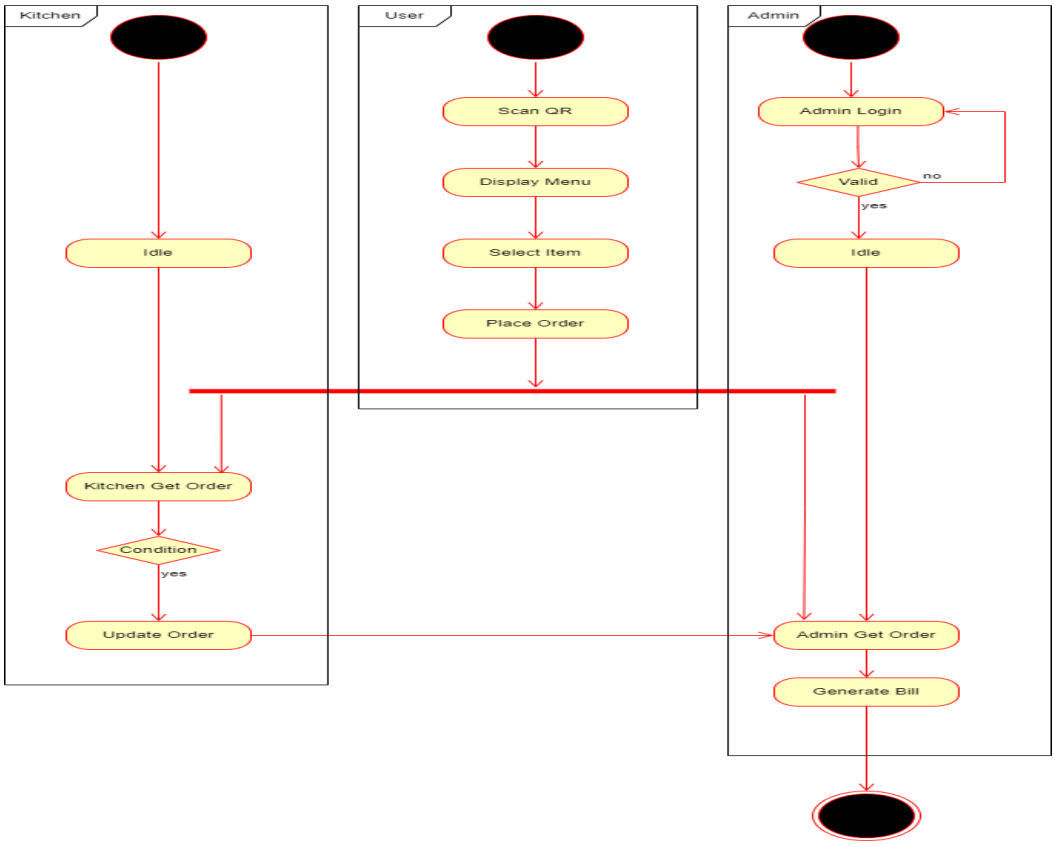

Diagram 2: Activity Diagram

V. CONCLUSION

A touch-based digital system designed for restaurants is suggested to replace the traditional pen-and-paper method of taking orders. By automating the food ordering process, this system reduces the need for manual labor and minimizes costs. Only a one-time investment in installing the devices is required. This system eliminates errors caused by human mistakes and saves time by streamlining the ordering process. It is fast and efficient, preventing queues from forming. Furthermore, this system simplifies the entire food ordering process, offering real-time feedback from customers, which makes it more dynamic. Restaurants can use the self-ordering system to simplify the process of receiving and managing customer orders. By having the system installed at each table, customers can easily place their orders, which can help restaurants manage their inventory of available raw materials.

VI. FUTURE SCOPE

More efforts are required to integrate comprehensive nutritional data regarding the ingredients and other substances, including the vitamins present in each component. An interesting aspect that could be added to the system is a chart showcasing nutrient balance signs, caloric ratios, or calories linked to the selected meal or menu. Moreover, adapting recipes to suit specific nutritional requirements like those of diabetic patients and adjusting them according to seasonal or regional availability of ingredients can enhance the system's functionality.

Another way to improve the system is by incorporating live cooking demonstrations that allow customers to view the cooking process online through the system's menu. Furthermore, incorporating multimedia, such as videos, to showcase the professional meal preparation process could add to the overall user experience.

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