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A PROJECT PROPOSAL ON A WEB-BASED RESTAURANT MANAGEMENT SYSTEM

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1. INTRODUCTION

Historically, restaurants referred only to places that provided tables where one sat down to eat the meal, typically served by a waiter. In, the term restaurant almost always means an eating establishment with table service, so the "sit-down" qualification is not usually necessary. Fast food

and takeaway (take-out) outlets with counter service are not normally referred to as restaurants.

Long gone are the days when manual input was used. This was a slow and tedious process and needed to be replaced (Mwanyolo, F.C., 2021). The traditional food ordering system is totally a manual process that includes pen, paper, and waiters.

Technology in any business is needed to greatly optimize both organizational and managerial aspects of such an organization. There is also the provision of real-time information, customizable interfaces based on the requirements, and high adaptability to any business field.

"Online Restaurant Management System" is a web application and its system is Automated, more accurate, and saves time. This system is developed to automate day to day activity of a restaurant. This restaurant management system can be used by employees in a restaurant to handle the clients, their orders and can help them easily find free tables or place orders. The services that are provided are food ordering and reservation table management by the customer through the system online, customer information management and waiter information management, menu information management, and report (Lee Iverson,2006.)

The web-based restaurant management system is designed primarily for use in the food delivery industry. This system will allow hotels and restaurants to increase the scope of business by reducing the labor cost involved. The system also allows to quickly and easily manage an online menu that customers can browse and use to place orders with just a few clicks. Restaurant employees then use these orders through an easy-to-navigate graphical interface for efficient processing.

2. Proposed project description

2.1. Statement of the problem on the existing system

Nowadays, many restaurants manage their business manual, especially taking customer orders. Since the restaurant management system is manual, a customer has to go to the restaurant or make a phone call in order to get his/her meal reserved. The restaurant waiter takes the customer's order by the manual system using paper. The manual management of the restaurant system is time-consuming and inflexible. If the restaurant is not web-based customers cannot order food online, before they visit the restaurant. They have to visit the restaurant and place the order and then they have to wait until the order is ready. There is no visual confirmation that the order was placed correctly. Customers cannot ensure the correctness of their orders. Order customization is also difficult because it takes more time. The restaurant waiter information also by manual system kept use paper and this is difficult for restaurant administrator to find waiter information, probability missing the paper and difficult to arrange the schedule. Initial problem is that the customer has to get connected over the phone; it would be harder if the restaurant is very popular and busy. There might be also some communication problems or sometimes language might be a barrier. As a result, the current system (manual system) is not effective and efficient to use anymore. As the entire booking has to be done manually at the restaurant end, the chances of occurrence of mistakes is high as well. The current system cannot save, manage and monitor the restaurant waiter information, menu information, customer ordering information, and generate reports well. The paper menus can be flimsy, hard to navigate, and outdated. To leverage the growing mobile industry, the online restaurant proffers solutions. This restaurant menu and management system will replace the paper waste, is more maintainable, and allows for greater customer engagement.

2.2. The project objectives

The main objective of the web-based restaurant management system is to provide ordering and reservation services online to the customer. Each menu item has a name, price, and associated recipe. A recipe for a menu item has a chef, preparation instruction, and associated ingredients. Not the least, 80% of restaurants are turning to technology for online ordering, reservation, inventory, and analytics (Patel, M., 2015).

Increasing maximum profit and return is the aim of any business sector. This can achieve by increasing efficiency and decreasing overheads without compromising customer satisfaction. AS almost all processes are manual and time-consuming, all the processes should be automated through web-based management.

2.2.1. The general objective of the project is to design or develop a web-based restaurant management system.

2.2.2. The specific objective of the project is: -

- ✓ Improve customer relationship management through the web-based system
- ✓ To avoid queues and maintain menu item management to handle customers in little time through a web-based system.
- ✓ The manual table booking system will be replaced by an online order system.
- ✓ To determine how the system can lead the organization towards better decision-making and building a competitive advantage over its competitors.
- ✓ To enable restaurants to bill and collect money from their customers remotely.

2.3. The services provided by the Proposed system

The web-based Restaurant management system is the system for managing the restaurant business. After successful login, the customer can access the menu page with the items listed according to the desired time. The important aspects of developing this system are to help restaurant administrators manage the restaurant business and help customers with online ordering and reserving a table. In the proposed system (web-based restaurant management system) user can search for a menu according to his/her choice i.e., according to price range and category of food, and later he can order a meal.

The project will be developed because; many restaurants have a lot of difficulties managing the business such as customer ordering and reservation tables. If the customer book order and later wants to cancel the order, he is permitted to do this only within a specific time period. By using manual customer ordering is difficult to waiters keep the correct customer information and maybe loss the customer information. The customer is also given the facility to view the status of the order and if the order is ready then he can go and get it.

2.3.1. Improvement Restaurant Operations

Web-based restaurant management system has great improvement in restaurant working of the existing system. It uses a tablet to the customer table where they can order their favorite food and

drink. Here the need for a menu is eliminated. When the particular restaurant app is provided to them, they can give their order to the server sales can continue to options for table side services. The main objective of this project is to leverage more options and faster services to the customer.

2.3.2. Data can be accessed from anywhere

The cloud-hosting method is used in most restaurants today. It allows to access the system and data from a web browser. Real-time sales transactions and tracking employee performance are allowed even on the go. That means management is not required to stay on restaurant premises to handle the restaurant. A manager can be a hands-on manager while out of the place. Even for the client or investor, this is beneficial because of the remote data access.

2.3.3. CRM (Customer Relationship Management)

Customer Relationship Management System can be easily handled through web-based.CRM is an approach to be connected with the clients and it helps to manage relationships between customer and manager. CRM is a method for managing an organization's relationships and interactions with customers or users. CRM systems help companies to stay connected with clients or customers, streamline processes, and improve profitability. This is probably the best reason to use a restaurant management system: make customers happy. With more knowledge of customers' likes, delivering a more satisfying service is possible. This can build a mailing list, run campaigns that target their interest based on past orders or push deals that match their profiles. The main aim of our project is time-wise services to customers through web-based technology.

2.3.4. Minimize Manual Task

It reduces the manual tasks at hand and thus the labor costs are lowered as well. In addition, it cuts down the problem of wrong delivery, since it contains the token number, which is present on the bill. This is one of the points that advance customer satisfaction.

2.3.5. Track Sales Item by Item

All transactions such as orders, payments, promotions, deals expenses are captured by the restaurant management system. Therefore, sales data is accurate and spot on to last item. Therefore, revenues can be calculated correctly and health of the business operations can be identified accurately. In built notifications are there to give notifications of variances of the system. Most of restaurant management systems have this feature. As an example, the gap between stock level and order volume at the end of the day, or unauthorized order voids. Alerts

are typically sent via email or phone or can be viewed from a dashboard. Sales data can also be broken down into various categories to make sense, such as by bestselling item ranking, customer names, or cash vs. card payment rate (M. Chauhan,2020).

2.3.6. Staff management become more efficient

If employee scheduling is available in a restaurant management system, it will help to staff allocation during the peak of off-peak time frames. Downtime may be less. With aggregation of sales data with staff schedules, it is possible to match demand with supply. It will help to ensure that resources are optimized, neither over- or under- utilized. Other than that, most of the systems employee scheduling feature. Using this method, employees can plot their schedule where everybody sees the available and taken slots. Conflicts of schedule or nonappearance can be avoided using this feature. Waiting staff during peak hours can be managed using this. It is helpful because staff can manage their own schedule without any problem.

2.3.7. Better communication for the kitchen, wait staff, and cashier

The perennial problem in running restaurants is that somewhere along the way, someone mixes up information. The result: an angry customer whose order is, if not wrong, remains unaddressed or improperly billed. A restaurant management system does away with this scenario. When waiting takes orders via a handheld device, that data is automatically transmitted to the cashier, so the right transaction is captured and billing is accurate. At the same time, the handheld device transmits the order items to the kitchen. Barking orders to the head cook is a thing of the past (Piyatissa, W.B.A.C., 2021).

2.3.5.1. All users of the system, are provided with below menu options:

- ✓ Orders of service online
- ✓ Home
- ✓ Menu
- ✓ Register for online service
- ✓ Cost-saving by remote service
- ✓ About Us and
- ✓ Contact

3. METHODOLOGY

This chapter will cover the overall study design and data analysis for the web-based restaurant management system, for development and understanding covering the whole activities of the project.

3.1. Languages to be applied for the development of the proposed system:

3.1.1. HTML

The HTML file plays a couple of significant roles in a webpage. Hypertext Markup Language, or HTML, is a programming language used to describe the structure of information on a webpage. Together, HTML, CSS, and JavaScript make up the essential building blocks of websites worldwide, with CSS controlling a page's appearance and JavaScript programming its functionality [https://generalassemb.ly/blog/html-web-development-building-bones-website/].

3.1.2.CSS

CSS (Cascading Style Sheets) is a language for styling the webpage. We can change the appearance and the layout of the webpage by using CSS. We can also define how a website's view changes on different screens like desktops, tablets, and mobile devices [https://medium.com/swlh/css-for-beginners-what-is-css-and-how-to-use-it-in-web-development-5985afe53096].

3.1.3. Javascript

JavaScript is a client-side programming language that helps web developers to do Web Application Development and make dynamic and interactive web pages by implementing custom client-side scripts. Developers can also use cross-platform runtime engines like Node.js to write server-side code in JavaScript. Developers can also create web pages that work well across various browsers, platforms, and devices by combining JavaScript, HTML5, and CSS3[https://medium.com/@bjokung/why-javascript-43afea8eb4ad].

3.2. The main actors in our project

Table 1:The main actors

Actor	Description
Project designer	Operating all project activities
Administrator	System Administrator/manager
Chef	The chef who desired accept
Registered Customer	Register customer who is registered in the system
Guest	Non registered customer
manager assistant	Assisting major manager
head waitress	Supervising the waitress
waitresses	Serving a meal to the customer
clean up crew	Cleaning all around the restaurant

4. PLAN OF THE WORK

Since we have a short time, the overall activities will be covered based on the work plan below.

Table 2:Plan activities of the project

S.no	Activities	Month							
		Feb.				March			
		1-6	7-15	15-20	21-30	1-6	7-15	15-20	21-30
1	Title selection								
2	Title approval								
3	Proposal development								
4	Proposal submission								
5	Code writing of the project								
6	Project submission								

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