



## The Future of Dining: Smart Seat Management for Busy Restaurants

Dr. Shraddha Habbu<sup>1</sup>, Shrinivas Tawde<sup>2</sup>, Avishkar Gadhave<sup>3</sup>,  
Mahesh Kachave<sup>4</sup>, Aditya Waje<sup>5</sup>

<sup>1</sup>HOD EnTC VIIT Pune, India.

<sup>2,3,4,5</sup> EnTC VIIT Pune, India.

Date of Submission: 13-11-2024

Date of Acceptance: 26-11-2024

**Abstract**— Seats at their preferred locations, confirm the reservations made and update customer's profiles based on their orders to improve their experience at the restaurant in question. The primary goal of this project is to assist in scheduling customer's bookings of tables as a way of increasing the customers' contentment and improving the functioning of the restaurant, which proves to be indispensable when it comes to successful handling of busy diners.

**Keywords**— Table booking System, Restaurants Reservation Software, Pre-booking system.

### I. INTRODUCTION

Restaurants' on seat management is particularly a serious issue in cities with large populations since there are hardly enough seats for the many clients who walk in during peak periods. Such problems lead to over utilization of the dining room space, long queues and even inefficient use of space within the dining room. Apart from the enhancement of services in the restaurant sector doors to new challenges have opened as well. This is one of the areas that have seen Smart Seat Management Systems where data and automation are deployed to resolve seat complaints.

Room planning and management utilize the systems, which enhance the customers' ability to have real-time information on table occupancy status and enable them to book complimentary services ahead using mobile apps. As the different players within the restaurant industry continue to compete, embracing adoption of such systems is increasingly becoming essential in ensuring customer satisfaction and efficiency in restaurants as well. Mahesh, in this case, wants to find out what effect having the smart seat management system in busy restaurants will have on that system itself and how it will contribute to making such eating places more efficient. To give there estimated seating occupancy percentage turn in these figures in consideration with the other festivities such as sizing estimating senior seminars in

also wedding reasoning to dive the within with the Hypothesis and flow chart that is depicted ethnographic investigating.

The key objective of the Restaurant seat management-system is development of an online booking system and efficient organization of eleven local heaters for better around restaurant. Its central objective is to increase the table turnover rate, shorten waiting periods and improve the client's satisfaction and the overall eating experience. This system facilitates space management in the restaurants since it enables the clients to reserve tables and choose seating options as well as permits the proper allocation of tables to seeking staff. Hence, the solution will be effective for restaurants that aim at achieving the operational efficiency and giving their visitors a smooth operation that transcends that coming for the usual meals.

### II. OBJECTIVE

The aim of Restaurant seat Management system project is to provide a solution in understanding and developing an effective, simple and useful application for the management of restaurant seating an Streamlining the process of booking seats in order to facilitate advance table reservations by customers.

- Arranging the seating so that all the tables will be efficiently occupied regardless of the varying sizes of the groups.
- Easing the burden of waiting to be seated by a customer and improving the overall experience of dining through instant access and management of dinner tables.
- Offering a platform to the restaurant personnel whereby all the reservations, walk-ins and cancellations are contained in one place.



- The future directions of intelligent seating systems in restaurants and what role these may take in the new advancements in gastronomy.

### III. LITERATURE REVIEW

All over the years, new technology in restaurant services has greatly advanced in the last ten years. The most notable early development included that early development such as order food delivery online, mobile payments which were highly usable. However, nowadays the latest trends are seat management systems, which enable customers to see which tables are taken and which are free, make a reservation immediately or in advance, and select seats according to the proximity of windows or steps.

According to research, smart reservation systems cause not just improvement in the grade of customer satisfaction but also a quick turnover of tables and thus higher revenue for the establishment. Restaurants that began online booking according to a study carried out by Acheampong (2018) say that Online reservation systems helped to increase the figure of customer visits in restaurants on 15-20%, and the amount of no-shows was decreased significantly.

“The trend of bringing about digitalization in the restaurant sector has led to a number of technical innovations having emerged such as online food ordering and subsequent payment. One of these stands out is the smart seat management systems that have helped to alleviate one of the greatest challenges in the restaurants i.e. seating efficiency.”

### IV. PROBLEM STATEMENT

Management of seating in a full restaurant is one of the problems that occur frequently during peak hours as no single table may be available. Seating plans and reservations are done in many restaurant settings manually leading to wastages like the non-use of tables, protracted periods of taking a table, and significant customer dissatisfaction. In addition to this, the unsurprisingly inadequate system hinders the restaurant's ability to optimize table turnover protection as well as revenue generation while in fact reducing the quality of dining experience.

Event ticketing systems are an answer to this problem, since they facilitate management of the restaurant's operations through a generation of predefined rules regarding table bookings, and

ticketing that communicate how many of each kind are still available. Customers can enjoy steadily and on time services without waiting for unnecessary hours. These systems can play a critical role in space optimization and ensuring that the experience for restaurant patrons is efficient and pleasant as opposed to otherwise.

### V. PROPOSED SYSTEM

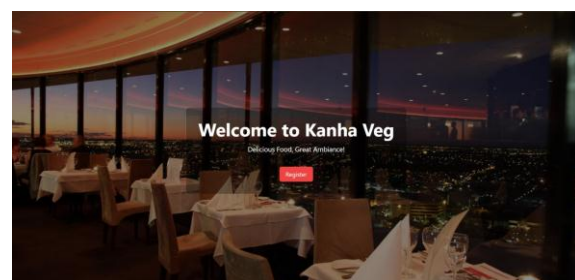
Bygone struggles of the busy restaurants are what the proposed smart seat management system hopes to eliminate. It has features that let more customer satisfaction and higher performance from the operations management.

- **Seat Real Time Availability:** The restaurant system has the current table status readily available and therefore customers would be able to select the right time to visit a restaurant.
- **Reservation System:** The customers can make reservations for their tables ahead of time using the app or website. The system performs the allocation of the tables automatically depending on how many people are in the party and how many tables are free.
- **Seat Allocation:** This functionality provides that the seat arrangements continue to be refined all the way to the last minute, especially in situations where there are cancellations, walk-ins, or no-shows.
- **Waitlist:** In the event that the entire capacity of the restaurant is occupied, the system is also able to set up and manage the waiting list and notify patrons when their seating is available.

### VI. APPLICATION

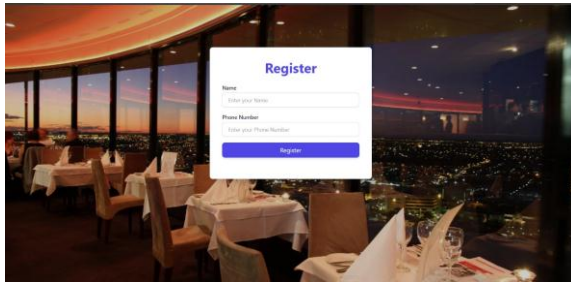
Starting of our application is welcoming of guests or users to the restaurants or hotels.

This page can also be called as Home page for user.

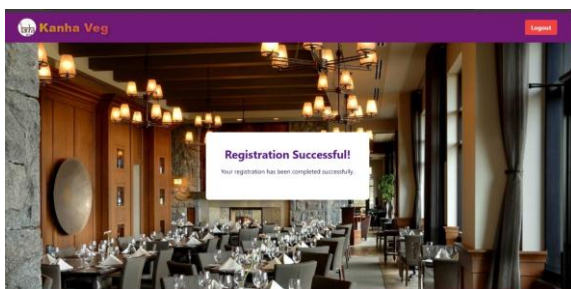




After click on the “Register” button which is present on the home screen this page will open, this page is for only Registration. User have to register for another next steps.



When your Registration will be done then you can see this page that is showing of your Registration Successful.



Kanha Veg		
NAME	PHONE NUMBER	ACTION
0123456789	9876543210	Book Available
0123456789	9876543210	Book Available
0123456789	9876543210	Book Available

## VI. CONCLUSION

Effectively, the Seat Management in Restaurant System project has revolutionized how reservations and issue of seating arrangements are efficiently handled by restaurants. One of these systems' strengths lies in their accessibility by providing customers with self-service alternatives through the mobile apps that allow them to see the online appearance of the tables and make bookings or even order food. This enables customers to organize their coming within a very short time and without a arranging of too much effort. So, it also helps the establishments make usage of the acquired square footage, manage bigger parties more efficiently, and avoid sitting people at tables that will remain idle for too long.

As a result, the system contributes to faster customer service and a higher number of seats for guests as the automated system reduces waiting periods for guests and the pressure of changing over tables. Therefore, the system of seat and resource management in restaurant systems offers more than only streamlining workflow processes. It greatly engages and satisfies the customers as well. Some other ideas for improvement may include integration with a mobile application, loyalty program functionality, and reporting tools that will help to enhance the customer journey and restaurant operation.

## VII. BENEFITS OF SMART SEAT MANAGEMENT SYSTEMS

Increased Operational Efficiency Due to the advancements in the smart seat management systems, they have enabled complete automation of table reservation and seating which reduces and even eliminates most of the time-wasting steps. The restaurant is able to effectively manage and deploy staff because the waiter or some other restaurant staff does not have to be running around, looking for an empty table. The system's dynamic seat allocation maximizes the-use of the space by assigning the tables to the guests based on the size of the party and the table available at that moment. This in turn ensures that the maximum number of customers is served by the restaurant thus enhancing table turnover and maximizing revenue.

- Improved Customer Experience One of the major benefits of smart seat management systems is the ease of operations to the customers. The customers can book a table for themselves avoiding long queues by checking for availability and making use of mobile phones. Extra waitlist electronic management systems and sending SMS notifications or in-app confirmations for reservations also increase the comfort hence the overall satisfaction of a meal at the establishment.
- Optimized Space Utilization Congestion in restaurants can at times lead to a loss in revenue if space is not effectively utilized. Smart seat management systems work to make sure that every table is effectively utilized even at the most busy hours in the restaurant. The system can pair sit party smaller parties and place larger tables for bigger groups hence maximizing the use of the available seats without compromising on comfort.
- Data-Driven Decision Making Considerable new intelligence is required for informing the restaurant managers about the reservation's status. Smart seat management solutions offer great data



concerning efficient operations of restaurants. Analytics can be carried out regarding the seats occupied, the customers visiting and the time taken to visit the Decisions on the number of employees, their advancement, and layout changes were taken. This helps a lot, as the restaurants are able to cope with the new market tendencies and achieve better results as a whole.

International Journal of Innovation in Engineering & Management.

#### VIII. FUTURE SCOPE

As artificial intelligence and machine learning AMIL is still being developed, so intelligent seat management systems are likely to be more advanced in the future. Systems that learn customers' preference patterns during past visits using AI could very well reorganize seats and tables at an instance before the customer goes to the eating place. Also, people would be able to make reservations with ease via voice control ordering systems such as Alexa and Google Assistant which would be worth commonplace in the future.

Future innovations could also entail AR would allow customers to "try out" how an arrangement looks by sitting in 3D space prior to the actual reservation of the particulars. It is also likely that restaurants will adopt cloud solutions to further increase resilience and ease of scale by enabling instant changes and improvement in data integration.

#### REFERENCES

- [1] Paresh.R.Bora, Eshan Gupta, October (2012), "Application on Order Management Systems in Restaurant, "International Journal of Application or Innovation in Engineering & Management (IJAIEM).
- [2] S. R. Patil, Snehal Salunkhe, Kulkarni & Priyanka Savant, "E-converse An Affordable Screen Nikita Touch Solution To Intrigue Dining Experience", Department Of Computer, Bharati Vidyapeeth's College Of Engineering
- [3] Acheampong Samuel, Nanjing University "Design and implement an online restaurant reservation system" published on Volume 7, Issue 4, August 2018.
- [4] Acheampong, S. (2018). *Design and Implement an Online Restaurant Reservation System*. Journal of Computer Science and Engineering.
- [5] Paresh, R. B., & Gupta, E. (2012). *Application on Order Management Systems in Restaurants*.