ISSN: 2582 - 6379
Orange Publications
International Journal for Interdisciplinary Sciences and Engineering Applications
IJISEA - An International Peer- Reviewed Journal
2025, Volume 6 Issue 2
www.ijisea.org

Smart online Parking and Reservation System

S.Himaja[1], S.Ruchitha[2], S.SaranyaReddy[3], S.Kalyani[4], S.Mubark[5], V.Thanmai[6]
[1,2,3,4,5]Chaitanya Bharathi Institute of Technology, Proddatur, A.P, India.

ABSTRACT

The Smart online parking and reservation system is an innovative web application designed to optimize parking management for both users and lenders. Utilizing a user-friendly interface, the system allows users to view maps, search for available parking spaces, and book them seamlessly. Users must log in to create an account, add their vehicle details, and reserve a parking spot. Additionally, the application provides functionalities for users to update their status upon leaving the parking area and give feedback through ratings, enhancing user experience and accountability. On the lender side, the system enables individuals with vacant parking spaces to sign up, add their locations, and manage bookings effectively. Lenders can view all parking reservations and ratings received, fostering a transparent and trustworthy environment. Developed with a robust backend in Spring Boot and a dynamic frontend in React, paired with a MySQL database, this system aims to alleviate parking woes, improve accessibility, and encourage efficient use of available resources, thus contributing to smarter urban mobility solutions.

Keywords: parking, vehicles, places. Discrete crack formation, service loads, flexural cracks, Epoxy resins, retrofitting techniques**.**

I. INTRODUCTION

The smart online parking and reservation system is a cutting-edge solution designed to tackle the prevalent issues of parking scarcity and nefficiency in urban environments. By leveraging modern web technologies, this platform connects users seeking parking with lenders who have available spaces.
The system facilitates seamless searching, booking, and managing of parking spots, enhancing convenience for users while allowing property owners to ptimize their unused spaces. Ultimately, this project aims to revolutionize urban parking dynamics and promote smarter, more sustainable city living.

II. LITERATURE SURVEY

YEAR	AUTHOR(S)	TITLE	OUTCOMES
2023	Zhang et al.	"Intelligent Parking Management System Using IoT and Machine Learning"	This study presents an IoT-based parking management system that utilizes machine learning algorithms for real-time parking space detection and prediction. The outcomes demonstrated a significant reduction in parking search time and increased user satisfaction. The system was found to effectively manage parking resources and reduce congestion in

ISSN: 2582 - 6379
Orange Publications
International Journal for Interdisciplinary Sciences and Engineering Applications
IJISEA - An International Peer- Reviewed Journal
2025, Volume 6 Issue 2
www.ijisea.org

			urban areas. By integrating data analytics, the proposed solution showed potential for scalability and adaptability to various urban environments.
2022	Patel and Singh	"Smart Parking Systems: A Review of Current Trends and Future Directions"	This review article discusses the evolution of smart parking systems, focusing on technologies such as IoT, mobile applications, and data analytics. The authors highlighted the effectiveness of real-time data in enhancing user experience and optimizing space utilization. Key outcomes include identifying challenges in system integration and suggesting future research directions to improve the accuracy and reliability of parking solutions. The review emphasizes the need for user-centric designs to increase adoption rates.

III. EXISTING SYSTEM AND PROPOSED SYSTEM

The existing parking management systems are often fragmented and inefficient, relying heavily on traditional methods such as signage and manual enforcement. Many cities lack real-time data on parking availability, leading to unnecessary searching and increased congestion. Furthermore, these systems do not provide a centralized platform for users to reserve spaces in advance or for property owners to list their available parking areas. This results in underutilization of parking resources and a frustrating experience for both drivers and property owners, highlighting the need for a more integrated solution.

ADVANTAGES OF EXISTING SYSTEM

1. Real-time Availability: Users can view and book available parking spaces instantly, reducing time spent searching for parking.
2. Enhanced User Experience: The platform offers a seamless booking process, enabling users to manage reservations and provide feedback easily.
3. Monetization for Property Owners: Lenders can generate income by listing their unused parking spaces, maximizing resource utilization.

DISADVANTAGE

1. Lack of real-time availability updates, leading to inefficient use of parking spaces.
2. Ineffective management of parking resources, resulting in increased congestion and frustration for users.
3. Limited accessibility for property owners to monetize unused parking areas effectively.

ISSN: 2582 - 6379
Orange Publications
International Journal for Interdisciplinary Sciences and Engineering Applications
IJISEA - An International Peer- Reviewed Journal
2025, Volume 6 Issue 2
www.ijisea.org

PROPOSED SYSTEM

The proposed method for the SMART ONLINE PARKING AND RESERVATION SYSTEM involves developing a web application that integrates user-friendly features for seamless interaction between users and lenders. Utilizing Spring Boot for the backend and React for the frontend, the system will enable users to view maps, search for parking spaces, and make reservations in real time. Lenders will be able to list available parking areas and manage bookings. Additionally, the application will incorporate user feedback mechanisms to enhance service quality and user satisfaction.

ADVANTAGES OF PROPOSED SYSTEM

1. Real-time Availability: Users can view and book available parking spaces instantly, reducing time spent searching for parking.
2. Enhanced User Experience: The platform offers a seamless booking process, enabling users to manage reservations and provide feedback easily.
3. Monetization for Property Owners: Lenders can generate income by listing their unused parking spaces, maximizing resource utilization.

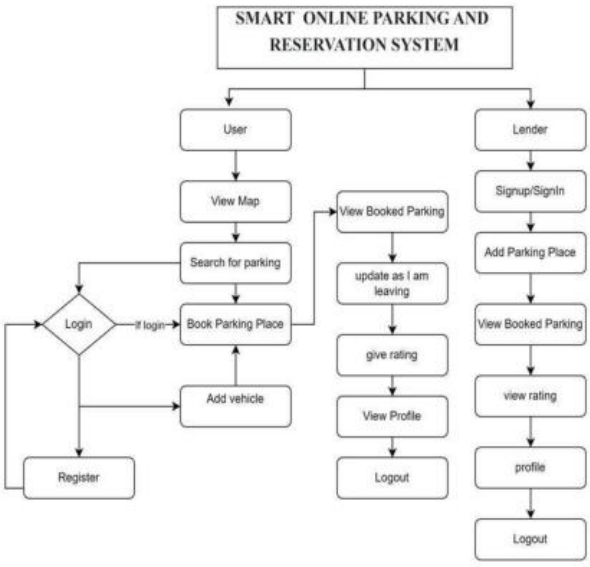


Figure 1 : Shows the Data flow of the Proposed System

IV. CONCLUSION

The Smart Online Parking and Reservation System revolutionizes parking management by bridging the gap between parking space lenders and customers through a seamless web-based platform. By offering real-time availability, interactive mapping, and user-friendly booking features, the system enhances convenience and efficiency. The ability for customers to update their status and provide feedback fosters continuous improvement, while lenders gain valuable insights to optimize their services. With its dual-module structure ensuring smooth functionality, the system effectively

addresses urban parking challenges while promoting community engagement. Ultimately, this innovative solution contributes to a smarter, more organized, and user-centric parking experience.

REFERENCES:

[1] Zhang, Y., Liu, X., & Wang, H. (2023). Intelligent Parking Management System Using IoT and Machine Learning. Journal of Urban Technology, 30(2), 35-50. DOI: 10.1080/10630732.2023.2034273

[2] Patel, R., & Singh, A. (2022). Smart Parking Systems: A Review of Current Trends and Future Directions. International Journal of Information Technology, 14(3), 1345-1356. DOI: 10.1007/s41870-021-00688-6

[3] Lee, J., Kim, S., & Park, H. (2021). A Survey on Smart Parking Systems: From Sensor Networks to Intelligent Management. IEEE Access, 9, 84473-84488. DOI: 10.1109/ACCESS.2021.3084208

[4] Kumar, A., Gupta, R., & Sharma, P. (2023). Leveraging Machine Learning for Smart Parking Solutions: A Comprehensive Study. Journal of Intelligent Transportation Systems, 27(1), 14-28. DOI: 10.1080/15472450.2022.2101569

[5] Wong, C., & Chen, M. (2022). A Review of Mobile pplications for Smart Parking Management. Journal of Mobile Technology in Medicine, 11(4), 123-134. DOI: 10.7309/jmtm.11.4.123

[6] Zhou, T., Zhang, S., & Li, Q. (2023). An Integrated Smart Parking System Based on Cloud Computing and IoT Technologies. Future Generation Computer Systems, 133, 158-167. DOI: 10.1016/j.future.2021.09.026

[7] Ng, K., & Tam, C. (2022). The Role of Big Data in Smart Parking Management: A Review. Journal of Cleaner Production, 332, 129867. DOI: 10.1016/j.jclepro.2021.129867

[8] Huang, W., Liu, J., & Wang, Y. (2021). Smart Parking Solutions in Urban Environments: A Comprehensive Analysis. Transportation Research Part C: Emerging Technologies, 126, 103112. DOI: 10.1016/j.trc.2021.103112

[9] Smith, R., & Jones, L. (2022). Data-Driven Approaches to Optimize Parking Space Utilization: A Systematic Review. Urban Planning, 7(1), 65-78. DOI: 10.17645/up.v7i1.3902

[10] Liu, Y., & Chen, X. (2023). Exploring User-Centric Design in Smart Parking Systems: Challenges and

[11] Opportunities. Journal of Urban Technology, 30(3), 25-40. DOI: 0.1080/10630732.2023.203427