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Smart Parking Management System

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Abstract: *The Smart Parking Management System (SPMS) is a cutting-edge solution that effectively tackles the persistent issues encountered in urban parking environments. By incorporating advanced technologies like Internet of Things (IoT), data analytics, and machine learning, the SPMS aims to optimize parking space utilization, mitigate traffic congestion, and improve overall user satisfaction. This abstract provides a comprehensive overview of the SPMS, outlining its key features such as real-time parking availability updates, seamless reservation capabilities, and integration with navigation apps. Furthermore, it highlights the system's contribution to sustainability efforts through the provision of electric vehicle charging infrastructure.In today's fast-paced world where time is of the essence, finding a suitable parking spot in urban areas can be quite daunting. The Smart Parking Management System (SPMS) comes as a breath of fresh air with its innovative approach to solving this problem. By utilizing state-of-the-art technologies like Internet of Things (IoT), data analytics, and machine learning algorithms, the SPMS aims to revolutionize how we park our vehicles in cities.At its core, the SPMS is designed to optimize parking space utilization while reducing traffic congestion. Through real-time updates on available parking spots via mobile applications or digital displays at car parks entrances/exits; drivers can effortlessly locate vacant slots without wasting precious time circling around aimlessly looking for one*

Keywords: Smart Parking Management System

I. INTRODUCTION

To build a responsive website with separate logins for parking space owners and seekers, meticulous planning and design are key. Incorporating Redux ensures efficient state management, enhancing scalability. Craft distinct login pages using HTML, CSS, and React.js, with robust form validation. Implement mobile-first principles and responsive layouts for device adaptability. Utilize Redux for streamlined state handling, empowering developers. Employ CSS media queries or frameworks like Bootstrap for responsive design. Ensure seamless communication between components for consistent user experiences. Test rigorously for compatibility across devices. Deploy on reliable hosting services for accessibility. Maintain and update regularly for security and functionality. This systematic approach ensures a userfriendly experience tailored to both user types.In order to ensure the alleviating the congestion,ensuring smooth traffic flow, and enhancing the overall urban experience. To address these challenges the implementation of a comprehensive smart parking management system (spms) emerges as a variable solution.

Bookings

In this module the smart parking management system (spms) is an traditional approach to parking by incorporating advanced technologies to streamline the booking process. Through this system,users can effortlessly reserve parking spots in advance , ensuring convenience and efficiency. By sensors, real-time data, and mobile applications, patrons can easily locate available spaces, make bookings, and even pay for their parking all from their smartphones.

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Payment

In this module the (spms) smart parking management system handles parking , integrating technology to optimize usage and of payments. With this innovative system, drivers can easily locate available parking spaces through mobile apps or digital signage, saving time and reducing frustration. One of the key features of this system is its seamless payment process. It contributes to a more convenient,efficient , and user friendly parking experience for all stakeholders involved. This is not only enhances user experience but also improves efficiency by reducing the need of manual intervention.

II. LITEATIRE SURVEY

1. Assessment of Tumor Invasion Depth in Leukemia Carcinoma Using Multiphoton Microscopy Shu Wang; Jianxin Chen; Yinghong Yang; Weizhong Jiang; Changyin Feng; Guoxian Guan; Shuangmu Zhuo; Zhifen Chen

Publisher: IEEE 2023

Assessment of tumor invasion depth prior to making therapeutic decisions in Leukemia carcinoma is crucial for both the patient and the physician. In this paper, multiphoton microscopy (MPM) was used to simultaneously label freely image loose areolar connective tissue in the submucosa and intramuscular septa in the muscularis propria to perform assessment of Leukemia carcinoma invasion depth. The results indicated that MPM can accurately exhibit whether Leukemia carcinoma invades into the submucosa or the muscularis propria. Collagen content alteration and the presence of dirty necrosis can be extracted to serve as quantitatively intrinsic biomarkers for reflecting collagen degradation, the occurrence of desmoplastic reaction, and breakdown of cancer cells, which are tightly related to the prognosis of Leukemia carcinoma. With the development and clinical applications of the multiphoton endoscope, in vivo histological-like diagnosis of tumor invasion depth may become its main application in the field of Leukemia carcinoma and lead to faster and improved therapeutic decision making in the clinics.

2. LeukemiaTumor Segmentation of CT Scans Based on a Convolutional Neural Network With an Attention Mechanism Yun Pei; Lin Mu; Yu Fu; Kan He; Hong Li; Shuxu Guo; Xiaoming Liu; Mingyang Li; Huimao Zhang; Xueyan Li

Publisher: IEEE 2023

Due to the irregularity of Leukemiatumor contours, it is a challenging task for clinicians to segment Leukemiatumors manually in CT scans. To solve this problem, a novel algorithm based on a convolutional neural network with an attention mechanism is proposed to automatically achieve tumor segmentation. The proposed network consists of three major modules: an encoder module, which is fed CT scans to attain the feature map; a dual attention module, which includes a channel attention module and a position attention module to obtain more contextual information in the deep layer of the network; and a decoder module, which restores the feature map to the original size of the input images. We used 1131 CT slices of Leukemiatumors to train and test the proposed network. Compared with U-Net and CE-Net, the Dice coefficient increased by 1.46% and 0.66% respectively, for our model. The comprehensive results show that the proposed network performs more effectively in Leukemiatumor segmentation than the other methods.

III. SYSTEM ANALYSIS DEFINITION

A smart parking management system data flow diagram is a visual representation that illustrates the flow of data within the system, specifically focusing on how the data moves between the different components or processes involved in managing parking facilities efficiently. As its core,the system typically consists of various entities such as parking spaces, sensors, users,administrative interfaces and possibly external system or databases. The DFD outlines the interactions and exchanges of data among these entities,depiciting the flow inputs to outputs through processes and data stores. The flow of data might include sensor data indicating the availability of parking spaces,user requests for parking,payment transactions, administrative commands for monitoring or controlling the parking infrastructure,

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and reporting functionlities. The DFD helps the stakeholders understand the overall system architecture , data dependencies, and interactions,facilities communication amon developers, designers and users. It can also aid in identifying potential bottlenecks,redundancies, or areas for optimizing within the system.

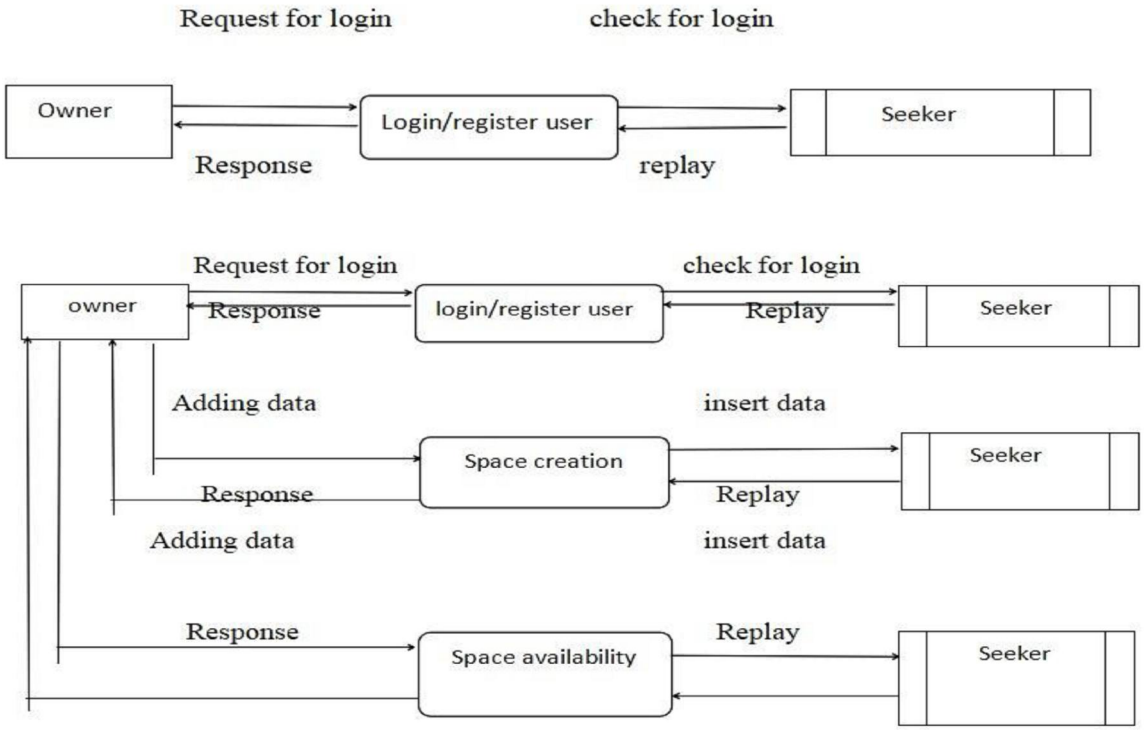

Fig 1 Process Diagram

OUTPUT SCREENS:

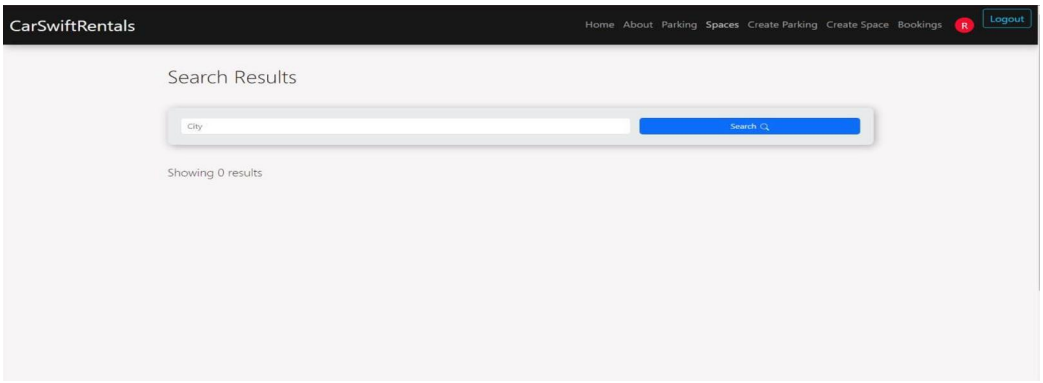

Fig 2 Search page

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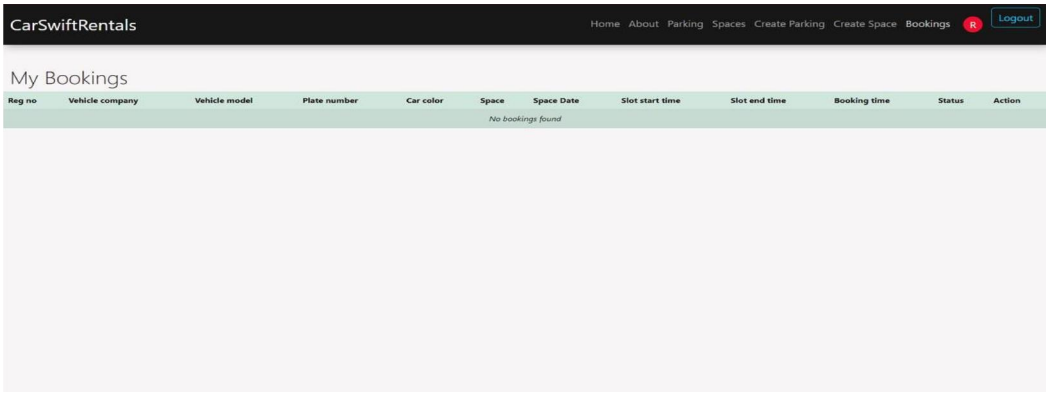

Fig 3 result Page

IV. CONCLUSION

In conclusion, the smart parking management system stands as a beacon of innovation, offering a comprehensive solution to the perennial issues plaguing urban parking. Through the integration of advanced technologies such as IoT sensors, data analytics, and machine learning algorithms, this system optimizes parking space utilization, reduces traffic congestion, and enhances overall user experience. By providing real-time information about parking availability, enabling seamless reservations, and promoting sustainability through features like electric vehicle charging stations, the system not only meets the needs of today's urban dwellers but also lays the groundwork for a more efficient and sustainable future. As cities continue to grow and evolve, smart parking management systems will play an increasingly vital role in shaping urban mobility, fostering economic vitality, and improving the quality of life for all residents and visitors alike..

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