ONLINE PARKING AND SPACE ALLOTMENT MECHANISM

K.Thamizharasi[1], S.Dhivakaran[2], N.S.Gowtham[3], G.Mathivanan[4]

[1]Assistant Professor, Dept. of Computer Science and Engineering, Jeppiaar SRR Engineering College, Chennai.
[2,3,4]Student, Dept. of Computer Science and Engineering, Jeppiaar SRR Engineering College, Chennai.

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Abstract - – *In this technological and automatic world we all need automation in every field. The main motive of this concept is to allocate the space for parking the vehicle in an effective way. The user and the space provider should register initially with different set of data. Once the parking space is identified the allotment for the space with the count of vehicle could be updated in the website. The user can access through his/her mobile phone to book the space for parking the vehicle which is less time-consuming. The user and the space provider can customize the parking space depends on the availability. Even the prediction of space and its filling pattern can be found out with this method. The main focuses is to effectively allocate parking spaces to the demanders with respect to time.*

***Key Words*: User, Space provider, Parking, Demanders**

1. INTRODUCTION

In recent years, motor vehicle and non-motor vehicles in small cities is the parking lot is far behind the growth rate of the motor vehicle, resulting in small urban areas especially the demand and the supply of parking facilities. The downtown area of the planning and construction of parking policy and management issues have become increasingly prominent, to solve the parking problem has very urgent. Parking space sharing model is more and more attention at home and abroad, MouZhenhua[1] put forward a strategy aimed at reducing the shared parking in the city land use of the city centre area, analyzes the feasibility of the shared parking policy. Generation method is proposed to determine the percolation of Sichuan, sharing parking behavior coefficient for domestic actual shared parking demand forecasting model and realize the sharing of parking mode specific implementation measures and policies. Institute of Transportation Engineers ITE found more than half of the American local governments have shared parking theory into the local parking management mode, although the practical approach may be used directly or selective use. Related researchers discussed the parking sharing the feasibility of the theory; put forward the application strategy, in the concrete example of application. But the shared parking method is mainly used in the new project berth planning stage, no scholars after the implementation of sharing measures on urban traffic congestion and parking is difficult to solve the problem of the utility is analyzed by a numerical analysis, the utility can be directly obtained by the utility value, easy implementation of shared parking analysis function, providing theoretical support for parking planning and design.

2. LITERATURE SURVEY

a. The Utility of Shared Parking in Small Towns of Mixed Use Lands. GuoQingsheng, WengXiaoxiong, SongMinglei [2]

At present, the number of small town's rapid growth of motor vehicles, the dynamic and static traffic put forward more requirements. This paper first analyzes the characteristics of small town traffic, put forward the problems caused by the traffic congestion and parking is difficult because of small cities and towns, proposed the application of car sharing model is the effective measure to solve the problems.

b. A Distribution Model for Shared Parking in Residential Zones that Considers the Utilization Rate and the Walking Distance. Wenhui Zhang, FanGao, ShuruiSun, QiuyingYu, JinjunTang, BohangLiu. [3]

E-client-parking tends to be challenging most large cities in China. Drivers often spend substantial amount so time looking for parking lots while driving at low speeds, thereby resulting in interference with road traffic.

c. Research on parking sharing strategies considering user overtime parking. Xin Huang, Xueqin Long, Jianjun Wang, LanHe [4]

A parking sharing strategy is proposed to solve the problems of parking difficulty caused by the imbalance between parking spaces and parking demand. The vacant parking spaces of residential area can be efficiently utilized to meet the parking demands of those who are working at nearby or come for other activities based on the parking sharing strategy. The paper analyzes the distribution of vehicle arrival numbers and parking durations, and then establishes a shared parking allocation model aiming to maximize the parking benefit considering the overtime-parking behavior of the parking users.

d. Parking Assignment: Minimizing Parking Expenses and Balancing Parking Demand among Multiple Parking Lots.

Oanh Tran Thi Kim, Nguyen H. Tran, Chuan Pham, Tuan LeAnh [5]

Recently, a rapid growth in the number of vehicles on the road has led to an unexpected surge of parking demand. Consequently, finding a parking space has become increasingly difficult and expensive. One of the viable approaches is to utilize both public and private parking lots (PLs) to effectively share the parking spaces. However, when the parking demands are not balanced among PLs, a local congestion problem occurs where some PLs are overloaded, and others are underutilized.

3. PROPOSED SYSTEM

This mechanism provides easy way of reserving parking spaces through online using web portal. Here this overcomes the problem of finding a parking space in areas that unnecessary devours time. This is a web application-based reservation system where users can view various parking spaces and select nearby or specific area of their choice to view whether space is available or not. If the booking space is available, then user can book it for specific time slot. The reserved space will be marked and will not be available for anyone else for the specified time. The Online parking is a system that enables clients/drivers to reserve a parking space. It also allows the clients/drivers to view the parking status Therefore, the project aimed at solving such problems by designing a web-based system that will enable the clients/drivers to make a reservation of available parking space at people's park.

This shared parking allocation problems between parking demands in commercial buildings and parking supplies in residential zones. The concept of shared parking is proposed, which is according to the prerequisites of shared parking implementation. Then, the viability of shared parking between parking requests from commercial buildings and private paid or public free parking lots in residential zones is initially evaluated by analyzing the features of shared parking, which include win-win, convenience, economy, and real-time performance. Next, a bit rate parking spaces allocating model involving the minimum walking distance and the maximum utilization is proposed. The model widely considers the drivers' walking distance and the utilization of parking spaces. It not only receives reception requests for constructions in-commercial zones, but also assigns them to corresponding vacant parking lots in accordance with the model hypothesis and parking space-time constraints. PSO algorithms applied to solve the parking allocation model.

4. SCOPE OF THE SYSTEM

User can get facts about parking areas for particular locations. The system provides a view of the parking spaces. This method eliminates the need of human efforts for managing parking spaces. It is representing clearly with clear locations.[6] It has authorized parking slots with authorized address. It is so easy to use with simple User Interface (UI) with reservation for particular timing. The parking chargers can also be deducted through online payment which is more convenient for the user incase if they ran out of change. They can also pay in advance to reduce the time in the parking area or to avoid the network issue.
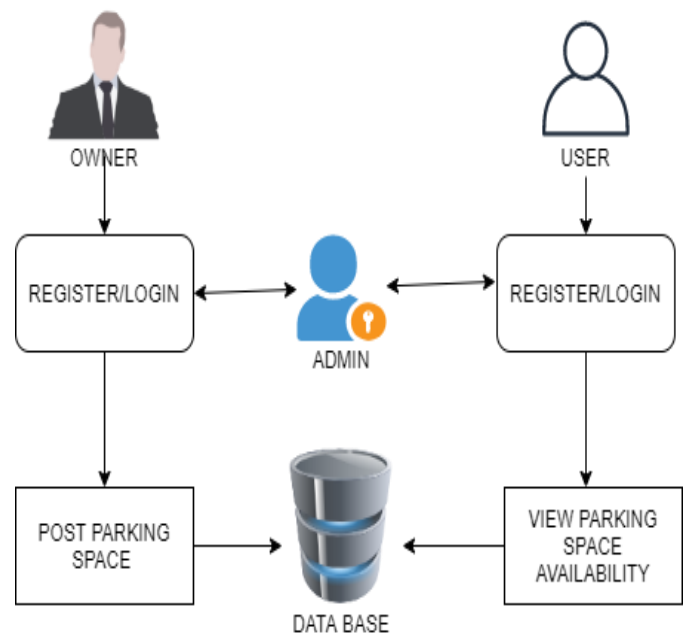
5. PROPOSED ARCHITECTURE

Fig 1: Proposed Architecture

As shown in the above figure 1, The Space provider will register his parking places through website the space provider can add or modify details like adding some more parking places and to add parking charges. The space provider used to watch his profile through website which is provided. After this process the admin will check the space provider profile (authorized) and give yes (approval) to this space provider. Finally, the parking place will registered. The User will register through website and the user will be login and parking the places for our vehicle which will be highly secured. The payment also be done in website the user can add some more time if they want to extend the time in the website. With the proposed software of database Space Manager ready and fully functional the client is now able to

accomplish and hence run the entire work in a much better, accurate and error free manner.

6. MODULES AND DESCRIPTION

6.1 COLLECTING OWNER DETAILS AND USER DETAILS

In this Module we will be collecting the space provider details to post parking space in the website and user details for booking the parking place. The Space provider is used to register the parking places with their unique name and password after this process the space provider will login and used to see the profile. The user will register the details about his/her personal details, mail id, vehicle details and his place of regular visit. It also contain unique user name and password for further activity.[7]

The user need to login into the site initially using the registered id. The entered data will be verified with database and allows the user to login into the web page. After the successful login the user can book his parking space based on the availability. Once the request received from the user the admin will give approval to the space provider and admin will check whether the user is genuine or fake user. If the user is genuine the admin will authenticate to proceed further else the admin will deny the request. After this process the admin gives approval by clicking "yes" the registered space will booked in the website.

6.2 CHECKING THE PARKING AVAILABILITY

In this Module the user will login to the website using the registered id. The different slots of parking areas will be displayed with availability. Whichever space the user needs can book with the time limit. If the space is available the admin will allocated the space or else change of space or change of time request will be sent to the user. Incase if the user spent more than a booked hour, they can easily extended their parking hour through the website, the parking charge can be made through online payment through the website once we select the parking slots. Based on the type of vehicle and availability of space the parking space will be allocated.

6.3 REGISTERING THE PARKING SPACE

In this module the space provider will be registering the parking space area and the details about the place which will contain the name, E-mail id, phone number, password, slot photo. All these data will be stored in a database once the registration process is complete the space provider will be

waiting for approval from the admin. The admin will verify the space provider whether the user is authenticated or not. If it is authenticated admin give approval "Yes" to the space provider. [8]

The Space provider used to login into the website to see the profile. In case if the space provider wants to add more slots for the user it will be easy to add through the space provider profile. The Payment method is also added for the Parking user. The Space provider add up to 50 slots in one place and add one or more parking place depends upon the availability.

6.4 UTILISATION THE RESOURCES

This module which is used to show the booked and allotted parking places. It contains the slots which act as an interface to the user to book the parking space. If slots are available it shows "Yes" the user used to book the slots for particular hour. If slots are not available it shows "No" it will not be booked. The space provider which will be upload the parking slots by classifying the vehicles i.e. Car and Bike. [9]

If the space provider has some more space in his area they can simply add the new space through his login id. From the next loop onwards the new space will be added with the space slots to the user usage. Thus the effective utilization of resources can be made by using this method.

7. RESULTS

The sample page of the website is shown in the figure 2. The home page will have the three different login such as user login, owner login (space provider) and admin login.

Fig 2: Home Page

The figure 3 gives you the clear view of how the parking of vehicle has been booked in different places. Based on the type of user they can login to do the further action.
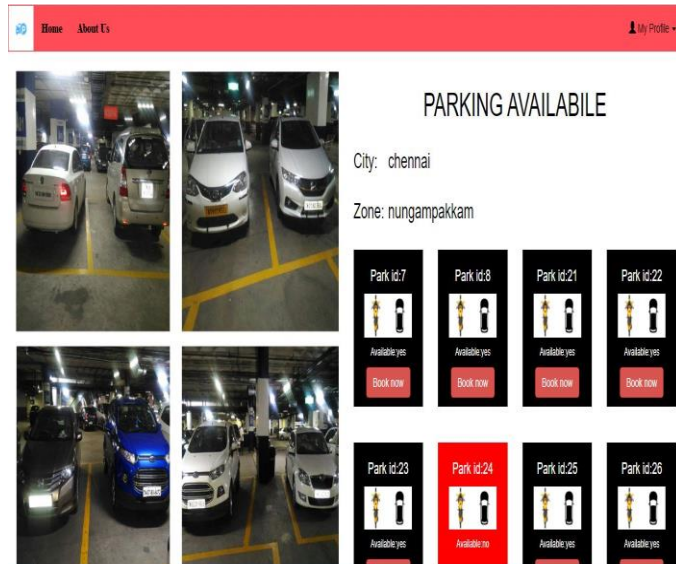

Fig 3: Booking page

8. CONCLUSIONS

By using this method the space and time can be effectively organized which saves more time and reduces the traffic in important peak areas. Thus the parking space can be allotted to the user to utilize the parking space more effectively.

9. FUTURE ENHANCEMENT

The project has a very enormous scope in future. The project can be executed on intranet in future. Project can be reorganized in near future as and when requirement for the same arises, as it is very flexible in terms of expansion. The following are the forthcoming scope for the project. In this paper, we proposed a new solution for privacy-preserving user profile matching with holomorphic technique and multiple servers.[10] Our solution allows a user to find out the matching users with the help of multiple servers without revealing the query and the user profiles. Security analyses have shown that the new protocol achieves user profile privacy and user query privacy. The experimental results have showed that the new protocol is practical and feasible. Our future work is to improve the performance of computing conditional gates by parallel computation.

10. REFERENCES

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