

ONLINE PARKING SPACE SHARING MECHANISM WITH PRIVACY PROTECTION

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Abstract - In today's automated world we all search for automation in each and every field. The main motive of this concept is to allocate the space for parking the vehicle in a powerful and effective way. Initially, the user and owner, who is providing the space to park the vehicle want to register with their details in the website. In the website, the user can check for the availability of a parking slot as per their need and the user can also do pre-booking of the parking slot. It is also integrated with maps so the user can access the maps to reach the parking slot. The user can also proceed with the payment process in online mode which is less time-consuming. The user and the owner can customize the parking space depending on the availability. The main mechanism is to effectively allocate parking spaces to the users and to avoid traffic congestion and traffic-related issues in engaged cities.

Key Words: Parking, Shared parking, Parking spaces, parking slots, users.

1.INTRODUCTION

Sharing private parking spots during their inert time-frames has indicated an incredible potential for tending to metropolitan gridlock and ill-conceived stopping issues in brilliant urban areas. In this article, planning to address the internet parking spot sharing issue while guaranteeing the protection of client-stopping objective areas, we propose a novel objective privacy-preserving internet-stopping-sharing motivator plot. Specifically, the internet parking spot sharing issue is formalized as a social government assistance expansion issue in a two-sided market, where parking spot suppliers and clients are viewed as dealers and purchasers. At that point, novel limit esteem-based standards are intended to decide champs, installments, also, repayment. At last, champs are coordinated by explaining a blended whole number nonlinear programming issue, planning to limit the separation between the client's objective and allotted

parking spot. Furthermore, the area protection of the client's objections is ensured by the Laplace component. We demonstrate that accomplishes a few monetarily viable properties what's more, rough differential protection. We examine the upper bound of the productivity loss of our plan. Broad assessment results exhibit that our plan cannot just accomplish great execution with respect to social government assistance, Supplier fulfillment proportion, protection conservation, and calculation overhead yet, in addition, prompts more limited travel separations for clients contrasting with the benchmark plot. But shared parking technique has effectively used the software may be without delay acquired via way of means of the software value, smooth implementation of the shared parking valuation function, supplying theoretical guide for parking making plans and design.

2.LITERATURE SURVEY

a. The Utility of Shared Parking in Small Towns of Mixed-Use Lands.

Guoqing sheng, Weng Xiaoxiong, Song Minglei

Currently, there is a drastic growth in motor vehicle usage in small cities and towns, and because of this lot of traffic problems arise. The main objective of the mentioned paper first analyzes the characteristics of small-town traffic, and pointed out the problems caused by traffic congestion and the reason behind difficulty in parking. To resolve this issue, it proposes a powerful approach that is the application of car sharing model to solve the traffic problems.

b. A Distribution Model for Shared Parking in Residential Zones that Considers the Utilization Rate and the Walking Distance.

Wenhui Zhang, Fan Gao, ShuruiSun, Qiuying Yu, Jinju Tang, Bohang Liu.

Users searching for parking lots and it consumes users valuable time and while driving the vehicle at low speed

it results in interference with road traffic. The most important goal of the noted paper proposes a double-objective model that considers both the utilizing rate and the walking distance. The particle swarm optimization (PSO) algorithm is used to solve this model. The results demonstrate that the proposed model increases the occupying rates of parking lots in residential zones while decreasing the walking distance.

c. Research on parking sharing strategies considering user overtime parking.

Xin Huang, Xueqin Long, Jianjun Wang, LanHe

The referred paper deals with the parking sharing strategy to resolve the difficulty in parking caused by the imbalance among parking areas and parking demand. The unused or empty parking spaces in the residential area may be correctly utilized to satisfy the parking needs of individuals and nearby working people. It analyzes the distribution of vehicle arrival numbers and durations of parking. Then develops a shared parking allocation model to increase the parking benefit. It uses simulation methods and principle of maximum parking benefit to determine the optimal proportion of reserved parking.

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

Due to the fast growth of vehicles rate and searching for parking lots became expensive and increased time consumption. Considering those issues this paper suggests the best approach to occupy both public and private parking lots and formulates two significant objectives minimizing parking expenses and balancing parking demand. It manipulates using an alternating direction method of multipliers (ADMM) based algorithm that can enable a distributed implementation to overcome the problems.

e. A Federated Learning based Parking Space Estimation with Parked Vehicle assisted Edge Computing.

Xumin Huang, Peichun Li, Rong Yu, Yuan Wu, Kan Xie, and Shengli Xie

The above referred paper is fully based on IOT (Internet of Things). When the vehicle reaches the respective destination or concerned parking slot it will indicate the user with sensors to place, they're on that place. But it not integrated with maps and facilitates with payment option.

The proposed methodology provides the best and most user-friendly way to reserve parking lots using the web application. The proposed concept is based on the web application domain. Here, this paper overcomes the troubles like finding the parking areas in engaged towns, cities, and so on and it additionally acts as a budget-pleasant software for users. New user can start their journey from registration and existing user can log in with their existing username and password. Users able to pre-book the parking slot which reduces the time consumption. Also, they could see the already booked slots. So, there won't be any overlaps in slot bookings. Users can able to view the pictures of the parking slot so that users can have an idea whether they can able to place their vehicle in that place or not. Users can check the availability of slots as per their needs and necessities and continue to reserving procedures. Users can utilize the maps which are designed with open street maps to reach the parking slot destination and it shows some direction and distance calculation to have a clear-cut idea of that place. Payment process can be done in the web application itself. Users have the option to extend the parking slot timings and also to cancel the slot. The existing owner can log in with a username and password and the new owner can do the registration to avail the service. The Owner can able to view the status of parking lots and payment status. The Owners also have the access to update their profiles as well as users. Owners can add the parking slot with the concerned details like parking slot pictures, latitude, and longitude to pick out an appropriate area on maps, address, the total number of availabilities to park the vehicle, etc. Admins only have the authority to grant permission to the first-time registrar of the owner. Admins have the option to monitor the overall work done by owners and users.

4. SYSTEM ARCHITECTURE

The System Architecture demonstrates the working procedure of the proposed model in pictorial representation. The Owner can add a parking slot and view the payment and booked parking slot. Similarly, the User can register/log in, do payments, check the availability of slots, and utilize maps. The Database acts as a mediator to view all the pieces of information.

3. PROPOSED ARCHITECTURE

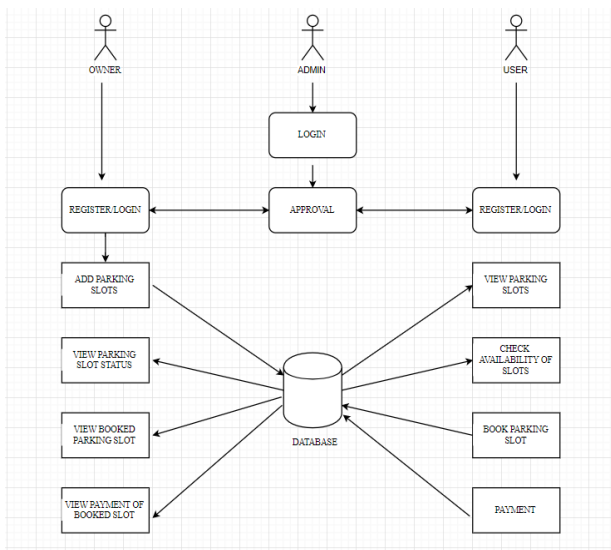


Fig 1: System Architecture

5. MODULES AND DESCRIPTION

5.1 LOGIN/REGISTER-MODULE

Registration module is used to register the details about the user. That contain to create a unique name and password. That also needs a full name of user and email id of user for authentication. The basic module login is used to web page. The module has username and password. That will be verified with the database and allow to login to the web page.

5.2 ADMIN-MODULE

This module is used to verify the user, it helps to prevent unauthorized problems. Admin adds the owners for the parking availability. Admin can monitor the overall working of the application.

5.3 USER-MODULE

The user module is used to reserve the parking slots for their purpose and required timing. Users can pay the payment for their reserving parking slot, which helps to reduce the time and traffic in public places. Users can also view the maps and directions to reach an appropriate location.

5.4 OWNER-MODULE

The purpose of the owner module is to post the availability of their parking areas and allots the parking slot for the specified pre-booking user. The Owner can

receive the payments from the user for reserved parking slots. Owners are provisioned to update their profiles.

5.5 PARKING ZONE-MODULE

This module is used to get the details of parking slots from the owners and show the parking slots to the users. They can see the empty parking slots whenever chosen areas.

5.6 PAYMENT-MODULE

The payment module is used to user pay the deserved amount for the selected parking slots.

6. RESULTS

The below image Fig 2: Home Page gives the entrance view of the application. Home Page includes user login, owner login and admin login.



Fig 2: Home Page

The Fig 3: User Login is the sample view of user login and once the user logged in with username and password. He/She can enter the location and can check the availability of parking slots.

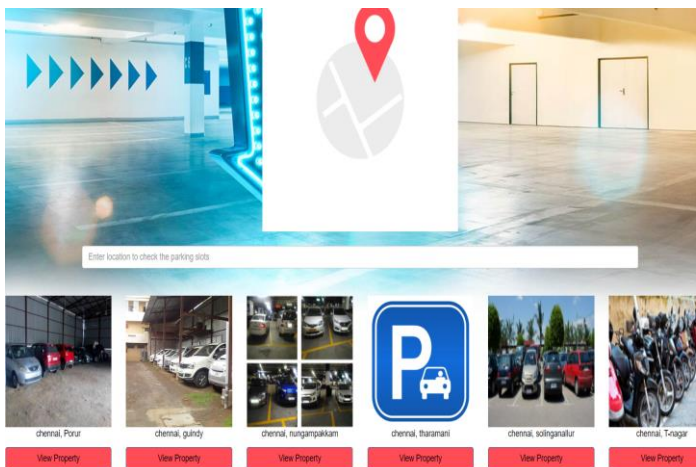


Fig 3: User Login

The figure 4 gives a clear view of maps and directions. Users can utilize the maps and directions to reach the destination.

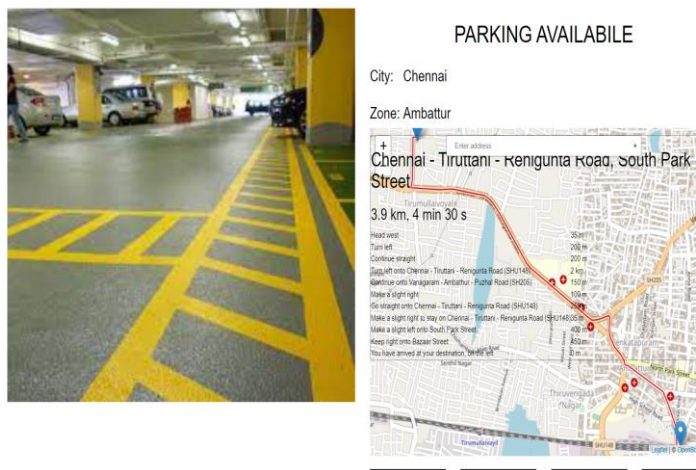


Fig 4: Maps

The figure 5 shows the sample picture of owner login where owner can add the parking slot.

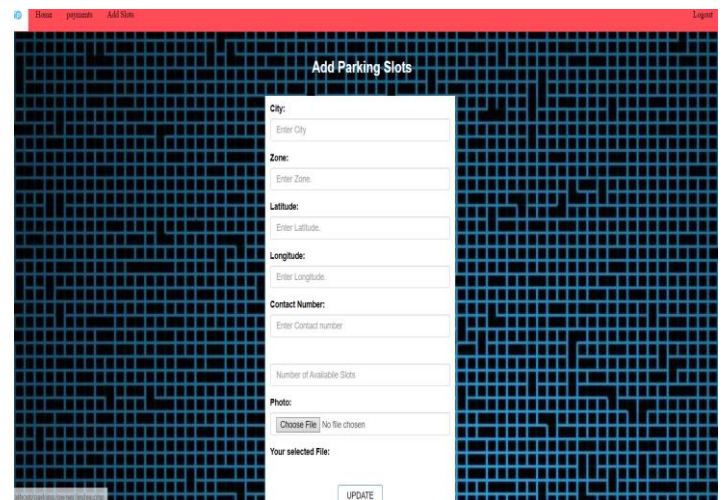


Fig 5: Owner Login

The figure 6 displays the admin login view which monitors the overall working of the application.



Fig 6: Admin Login

7. CONCLUSION

The usage of the proposed technique saves the time and reduces traffic congestion and traffic related issues. It additionally acts as a great enterprise for those who has vacant spaces. Thus, the user can book the parking slot in advance and this approach may have amazing call for busy locations like shopping areas.

8. FUTURE ENHANCEMENT

The project has good scope in future. The project can be developed as Android Application integrated with voice assistance. And Dijkstra's Algorithm can be implemented to find the shortest path for usage of maps.

9. REFERENCES

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