

“Moto Hanja Pro”

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Abstract- *The number of personal vehicles usage is increasing manifold. People prefer personal vehicles to commute than depend on public transportation. Finding a parking space in most metropolitan areas, especially during the rush hours, is difficult for drivers. Due to this there is a need to provide sufficient parking places coupled with plenty of slots to help the user park his vehicle safely, also to ensure the user does not end up parking on non-parking area and cause discomfort to pedestrian. The idea behind our Android Application- “MOTO HANJA” (where MOTO means motor or vehicle and HANJA is a Chinese word for parking) is to help the user analyses area’s where parking is available and number of slots free in that area. Additionally, to his arrival, the user can book a slot in the area he desires if it is available. This will help reduce the load on the administrator as his physical work reduces drastically and user can search the parking slot through Android Application. “MOTO HANJA” Application relieves the user from the hassle of manually searching and waiting for empty slots to park the vehicle.*

Keywords- Space Inefficiency, environmental concerns, smart parking, parking management solutions, reserve parking spaces, space congestion.

I. INTRODUCTION

About Parking:

Parking facilities are a major expense to society and parking conflicts are among the most common problems facing infrastructure planners. These problems can be most often described either in terms of supply or in terms of management. Parking management describes the process of optimizing the use of parking policies while making use of policies and programs that are applicable to parking. A well-thought out parking strategy often helps reduce the number of parking spots required in a particular situation and provides a variety of socio-economic and environmental benefits. When all factors are taken into consideration, improved management is often the best solution to parking problems. Management solutions tend to be significantly more optimum than increasing supply as they tend to support more strategic objectives. Some of these objectives are listed below.

- Improved user options and quality of service.

- Facility cost savings.
- If the strategies are decided properly, there can be significant revenue generate that could help finance other facilities and improve transportation infrastructure.

Problems with the Parking Industry:

Parking guidance is an optimization control problem which provides driving route suggestion and slot status by using computer technology, mechanics of communication, and control technique for the purpose of guiding drivers to the expected parking place. The result of such methods is to guide the customer to the expected parking place by driving on planned route. The disadvantage of current smart parking or parking guidance systems is that they only obtain the availability information of parking spots from deployed sensor networks and that they just broadcast the parking information directly to drivers. Since these systems do not actually direct a driver to the designated parking spot they sometimes make the situation worse and are hence deemed not smart enough. It is, therefore, strongly desired to provide an effective strategy to address these concerns.

Environmental Concerns:

Hunting for a vacant parking spot in a metropolitan/suburban area is a daily source of anxiety for most drivers and it is time-consuming. It generally results more traffic congestion and air pollution by constantly cruising in certain area only for an available parking space. For instance, a recent survey, shows that during rush hours in most big cities, the traffic generated by cars searching for parking spots takes up to 40% of the total traffic and a correspondingly high proportion of CO2 emissions. Motor vehicle accidents and other situations cause high number of fatalities, injuries, and economic distress resulting from emergency and health care services as well as property damage. Parking is a major part of overall mobility as every vehicle trip finally concludes in parking the car somewhere at the destination. Over the course of a year, vehicles looking for parking in one small business district of Los Angeles burned 47,000 gallons of gasoline that totals 945,000 extra miles travelled or two round trips to the moon and produced 730 tons of carbon dioxide. To deal with aimless wandering

caused by the search for parking, we have incorporated a reservation system for parking. In this, the user needs to make a reservation and a spot is allocated to him along with directions to that spot.

Parking Space Inefficiency:

Often, people complain of lack of parking spots when actual counts show that only 60 to 75 percent of spots are occupied. It is very important to deal with perceptions of parking shortages. The most appropriate way for cities to address parking shortages is to price the spots that would result in 14 percent of spots being made available. We have provided a 2-class parking strategy involving booking limits where we have a differential pricing of parking spots in order to increase revenue.

II. IDENTIFY AND RESEARCH IDEA

Currently, most of the existing parking system are manually managed and a little inefficient. In urban areas, where number of vehicles is higher as compared to the availability to the parking space, a lot of time being wasted in searching for parking location. Hence smart parking system is a proposed method that user can reserve their parking spaces using our application.

Problem faced by users:

The problem faced by the users in parking their vehicles as indicated by the survey:

1. Long distance from parking to destination.
2. No shades.
3. No proper sign boards and guidance.
4. Security problems.
5. Space congestion.
6. Fuel consumption is high.
7. Wastage of time in search of parking space.

There is heavy traffic in the city and lots of parking problems due to the bursty traffic and unknown free space where the person can park his vehicle properly and safely.

As per the existing scenario when a person goes outside the home for travelling or for shopping or any of his need then as soon as he reaches the destination the person searches for parking his vehicle manually which consumes lots of time and efforts. And after searching manually if he does not get place for parking then he uses the wrong area or restricted area for parking which may lead to traffic

congestion and heavy jam, and due to this RTO will install a jammer to the vehicle and a fine is imposed.

III. STUDIES AND FINDINGS

Proposed System

Client Side: The user needs to install the “MOTO HANJA” application on his Android based device. After installation, the icon of the app will feature on the Home Screen of the user’s device. “MOTO HANJA” welcome screen will be flashed to the user on opening the application. Initially, the user has to register his details with the application for the first time. This is a one-time registration. The user allotting parking area has to enter details like username, phone number, address, vehicle type, parking fees and email-id. All this data will be stored on server.

Login: Once the user register’s, he can use his email id and phone number to login in future. This authenticates the user.

Client Registration:

Saving client registration details into server client Login: Login consist of email id, phone number and One Time Password (OTP) will be send to the client so that to verify the phone number.

Selection of location for parking: The client is provided with multiple parking locations and Google Map view of current location. Client has to select one of the locations provided where he desires to park the vehicle.

Select vehicle type: After selecting the location, options for the vehicle type is provided i.e. cycle, bike and car alongside the rate chart for parking charges is prompted.

Rate Chart:

1. Availability status of the slots: Based on the type of vehicle selected availability of the empty slots will be displayed along with the total slots reserved for that vehicle type. Vacant indicates empty slots and Filled indicates that currently there are no empty slots for reservation.

Slot Availability:

1. Slot reservation: Vacant indicates empty slots and Filled indicates that currently there are no empty slots. **Server Side:** The server side processing will be enabled using PHP and MySQL. The administrator has to register his details with the server side application. This is also one-time registration and

can make use of his username and password to login in future. Whenever a new user registers with the application, the record will be stored in the server side database. When the registered user selects the location and vehicle type, immediately server receives the client's request. After receiving the request for the desired location, server processes the related information and responds accordingly. Furthermore, the administrator has direct option to view user details and slot details stored on the server direct via the application. Saving Admin details into server.

IV. CONCLUSION

As compared to other developed countries, the problem of parking is disheartening in India as there is no well devised plan in place. There is a wide gap and total mismatch between the production of vehicles and the parking slots. Government authorities have been raking their brains day in and day out to tackle this problem. The parking problem is quite acute in places of entertainment such as theatres and shopping malls. We touched a small scenario of parking problem in India.

We brought out in this paper how the parking problem in such places can be tackled with a well-thought plan. The plan helps both the visitors and administrators. It helps the visitors in finding out the availability of a parking slot, get the availability confirmed, and reach the place within the time slot allotted. It helps the administration to allocate the vacant slot to the next person in queue. A well thought parking plan saves the time of visitors in booking a parking slot in advance and the administration to allocate the vacant slot in a methodical and organized manner.

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