Sandwich Parking Application

An Innovative Parking Solution

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Abstract—To find a parking space in metropolitans particularly during rush hours have become a perplexing task for drivers. This paper describes an approach to deliver a situation for monitoring and managing a parking area using a Web based application which will be a combination of a Web Application and an Android Application. The 'Sandwich Parking' system will be suitable object for metropolitan environment, in which our users will provide their owned parking space to other registered users who will be in need of a parking space in that particular area for a particular amount of time and hence will consecutively save user's time, fuel and expense, while reducing the traffic congestion and environment pollution. We are going to provide a platform to our users through which they can reserve a parking space in the locality they are going to visit.

Index Terms— Parking space, Web application, Android Application, Driver Localization.

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1. INTRODUCTION

India's vehicle fleet had the second-largest growth rate after China in 2010, with 8.9%. The fleet went from 19.1 million in 2009 to 20.8 million units in 2010[1].With the rapid increase in number of vehicles, the necessity to find a vacant parking space in the most efficient manner, has become problematical. On a daily basis, it is estimated that 30% of vehicles on the road of major cities are cruising for a parking spot and it takes an average of 7.8 minutes to find one.[2]

Current vehicle park management is dependent on either human personnel keeping track of the available car park spaces or a sensor based system that monitors the availability of each car park space or the overall number of available car park spaces. In both situations, the information available was only the total number of car park spaces available and not the actual location available .The drivers still need to circle to find a parking space. Therefore, it is highly desirable to have a quick and cost-effective way to track and guide drivers to available parking spaces.

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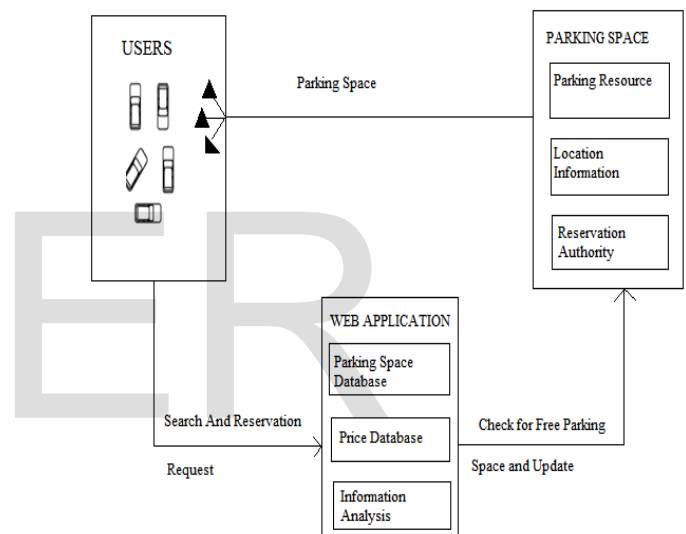

Fig. 1. Block Diagram showing sandwich parking system

2. SYSTEM OVERVIEW

2.1 Introduction to system design

The System architecture for Sandwich parking will be as shown as in figure 1.The server will mainly consists of webapplication which will contain parking space database, also information analysis will be done here.The contents of webapplication will be handled entirely by the system.It will be a dynamic wep application in which user can create or delete his data.User requests will be analysed in the web application and results of which will be replicated in the parking space block,which will be then forwarded to the user on his device.Parking Space will be basically the

database which will be required by the user will using the front end.

For user convenience, we can develop an Android application with the same functionality and working using Android Sdk and eclipse with xampp server database connectivity.

2.2 Database

The database for our system i.e the parking spaces will be gathered from the people who are having there owned parking space have unoccupied for some time.They can register themselves and update the informationin our web application which will be saved on our server,will be then investigated.Once it is verified it will be made available to the parking database.

For a further aspect we can charge some particular amount for the user using the parking space and can split it between the user whose parking space it was and the web application owners.It will then help to upsurge the amount of our database.

2.3 Process flow Description:

1. User will get to download the web application from our official website.
2. Consequently as the web application will get installed, user will be asked to fill the registration form, which will be then forwarded to our server, where it will be investigated and saved and server will reply back with unique username and password to the user for further access.
3. Now user can login with username and password obtained from the server.
4. After logging in, Homepage of Web application will be displayed with its search engine.
5. There will be multiple options available to the user like profile view or edit, search engine in new window, history and notification. User can choose as per his/her requirement. History and notification will be blank for new user.
6. When user will search for parking space, user will be asked to enter the location in the search view and click search button. Then the search engine will activate the data query and extract the results from database of parking space and display with the location and timing.
7. As per the user suitability, user can choose the result.
8. After selection of a result, an SMS will be sent to the owner of the parking space, describing the details of the vehicle which will be parked in his parking space and it's timing with "allow" button, asking for his permission.
9. After pressing "allow" button, the owner of the parking space will eventually give affirmation to use his parking space after which the system will send One Time Password (OTP) to the user so that user can enter this OTP into the confirmation code and reserve the parking space.
10. The detailed information will be given to the user about the parking space he/she has reserved.

3. CONCLUSION

We have proposed a "sandwich parking" system that exploits technologies for parking space availability detection and for driver localization and that allocates parking spots to drivers instead of only supplying guidance to them. We have described the system infrastructure and basic "sandwich parking" procedure. We studied the main requirements to implement such a system and provided the necessary solutions.
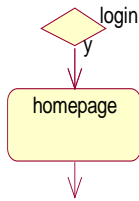
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