Web Based Car Parking System

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IEEE

Abstract—

It is android application that delivers an solution for automatic car parking. This system presents a miniature model of an automated car parking system that can regulate and manage the number of cars that can be parked in a given space at any given time based on the availability of parking spot. The aim of this paper is to automate the car and the car parking as well.

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. 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.

INTRODUCTION

Online car parking system application offers a web based reservation system where users can view the parking space available and can select it for booking for required time. The system provides a graphical view of the parking spaces so it becomes convenient for users to access. Purpose of this application is to solve a problem that really bothers many vendors today for managing of parking slots inside a parking storey.Parking Management

System beside managing slots also provides you with several functionalities in order to keep your database upto date. The system does not allocate the already booked space to anyone and marks it grey. Parking slots which are not booked will be shown as white in colour and after booking of that slot it will be marked as green. It has an additional feature of cancelling the bookings that have been already selected. Users can even make payment for booking via credit card. After cancellation some charges will get deducted from actual amount and rest of the amount will get reimbursed into their account.

Every vehicle trips requires parking at its destination, so parking facilities are an integrated component of the roadway system. Parking is one of the first experiences that people have when traveling to a destination. Convenient and affordable parking are considered a sign of welcome.Parking that is difficult to find, inadequate, inconvenient or expensive will frustrate users and can contribute to spillover (motorists parking where they should not). As a result, inadequate parking supply can create problems to both users and nonusers.

However, excessive parking can also create problems. Parking facilities are expensive to construct, imposing financial costs on developers, building users and governments. In addition, parking facilities impose environmental costs, contradict community development objectives for more livable and walkable communities, and abundant, unpriced parking tends to increase driving and discourage use of alternative modes

International Journal of Research
ISSN: 2348-6848 Vol-3, Special Issue-3
International Conference on Research and Recent Trends in Engineering and Technology. (ICRRTET)
Held on 27ᵗʰ January 2016 organized by **Sai Polytechnic College,** Kinhi Jawade, Yavatmal, Maharastra, India.

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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. 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. Payment services are made available using Google Wallet, so the user is required to own a credit card or debit card.

Literature Survey

- Over the years, car parking systems and the accompanying technologies have increased and diversified. Car parking systems have been around almost since the time cars were invented. In any area where there is a significant amount of traffic, there are car parking systems. Car Parking systems were developed in the early 20th century in response to the need for storage space for vehicles.

- In the 1920s, forerunners of automated parking systems appeared in U.S. cities like Los Angeles, Chicago, New York and Cincinnati. Some of these multi-storey structures are still standing, and have been adapted for new uses. One of the Kent Automatic Parking Garages in New York (now known as the Sofia Apartments) is an Art Deco landmark that was converted into luxury condominiums in 1983. A system that is now found all over Japan — the "ferris-wheel," or paternoster system — was created by the Westinghouse Corporation in 1923 and subsequently built in 1932 on Chicago's Monroe Street. The Nash Motor Company created the first glass enclosed version of this system for the Chicago Century of Progress Exhibition in 1933, and it was the precursor to a more recent version, the Smart Car Towers in Europe.

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Existing System :

➢ Overview:

In earlier system , the guard used to keep all records of entry and exit of people in their register and even he provides receipt and the employee have to pay for it. This become very difficult to handle record . In case , if receipt book is not available it also becomes difficult because he may not be able to manage his data. Also if in case someone wants to know about the parking records then the guard have to go through each and every record to search for that information. This becomes   difficult for guard to handle such information. The user have to struggle in traffic in search for parking place. After parking employee has to wait for paying money. It also consume much time.

   Driver should nearly always be able to easily find, convenient, free parking at every destination. Parking planning consists primarily of generous minimum parking requirements, with costs borne indirectly, through taxes and building rents.

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➢ Problem Definition:

It is roughly estimated that out of 8760 hours in a year ,on an average, a car runs for only 400 hours or so, leaving the remaining 95% of its time in parking.

   According to management experts, "A problem correctly defined is a problem half solved." How parking problems are defined affects which solutions are considered and how they are evaluated.

   Parking problems are often defined to mean that motorists consider parking inadequate, inconvenient or expensive. This implies that the best solution is to increase parking supply without directly charging users. But there are other ways to define parking problems that suggest other Parking Solutions. Parking problems may reflect:

- Inadequate information for motorists on parking availability and price. The solution could be to improve use information.
- Inadequate user options. The solution could be to improve parking options, such as letting motorists choose between convenient, priced parking and less convenient, free/inexpensive parking.

- Inconvenient Parking Pricing methods, such as mechanical meters that require users to

predict how long they will be parked and only accept certain coins. The solution could be to improve pricing systems.

- Inefficient use of existing parking capacity .The solution could be to use Parking Management strategies that result in more efficient use of parking facilities.

- Concerns over spill over parking congestion in nearby areas if parking supply is inadequate or priced. The solution could be to provide parking management and enforcement in impacted areas.

- Economic, environmental and aesthetic impacts of parking facilities. The solution could be to reduce parking supply and improve parking facility design.

Proposed System:

➢ Module description:

- The system consists of the following modules

A) Admin

- This module consist of the information regarding the parking slots available in parking area. The admin and provider has to sign up in this module and register themselves .Whenever they need to login they have to log in using registration number.

B) User

- The user module contains information about the user and vehicle of the user.A user can only have his/her employee ID number as

username so if he joins the parking house then only he can login. This prevents misuse unauthorized access and hacking of the product.

a) Transactions

- In this module, Payment will be done through online payment gateway(CC/Net banking).

b) Security and Authentication

- The security and authentication module contains about access privileges to customers and employees for various operations .The security is very important for online transactions to done correctly without being hacked.
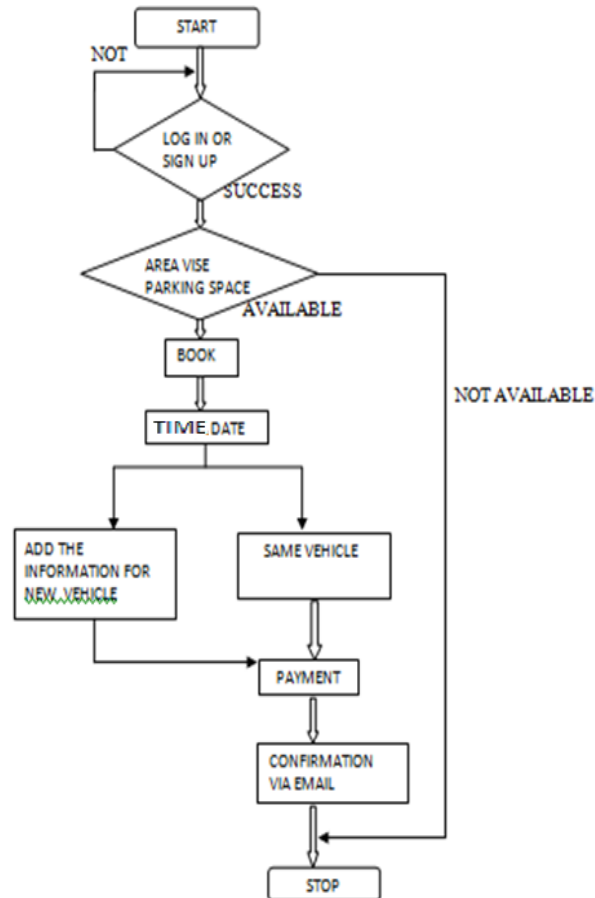
c) Reporting

- In this module confirmation email will be send to the user that his/her parking space has been booked.

• **Flow chart for user module**
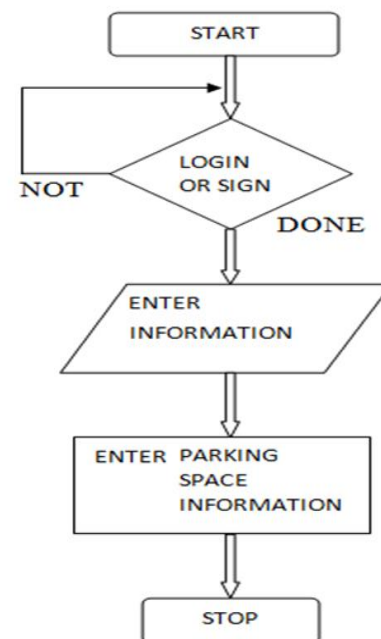
- ## Flow chart for admin module

- ## Platform for Project

- Android Studio is an integrated development environment (IDE) for developing for the Android platform. It was announced on May 16, 2013 at the Google I/O conference by Google's Product Manager, Katherine Chou. Android Studio is freely available under the Apache License 2.0.

- Based on JetBrains' IntelliJ IDEA software, Android Studio is designed specifically for Android development. It is available for download on Windows, Mac OS X and Linux, and replaced Eclipse Android Development Tools (ADT) as Google's primary IDE for native Android application development

- Android Studio was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014.[4] The first stable build was released in December 2014, starting from version 1.0.

System Requirement Analysis
Software Requirements

- ## Mongodb:

- MongoDB (from humongous) is a cross-platform document-oriented database. Classified as a NoSQL database, MongoDB eschews the traditional table-based relational database structure in favor of JSON-like documents with dynamic schemas (MongoDB calls the format BSON), making the integration of data in certain types of applications easier and faster. Released under a combination of theGNU Affero General Public License and the Apache License, MongoDB is free and open-source software.

- First developed by the software company MongoDB Inc. in October 2007 as a component of a planned platform as a service product, the company shifted to an open source development model in 2009, with MongoDB offering commercial support and other services.[2]Since then, MongoDB has been adopted

International Journal of Research

ISSN: 2348-6848 Vol-3, Special Issue-3
International Conference on Research and Recent Trends in Engineering and Technology. (ICRRTET)
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as backend software by a number of major websites and services, including Craigslist, eBay, and Foursquare among others. As of July 2015, MongoDB is the fourth most popular type of database management system, and the most popular for document stores.

- **Node.js:**

- Node.js is an open-source, cross-platform runtime environment for developing server-side web applications. Node.js applications are written in JavaScript and can be run within the Node.js runtime on OS X, Microsofwindows, Linux, FreeBSD, NonStop, IBM AIX, IBM System z and IBM i. Its work is hosted and supported by the Node.js Foundation, a collaborative project at Linux Foundation.

- Node.js provides an event-driven architecture and a non-blocking I/O API designed to optimize an application's throughput and scalability for real-time web applications. It uses Google V8 JavaScript engine to execute code, and a large percentage of the basic modules are written in JavaScript. Node.js contains a built-in library to allow applications to act as a web server without software such as Apache HTTP Server, Nginx or IIS.

- **IDE Android Studio:**

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➢ **Minimum Hardware Requirement**

- Processor : 1.6GHz

- RAM: 1GB

- Internet Connection

7. Conclusion And Future Scope
➢**Future scope:**

The "Online Car parking System" Application can be developed for other popular mobile operating systems. In future, our application can be implemented on the existing operating systems like iOS, Windows and BlackBerry also on the upcoming and promising operating systems like Firefox OS, Jolla and Tizen. Our application can be used as an alternative to the present parking systems in malls, at railway stations, near airports, theatres, etc. as an efficient means to park. Google Wallet can used to make secure payments fast and convenient.

➢ Scope

- Maximize benefits and minimize the disadvantages of a common parking systems.
- User friendly, easy to use.

➢ Objectives:

- The objective for the system is to provide residence and visitors with viable system that is safe and easy to use. In our admin module ,the admin will have all the records for different parking area, how much space will be available for parking and also time .So, in admin module all the information will be stored about space and time used by user which will make handling of data easier for admin.

➢ Conclusion:

If it is a dwelling, entertainment centre or a market place, the first and foremost question in the minds of everyone is about the parking slot. 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 in this paper. 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.

References :

[1] Rongxing Lu,Xiaodong,"A New Vanet-Based Smart Parking Scheme For Large Parking Lots"IEEE INFOCOM 2009.

[2] Prof.D.J.Bonde,Rohit S.Shende,"Automated car parking system commanded by android application"IJCSIT,vol 5(3)2014,3001-3004.

[3]R. Yusnita Fariza Norbaya Norazwinawati Bashruddin. "Intelligent parking space detection system based on image processing". International Journal of Innova
tion, Management and Technology, 3:232-235, 2012.

[4] Hamada R.H. Al-Absi Patrick Sebastian Justin Dinesh Daniel Devaraj Yap Vooi Voon. "Vision-based automated parking system."10th International Conference on Information Science,Signal Processing and their Applications (ISSPA 2010), pages 757-760, 2010.

[5]M.M. Rashid A.Musa M.Ataur Re hman N.Farhana A.Farhana. "Automatic parking management system and parking fee collection based on number plate recognition." International Journal of Machine Learning and Computing, 2:93-98, 2012.

[6]M.O. Reze M.F. Ismail A.A. Rokoni M.A.R. Sarkar. "Smart parking system with image processing facility". I.J. Intelligent Systems and Applications, 3:41-47, 2012.

[7]Amba_ James Garba Adamu Murtala Zungeru, Adamu Murtala Zungeru. "Design and

implementation of a short message service based remote controller". Computer Engineering and Intelligent Systems, 3:106-119, 2012.

[8] R. Charette, "Smart Parking Systems Make It Easier to Find a Parking Space,"http://spectrum.ieee.org/green-tech/advanced-cars/smart-parking-systems-make-it-easier-to-find-a-parking-space/0, 2007.

[9] R. Lu, X. Lin, H. Zhu and X. Shen, "SPARK: A New VANET-based Smart Parking Scheme for Large Parking Lots," in Proceedings of IEEE INFOCOM'07, 2007.

[10] W. Mao, Modern Cryptography: Theory and Practice, Prentice Hall PTR,2003.

[11] J. Chinrungrueng, U. Sunantachaikul and S. Triamlumlerd, "Smart Parking: an Application of optical Wireless Sensor Network," in Proceedings of Application and the Internet Workshops, 2007.

[12] D. Cook, S. Das,Smart Environments: Technologies, Protocols, and Applications, John Wiley, 2004.

[13] M. Caliskan, D. Graupner and M. Mauve, "Decentralized Discovery of Free Parking Places," in Proc. of the Third ACM International Workshop on Vehicular Ad Hoc Networks (VANET 2006, 2006.

[14] H. Varian,Microeconomic Analysis, New York:Norton, 2003.

[15] X. Wang and H. Schulzrinne, "Pricing Network Resources for Adaptiven Application,"IEEE Transactions on Networking, 2005
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