

Smart Parking System for Smart City

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Abstract— The research presents a novel cloud-based smart-parking system for vehicles in the cities where parking the car or vehicle is found as major problem. This paper introduces a Parking system that helps users automatically find a parking space which minimizes the waiting time at the least cost based on new performance metrics to calculate the user parking cost by considering the time of the parking time to park. The system takes the current location of user location, based on user's current location system check the nearest available parking lot and suggest to users with cost of that parking lot. Once user confirms the parking lot for specific time that information will be update in the system. The analytical study demonstrates that the system can efficiently that increases the efficiency of the current smart-parking system and develops a network architecture based on the Internet-of Things.

Key words: Internet of Things, Path Finding, Task Allocation, Path Direction Envelop Algorithm

I. INTRODUCTION

On a daily basis, it is estimated that 40% of vehicles on the road in the downtown area of major cities are cruising for a parking spot and it takes an average of 8-10 minutes to find one. This causes not only waste of time and fuel but also causes headaches for drivers looking for parking, but it also contributes to additional waste of time and fuel for others a huge traffic jam. For example, it has been reported that over one year in a small district, cars searching for parking created the equivalent of 38 trips around the world, burning 48,000 gallons of gasoline and producing 740 tons of carbon dioxide. Over the past two decades, traffic authorities in many cities are building so-called Parking Guidance and Information (PGI) systems for better parking management. PGI systems present drivers with dynamic information on parking within controlled areas and direct them to vacant parking spots. Parking information as where the location is and how much time will take to get there may be displayed on variable-message signs (VMS) at major roads, streets, and intersections, or it may be disseminated through the Internet. PGI systems depend on the development of autonomous vehicle detection and parking location monitoring, typically through the use of sensors placed in the vicinity of parking spaces for vehicle detection and surveillance. However, it has been found that using PGI systems, system-wide reductions in travel time and vehicle benefits may be relatively small. Whereas the proposed cloud-based system is relatively gives the high benefits as it uses the location based strategy to allocation the parking lots which overcomes the waiting and searching time to park the vehicle. We are proposing an application that replaces the current manual processes for checking the vehicle documentary through police. User side suitable to carry documents. We are designing an Android + web application named Traffic Police Management which will be beneficial for people to help for do not carry documents of vehicle and maintained the document.

II. PROPOSED SYSTEM

Introducing automated smart-parking system. Which suggest the available parking places nearby user's current location. This system is efficient to locate the parking places nearby places especially in crowded or new places. The system is implemented on android platform which is user friendly to use as most of the people are aware of using the Smartphone

The motivation of this project is to reduce the traffic congestion that occurs in and around the metropolitan areas which is caused by vehicles searching for parking. In the newspapers, we can be able to see many of the articles regarding to the parking problem all over India like Delhi, Mumbai, Pune, Bangalore and many metropolitan cities. Growing population has created many problems; today's parking problem is one of the big problems in our day to day life. In a recent survey, researchers have found that for one year, car cruising for parking created the equivalent of 38 times trips around the whole world, burning 177914.8 lit. of fuel and producing 730 tons of CO₂ and it directly effect on the air pollution. To reduce all these factors we go for the smart parking system. The management of large warehouses is very hard so using Order collecting robot we easily manage big warehouses.

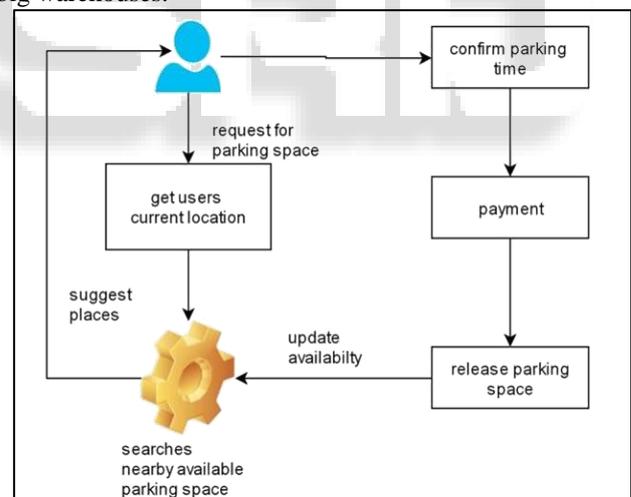


Fig. 1: System Architecture

III. ADVANTAGES

- 1) Fast location tracking and assigning parking spaces
- 2) Device compatible as every one can use this system on every handheld device
- 3) Made easy so that every can use it with ease

IV. REQUIREMENTS

A. Software Requirements:

- 1) Operating system: Windows 7 and above.
- 2) Coding Language: Java/J2EE, Android
- 3) IDE: Eclipse
- 4) Database: SQLOG/XAMPP Server

B. Hardware Requirements:

- 1) System: Intel I3 Processor and above.
- 2) Hard Disk: 40 GB.
- 3) Monito: 15 VGA Color.
- 4) Ram: 4 GB

V. CONCLUSION

The research proposed a “smart 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. The system focused on determining an efficient and optimal allocation strategy for user in minimal cost and nearby location. For allocating the nearby places the uses the uses current location which are guaranteed to have a feasible solution and to satisfy some fairness constraints. The analytical study shows significant performance improvements over existing parking behavior, including the use of guidance-based systems. Current research focuses on selecting proper decision intervals and on the use of pricing control to adjust parking space prices for different classes of users or other bidding-type mechanisms that can enhance fairness.

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