



A Review: “Smart Park” Android Application

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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. Parking problems are becoming ubiquitous and ever growing at an alarming rate in every major city. 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-“Smart Park” is to help the user analyze area’s where parking is available and number of slots free in that area. The user can pre-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. Payment services are made available using Google Wallet, so the user is required to own a credit card or debit card. “Smart Park” Application relieves the user from the hassle of manually searching and waiting for empty slots to park the vehicle. “Smart Park” application is based on the client-server architecture. The client is provided with an interactive Android based user interface for the process of pre-booking of parking slot. The client requests the server for locations

where parking is available and the server responds with slots availability.

Index Terms- Pre-booking of slots; android based application; client-server application.

1.INTRODUCTION

With the rapid proliferation of vehicle availability and usage in recent years, finding a vacant car parking space is becoming more and more difficult, resulting in a number of practical conflicts. Parking problems are becoming ubiquitous and ever growing at an alarming rate in every major city. Wide usage of android technology with the recent advances in wireless applications for parking, manifests that digital data dissemination could be the key to solve.

In the existing parking system searching for parking space is always been a difficult process. In metropolitan cities it became a major issue due to space problem, no parking zones etc, hence comes the need of such a system which can automatically assists us to search the nearest available parking space in the surrounding area. Thus it will help us in saving time, petrol & money [1]. Most of them are manually managed and a little inefficient. All the work is done by staff of the parking slot. Drivers give the money to the staff directly. Many people are not satisfied with the current management of the parking system and the flexibility of finding empty space to park their vehicles. Parking demand is routinely high at theaters, shopping



malls and offices. The problem that always occurs at the vehicle parking is time being wasted in searching for the available parking spaces.

Users will keep on circling the parking area until they found an empty parking spot. That is, people often “circle around” looking for a good parking space then a traffic jam may occur [2]. Parking is an ever-growing challenge in cities and towns across the world. This project proposes a “Smart Parking System” based on android technology for avoiding the parking problems which provides process of pre-booking the slots through the use of a simple and interactive Android application. This application is expected to provide an efficient and cost-effective solution to the effluent vehicle parking problems.

The user needs to have an android enabled device to reap the benefits of this application. After installing the “Smart Park” app, user needs to mandatorily register with the application. Booking of the slot at user’s desired location should be done before the arrival. Payment services are made available using Google Wallet in the future. During reservation process the client needs to provide with details that includes booking person’s name, vehicle number, expected entry and exit time.

Android is an operating system, developed for mobile devices like Smartphone’s and tablet computer. It is the Smartphone platform. Within the last couple of years an expensive process has begun to emerge integrating computational logic into various kinds of objects of our everyday life and allowing us to persistently interact with those objects. “Smart Park” application is based on the client-server architecture. The client is provided with an interactive android based user interface for the process of pre-booking of parking slot. The client requests the server for

locations where parking is available and the server responds with slots availability [2].

2. LITERATURE SURVEY

With the increase of economic behavior and the upgrade of living standard, the ratio of people in India who own automobiles and motorcycles have recently increased giving a boost to Metropolitan Traffic. Therefore, parking issues will be a big challenge to facilitate traffic network and ensure urban life quality. Searching for parking space in most metropolitan areas, especially during the rush hours, is difficult for drivers. The difficulty arises from not knowing where the available spaces may be at that time; even if known, many vehicles may pursue very limited parking spaces to cause serious traffic congestion [1].

WSN technology has attracted increased attention and is rapidly emerging due to their enormous application potential in diverse fields [3]. Smart Parking has the potential to save people time, reduce traffic congestion, allow better management of parking supply, provide benefits to businesses.

K.Sushma¹, P. Raveendra Babu, and J. Nageshwara Reddy proposed a “Reservation based parking system” to overcome the problem of unnecessary time consumption in finding parking spot in commercial parking areas. In this proposed system, we reserve the parking slot in shopping malls, theatres and offices by using short message service (SMS). User reserves the slot by sending a message to GSM modem placed at the parking end. GSM modem gives slot number and a password if the slots are available which is used to allow or deny access to the parking area at the entrance and exit. IR sensor is used for the indication of empty slot with a green LED.



User can park the vehicle at the given zone, and this is valid up to a certain grace period only after that the priority will be given to next user. RFID technology is used for entering and exiting parking area and also used to debit the amount for parking charges through RFID tag. Thus users can just reserve the parking slots using the SMS. Also this system requires CCTVs and physical presence of administrator to control allocation of free slots. This system requires rooms having a costly affair of CCTV's and their management which takes around 4 Lakhs. Searching for a vacant parking space in a congested area or a large parking lot and preventing auto theft are major concerns to our daily lives [9].

Rongxing Lu, Xiaodong Lin, Haojin Zhu, and Xuemin (Sherman) Shen proposed a new smart parking scheme called VANET for large parking lots through vehicular communication. The proposed scheme can provide the drivers with real-time parking navigation service, intelligent antitheft protection, and friendly parking information dissemination. Performance analysis via extensive simulations demonstrates its efficiency and practicality. Finding a vacant parking space in a congested area or a large parking lot, especially, in peak hours, is always time consuming and frustrating to drivers[6]. It is common for drivers to keep circling a parking lot and look for a vacant parking space.

To minimize hassle and inconvenience to the drivers, many parking guidance systems have been developed over the past decade, where the system provides accurate, real-time car park space availability to the drivers looking for parking spaces and then guides them to the available spaces by dynamically updated guide signs. The current parking guidance systems obtain the availability of parking spaces using the sensors installed across the whole parking lot. However, deploying sensors in a large

parking lot can be very expensive. Furthermore, the sensors can become inaccurate and would stop functioning easily when time passes. Therefore, it is highly desired to have a reliable and cost effective way to track available parking spaces and guide drivers to the available parking spaces.

Besides searching for available parking spaces, vehicle theft in large parking lots also has become a serious concern facing our lives. For example, statistics show that there have been over 170,000 vehicles stolen each year in Canada.

VANET based parking system mostly requires wireless devices for communication. It also requires sensor technology.

3. CONCLUSION:

The main goal of application will be to analyze the problem related to the vehicular parking. It will be mainly used to provide the smart parking system. This work will describe performance evaluation of the best fit allocation algorithm and the RAG technique for the system prospective in this application, which will help to reduce the traffic congestion by guiding the people for the parking space more quickly.

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This application can be used as an alternative to the present parking systems in malls, at railway. GPS (Global Position System) helps the user to find the co-ordinate and right path of the parking spot. By providing real time information on occupancy, Smart Parking technology will highlight areas of high parking demand and improve the Government's ability to manage parking supply.



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