Online Vehicle Parking Reservation System

Prof. Suraj Damre¹, Mangesh Singh², Ansar Shaikh³, Nikhil Yande⁴ & Sourabh Mundada⁵

Assistant Professor, Department Information Technology, Zeal College Of Engineering And Research, Pune, Maharashtra, India.¹

Department Information Technology, Zeal College Of Engineering And Research, Pune, Maharashtra, India.², ³, ⁴, ⁵

Abstract: Among the difficulties that we confront in our everyday life one of the most an unavoidable tests is stopping the car wherever we go. As our need expands our making trip increments yet because of extraordinary increment in the use of vehicles and increment in populace we confront the intense undertaking of stopping our auto especially amid busiest hours of the day. During peak hours most of the reserved parking area gets full. The thought behind our Android Application is to help the client dissect territories where stopping is accessible and a number of openings free around there. To plan such stopping opening we have to assess reservation of parking with ideal parking spot which relies on upon cost and time. However here we have outlined the time driven arrangement technique which takes care of the issue of stopping utilizing space portion strategy. This framework proposes an android application, which is utilized to execute a model of Smart Parking System based on Reservation (SPSR) that permits drivers to discover and save the empty parking spots.

Keywords: Android Application, Smart Parking System, Reservation of Parking Slot.

1. Introduction

A variety of occasions turns up when we visit various public places like shopping malls, 5-star hotels, and multiplex cinema halls. The trouble we experience at these spots the accessibility of parking spot. A large portion of the circumstances we have to go to locate a free space for stopping. The problem becomes more tedious if parking slots are full and it becomes time-consuming. As the population increased in the metropolitan cities, the usage of vehicles gets an increase. It causes a problem for parking which leads to traffic congestion, driver frustration as well as air pollution. In the recent research found that a driver takes nearly 8 minutes to park his vehicle because of searching the parking lot. This searching leads to 30 to 40 percent of traffic-jams. Here, we are going to see how to reduce the parking problem and to do secured parking using the smart parking system under Slot Allocation method with an Android application. The main contribution of our proposed systems is to find out the status of the parking area and provide secured parking.

2. Problem Definition

In this project, we mainly focus on designing a new smart parking system that assists drivers to find parking spaces in a specific parking district. In addition, one of the important aims is to control the traffic created while searching space for parking, this will reduce the air pollution as well as energy consumptions.

The main motivation for developing this project is to reduce the traffic congestion which occurs in the urban areas, which is due to the vehicles searching for parking. In newspapers, we are able to see many articles regarding the parking problem all over India in many metropolitan cities like Delhi, Mumbai, Chennai, and Bangalore.

2. Goals and Objectives

Utilization of cars has expanded in today’s world. The accessible parking slots are not used appropriately. The primary purpose behind this is the inadequate data the client has with respect to accessible parking spots. The driver more often than not takes after a figure based way to deal with discover a parking spot and the majority of the circumstances get disappointed. The driver ends up in an awesome confuse looking a parking spot in his bustling work routine. Numerous a circumstances driver stops in undesired and badly designed spots.

The absence of appropriate office to help him, stop his vehicle prompts to his movement to remote spots for stopping, accordingly bringing on wastage of fuel and clients time. Increasing the number of parking spaces is a solution to this problem but it is not an easily feasible solution because it requires huge investments and is a time-consuming process.
Moreover, the presently available parking management system is mostly static and works in a small area. There should be a solution for all the issues of vehicle parking. Use of internet will make system feasible for anyone to use it, as it can be accessible from remote places.

So such systems contribute a lot in collecting information for developing a parking management system with a huge database of maps.

Everyone in day to day life uses a Smartphone, so the application will be more efficient to the user to operate. This application will help the user to search for parking location without wasting much of time.

3. Proposed system

- The proposed project is based on a smart parking system that gives customers a method of booking a parking slot online using an Android application.
- It reduces the issue of finding a parking slot in commercial areas that consumes a lot of time.
- Hence, this project offers an android application for reservation of parking slots where users can view, book various parking areas nearby or specific area to view whether space is available or not.
- If the booking space is accessible, then the client can book it for a particular time slot.
- The booked space will be marked yellow after it has been allotted and will not be available for anyone for that specified time.
- This framework gives an extra element of canceling the bookings. The user can cancel their booked space anytime then want.
- The customer application allows parking booking on the android phone.
- The server side web service is stored on a web service.

4. Modules and their Description

This system comprises of 8 Modules

1. Admin login
2. User Registration and Login
3. View Parking Slots (Nearby or User Specific)
4. Parking Booking Online
5. Automatic Cost Calculation
6. Parking Cancellation
7. Email Sent on Successful Parking
8. Feedback

5. Descriptions

1. Admin Login
The system allows admin to login and manage the web application and perform various tasks as follows:
   a. Add Slots (With Google Maps to Plot location)
   b. View Booking
   c. View Feedback
   d. View User

2. User Registration and Login
To access the system, the user needs to first register themselves by providing required details and may continue with login.

3. View Parking Slots (Nearby or User Specific)
The user can click on spaces to view the availability. If space is already booked it will be marked yellow and the available ones will be seen in normal color.

4. Parking Booking Online
The users can book parking space for their required date and time.

5. Automatic Cost Calculation
The system calculates the total cost incurred for parking based on the time that user has asked for booking.

6. Parking Cancellation
The user may even cancel their bookings by login into the system anytime.

7. Email on Successful Parking Booking
When the user is successful in parking the space, the system sends a confirmation and 'thank you' email regarding the space booked.

8. Feedback
The system has a feedback form, where the user can provide feedback into the system.

6. Benefits of the System

- Users can get to learn about parking areas for particular locations.
- It saves the user’s time for search the parking space availability in a huge parking area.
- The application provides a graphical view of the parking spaces.
The user can pay an online for the parking slot and confirm their space.

- It doesn’t need much of human efforts for managing the parking spaces.
- The system generates an online bill for requested time and sends an email.
- This system is Cost-effective.

7. System Flow

7.1 System Flow

8. Conclusion

In India, the problem of parking is tremendous as there is no proper plan for slot allocation. In comparison with other countries, there is a huge difference between total numbers of vehicles produced as compared to the number of parking slots available. In this paper, an efficient Car Parking System is proposed which will majorly reduce the parking problem. This system shows how the parking problem at crowded places can be managed efficiently. It helps the clients in finding out the availability of a parking place, get the availability confirmed, and reach the place within the allotted time. It also helps for managing easily in administrator side. It also saves the time of clients required for searching a parking slot. The system gives a visual display regarding the current parking scenario to the user. The system reduces the human efforts required in parking process by converting the whole parking process to automation. Booking or reserving a parking slot via a Smartphone is easier for a user to operate. This ultimately reduces the time and efforts required by the drivers, for searching a parking space. Which will then reduces the fuel consumption, traffic volume as well as the environmental pollution by increasing the efficiency of transportation.

9. Reference


