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Parking Systems & Services

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Abstract: The system is an Android Application which acts as a guide for parking vehicles at available parking spaces nearby. This System gives the user a heads-up about nearby available parking spaces to make sure that the user will be comfortable to park the vehicle at the desired place. System is basically used to help a traveler new to the city or anyone who wants to explore a city in the given time period showing the available places to park based on the top ratings by the user, fares, etc. The user has options to select for the places he wants to visit for instance parks the system will ask whether he is searching for the current locality or some other place.their vehicle with all the information regarding parking at that place. The places are sorted and selected

• INTRODUCTION

The project is an advanced and yet highly promising system helping any user to get accurate and best place to park their vehicle at any instant of time. The system is an Android Application which acts as a guide for parking vehicles at available parking spaces nearby. This System gives the user a heads-up about nearby available parking spaces to make sure that the user will be comfortable to park the vehicle at the desired place. System is basically used to help a traveler new to the city or anyone who wants to explore a city in the given time period showing the available places to park their vehicle with all the information regarding parking at that place. The System is very flexible in searching places and makes use of Google maps and images to display places if the user wishes to. Searching for a vacant parking space in a metropolitan area is the daily concern for most drivers, and it is time consuming. It commonly results in more traffic congestion and air pollution by constantly cruising in certain areas only for an available parking space. For instance, a recent survey shows that during rush hours in most big cities, the traffic generated by cars searching for parking spaces takes up to 40% of the total traffic. To alleviate such traffic congestion and improve the convenience for drivers, many smart parking systems aiming to satisfy the involved parties (e.g., parking service providers and drivers) have been deployed. The current smart parking or parking spaces database which is managed by reservation authority, and simply publishes the parking information to direct drivers. However, since these systems cannot provide parking guidance systems, only obtain the availability information to guide the drivers to their desired parking destinations, even sometimes make the situation worse, they are not “smart” enough. For instance, when the number of vacant spaces in an area is limited, more drivers, who obtain the parking information, are heading for these spaces. It will cause server congestion. It is, therefore, strongly desired to provide an effective strategy to address these concerns

• OBJECTIVES

Providing a simple mobile based application for parking.
Booking a parking slot from home.
Can search nearby places using Google Maps.
Easy payment system.
Parking owners can add their own parking places

• PROBLEMS DEFINITION

The system is an Android Application that will act as a guide and suggest users for every point by taking input to the system. This System gives the user a heads-up by suggesting nearby parking spots to make sure that the user will be comfortable to visit the desired place. System is basically used to help a traveler new to the city or anyone who wants to explore a city in the given time period showing the parking space with all their information to book and place it beforehand. The places are sorted based on the top rankings by the user. The user has the option to select for the places he wants to visit and the system will ask whether he is searching for the current locality or some other place.

• LITERATURE REVIEW

- Introduction

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anyone who wants to explore a city in the given time period showing the available places to park their vehicle with all the information regarding parking at that place. The System is very flexible in searching places and makes use of Google maps and images to display places if the user wishes to. But in our project we are providing the combination of all the other existing systems. In our system we are implementing some additional features like Place rating according to user, book a parking slot from home, Live availability, easy payment, Auto place suggestion based on GPS.

- Existing System

In the existing system all work are done manually. In the Manual Booking System, customers have to go to the Travelling office. Ask inquiry for travelling then book a ticket and finally pay & collect the receipt. Difficult To Maintain the Customer Details and Payment Receipt in Register. They keep parking records in a notebook. Add advertisements in Local newspapers or Local Market. Use Travelling Facility For the Limited Area or Person. The existing system uses vision based methods, sensor based methods, Two Tier Parking & Automatic Multilevel Car-parking System, etc.

- Need of New System

Currently, many people are using the internet as a central platform to find the information about their desired destinations. There are millions of results of the application containing the needed travel information, and they are all over the whole world with different content languages, cultures and performances. Moreover, nowadays people prefer to make decisions based on what they read from various sources. We proposed a system that recommends travelers nearby parking spaces to park their vehicle. Implements a reservation service to reduce the traffic volume caused parking cruise. We will implement the system using Android Studio and MySQL for the database. The required items are fetched from the database such as users details along with his/her name, parking place review, visited places, feedback, etc. The admin can have authority to access the database. Once the user is logged in, they are provided with certain privileges. We can link the different forms using MYSQL to use the system

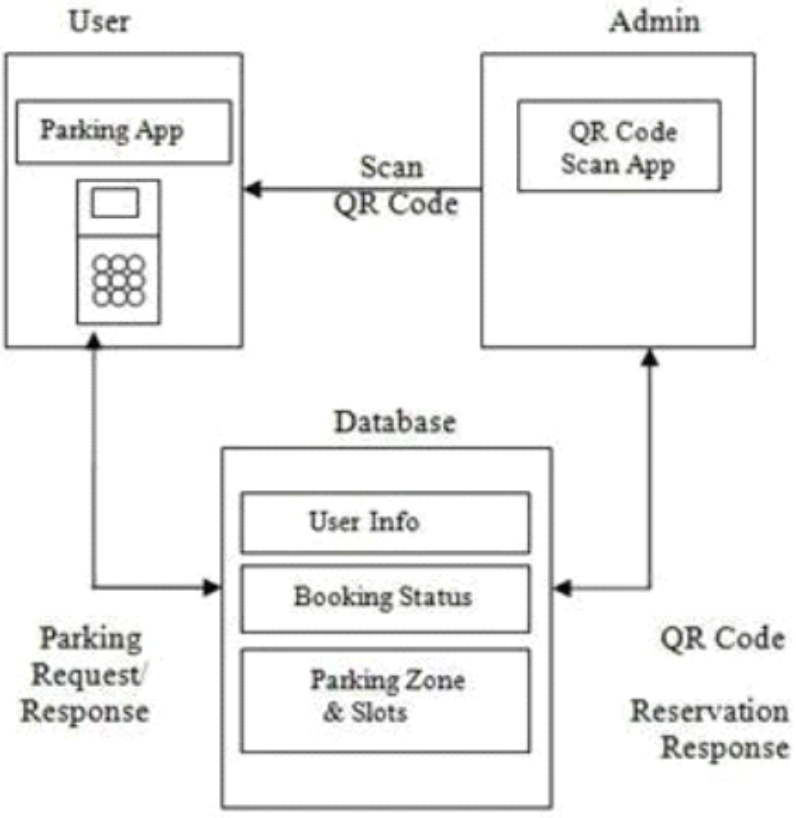

Fig. 1 System architecture

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In this case, Reservation authority identifies each user by the unique QR code which has been sent by the management system to the user at the time of reservation.Once the reservation order is confirmed, the reservation authority updates reservation information to hold the related space for the user. Upon retrieving the parking information, the system updates the state of the parking lot. Based on the state of parking lots, the system analyzes their occupancy status and congestion level, determines the parking prices according to their pricing scheme, broadcasts the prices to all users periodically, and stores the parking information, QR code and prices for further analysis. The system serves as the centralized decision-making body in a planned economy. It makes all pricing decisions regarding the state of parking lots and user demands. This system is a closed-loop system to dynamically adjust parking price, balance the benefits between users, and service providers and reduce traffic searching for parking. By placing the reservation authority on the gate each user has been identified by the QR code, when the user reaches the parking spot. Host demands for the QR code and verify the details by scanning the QR code. Since the user does not need to communicate with his desired parking lot host to make his reservation, rather he directly scan the QR code by host QR code scanner and verifies the details just like a centralized system. Due to this the communication overhead of reservation is highly reduced. Also, since each parking lot manages its own reservation information, it makes the reservation requests from users easily synchronized, compared with reservation synchronization in the system.

• IMPLEMENTATION

The proposed system is a simpler and merged version of all the 3 different most accessed modules related to travel. These are- Getting information about specific sight, planning, organizing and managing trips and a basic safety app which never lets you down and feel alone when you are travelling. The system solves all problems of the client by providing them different packages and facility to personalize their tour. Users may choose the destination and package as and when needed. The user can plan and book a fully customizable trip. The user may even cancel his booking using his login credentials. After successful booking user can make payment via a demo credit card and gets an acknowledgement email too.

MODULES

1. User Registration :
User has to first create an account in the system by registering themselves and then can login into the system for accessing the services.
2. Login :
3. Add Place :
Enables user to manually input data of new places with their attributes such as name of the place, area, location, phone no. (If Applicable) & image of that place.
4. Search Place :
Helps user to find the places nearby or around the world. After searching a place, the map will show the details such as name, area, location, phone no. & kilometers
5. Booking Cancellation :
Users may even cancel their tour if they wish.
6. Cost Calculation & Credit Card Payment :
They can make payment online via credit card.
7. Receipt Emailing :
Every user gets an instant email notification regarding the payment being made.
8. Reviewing/Feedback :
Users can even provide feedback into the system by filling up feedback form.

• PROPOSED METHODOLOGY

In this section, we present the architecture and design of proposed reservation-based smart parking system, which

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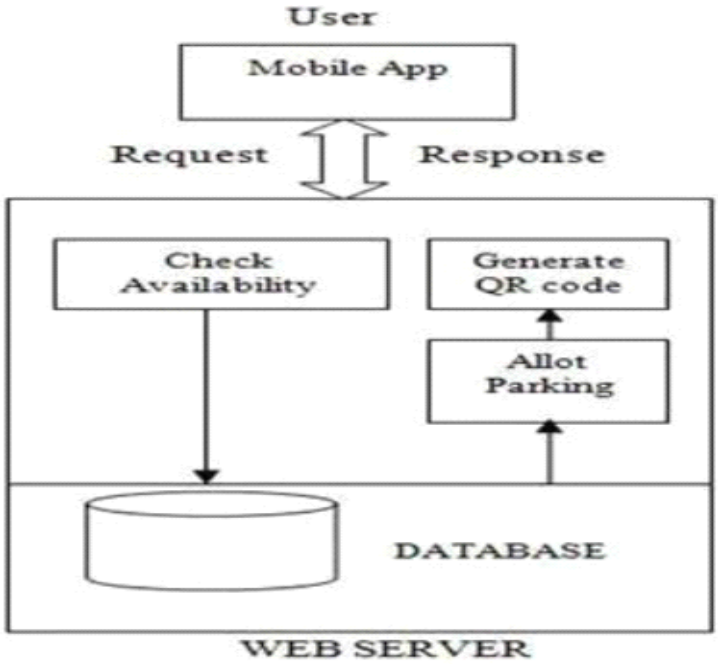

Fig 2. User API

Fig. 2 shows the design of software architecture of user API, primarily defining the Android application, which is the central location of the system to user applications.

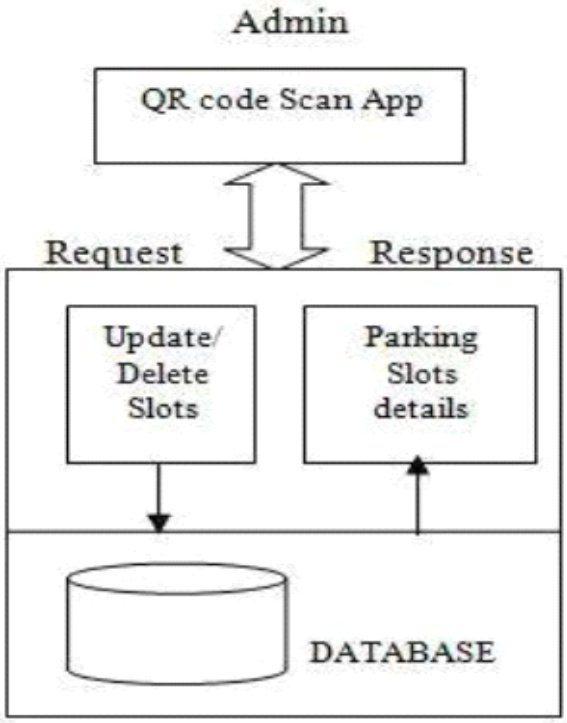

Fig 3. Admin API

Fig.3 end is used to scan QR code generated in users parking app at the time of reserving space. This makes sure that only users with reservation are allowed to park vehicle.

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• CONCLUSION

The proposed system is a simpler and merged version of all the 3 different most accessed modules related to travel. These are- Getting information about specific sight, planning, organizing and managing trips and a basic safety app which never lets you down and feel alone when you are travelling. The system solves all problems of the user by providing them different parking spaces available nearby.

• FUTURE SCOPE

This project can be further enhanced to provide greater flexibility and performance with certain modification whenever necessary.

1. It can be further incorporated in the Google maps.
2. Convenient for parking owners and dealers
3. Business perspective of the application is vast
4. Tie ups with commercial places like movie theatres, malls etc.
5. Hassle free parking experience.

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