ANDROID BASED PARKING SYSTEM

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ABSTRACT

Android based parking system is an application which provides user an easy way of booking the parking slots .The challenges we face in our daily life is parking our vehicle. During the peak hours most of the reserved parking areas gets full and this leaves the user to search for their parking among other parking areas which creates more traffic and leaves them with no indication on availability of parking space .In this application the user can view various parking slots and checks for the availability of slots .Whenever a user books a particular slot it will be marked as green and all the available slots will be marked as grey .This application also has a feature of cancelling the reserved slot if the user is unable to reach its slot within an hour from the time of booking .Hence this application reduces the user's effort and time of searching the parking slot and also avoids conjunction of traffic.

Keyword: - *Android, Parking slots*

1. INTRODUCTION

As the population is increasing manifold in metropolitan cities, too many cars too much traffic and there is no enough parking area. This is the problem which is seen in most of the metropolitan cities now-a-days. People have to roam and wait for longer time to park their car especially in peak time and in public areas like shopping malls , multiplex cinema hall & hotels. Therefore the use of android technology combined with recent advances in wireless application could be the key to solve emerging parking problem. This android application presents a smart parking system that regulates a number of vehicles to the nearest parking space .

The main idea behind this application is to help the user to analyze area's where parking is available and number of slots free in that area. In this manner the administrator will reduce his physical work load as the user can pre-book the slots . With the help of the application proposed in the paper user's time required for manually searching and waiting for empty slots to park the vehicle reduces.

In order to ensure the reliability, timer is set as soon as the user books the slot based on user's current location. The user is expected to reach the allotted slot before time runs out.

1.1 Motivation

The main motivation of this project is to control the traffic congestion that occurs in and around all the metropolitan cities. Growing population has created many problem ; one of the biggest problem is our daily life. So in order to make our life easy ,this project is brought into action . With help of smart parking , everyone will get their own space and time to park their vehicle without wasting time and energy in manual searching.

2. RELATED WORK

Now-a-days the common parking approaches are adopted by drivers. In which drivers search for parking slots randomly. If driver is able to find any vacant space in the field then he can park otherwise his search continues. Sharing information and knowledge about various other parking areas is another approach . If the driver gets to know about parking slot which is near to his destination then he can gather information about the available space in that particular slot. If the slot is busy during peak hour then the driver has to struggle for vacant space.

Smart parking system designed a mechanical model with an image processing facility .The car would be parked with the use of lift at multiple levels .

So to overcome the disadvantages of parking approaches we have designed a android application which runs on Smartphone . With help of this application user can commute the availability of parking system prior to entering the parking area. In this manner user does not require to wander and waste time and energy in visiting all places rather they can have a visual display of every slot that is available to them at that particular time .

2.1 PROPOSED APPLICATION OF PARKING SYSTEM

 This application is an android based parking system which mainly contains three modules .User can first login to the application and choose a parking space that is nearest to his destination . After the selection of slot , administration module come into action . Now to show that the slot is booked by a user , administrator updates the status of that respective parking slot to "RESERVED". To maintain the reliability , if the user does not arrive to the slot which he has reserved within an hour of booking ,it will automatically cancel its booking and that slot will be shown "EMPTY" or it will be available for others. It is economically feasible as it doesn't require any heavy infrastructure.

The main objective of this application is to provide following :
1) Intelligent , extensive and user friendly parking system that can minimize user's time and avoid traffic congestion in metropolitan cities.
2) To ensure easy and secure parking slots within the area required by user.

3. METHODOLOGY

The slot booking method works on the following sequence :
 Step 1) Firstly slot is been selected by the user from his smart phone. Here user checks the availability of the slot in his desired location. If the requested slot is EMPTY ,he moves to next stage or else user has to try for another slot.
Step 2) Now the request is been transferred from android smart phone.
Step 3) Every parking slot has a unique id called slot number. Therefore requested slot's id is allocated to user.
Step 4) After reserving the particular slot by the user then the status of that respective slot will be marked as GREEN=RESERVED and the remaining will be GREY=EMPTY.
Step 5) If the user is unable to arrive at the slot within an hour of booking then this requested would be cancelled and the reserved slot will be set empty.

Modules
Android parking system has mainly two modules. They are
* User Module
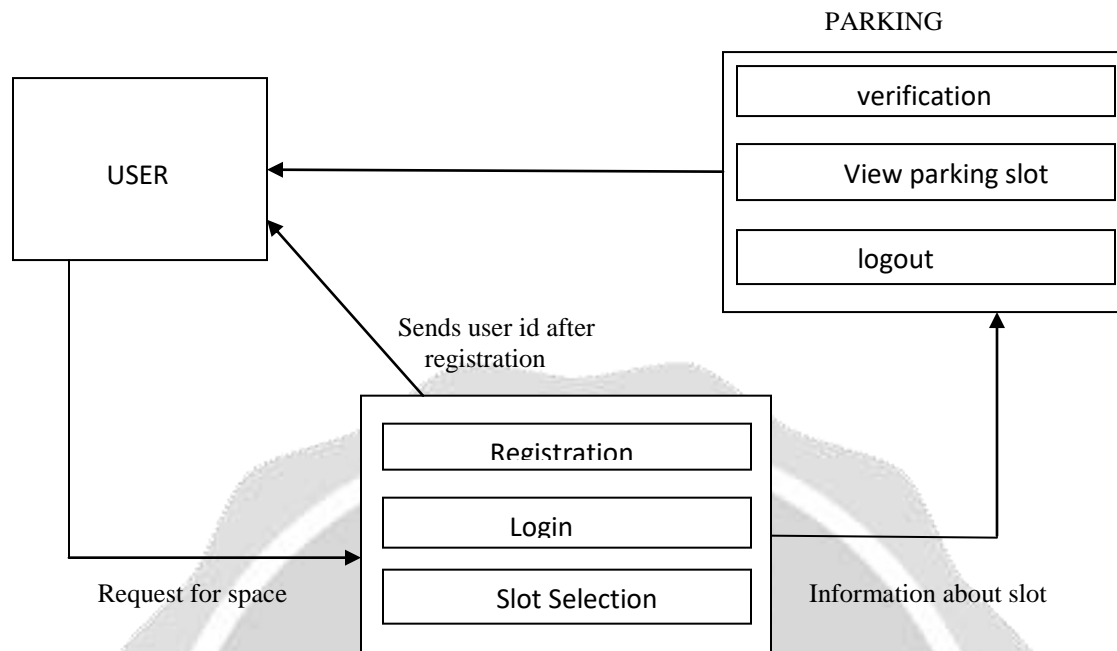* Administration Module
* Booking Module

PARKING

USER

verification

View parking slot

logout

Sends user id after
registration

Registration

Login

Slot Selection

Request for space

Information about slot

FIG-1.Architecture of android application

USER MODULE : This module of the application deals with user interface . This module provides the facility to user to get himself registered and log in . Now if the user is new to the application he has to first register by providing all the details . After successful registration user can login using the user_name and user_password .Following this procedure now user can avail for other services of this application. User can select the parking slot and book according to his suitable time and place.

ADMINSTRATOR MODULE : The administrator stores all the data as soon as a user gets registered . Administrator also keeps the record of all the parking slots (RESERVED and EMPTY) and modification of the detail can only be done in this module.

BOOKING MODULE : This is the main module in which user can book the available slot . All the details of the booked slots and empty slots are shown in this module . And the booking, confirmation and cancellation is done by this module.

4. EXPERIMENTAL RESULTS

The initial screen of the application consist of two options that is sign up and sign in . The users who have already registered will sign up (as shown in FIG-2) in the application whereas a new user will first register himself . Therefore he will go for option sign in and create a new account .As shown in FIG-3.
In FIG 4. All the features of the applications are shown . New booking is the feature which enables user to book a new slot in new area . Second feature of the application is enter detail . In this feature all the detail's of user are required . View booking is the feature in which user can view all the details of this booking like date , time, booking id . Feedback is added to know user's review about the functioning of application and to know whether it is useful to work on this application or not.
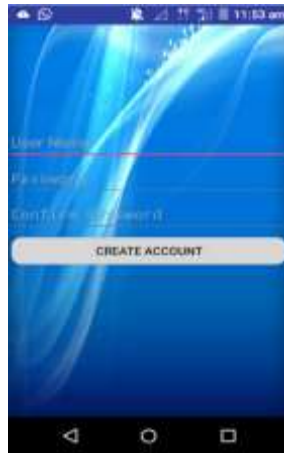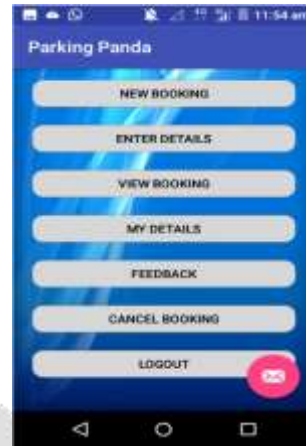
FIG 2.Initial Screen   **FIG 3. Create Account**   **FIG 4. Feature's**

FIG 5. Showing slots   **FIG 6. Booked Slot**   **FIG 7. Cancellation**

In FIG 5 we can view all the available and pre-booked slots . According to availability of slots user can avail for its service . In this manner user can view the condition of all the parking areas and their slots. For more convience , this application uses different color to show booked slots and empty slots. As shown in FIG 6 . Date ,time and duration is required to be filled by the user in order complete the request. In FIG 6 , empty slot is shown in grey color whereas booked slot in green color. After complete selection of parking area according to users requirement and feasible location , he can confirm the booking with the time duration . In case of any discrepancy , if the user can even cancel the booked slot . Even if user does not park his car within an hour of booking , the reservation will be cancelled. As shown in FIG-7.

5. CONCULSION

This Android application is used to book parking slots without any great effort by user using an android devices. The user can check the status of parking area and book the parking slot in advance . Through this application many problems which are being created due to the bad management of the traffic .This paper shows how the parking

problem at crowdy places can be handled well-thought plan . It helps the client in finding out the availability of a parking slot , get the availability confirmed, and reach the place within the time slot. It also

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