

OTP CAR PARKING AGGREGATOR APPLICATION

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Abstract

Our daily lives in City have become faster with Wider roadways and Faster Vehicles. Things that come along is maintenance, traffic and parking. With rise in number of vehicles parking is getting a bigger pain point for every driver. Due to rush hour, peak work time and tasks running mind, People park anywhere and vaguely. Be it in Malls, Cinemas, Nearby Shops people tend to forget their parked vehicle. We propose an idea which can help solve the problem of parking allotment and searching the allocated parking area of the vehicle. In this system, Admin can be any parking vendor; who maintains the Parking space. The Driver has the android app, where a secret number is generated and this secret number will be given to admin to generate OTP. Considering there are more than one person on/in vehicle, the number of OTP will be generated. Admin will now give the parking allotment for that vehicle on its registration. Although the Mall parking areas do have Alphanumeric postings to remember the parking location, this project focuses on all types of parking. Once the vehicle is parked, the time comes when we depart to home from work, you need to find vehicle. Now simply OTP at the entrance of the Parking with Secret code entered into that system, that will show the location where your car is parked. The concept of Shared OTP, allows only authentic user to find the car.

KEYWORDS : OTP ,Par Parking allotment.

I. INTRODUCTION

This project consists of a server web, a user application, and Admin application. The server application exposes a REST API which provides all the functionalities to manage a Fleet of vehicles. This API is developed using the architecture and uses the framework to perform OTP (One time password) operations on the underlying MySQL database. This API responds to the different types of HTTP requests and communicates using the JSON format. Basic authentication is provided using the Spring Security module for the admin. The REST requests are secured using an API-key.

In busy run of urban life, parking is a huge pain point. More over the location of an individual's parked vehicle sometimes is a great pain since there are multiple things going in Human brain. Hence we stand to solve problem using Technology that is by using Shared OTP mechanism for user with shared secret key. With every technology, there comes some disadvantages, that is what if some one tries our secret code with different QR OTP. Well, again that is taken care of. We propose to develop OTP based car parking locator system. This is android application with web portal application services by using HTTP protocol over internet. In this user has to use android application where a secret number is generated and this secret number will be given to admin to generate OTP. Sensors will check the empty parking slots and will now give the parking allotment for that vehicle on its registration. Admin uses web portal over internet. Whenever user want to find his car from this system it simply scan by giving secreate key at the entrance of the Parking with Secret code entered into that system that will show the location where the car is parked. From this application user get help to park his car with security and easily find park location of park car[5].

1.1 PROJECT SCOPE

Proposed system is basically the parking aggregator system, with live tracker to get real-time updates of available parking spaces. In that parking owner registered their parking spaces in this system for user. User first

need to register into the system after successfully registered OTP is send to his registered Email id .The concept of OTP(One time password) is to avoid SPAM in this system.After OTP verification user is able to proceed in this app for view three factor,Location,no of Slots,and Rating. After that users will go for their desired location where they want to park , At the end of booking user will be directed to the dummy payment gateway to pay the booking charges.

1.2 ORGANIZATION OF PROJECT

For the any project to be implemented planning is very much important as the has to go smooth with all the specific requirements and implementations[6]. So while implementing any project if you already have a basic plan for it, the implementation becomes easy. In this project, we are planning to build an android application , which will have some features like:There will be two types of users, one can register their own parking space and other can locate that space in their desired locality, and system will show available parking spaces.

Then, User can select the desired slot and proceed for booking[7].

Then, user can have navigation to that very location, where user will be authenticated using the OTP and once this is done, his/her parking hour will start. (for example, Like Ola app, customer is asked for the OTP before starting the trip, So that he/she gets authenticated, and also customer has to pay only for his/her trip start time to end time.).

And when user end his booking, he/she will be directed to Payment Gateway to pay the parking charges according to the total Period of parking hours[4].

II.LITERATURE REVIEW

Car parking is today's common issue and Drivers cannot find parking as easily as they would like. Cars are parked are jamming the streets for long periods. Parking in official premises and No parking zones Cost adversely, than on street spaces. New parking spaces are built in the city, but no one parks there because it is either unknown or too expensive and far away. Anger and rage: People fight, yell and scream over parking spaces .Wasted time: People circle the block roads by looking for parking & cruising for parking. Angry drivers, increases traffic congestion and air pollution, and wastes gasoline and time. Unauthorized person or Car thief accesses cars from parking so parking arises many issues so for observing all this issue we develop QR code based parking car locator system[3]. From this system we try to solve all issues of parking from car thief, unauthorized personnel through and nearby all parking place idea given by QR code and returns with location of parked car[7].

2.1 EXISTING SYSTEM

Many parking places still use the manual or the paper-based system for customers 'parking reservation, data storage and payments. According to the analysis, customers in many parking places come and then book for parking of their vehicles, sometime congestion cause confusion and locating a vacant parking space can be a big issue. Online vehicle parking reservation system will help solve this problem since the user will have priority located and paid for the parking service[1].This will gives the people time to settle down into the main activities of the day within the shortest time possible. Traffic congestion is one of the biggest challenges, due to limited parking spaces. Growing global population and the resultant increase in the number of vehicles on road are among the key factors responsible for traffic congestion. Owing to the necessity of organized parking and reduction in traffic congestion, the concept of parking reservation systems has been introduced. The system allows drivers to obtain parking availability information[1].

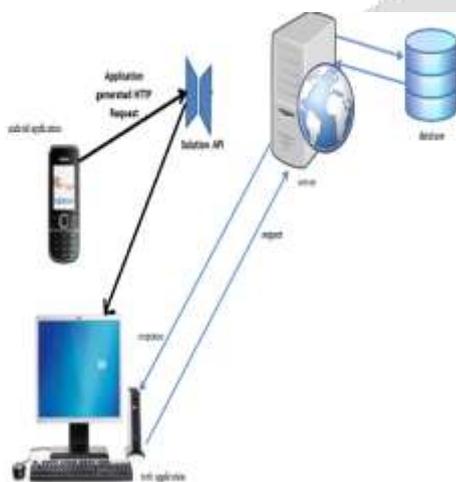
2.2 LIMITATION OF EXISTING SYSTEM

Our reaserch during observation about existing system we established stake holder such as Driver and Staff member we identified following limitation:

- 1.Since this project is for project the credit card is not working properly.
- 2.User should have reach parking location 5 min before tme slot
- 3.Web application is not fully responsive (scaling down nicely according to different devices)
- 4.Cancelation is allowed only before time slot. 5.If cancellation is done before booking start then it user may be suffered some charges according to policy.
- 6.For booking conformation user must be get OTP, otherwise booking is not confirm properly.
- 7.For pre booking user must be paid total amount via net banking[5].

III. METHODOLOGY

1. Initially parking spaces with their longitude and latitude is registered on the web map server to make the system more dynamic by using internet.
2. Each parking space is uniquely identified by OTP Code. The OTP code was generated using fields like space id, latitude and longitude of the space. The OTP code is printed and affixed at the corresponding parking spaces.
3. A database that shows all the mapped parking spaces with their attributes is created. A web server Application Programming Interface, API is established and published over the internet.
4. The user can then access the API using application. The user willing to use the application must be connected internet via his phone. The user has to download the application and install the application on his android smartphone.
5. User has to register himself to the system by giving details like name, password, email-id, phone number.
6. The user can then log in to the system whenever they need to reserve a parking space.



IV. SOFTWARE DESIGN

Design is the diagram which resembles the internal architecture of the project system. Like in this project we are creating android application, web server, database, and REST API, the internal diagram or the architecture diagrams for parking aggregator application is given below. Here the connections are very clear through the diagram that the android application will be having connection with Web Server via internet and then that web server is connected to database. Now this was the order to request. Now the same order once requested the database will now go to the web server and then android application through internet. The topmost level of the web application is the presentation layer which displays information such as browsing parking lot, client, system user login, booking, etc. It communicates with other layers by which it puts out the results to the browser/client tier and all other tiers in the network.

V. IMPLEMENTATION PLAN:

STEP(1)-Login phase: In this phase user has to make his/her entry for parking the vehicle. User has to register his name and Car number. And to secure the location of the parked vehicle user needs to create his own password through which he will get registered into the system. This information will later be accessed by admin.

STEP (2)-Admin Panel: Admin Panel will consist of any authorized person who will act as an observer, automatic allocation of services can be done. Admin can handle the data. Vehicle number can be given to the server to check the location of the given vehicle.

STEP (3)-OTP: OTP is used for verification of the vehicle. Which generally specifies where the car is parked. User has to enter the name, the OTP code will be verified and it will be checked whether the right person is operating the car. This will be checked while the person is exiting from the parking.

STEP(4)-Sensor: Sensors are used to detect the movement of vehicle whether it has entered or exited from the respective parking slot. The microcontroller in the sensor is programmed in such a way that it will detect the vehicle and send the data to the computer i.e. to the admin panel where the empty parking slots will be filled by the user. It will work as a live tracker to get updates on slots and vehicles.

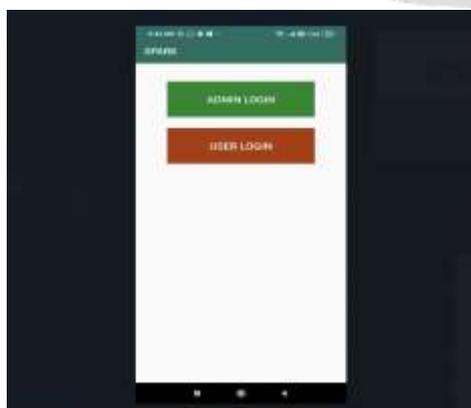
VI. RESULTS

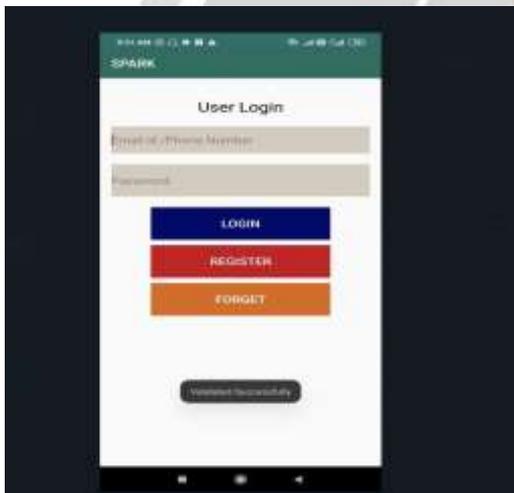
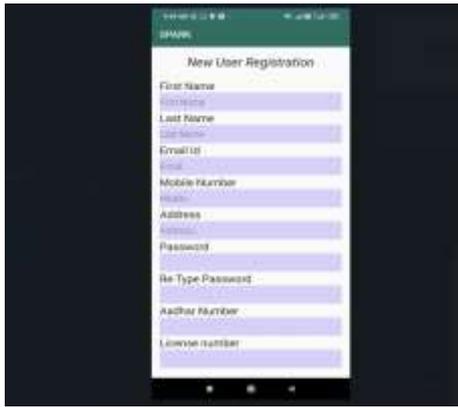
Below attached are some of the screenshots from our developed project.

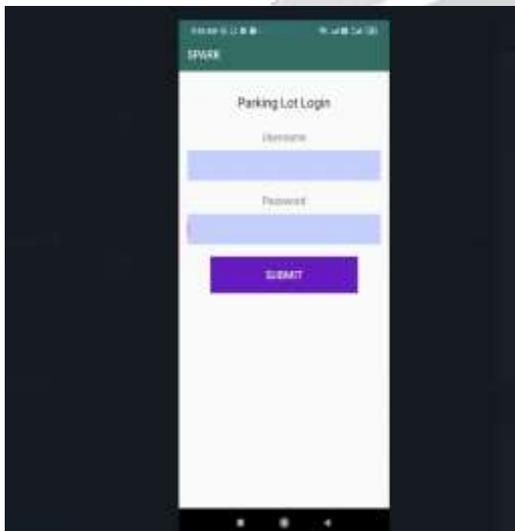
WEB PAGE



ANDROID APPLICATION







VII. CONCLUSION

The system gives a visual display to the user regarding the current parking scenario. The system reduces work of manual parking process by converting the entire parking process to automation.

The system makes it easy for the user to book or reserve a space on the smartphone. Thus smartphone acts as a park finder. This ultimately reduces the time that every driver spends for searching a parking space which then reduces the fuel consumption, traffic volume and environmental pollution by increasing the efficiency of transportation.

System is proposed on OTP-code based car parking locator which helps making ease in parking and the ensured safety of parking by avoiding technological breach by making use of Shared OTP Code & Secret key for verification of genuine owner.

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