

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 8, Special Issue 2, March 2019

Parkspot – An Android Application for Rental Parking In the Houses

Ms.Pranamita Nanda, R.Purusothaman, M.Senthil Kumar, N.Siva Kumar

Associate Professor, Department of CSE, Velammal Institute of Technology, Chennai , Tamil Nadu , India

U.GStudents, Department of CSE, Velammal Institute of Technology, Chennai , Tamil Nadu , India

ABSTRACT: Several attempts have been made in the reduction of the traffic. The minor issues also include in the major trafficking. It also includes in the parking of vehicles in the off side of a road. To have an impact in the society we are been set in the project “PARKSPOT”. The project evolves in the interest of people’s mind. The parkspot involves with android application which is designed to examine the parking places in nearby “LOCALITY HOUSES”. Many people have their houses with the inbuilt parking facility. If the parking area of a particular house is free then he/she could park their car. The parking time is allotted only by the house owner and the rent for the parking slot is decided only by the house owner. If the driver feels that the time to park is insufficient then he could move to the other suggested parking sites nearby. To increase the security we are trying to implement with the AADHAR CARD for the acknowledgement of the righteous persons. A terms and condition agreement is generated for every time to check the car specific places to avoid from disasters. The public parking places like “MALLS, PARKING SHOPS .The parking slots include with public parking slots, private parking slots like parking centres and locality houses.

KEYWORDS: Mobile application, Android, Vehicle parking, Smart Parking.

I. INTRODUCTION

Recent years the mobile applications have become the smart technologies in our day to day life. Mobile application plays a key role till the end of our every day. Many social applications provide sufficient details and daily reports. Due to rise in the mobile applications the usage of smart phones increased rapidly. However smart phones support both web applications as well as mobile application. The mobile applications are quite simple and easy to access. For example the OLA application is widely used for booking the cab which is one of the best mobile applications for booking of vehicle.

Every day we use to travel for long distances using our private or public transports. The transportation sector plays a vital role in our day to day life. We use to go by transports for our working purpose. We need to park our vehicles in safe and secured places. The parking of vehicles plays a major role in everyone’s individual in their day to day life. Sometimes the parking of vehicles creates serious issues. The individual may not find the parking lots to park their vehicle. Even though smart parking system are been used effectively. The automated smart parking system is used widely. But the cost of expense is high to build and maintain the parking system. This paper deals with the remedies by an android application which significantly used for the parking in local houses of parking area through rental charges.

II. EXISTING SYSTEM

A parking system multiplies parking capacity inside a parking lot. Parking systems involves electric motors or hydraulic pumps that move vehicles into the position.

Parking systems may be traditional or automated. In the long term, automated car parking systems are more cost effective than traditional parking system. Both automated vehicle parking systems and automated parking garage systems reduce the time in searching of the parking area.

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

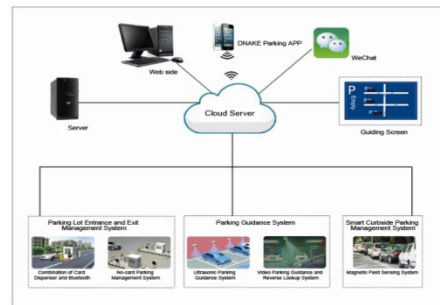
Visit: www.ijirset.com

Vol. 8, Special Issue 2, March 2019

In a traditional parking system involves less expense for parking. This type of parking involves an empty garage. The vehicles are parked in a random manner. The parking lots are provided under the category of First Come First Serve.

III. WORKING

Automated car parking systems use the technology like mechanical parcel handling and document retrieval. The driver leaves the car inside an entrance area and technology parks the vehicle at a designated area. Hydraulic or mechanical car lifters raise the vehicle to another level for proper storing. The vehicle can be transported vertically (up or down) and horizontally (left and right) to a vacant parking space until the car is needed again.



1. BENEFITS

There are many advantages in a car park system business owners and vehicle drivers. Automated car park systems save time, money, space and simplify the difficult task of parking. It moves vehicles into safe and secure storage areas until they are needed.

2. MAINTENANCE:

Service intervals vary for automated car parking systems, depending on the type of machines used and their usage. Parking systems should be serviced at least once a year, and up to four times a year for parking. A reputed car parking company will regularly clean all critical elements of its parking system, including the car lifters top and bottom, all concrete pits, all posts resting on the concrete, and the entire concrete floor in the parking area.

3. OTHER PROBLEMS:

Several reasons are involved in the parking of vehicles in our day to day life. The major reasons can be listed as follows. Sometimes the parking lots will be filled due to large number of vehicles is parked. The driver feels the difficulty in parking their vehicles. Though the parking places are available some feel that the particular is unsecured for some critical reasons. These problems must be taken into serious account for a secure parking environment. Some used to park their vehicles in off side of the road due to unavailability of the parking lots. This creates the traffic in the roads due to parking in the off side of the road. Sometimes it may to lead to accidents in the standby vehicles. Thus the parking plays a major role in every individual's life in their daily life.

IV. PROPOSED SYSTEM

This paper mainly concentrates on the individual parking of their vehicles. The difficulties faced during off side parking in a road are taken into serious account. The main reasons for parking in the off side of the road are

1. The parking slots are not available in nearby distances.
2. The parking charges imposed are high.
3. Time constraints for parking. Even though the vehicle is parked for short period of time the parking charges are very high.
4. Lack of sufficient space for parking the vehicle
5. Parking area must be safe and secured.

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 8, Special Issue 2, March 2019

The above issues include a huge amount of expenses in the parking system. Government spend the revenues in building the automated car parking system. These expenses can be reduced through the parkspot application.

Parkspot is a mobile application which involves parking of vehicles in the local houses. The application is significant since it estimates the nearby parking slots to the driver's. The application induces the concept of time slot for the parking of the vehicles. The time slot is decided by the house owner for the parking area. If the driver is dissatisfied with the time slot he/she could search for the other parking lots nearby. Finally the payment is made for the parking lot. The rental cost is decided by the house owner. If the time slot of the driver is completed then the payment could be made. If the parking time exceeds than the time slot then the penalty charges are collected. Every time the terms and condition reports must be generated indicating the status of the vehicle. The pictures and the car's name plate must be included for the security purposes. The driver's security is ensured with the address proof; aadhar card of house owner is verified. The GPS tracking of the car is made for every one hour. The driver is notified about every hour for the movement of the car. If the movement is made in the car then an alert is made to the driver's mobile number. The application can also be used for the public places like malls, movie theatres etc.

• DRIVER GUIDELINES:

This application is in need of secure login from the driver and house owner. The application involves the GPS tracking in the location of the driver's details. Once the user has made a login, the application reports the free parking plots nearby with the help of GPS. The free parking plots are induced with the help of Google maps connectivity. The parking slot availability is mentioned with specific time slots. The rents are mentioned in advance. If the terms and condition of the house owner are agreed then the parking slot is accepted. On the other hand if the driver feels the time is insufficient he could search for the other parking slots.

• HOUSE OWNER GUIDELINES:

The address of the house is verified. The application is meant only for the secured environment. The secured involves a nearby police station, hospitals; a locality above thousand houses. The owner is verified only by the AADHAR CARD details and his phone number by sending secured OTP (One Time Password). The login must be made after adopting the procedures. If the parking plot is free then the VISIBILITY is made in the application. The time slot must be given in advance by the owner. The rental price is given only by the owner. They must mention the charges for an hour and the total rental cost. We will have certain limit of cost in the application for fixing of charges. The owner cannot give an untrusted rental amount for the parking slot. The size of the parking slot is given to driver details once an agreement is made.

If the driver agrees with the owner's parking slot then the following has to be applied:

1. The terms and conditions have to be made for every parking which involves in the security of the vehicle. It also includes the pictures of the vehicle's and the checking of the vehicle which states that the entire vehicle is been checked and there is no possibility of any disaster. If any problems are found, it is immediately reported to the owner or the nearby police station.
2. If the driver and the owner agree then the parking slot is booked for the particular vehicle in the allotted time.
3. The GPS tracking of the vehicle is made for every one hour. The driver is notified for every hour about the movement of the car. If the movement is made in the vehicle then an alert is made to the driver's mobile number. The movement of the vehicle is informed to nearby police station.

MODULES AND DESCRIPTION:

The modules of the application are as follows:

• Authentication and Authorization

To establish authentication and authorization a login page is designed for the driver and the house owner.

• Activating the Location and Distance Calculation

Once login is made the GPS in the device will get activated along with application to get the nearest free parking slots. If the driver found the nearest free parking slots then the nearest distance calculation is made for parking facility.

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 8, Special Issue 2, March 2019

- **Validation and verification**

Once the driver reached the nearby parking slot then the details of the car is obtained for the verification and “terms & condition” purposes.

- **Online Payment process**

If the driver agrees to the terms and condition the rental amount is decided by the house owner. The payment can be an online payment or cash on delivery. Now the parking slot is allocated for the driver in the dedicated time slot.

WORKING:

The application involves the driver and house owner login and registration which are the very basic module for the authentication and authorization. Once the login is successful the user is forwarded to establish the location of the driver and house owner.

If the driver is in need of the parking lot the visibility button is clicked. The list of available devices of free parking slots is shown. If the driver agrees to the nearby parking lots of a particular time slot then he is forwarded to the Google maps to show the destination and distance is calculated.

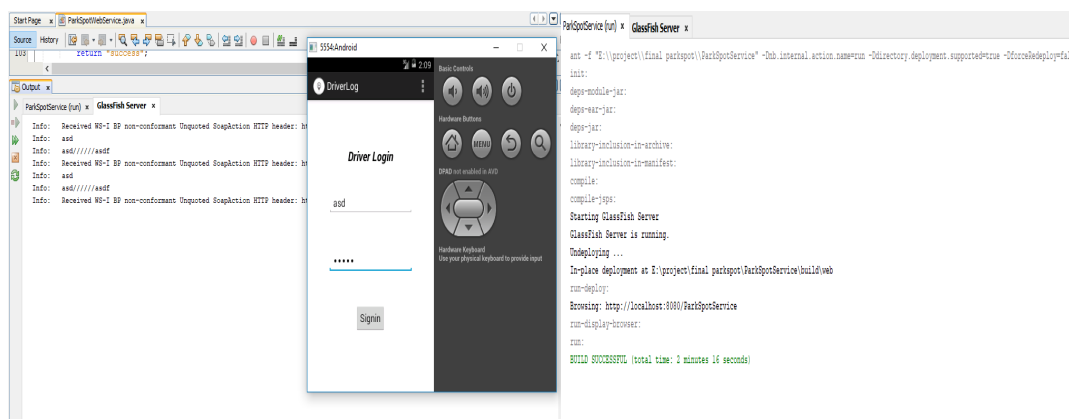
Once the driver reached the destination the house owner retrieves the driver details for parking the car. The terms and condition is generated for safe and secure parking of the vehicle. The terms and condition denotes that the house owner has completely checked the vehicle and the vehicle is at good condition without any damage.

After parking the vehicle, the time slot begins for the driver and house owner. Once the time slot completes the driver needs to take the car from the parking slot. If the driver doesn't take car out of the parking slot then the penalty charges will be included. The actual cost and the penalty charges will be added which involves the payment method. The online payment is made to the house owner.

The GPS involves in the tracking of the location of the driver to the nearby houses.

SNAPSHOTS:

These snapshots are the application snapshots and the nearby free parking slots are found using the mobile application.



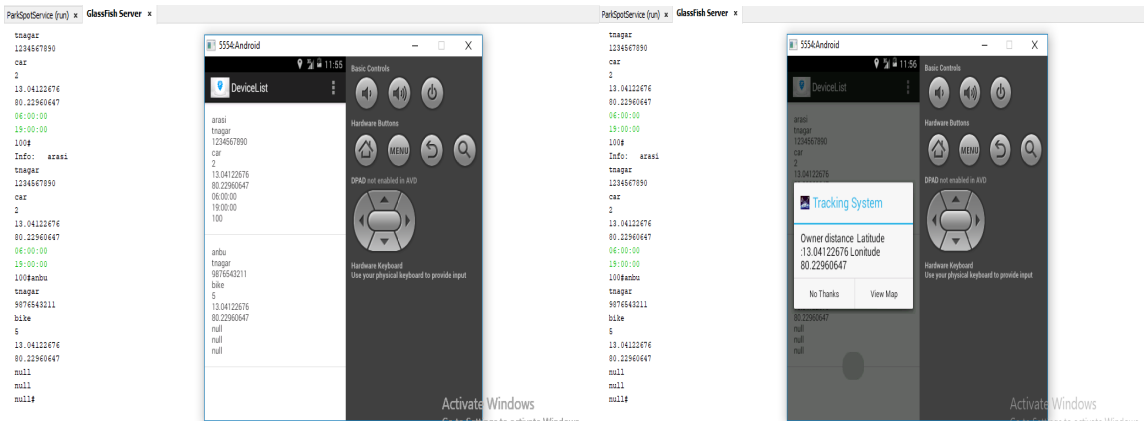
The driver, house owner login and registration form are set for the secure authentication and authorization and working of web service is shown in the snapshot.

International Journal of Innovative Research in Science, Engineering and Technology

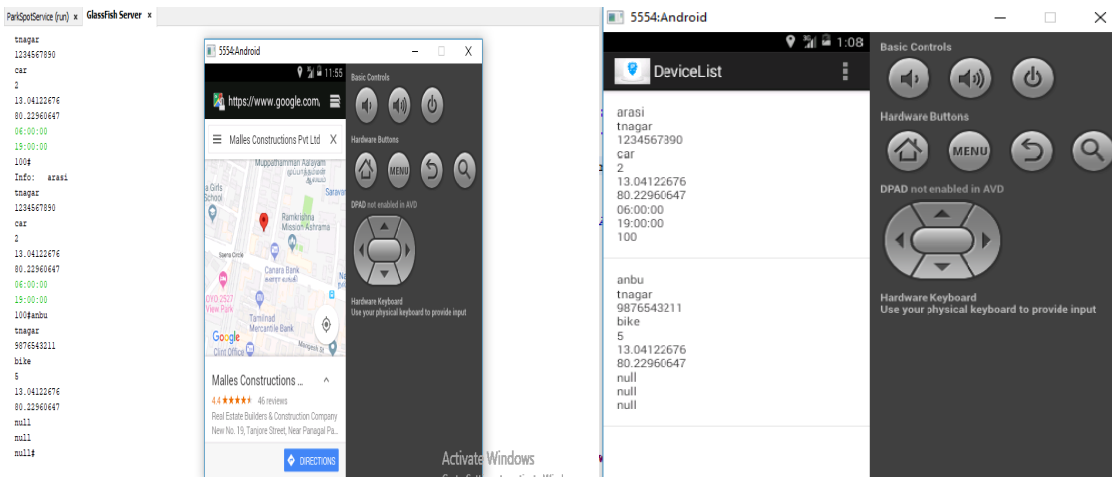
(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 8, Special Issue 2, March 2019



The above snapshot represents the nearby parking slots which have free parking slots. Once the user clicks the nearby free parking slot the latitude and longitude position of the GPS server is forwarded to the Google maps to calculate the distance.



After the distance calculation if the driver found it is difficult to reach the particular place he could go for the alternative nearby free parking slots.

V. CONCLUSION

Parking is often seen a serious threat in the case of security reason for parking the vehicles. This application will be a remedy for the secure and safe parking. The application could subsequently reduce traffic due to parking in the off side of the road. It also serves in the minimization of government project cost in building automated parking area. Safer parking is ensured through the PARKSPOT application.

VI. FUTURE WORK

In the future work we are trying to implement with the aadhar card. Using the aadhar card phone number the OTP (One Time Password) can be obtained which increases the security. Secured environment which checks whether the place is

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 8, Special Issue 2, March 2019

secured or not when the house owner register for the parking slot through this application. GPS movement of the car is tracked after parking the car.

REFERENCES

- [1]ToorajRajabioun and Petros A. Ioannou, "On Street and Off Street Parking Availability Prediction Using Multivariate Spatiotemporal Models" IEEE transactions on intelligent transportation systems, vol. 16, no. 5, October 2015.
- [2]TajudeenOlawaleOlasupo, Carlos Enrique Otero, Luis Daniel Otero, KehindeOlumideOlasupo "Path Loss Models for Low-Power, Low-Data Rate Sensor Nodes for Smart Car Parking Systems",IEEE transactions on intelligent transportation systems, vol. 19, no. 6, June 2018.
- [3]Jianbing Ni, Kuan Zhang,Yong Yu,Xiaodong Lin,XueminShen,"Privacy-Preserving Smart Parking Navigation Supporting Efficient Driving Guidance Retrieval",IEEE transactions on vehicular technology, vol. 67, no. 7, July 2018.
- [4]Ali Aliedani,Seng W. Loke,"Cooperative Autonomous Vehicles: An Investigation of the Drop-Off Problem"IEEE transactions on intelligent vehicles, vol. 3, no. 3, September 2018.
- [5]Rafael Martín Nieto,Álvaro García-Martín,Alexander G. Hauptmann, and José M. Martínez,"Automatic Vacant Parking Places ManagementSystem Using Multicamera Vehicle Detection",IEEE transactions on intelligent transportation systems.
- [6]Liehuang Zhu, Meng Li, Zijian Zhang, Zhan Qin," ASAP: An Anonymous Smart-parking and Payment Scheme in Vehicular Networks", IEEE transactions on dependable and secure computing, vol. x, no. x, June 2018.
- [7]Mingming Liu, Joe Naoum-Sawaya , YingqiGu , Freddy Lecue, and Robert Shorten," A Distributed Markovian Parking Assist System",IEEE transactions on intelligent transportation systems.
- [8]Mrs.D.J. Bonde,Rohit Sunil Shende,Ketan Suresh Gaikwad,AkshaySambhajiKedari,AmolUdayBhokre,"Automated car parking systemcommanded by android application",2014 International Conference on Computer Communication and Informatics (ICCCI -2014), Jan. 03 – 05, 2014, Coimbatore, INDIA.
- [9]Chin-Ling Chen, Wei-Cheng Chiu," A Recommendation Model of Smart Parking", 2017 13th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2017)
- [10]Prof.R.S.Sandhya Devi, Dr.V.R.Vijay Kumar, S.Sridevi,"Application Development for Reservation Based Parking Slot Allotment and Management System Using Android",2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)
- [11]Ebin PM, Akhil Dev. P, Mishab. P, Sreejith. C,Srudhil UK," An Andriod Application For Smart Parking With Efficient Space Management", Proceedings of 2018 International Conference on Emerging Trends and Innovations in Engineering and Technological Research (ICETIETR)
- [12]Chin-Kit Ng, Soon-Nyeen Cheong, ErfanHajimohammadhosseinmemar, Wen-Jiun Yap," Mobile Outdoor Parking Space Detection Application", 2017 IEEE 8th Control and System Graduate Research Colloquium (ICSGRC 2017), 4 - 5 August 2017, Shah Alam, Malaysia