Smart Parking: Parking Occupancy Monitoring and Visualisation System for Smart Cities

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Abstract - *Every day thousands of drivers spends a lots of time to find where to park the vehicle. The result of this situation increasing traffic problems and traffic congestion. In order to solve this problem, the implementation of Smart Parking: Parking Occupancy Monitoring and visualization System in the city for managing parking places is mandatory. Smart parking is so important in every smart cities. It will allows the drivers to Reserve a parking place on the Platform of Smart Park. The proposed Smart Parking system consists of an on-site deployment module that is used to monitor and signalize the state of availability of each single parking space. A web application is provided that allows an end user to check the availability of parking space and book a parking slot accordingly. It will also allowed to rent our area for parking purpose. The paper also describes a high-level view of the system architecture. Towards the end, the paper discusses the working of the system.*

Keywords -

Monitoring, visualization, monitor, reservation,etc.

1. INTRODUCTION

Presently in India Parking issue is awaken because there are not a proper management of parking is available. So we are decided to make an Application that can be definitely assist you in such issues. This Application will help you to find a parking place near to you as per the Maps. Parking places may be paid or it may be free to users. So it will give user a proper information about such places. This Application will used to Reserve your parking in any place that have an Authorized parking area. The Reservation could be taken for any date and for any place of choice. However currently there is no mechanism to inform user if the same place is not available for Parking on the scheduled date or time. The parking system faces many problems in the parking environment. In order, to solve those problems, the smart parking system has been developed. Various approaches and researches are made to overcome the difficulties of parking area. As a result, many systems and technologies are developed for parking. The system helps a user know the availability of parking spaces on a real time basis. The system allows drivers to obtain parking availability information easily and book the space for vehicles. This situation can be seen as an opportunity for smart cities to undertake actions in order enhance the efficiency their parking resources thus leading to reduction in searching times, traffic congestion and road accidents. Problems pertaining to parking and traffic congestion can be solved if the drivers can be informed in advance about the availability of parking spaces at and around their intended destination. It helps to people find out the parking area at nearby places. It will show how many places are left in the parking, which parking slots are filled up. Also, if you want to pay for it by online transaction then you can easily pay it.

The goal of this project is to create a user-friendly and adaptable system that can be implemented in large, multi-level parking areas in order to reduce the parking problems. The ultimate goal is that the ideas and planning demonstrated through this system can then be easily upgraded to an actual parking facility. Technologies are used for implementing parking systems. The parking application extends to reservation for parking, automatic payment for parking. The devices of parking system perform various functionalities based on the technology of the parking system. Some of the functionalities are monitoring, collection of data, and transmission of data, etc.

2. RELATED WORK

The parking system is now implemented in our everyday activities. There are various types of assistance involved in parking systems. The driver has to search for a parking slot in parking zone. In order to reduce the effort of the driver, the parking systems provide guidance to the driver for parking the car. Based on this concept various parking systems are developed. The information transmissions are made by mobile and web services in some systems. Then various technologies are used for implementing parking systems. The parking application extends to reservation for parking, payment facility for parking

3. PREVIOUS WORK

JustPark:

Parking is one of the most difficult and dangerous parts of modern city life and that's no surprise, as it's

barely changed for decades. Over 23% of car journeys involve some kind of parking pain that's 190 million trips a month with drivers suffering from both uncertainty (availability, prices, restrictions) and inconvenience (full car parks, slow payments, unfair fines) on a daily basis Yet we have the technology to make parking function seamlessly and so much space is lying under-utilized. There has to be a better system. At Just Park, they are on a mission to make parking easy. There 5-star apps help over 1.5 million drivers enjoy an easier parking experience and award-winning car park technology helps over 20,000 property owners make more efficient use of their assets.

4. REQUIREMENT ANALYSIS

Hardware requirements:
- PROCESSOR :1.2 GHz or more
- RAM : 4GB
- HARD DISK : 40GB

Software requirements:
- Operating System : Windows 7, Ubuntu.

Basic Computer with computational capabilities.

5. IMPLEMENTATION & WORKING

The complete process of booking a parking slot, parking a car in that slot and leaving the parking area is explained with the help of the following flow chart.
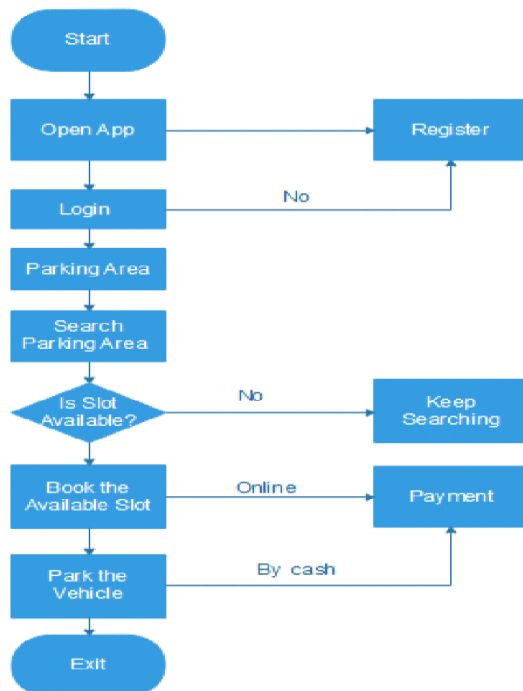
FLOWCHART

Fig -1: Flowchart of Smart Park

STEPS:

Step 1: Register the smart parking website.

Step 2: With the help of the registration login the smart park website using valid username and password.

Step 3: Search for a parking area on and around your destination.

Step 4: Select a particular parking area.

Step 4: Browse through the various parking slots available in that parking area.

Step 5: Select a particular parking slot.

Step 6: Select the amount of time (in hours) for which you would like to park your car for.

Step 7: Pay the parking charges either with your ewallet or your credit card.

Step 8: Once you have successfully parked your car in the selected parking slot, confirm your occupancy using the mobile application.

6. ADVANTAGE OF SMART PARKING

- Optimized parking
- Reduced traffic
- Reduced pollution
- Enhanced User Experience
- Real-Time Data and Trend Insight

7. CONCLUSION

Effective smart parking allows peoples to use parking spaces more efficiently and securely with fast payment options and also secure. It is part of a redefinition of parking system and discipline. We placed to meet all the needs of a smart parking service- Secure communications network and management platform, access to open data and integration of payment and billing systems. We have discussed that smart parking is not just a change of technology. Smart parking offers a city or parking operator new ways to engage with the public and creates important secondary benefits including economic growth and reduced traffic and pollution. The business model behind smart parking is maturing now to a point where it is achievable, affordable and beneficial to a city. By ensuring that the cities strategy around communications, data and financing is robust, cities should move forward with their investigations and procurement of smart parking services.

8. REFERENCES

[1] https://www.smartparking.com/

[2] International Journal of Scientific and Research Publications, Volume 5, Issue 12, December 2015 629ISSN 2250-3153   Automatic Smart Parking System using Internet of Things

[3] Automatic Parking Identification and Vehicle Guidance with Road Awareness, Guy Krasner,Eyal Katz .

[4] Smart Parking Systems and Sensors: A Survey,G. Revathi Anna University of Technology Tiruchirappalli, Tamil Nadu, India

[5] O. Dokur, S. Katkoori, N. Elmehraz, "Embedded system design of a real-time parking guidance system", Annual IEEE Systems Conference (SysCon), pp. 1-8, 2016.

[6] "Smart Parking System Based On Reservation",Mohit Patil , Rahul Sakore,Babson Survey Research Group.

[7]"On-Street and Off-Street Parking Availability Prediction Using Multivariate Spatiotemporal Models", Tooraj Rajabioun and Petros A. Ioannou, Fellow, IEEE.