

ONLINE PARKING BOOKING SYSTEM

Prof. V. S. Tamboli¹, Adinath Nirmal², Sarthak Dighe³, Someshwar Kale⁴, Bhushan Jadhav⁵

¹Department of Computer Technology, PREC(Poly) Maharashtra, India

²Department of Computer Technology, PREC(Poly) Maharashtra, India

³Department of Computer Technology, PREC(Poly) Maharashtra, India

⁴Department of Computer Technology, PREC(Poly) Maharashtra, India

⁵Department of Computer Technology, PREC(Poly) Maharashtra, India

ABSTRACT

In cities where the population is at its peak and the roads are all messed with vehicle's and long traffics. In such over increasing population it becomes a difficult job to find a parking spot for our vehicle. We came up with an idea where users can logon to our Web Application and find the ideal parking spot. Our project Online Parking Booking system is developed in Java, MYSQL. With this the users save's both time as well as fuel. The user can easily view the parking availability on the web application and drive straight to the spot without wasting any time. Users can view the pricing details for parking their vehicles. In this project the user can able to park the vehicles according to their time slot and also the admin who manages all these parking will be very easy to manage all these. With such a system the parking authorities can easily manage their parking spaces efficiently.

Keyword: Mobile Communication, Cloud Computing, Pins, Automobiles ,Acoustics ,Databases

1. INTRODUCTION

In the 21st century finding a free car parking slot has become a mind-numbing process, especially for people who travel in the morning to work or are following their daily routine, they find it highly difficult and challenging to get a parking slot for their cars. Moreover, the parking slots are never user-friendly and provide no logical data about the availability of the spot unless the user visits it manually. These kind of problems are faced regularly by every individual because the factor of uncertainty is very high and there are not many possible solutions in existence for solving the issue that may benefit the users by saving their time or keeping their mental state happy and carefree. In our ever populating cities and districts to find parking space is becoming increasingly difficult as traffic increases. Drivers have to go back and forth desperately looking for parking spaces wasting their valuable time, fuel consumption with increased likelihood of causing accidents. In the existing system we can see that some supervision is required for the parking system and it not fully automated. The driver has to make sure that the car is parked in a spot without disturbing the convenience of others. In most cases the main problem is finding the spot and trying to secure the spot for parking which in turn leads to increased stress level for the person driving the car. Moreover, the relative analysis of the data is structural to the implementation of the parking procedure. Nowadays, in this busy world it's really hard for a person to find a spot for parking. The current parking system doesn't give the user a specified parking slot inside the area. Parking in general in a long and time consuming process and we hope to provide a solution to alleviate this problem.

Problem Statement:

1) Path Loss Models for Low-Power, Low- Data Rate Sensor Nodes for Smart Car Parking Systems

AUTHORS: Tajudeen Olawale Olasupo, Member, IEEE, Carlos Enrique Otero, Senior Member, IEEE, Luis Daniel Otero, Senior Member, IEEE, Kehinde Olumide Olasupo, Member, IEEE, and Ivica Kostanic

Smart parking management systems need to keep up with the state of parking spots at all times. This is efficiently accomplished via sensor nodes that detect vehicles and update the system's state as it changes in real time. When sensor nodes use wireless communication as their primary communication link, the deployment approach becomes important, since it directly affects network connectivity, cost, and lifetime. The main factor to consider when deploying wireless sensor networks (WSN) in parking environments is the prediction of radio frequency (RF) signal propagation. Inaccurate propagation models lead to systems that under- or over-perform, both of which negatively affect WSN performance. Most of the existing RF propagation models are created to support cellular systems environments, which drastically differ from indoor/outdoor parking environments-few or no model exists that accurately predict RF signal propagation in parking environments. Therefore, there is a need for models that accurately characterize RF signal propagation in these environments. This paper proposes empirical path loss models for WSN deployment in indoor and outdoor car parking lots. The proposed models are compared with theoretical models. Theoretical models deviate from the proposed models and the measured values by 10% to 46%. The provided models, as well as the measured data, can be used for efficient planning and deployment of WSN in various proposed smart cities, intelligent transportation, and parking lot systems.

2) A design of automated parking system for shopping centers in Metro Manila

AUTHORS: Ma. Janice J. Gumasing; Charles Aaron V. Atienza

Parking plays a vital role in a customers' shopping experience. It greatly affects the quality of service of shopping facilities due to long queues, long waiting time and difficulties of customers in finding parking spaces. Investing in an excellent parking system can give shopping malls the edge that will keep their customers retention and loyalty. The primary goal of this study is to design an intelligent parking guidance system for shopping centers in Metro Manila that will enhance the customers' experience in parking facility. 5 shopping centers were selected for the study. Structured questionnaires like ServQual tool, gap analysis, process mapping and time study were used in order to identify weaknesses and problems in the present parking facilities of shopping centers. In addition, regression analysis was also employed to determine significant factors affecting the service quality satisfaction of customers. With this, the researchers were able to design an intelligent parking guidance system that will quickly direct drivers to the closest available parking slot. The proposed parking system was validated through Monte Carlo simulation and failure mode and effects analysis. It was concluded that the new system will significantly improve the queuing time and searching time of drivers and thus improve the overall service quality of parking facilities in Metro Manila.

3) Intelligent Parking System for Car Parking Guidance and Damage Notification

AUTHORS: Sanaa Alfathi; Soukaina Chihab; Yassine Salih Alj

This paper presents an innovative intelligent parking system (IPS) that has two functions: Car parking guidance and car damage notification. IPS is an advanced automatic driving system that consists of car guidance which proposes oriented assistance for drivers while parking. IPS has some interesting functionalities that ensure an easy parking without damages, parking within less time in any suitable spots and getting a notification if the parked car has been scratched or damaged while the driver is not in the car. The main purpose of the IPS system considers a control car system, an algorithmic move car system and a damage notification system to the vehicle. During the parking process, the driver is alerted by visual and sound signals. The IPS system provides a path planning image that is displayed on the on-board computer system to indicate the directions for the wheels. The damage notification system consists of car-camera shock sensors placed in the front and rear of the vehicle that record the incident when the driver is not in the car.

4) Automated Parking Space Detection Using Convolutional Neural Networks

AUTHORS: Julien Nyambal and Richard Klein

Finding a parking space nowadays becomes an issue that is not to be neglected, it consumes time and energy. We have used computer vision techniques to infer the state of the parking lot given the data collected from the University of The Witwatersrand. This paper presents an approach for a real-time parking space classification based on Convolutional Neural Networks (CNN) using Caffe and Nvidia DiGITS framework. The training process has been done using DiGITS and the output is a caffemodel used for predictions to detect vacant and occupied parking spots. The system checks a defined area whether a parking spot (bounding boxes defined at initialization of the system) is containing a car or not (occupied or vacant). Those bounding boxes coordinates are saved from a frame of the video of the parking lot in a JSON format, to be later used by the system for sequential prediction on each parking spot. The system has been trained using the LeNet network with the Nesterov's Accelerated Gradient as solver and the AlexNet network with the Stochastic Gradient Descent as solver. We were able to get an accuracy on the validation set of 99% for both networks. The accuracy on a foreign dataset(PKLot) returned as well 99%. Those are experimental results based on the training set show how robust the system can be when the prediction has to take place in a different parking space.

5) An IoT-based E-Parking System for Smart Cities

AUTHORS: Pampa Sadhukhan

The increasing number of vehicles on the road along with the mismanagement of available parking space leads to the parking related problems as well as increased traffic congestion in urban areas. Thus it is highly required to develop an automated smart parking management system that would help the driver to find out some suitable parking space for his/her vehicle very quickly. Although ample amount of research works on the development of smart parking system exist in literature, but most of them have not addressed the problem of real-time detection of improper parking and automatic collection of parking charges. In this paper, a prototype of internet-of-thing based E-parking system is proposed. The proposed E-parking system uses an integrated component called parking meter to address the above-mentioned issues as well as to provide smart parking management throughout the city.

1.2 SYSTEM ARCHITECTURE



2. LITERATURE REVIEW AND OBJECTIVE

3. MATERIAL AND METHODS

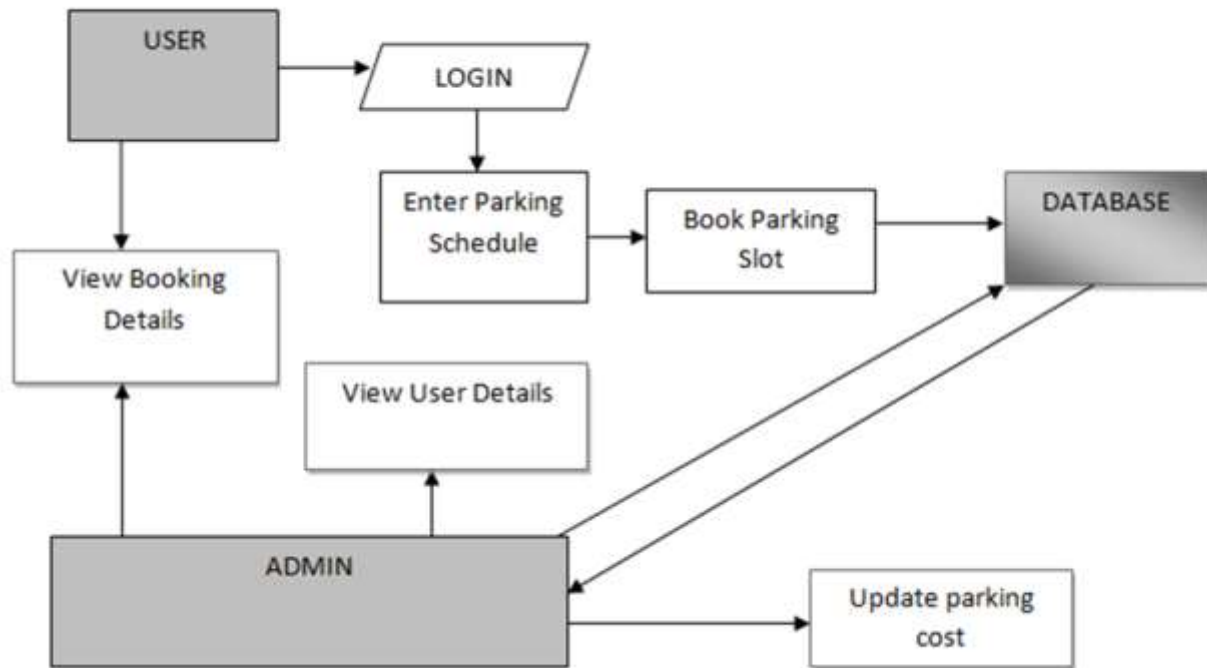


Fig -1: Name of the figure

A. Description:

User login:

Users have to first register themselves to login into the system. In the registration of user page should be filled with the details of Name, Data of Birth, Email ID, Gender, Phone Number, Address and Password. After clicking sign up, the user registration will be made successful. With the details of registration made, the user login should be done. Checking the authorization, the user will be logged in to the system. After logging it, the user can able to see the Parking Cost, Book Parking, Your Booking details.

Admin Login:

The system is under supervision of admin who manages the bookings made. Once after the admin logged it, the admin can see the parking cost, View User details and View Bookings. Only the admin has the privilege of modifying the parking cost. Also admin can view the user details. And also the admin can view the complete booking details with the cost etc.

Parking availability

User can click on spaces to view the availability. If the space is already booked it will be marked yellow and the available ones will be seen in normal color. Parking booking online for date and time: Users can book parking space for their required date and time. User cannot select the slot if the booking is already done by some other earlier.

Automatic cost calculation:

The system calculates the total cost incurred for parking based on the time that user has asked for booking. In the user login, the option: Book Parking is available. In this the user enters the details of Date, time, and parking hours. After entering the details, the hours are calculated automatically and the final amount is displayed. The user no need to calculate the amount and enter it manually.

4. CONCLUSIONS

In this modern world, with the rapid growth of population vehicle traffic has become a part of our day to day life. Moreover, unauthorized vehicle has also increased. Thus our proposed system aims to ensure proper management of

vehicles in the public places such as educational institute, office etc in order to prevent unauthorized vehicle parking and traffic. The features include viewing the parking spaces, selecting the space with the required date and time, paying the parking bills etc.. Online Parking Booking System is sure a complete web application for making the parking management easier and simpler in an effective way.

Future Enhancement:

The main aim that we have is to create a completely automated car parking system with minimal human interference. With the rising population in the world, time is of the essence and hence we need to minimize the time taken by trivial activities such as finding a place to park in a busy place and avoid traffic congestion. We have seen in existing systems sometimes accidents can occur in parking situations by cars going at high speed o caused by frustrated drivers unable to find a parking space for a long period of time. In our future project we propose a smart and automated car parking model that will help the user in booking their parking spaces beforehand and the vehicle will be able to park automatically once in the parking zone .The difference between our project of automated car parking systems is we hope to minimize human interaction as much as possible and make both the vehicle and the parking area fitted with sensors that will help us execute a safe and efficient way of parking. Hence, we aim to provide a completely safe and automated experience that is robust and can be implemented in real time and hopefully be implemented as the general norm for parking systems in the future

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6. REFERENCES

What Is A Parking Management System? (Explainer) (wayleadr.com)