A

Project Synopsis

On

**“Smart Car Parking System”**

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**TITLE: SMART CAR PARKING USING QR CODE**

**ABSTRACT:**

We approach a special system for smart parking reservation and security maintenance in a commercial car parking area in an urban environment. This system mainly designed to avoid unnecessary time conception to find an empty lot in a car parking area. By the same case we can also save more than 80% of fuel wastage in a car parking area to finds the empty parking slot. The reservation process is happening only by user. Hence the user finds the empty parking lot and makes the action of reservation through an internet access by an embedded process control unit (EPCU) with driver’s own knowledge. Here we give the major response to user’s reservation action and hence the driver can reserve his own likely parking slot based on the cost function. We have proposed a system with multi-processing queuing mechanism (MPQM) to avoid multi-user approach problem (MUAP) during reservation process in our smart car parking system.

**INTRODUCTION**

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 QR code mechanism for user. We propose to develop QR code based car parking locator system.

In this user has to use android application where a user can register his own information such as name, contact number, vehicle number, vehicle information etc. Admin will now give the parking allotment for that vehicle on its registration, also generate QR code for the user. Admin uses web portal over internet. Whenever user want to find parking slot, he can search from this application, he can search nearby empty parking slot. After getting empty slot he can park his car simply by scanning QR code at the entrance of the Parking system. From this application user get help to park his easily find park location of park car.

**LITERATURE SURVEY:**

Paper [1]:

IoT Based Sensor Enabled Smart Car Parking for Advanced Driver Assistance System

Mahendra B M, Dr Savita Sonoli, Nagaraj bhat, Raghu T

Smart parking systems typically obtain information about available parking spaces in a particular geographic area and process it in real-time to facilitate vehicle parking at available positions. One of the key issues that smart cities relate to is car parking facilities and traffic management systems. Internet of Things (IoT) enables the connectivity between surrounding environmental things to internet and makes easy to access those things from any remote location. The effective use of an IoT technology can ease human life in some aspects. The proposed work is one of the applications of combination of IoT and cloud computing technology. The objective of this work is to design,analyze and implement “IoT based sensor enabled carparking system”, this enables the user to pre reserve parking slot from remote place with the help of mobile application. Authentication of the valid booking is incorporated to benefit valid user. This system is implemented using low-cost IR sensors, Raspberry-Pi model 3b for real-time data collection, E-Parking mobile application. E-Parking mobile application is developed using android studio having baseband version of android 4.3.

Paper [2]:

Automated car parking system commanded by android application

Mrs. D.J. Bonde, Rohit Sunil Shende, Ketan Suresh Gaikwad, Akshay Sambhaji Kedari, Amol Uday Bhokre

The aim of this paper is to automate the car and the car parking as well. It discusses a project which presents a miniature model of an automated car parking system that can regulate and manage the number of cars that can be parked in a given space at any given time based on the availability of parking spot. Automated parking is a method of parking and exiting cars using sensing devices. The entering to or leaving from the parking lot is commanded by an Android based application. We have studied some of the existing systems and it shows that most of the existing systems aren’t completely automated and require a certain level of human interference or interaction in or with the system. The difference between our system and the other existing systems is that we aim to make our system as less human dependent as possible by automating the cars as well as the entire parking lot, on the other hand most existing systems require human personnel (or the car owner) to park the car themselves To prove the effectiveness of the system proposed by us we have developed and presented a mathematical model which will be discussed in brief further in the paper.

Paper [3]:

Intelligent Parking System for Car Parking Guidance and Damage Notification

Sanaa Alfatihi, Soukaina Chihab and 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.

Paper [4]:

Real Time Car Parking System Using Image Processing

Ms.Sayanti Banerjee, Ms. Pallavi Choudekar, Prof .M.K.Muju

Car parking lots are an important object class inmany traffic and civilian applications. With the problems of increasing urban traffic congestion and the ever increasing shortage of space, these car parking lots are needed to be well equipped with automatic parking Information and Guidance systems. Goals of intelligent parking lot management include counting the number of parked cars, and identifying the available location. This work proposes a new system for providing parking information and guidance using image processing. The proposed system includes counting the number of parked vehicles, and identifying the stalls available. The system detects cars through images instead of using electronic sensors embedded on the floor. A camera is installed at the entry point of the parking lot. It will capture image sequences. Setting image of a car as reference image, the captured images are sequentially matched using image matching. For this purpose edge detection has been carried out using Prewitt edge detection operator and according to percentage of matching guidance and information is provided to the incoming driver.

Paper [5]:

Recommended Architecture for Car Parking Management System based on Cyber-Physical

System

Shafiq ur Rehman, Volker Gruhn

A joint combination of interacting network of physical components and computational algorithms form cyber physical system (CPS). Cyber-physical systems are intended to improve the quality of life by forming a sound basis of emerging smart services. There is a need to apply CPS in different fields to acquire the prominent result and therefore, we have applied CPS in the car parking management system. Looking for parking space waste a lot of time as a user has to search for parking space, since lack of car parking information. It results in traffic congestion, environmental pollution making the environment more badly. A lot of approaches have been developed to solve this problem but they are insufficient either they are not sufficient to cope with the user needs and they are not able to communicate properly with the external interfaces or they are much costly. The proposed solution based on CPS, solve the problem of car parking system. The proposed solution is effective and efficient as the user will enter location details using the smartphone app and send it to the server. The server will search for the available parking slots, getting information from sensors and send it back to the user with the route directions. The user will follow that particular route and park vehicle at the area designated by the server. The proposed solution is a novel approach to solve the car parking problem using cyber-physical system.

**MOTIVATION**:

So parking system has to provide security to coming user and safely park his\her car. Under parking, while user parks vehicles so parking system has to provide security from car thief or unauthorized access, and hence car parking observes problem. 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. Everyone wants to park his\her vehicle safely and under security. From this application user saves his time for parking and avoid problem of traffic and parking of car anywhere on road and unauthorized access through it save and from this you easily get parked your car with under security and you know your car location from this android application.

**PROBLEM STATEMENT:**

The Smart Parking Application aims at helping users to find the most suitablearea for parking, make reservations and extend them, if required. It enables parkingadministrators to define and manage parking spaces as well as enables parking operators to authenticate users against their reservations when users enter the parking area. Users access location based information and request system services via mobile applications and parking operators verify reservations via mobile applications whereas parking admins may manage the parking area details via a web application. The smart parking application features use of cloud computing to improve user services

**GOALS AND OBJECTIVES:**

Now a Days, Car Parking Problem is a major contributor and has been still a majorproblem with increasing number of vehicle is size in the luxuries segments , we develop a New Smart Parking System that typically obtain the information about available parking spaces in a particular geographical areas and placing the vehicle in a real time at available position. Searching for a vacant parking space in a areas is a daily concern for most drivers and it is time consuming. It commonly results more traffic and air pollution. In this project, we present a new smart car parking system, with static resource scheduling dynamic resource allocation. With the increase of financial behaviour and the update of living standard, the ratios of the people in India who own automobiles and motorcycles have recently increased giving traffic.

**FUTURE SCOPE:**

The application that will be developed is going to be useful to the smart people

living in the smart cities. There are many other applications going to be developed due to this project for smart parking.

1. Shopping Malls
2. Organization
3. Industries

**SYSTEM REQUIREMENTS:**

Hardware Resources:-

-System: Windows 7 and Upgrade version/Linux

-RAM: 4 GB

-Hard Disk:500 GB

-CPU Speed:2 GHz

Software Resources:-

-Operating System: Windows / Linux / CentOS.

-Programming Language: Java

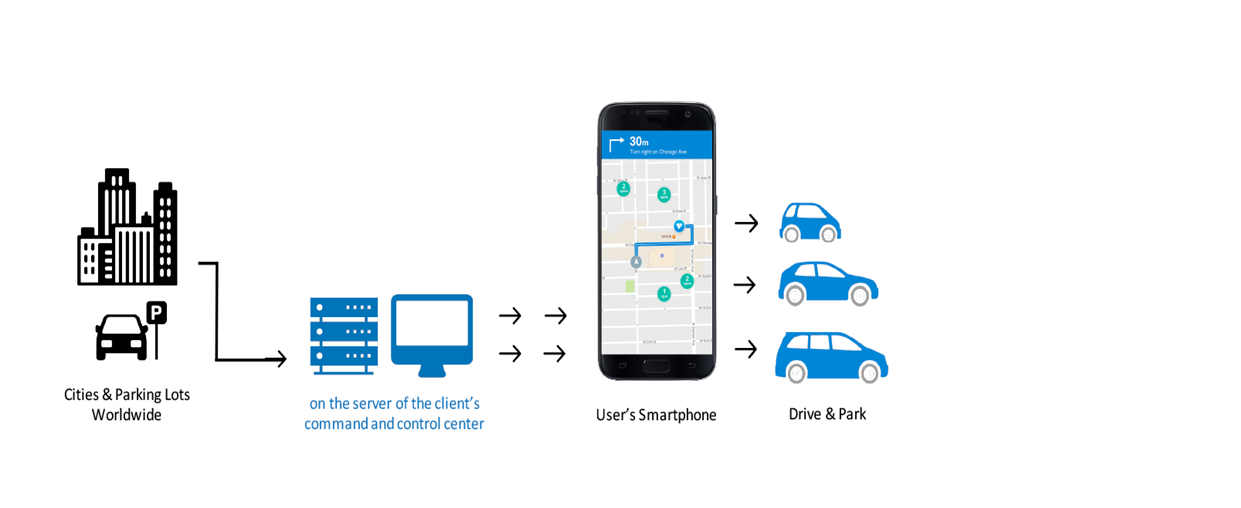
-IDE: Eclipse

**Development Tool:**

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| **Developer Tools** | **Description** |
| JDK 1.8 | For JAVA Platform |
| Xamp /workbench | For My Sql database |
| Eclips/Netbeans | For Java code editing |
| Apache Tomcat 7.0.56 | For database servlets |

**Testing Environment:**

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| --- | --- |
| **Software Required (Client Browser)** | **Description** |
| OS | Windows , Linux |
| Browsers | Chrome , Mozilla Firefox etc. |
| MODEM Drivers | For internet connections |

**SYSTEMARCHITECTURE:**

**CONCLUSION:**

Thus we have concluded that we have developed a system in which we can park car using QR code and it can be captured using mobile phones cameras. It can also be used in online shopping sites and can also be used in many more applications in future. So to find out place for the parking will be more easier.

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