

# Automated Vehicle Parking System

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**Abstract**— The Automated Vehicle Parking System had been conceived with the view to automate the manual workflows involved in the management of Vehicle Parking Lots. It drastically reduces the effort, inaccuracies, error-prone tendencies, delays and overheads involved in performing the same tasks by hand. It was aimed to provide a fully automated system that was capable of checking in and out of vehicles entering and exiting the designated parking lot, and recording relevant information about them. Revenue calculation and data entry is automated to the largest possible extent. Only minimum intervention from the manual user is required, with a possibility of eliminating it altogether with further advancement in the technology encompassed by the project, and supporting hardware. A rich and easy-to-use GUI aids the user in navigating the system easily and comprehensively. Features such as multiple searching and viewing options further add to the capabilities of the system and thereby also help in reducing the entry time. Transactions concurrency and their unambiguous nature have been carefully balanced and user sessions are purposefully managed. Direct implementation of the printing code helps the entry clerks as well as managers/administrators, to print the parking slips, reports and user information as and when required. With a marked difference in the types of users, and user privileges, the system provides a clear hierarchy and shields private data and administration details from those users, who are not permitted or concerned with them. A lot of data mining options have also been included, in the form of managerial reports. These provide an insight into the daily working subroutines of the system, such as the total revenue collection, employee sign in times, total vehicles parked in the lot, etc. on a Daily, Monthly, or Yearly basis. The most fundamental factor, that sets this system apart from others, is the fact that it is a real life application, designed with a specific target audience of India, taken into consideration. It makes no assumptions about the perfectionist implementation of the system, and also factors in human tendency. For instance, it was considered that the system would automatically allocate a parking slot to each vehicle. However, this was ruled out in view of the fact that human error or misdemeanor may lead to a vehicle owner parking elsewhere, rather than the designated spot, which would lead to utter chaos. Similarly, the revenue rates have been formulated keeping the standard manual parking rates in India in mind. However, these can be changed as per requirement as well.

**Key words:** Java; Swing; MySQL; Netbeans

## I. INTRODUCTION

Visitor management system is usually used in places where a large number of visitors come and go. It becomes difficult to keep a track of all the visitants by few employees. Visitor management solutions generate a Photo ID of the first-time visitors in softcopy format. This is stored in the database to maintain records of all the people who visited the building.

Then print the Photo ID for one-time or continuing use to speed the security screening process. Modern visitor management systems enable the operator to know the total visitors inside the premises. It also provides the facility of restricting troublesome visitors by sounding an alarm at the time of their visit. It can be combined with an access control for greater safety.

## II. SCOPE

Secure registration and profile management facilities for Visitors. This project provides Adequate searching mechanisms for easy and quick access to visitors and employees. Regular updates to employees of the Visitor Management System about new meetings. A visitor's list created so that the employees can schedule their meeting accordingly. Strategic data and graphs for Administrators, Employees and Visitors about the meetings that are held in each zone and department. Database of regular visitors of different type is maintained. Secure access of confidential data (visitor's details) 24 X 7 availability. Better component design to get better performance at peak time. Dynamic schedule model by which visitations can be changed based on demand and availability of employee.

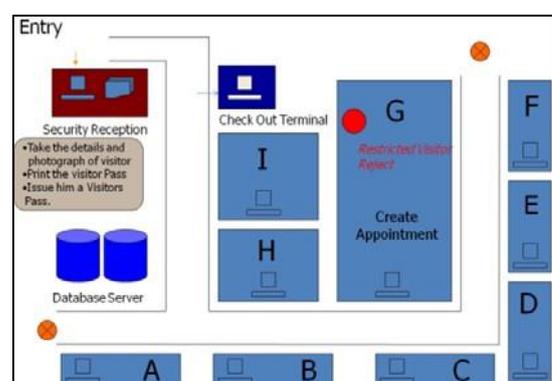
## III. EASE OF USE

The Visitors are provided Badges which clearly indicating area allowed to which the Visitors should access. System has inbuilt facility to indicator investigate previous visits made by the visitor.

Authentication of visit or scan be efficiently. Database of the visitor's log is intact as it has limited accessibility. Easy retrieval of photographs and details can be done across departments and floors. Temporary Visitor passes for any period of time for regular visitors such as Courier boys, canteen persons etc.

Ease in verification of visitors using the photograph. Reports can be maintained date wise, visitor wise, department wise, floor wise, employee wise and simple query based reports.

## IV. PROJECT PLAN



### A. Features of Diagram

A, B, C, D, E, F, G are employees of the company. Security or Receptionist will check validity of visitor and Visitor badge will be generated and details will be updated in database server.

### B. Definition Acronyms and abbreviation

VMS: - Visitor Management System is specially designed to keep track of visitor coming and going out of the premises. With this system you will be able to expedite the visitor registration process, determine who is still inside of your premises and notify the system users once the banned visitor intends to sign in or sign out.

### C. JAVA:

Java is a popular programming language, created in 1995. It is owned by Oracle, and more than 3 billion devices run Java. It is used for:

- Mobile applications (specially Android apps)
- Desktop applications
- Web applications
- Web servers and application servers
- Games
- Database connection
- And much, much more!

### D. SQL:

Referred to as Structured Query Language is a programming language designed for managing data in relational database management systems (RDBMS).

### E. SQL Server:

Microsoft SQL Server is a relational database server, developed by Microsoft: It is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on the same computer or those running on another computer across a network (including the Internet).

### F. Product Perspective

The Visitor Management System is a platform which tracks the usage of a public building or site. It is a step ahead of the manual visitor management system as it provides innovative solution for Appointment Management. Visitor can log into the application of the organization by adding his or her photograph of the visitor for obtaining the appointment. This system utilizes the latest technology which enhances the security in the facility. Employees and visitors will feel more secure and protected and it will create a great first impression on the corporate image.

### G. Product Functions

The system provides search engine for all the visitors visited till date. Essential steps to be taken to prevent authenticity infringement. Visitors to be distributed in types.

The home page to consist of user friendly Graphical User Interface. Archives to be maintained. Visitors will have their unique ID with barcode printed on it and the ID will have an expiry date. Secure login for Employees so that spammers/illegal users can be defied. Expired visitors badges not to be entertained. Registered Employees and

Administrators are allowed to change meeting schedules. Visitor's information can be downloaded in various formats only by Administrator. Registered visitors, Employees, and Administrator will have their own profile, where they can edit their personal info for the entire management to see. Employees will have associated facilities, according to which to-be-validated-visitors will be sent an SMS/ E-mail. On rejection, he will have to provide a reason for the same, which will be forwarded to the concerned visitor. Automated mails to be sent on rejection/acceptance of visitors.

Admin can add/delete employees. Visitation report of employees and visitors will be available to her/him. Admin has all the privileges employee has. He can schedule or reject meeting which will be visible to the concerned users.

Regular updates to be provided to the Security about the visitations. Security person can access all the information regarding meetings of the employees to be visited.

### H. User Classes and Characteristics

This Visitor Management System will be used by four main users. They are Administrator, Employee, Security and Visitor.

#### 1) Administrator:

Assigns the Employees and Security. Administration area secured with user name and password defined. Can search, view, update and edit visitor's list. Manages employee and security database.

#### 2) Employee:

Approve or reject the visitation request from visitors. Update visitor log. Reports to administrator.

#### 3) Security:

Checks visitor's ID. Prints visitor's badge with barcode. Enters visitor's belongings details. Reports to administrator.

#### 4) Visitor:

Send request to employee for approval of meeting and fixing an appointment. Visit the building or site and attend meeting.

### I. Operating Environment

#### 1) Operating Environment

The operating environment for the software will be Windows XP, Vista and 7.

#### 2) Hardware requirements:

Windows 98, ME or 2000 or XP operating systems, Database – Oracle or MS SQL server  
Intel Pentium Processor 266 MHz or Higher  
64 MB RAM, 25 MB of HDD space for Software Installation  
USB Web Cam (Make - Intel, Logitech, D-Link, Creative)  
Printer (If required.)

#### 3) Software Requirements:

Front end: Net Framework 3.5.  
Back end: Microsoft SQL Server 2008 Express Edition.  
Operating system: Certified distributions of Windows XP, Vista or 7.

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