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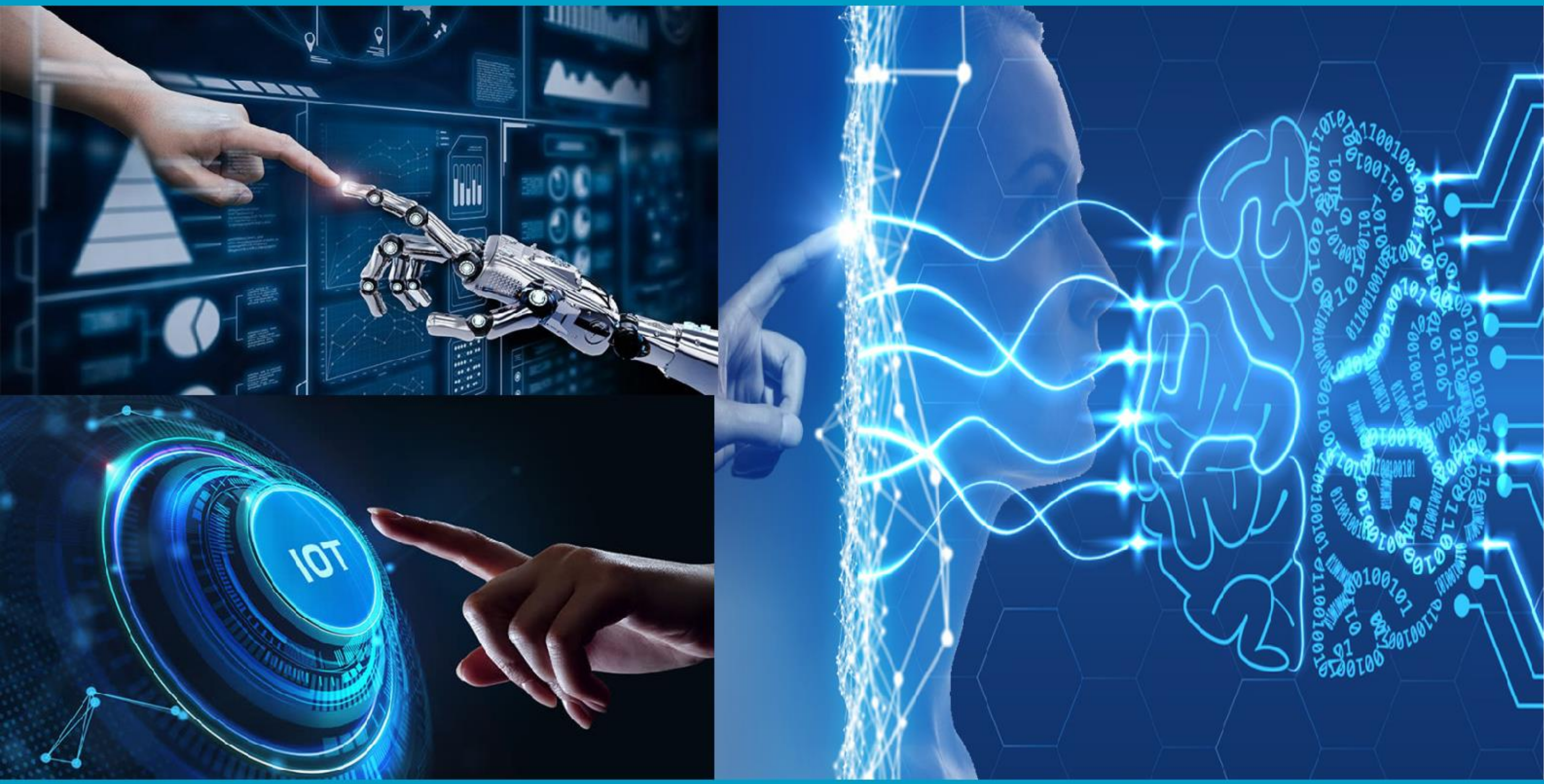

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+91 99405 72462 +9163819 07438 ijmrsetm@gmail.com www.ijmrsetm.com

Vehicle Parking Management System

Dr. T. GEETHA, R. INITHA

Head, Department of MCA, Gnanamani College of Technology, Namakkal, India

Student, Department of MCA, Gnanamani College of Technology, Namakkal, India

ABSTRACT - Vehicle Parking Management System maintains a good record of vehicles check in and checkout time. Both two-wheeler & four-wheeler can be managed by this system and have different pricing system. Vehicle parking management system that enables the time management and control of vehicles by using parking number. The system that will track the entry and exit of vehicles, maintain a listing of vehicle within the parking lot, and determine the parking and it will also determine the cost of parking of vehicle.

KEYWORDS – Parking occupancy sensor, parking analytics, real-time parking information, park and pay app, parking lot, parking space.

I. INTRODUCTION

Vehicle Parking Management system is a web-based technology that will manage the records of the incoming and outgoing vehicles in a parking house. It's an easy for Admin to retrieve the data if the vehicle has been visited through number, he can get that data. Vehicle parking management system is an automatic system which delivers data processing in very high speed in systematic manner. In VPMS we use PHP and MySQL database. This is the project which keeps records of the vehicle which is going to park in the parking area. VPMS has two module admin and user.

II. ADMIN

2.1 Dashboard: In these sections, admin can briefly view the number of vehicle entries in a particular period.
2.2 Category: In this section, admin can manage category (add/update/delete).
2.3 Add Vehicle: In this section, admin add vehicle which is going to park.
2.4 Manage Vehicle: In this section, admin can manage incoming and outgoing vehicle and admin can also add parking charges and his/her remarks.
2.5 Reports: In this section admin can generate vehicle entries reports between two dates.
2.6 Search: In this section, admin can search a particular vehicle by parking number.
Admin can also update his profile, change the password and recover the password.

III.USERS

3.1 Dashboard: It is welcome page for a user.
3.2 View Vehicle: In this section, users view the details of vehicle parking which is parked by him/her. Users can also update his profile, change the password and recover the password.
3.3 Purpose: - The purpose of developing vehicle parking management system is to computerized the tradition way of parking. Another purpose for developing this application is to generate the report automatically.
3.4 Scope: -In the modern age. Many people have vehicles. Vehicle is now a basic need. Every place is under the process of urbanization. There are many corporate offices and shopping centers etc. There are many recreational places where people used to go for refreshment.

IV.ANALYSIS AND DESIGN

4.1 Analysis:
In present all visitors parking work done on the paper. The whole year visitor parking record is stored in the registers. We can't generate reports as per our requirements because its take more time to calculate the visitors parking report.
4.2 Disadvantage of present system:

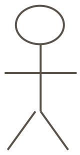
- **Not user friendly:** The present system not user friendly because data is not stored in structure and proper format.
- **Manual Control:** Visitors maintain in the register so lots of paper require storing details.
- **Lots of paper work** All report calculation is done manually so there is a chance of error**.**

V. DESIGN INTRODUCTION

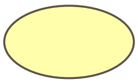
Design is the first step in the development phase for any techniques and principles for the purpose of defining a device, a process or system in sufficient detail to permit its physical realization. Once the software requirements have been analyzed and specified the software design involves three technical activities - design, coding, implementation and testing that are required to build and verify the software. The design activities are of main importance in this phase, because in this activity, decisions ultimately affecting the success of the software implementation and its ease of maintenance are made. These decisions have the final bearing upon reliability and maintainability of the system. Design is the only way to accurately translate the customer's requirements into finished software or a system. Design is the place where quality is fostered in development. software. Software design is conducted in two steps.

VI. UML DIAGRAMS

6.1 Actor: A coherent set of roles that users of use cases play when interacting with the use cases.



6.2 Use case: A description of sequence of actions, including variants, that a system performs that yields an observable result of value of an actor.



UML stands for Unified Modeling Language. UML is a language for specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be designed.

VII USECASE DIAGRAMS

Use case diagrams model behavior within a system and helps the developers understand of what the user require. The stick man represents what's called an actor.

Use case diagram can be useful for getting an overall view of the system and clarifying who can do and more importantly what they can't do.

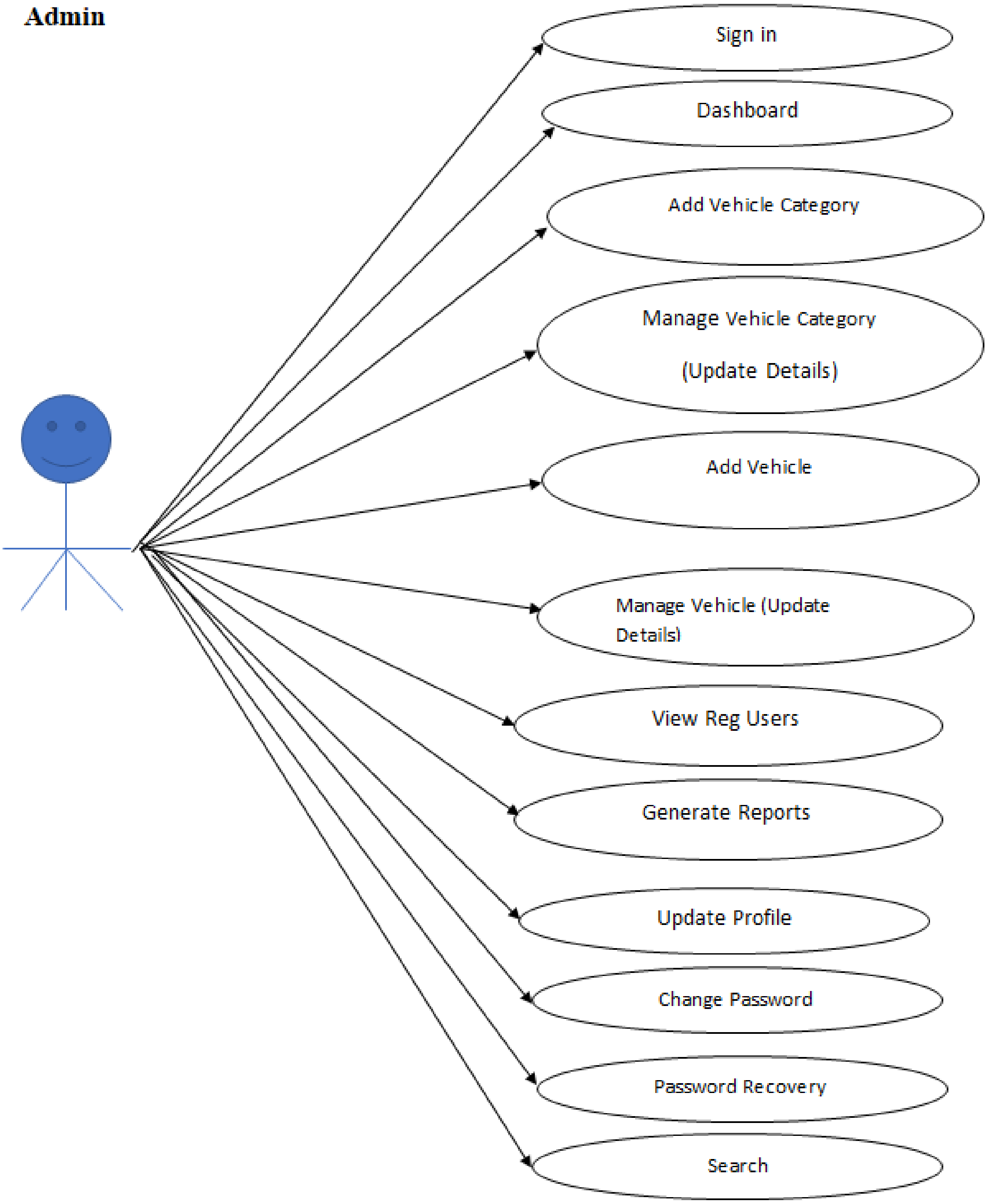
Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

- The purpose is to show the interactions between the use case and actor.
- To represent the system requirements from user's perspective.
- An actor could be the end-user of the system or an external system.

VIII. USECASE DIAGRAM

A Use case is a description of set of sequence of actions. Graphically it is rendered as an ellipse with solid line including only its name. Use case diagram is a behavioral diagram that shows a set of use cases and actors and their relationship. It is an association between the use cases and actors. An actor represents a real-world object. Primary Actor – Sender, Secondary Actor Receiver.

8.1 Use Case Diagrams:



8.2 Class Diagram:
A description of set of objects that share the same attributes operations, relationships, and semantics

8.3 ER Diagram:
The Entity-Relationship (ER) model was originally proposed by Peter in 1976 [Chen76] as a way to unify the network and relational database views. Simply stated the ER model is a conceptual data model that views the real world as entities and relationships. A basic component of the model is the Entity-Relationship diagram which is used to visually

represent data objects. Since Chen wrote his paper the model has been extended and today it is commonly used for database design for the database designer, the utility of the ER model is:

- It maps well to the relational model. The constructs used in the ER model can easily be transformed into relational tables.
- It is simple and easy to understand with a minimum of training. Therefore, the model can be used by the database designer to communicate the design to the end user.
- In addition, the model can be used as a design plan by the database developer to implement a data model in specific database management software.

8.4 ER Notation

There is no standard for representing data objects in ER diagrams. Each modeling methodology uses its own notation. The original notation used by Chen is widely used in academics texts and journals but rarely seen in either CASE tools or publications by non-academics. Today, there are a number of notations used; among the more common are Bachman, crow's foot, and IDEFIX.All notational styles represent entities as rectangular boxes and relationships as lines connecting boxes. Each style uses a special set of symbols to represent the cardinality of a connection. The notation used in this document is from Martin. The symbols used for the basic ER constructs are:

- **Entities** are represented by labeled rectangles. The label is the name of the entity. Entity names should be singular nouns.
- **Relationships** are represented by a solid line connecting two entities. The name of the relationship is written above the line. Relationship names should be verbs
- **Attributes**, when included, are listed inside the entity rectangle. Attributes which are identifiers are underlined. Attribute names should be singular nouns.
- **Cardinality** of many is represented by a line ending in a crow's foot. If the crow's foot is omitted, the cardinality is one.

Existence is represented by placing a circle or a perpendicular bar on the line. Mandatory existence is shown by the bar (looks like a 1) next to the entity for an instance is required. Optional existence is shown by placing a circle next to the entity that is optional.

IX. DATA FLOW DIAGRAM

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It can be manual, automated, or a combination of both. It shows how data enters and leaves the system, what changes the information, and where data is stored.

X. IMPLEMENTATION AND SYSTEM TESTING

After all phase have been perfectly done, the system will be implemented to the server and the system can be used.

10.1 System Testing

The goal of the system testing process was to determine all faults in our project .The program was subjected to a set of test inputs and many explanations were made and based on these explanations it will be decided whether the program behaves as expected or not. Our Project went through two levels of testing

1. Unit testing
2. Integration testing

10.2 UNIT TESTING

Unit testing is commenced when a unit has been created and effectively reviewed. In order to test a single module, we need to provide a complete environment i.e., besides the section we would require.

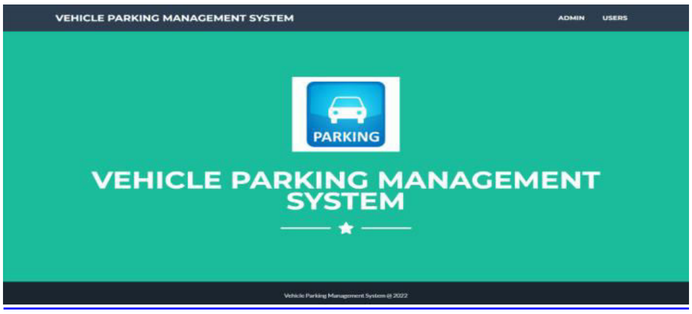
10.3 INTEGRATION TESTING

In the Integration testing we test various combination of the project module by providing the input. The primary objective is to test the module interfaces in order to confirm that no errors are occurring when one module invokes the other module.

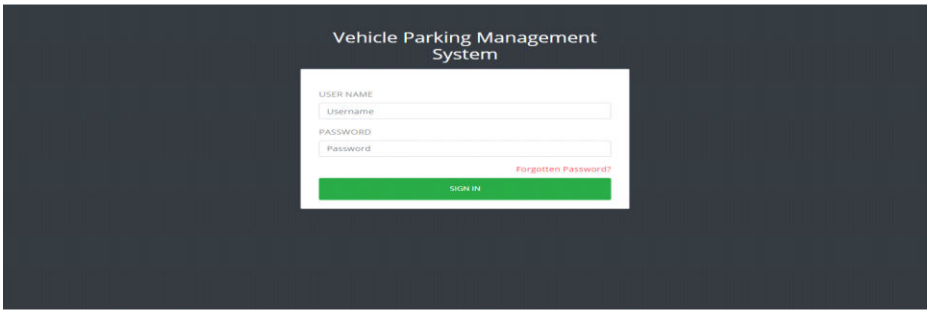
XI. OUTPUT

Project URL: http://localhost/vpms

11.1 Home Page


VEHICLE PARKING MANAGEMENT SYSTEM
ADMIN
USERS
PARKING
VEHICLE PARKING MANAGEMENT SYSTEM
Vehicle Parking Management System @ 2022

11.2 Admin Login Page


Vehicle Parking Management System

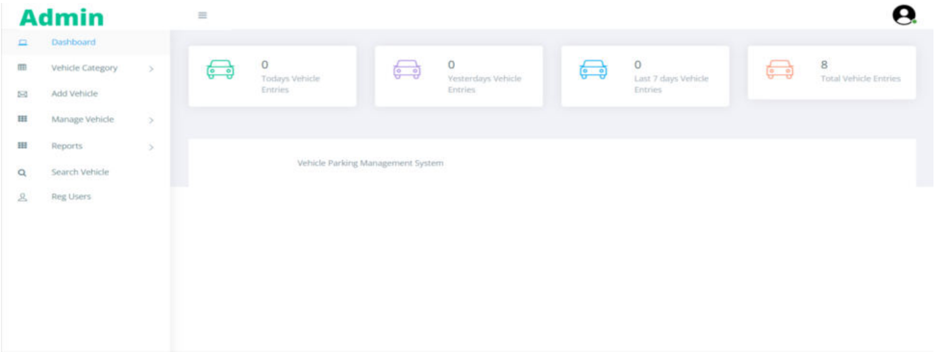
USER NAME

Username

PASSWORD

Password

11.3 Dashboard



0 Todays Vehicle Entries

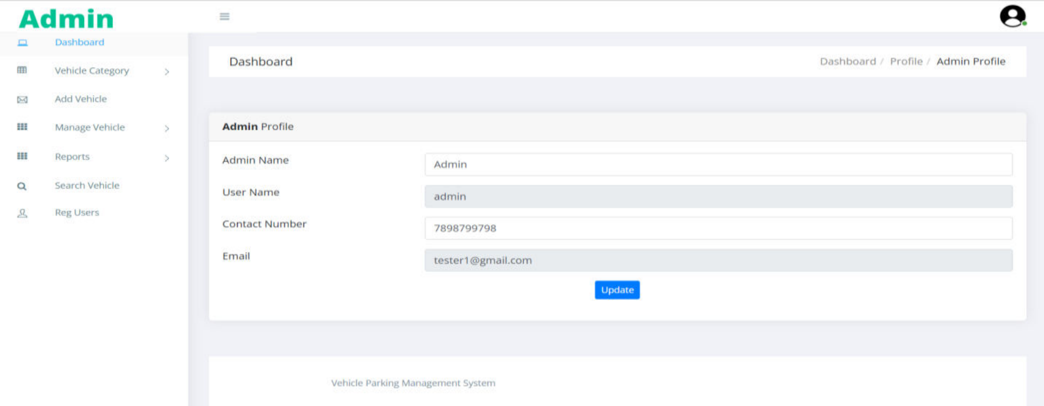
0 Yesterdays Vehicle Entries

0 Last 7 days Vehicle Entries

8 Total Vehicle Entries

Vehicle Parking Management System

11.4 Profile

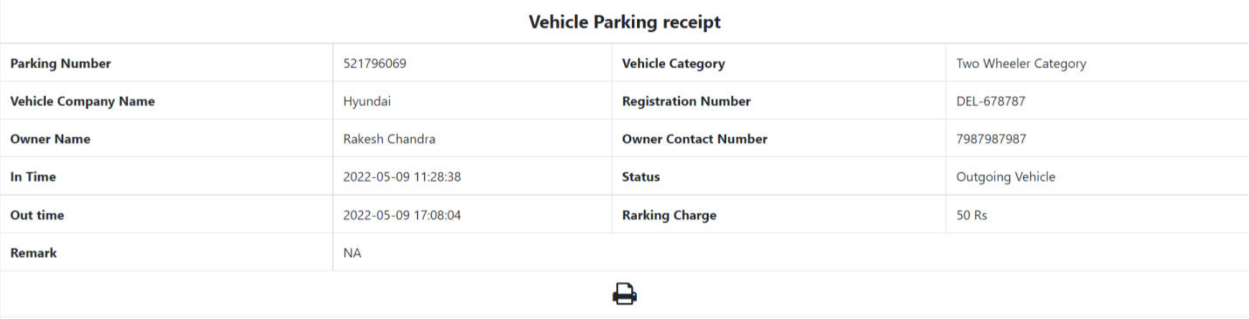


Admin Profile

Admin Name	Admin
User Name	admin
Contact Number	7898799798
Email	tester1@gmail.com

Vehicle Parking Management System

11.5 View Parking Receipt



Vehicle Parking receipt

Parking Number	521796069	Vehicle Category	Two Wheeler Category
Vehicle Company Name	Hyundai	Registration Number	DEL-678787
Owner Name	Rakesh Chandra	Owner Contact Number	7987987987
In Time	2022-05-09 11:28:38	Status	Outgoing Vehicle
Out time	2022-05-09 17:08:04	Rarking Charge	50 Rs
Remark	NA		

XII. CONCLUSION

This Application provides a computerized version of Vehicle Parking Management System which will benefit the parking premises. It makes entire process online and can generate reports. It has a facility of staff's login where staff can fill the visitor details and generate report. The Application was designed in such a way that future changes can be done easily. The following conclusions can be deduced from the development of the project.

- Automation of the entire system improves the productivity.
- It provides a friendly graphical user interface which proves to be better when compared to the existing system.
- It gives appropriate access to the authorized users depending on their permissions.
- It effectively overcomes the delay in communications.
- Updating of information becomes so easier.
- System security, data security and reliability are the striking features.
- The System has adequate scope for modification in future if it is necessary.
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