Project Report

On

Vehicle Parking Management System

ACKNOWLEDGEMENT

I extend my deepest appreciation to my esteemed guide, Mr. XYZ for providing me with the possibility to complete this project with the right guidance and advice.

Special gratitude I give to my respected head of the division Mr.XYZ, for allowing me to use the facilities available and also help me to coordinate my project Furthermore, I would also like to acknowledge with much appreciation the crucial role of faculty members on this occasion.

Last but not least, I would like to thank friends who help me to assemble the parts and gave a suggestion about the project.

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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.

Introduction

Introduction:-

Vehicle Parking Management system is a web-based technology that will manage the records of the incoming and outgoing vehicles in an 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.

ADMIN

Dashboard: In this sections, admin can briefly view the number of vehicle entries in a particular period.

Category: In this section, admin can manage category (add/update/delete).

Add Vehicle: In this section, admin add vehicle which is going to park.

Manage Vehicle: In this section, admin can manage incoming and outgoing vehicle and admin can also add parking charges and his/her remarks.

Reports: In this section admin can generate vehicle entries reports between two dates.

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.

USERS

Dashboard: It is welcome page for an users.

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.

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.

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. So, all these places need a parking space where people can park their vehicles safely and easily. Every parking area needs a system that records the detail of vehicles to give the facility. With the help of this system we can deliver a good service to customer who wants to park their vehicle into the any organization’s premises.

Requirement Specification

Hardware Configuration :

Client Side:

RAM	512 MB
Hard disk	10 GB
Processor	1.0 GHz

Server side:

RAM	**1 GB**
Hard disk	**20 GB**
Processor	**2.0 GHz**

Software Requirement:

Client Side:

Web Browser	Google Chrome or any compatible browser
Operating System	Windows or any equivalent OS

Server Side:

Web Server	APACHE
Server side Language	PHP5.6 or above version
Database Server	MYSQL
Web Browser	Google Chrome or any compatible browser
Operating System	Windows or any equivalent OS

APACHE

The Apache HTTP Server Project is an effort to develop and maintain an open-source HTTP server for modern operating systems including UNIX and Windows. The goal of this project is to provide a secure, efficient and extensible server that provides HTTP services in sync with the current HTTP standards.

The Apache HTTP Server ("httpd") was launched in 1995 and it has been the most popular web server on the Internet since April 1996. It has celebrated its 20th birthday as a project in February 2015.

PHP

- PHP stands for PHP: Hypertext Preprocessor.

- PHP is a server-side scripting language, like ASP.
- PHP scripts are executed on the server.
- PHP supports many databases (MYSQL, Informix, Oracle, Sybase, Solid, Generic ODBC, etc.).

- PHP is an open source software .
- PHP is free to download and use.

MYSQL

- MYSQL is a database server

- MYSQL is ideal for both small and large applications
- MYSQL supports standard SQL
- MYSQL compiles on a number of platforms
- MYSQL is free to download and use
- How to access MySQL:

  http://localhost/phpmyadmin

Analysis and Design

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.

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:** All report calculation is done manually so there is a chance of error.
- **Lots of paper work:** Visitors maintain in the register so lots of paper require storing details.
- **Time consuming**

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.

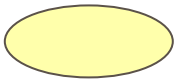
Design is the place where quality is fostered in development. Software design is a process through which requirements are translated into a representation of software. Software design is conducted in two steps. Preliminary design is concerned with the transformation of requirements into data

UML Diagrams:

Actor:

A coherent set of roles that users of use cases play when interacting with the use `cases.

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.

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.

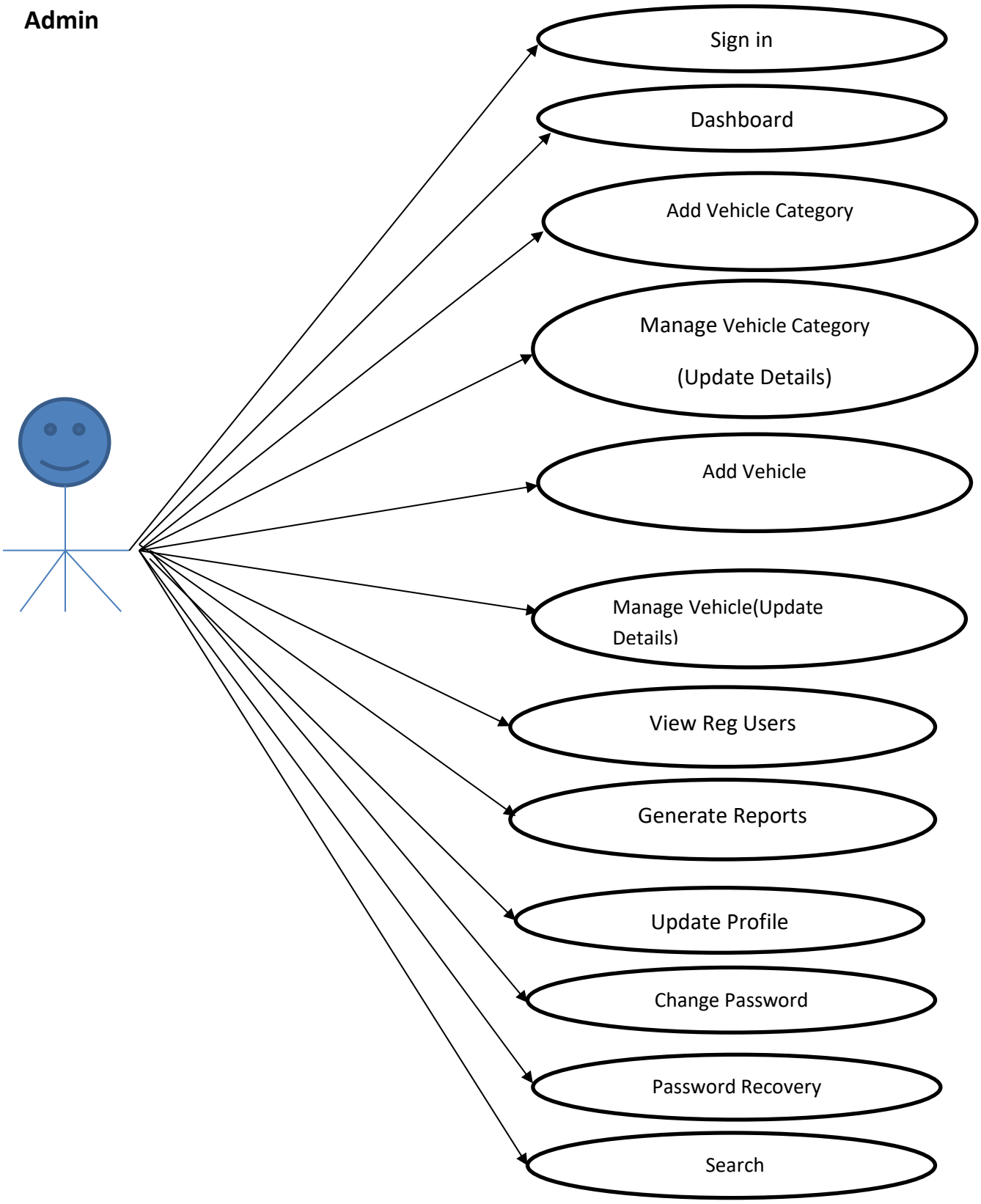
Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

- 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.

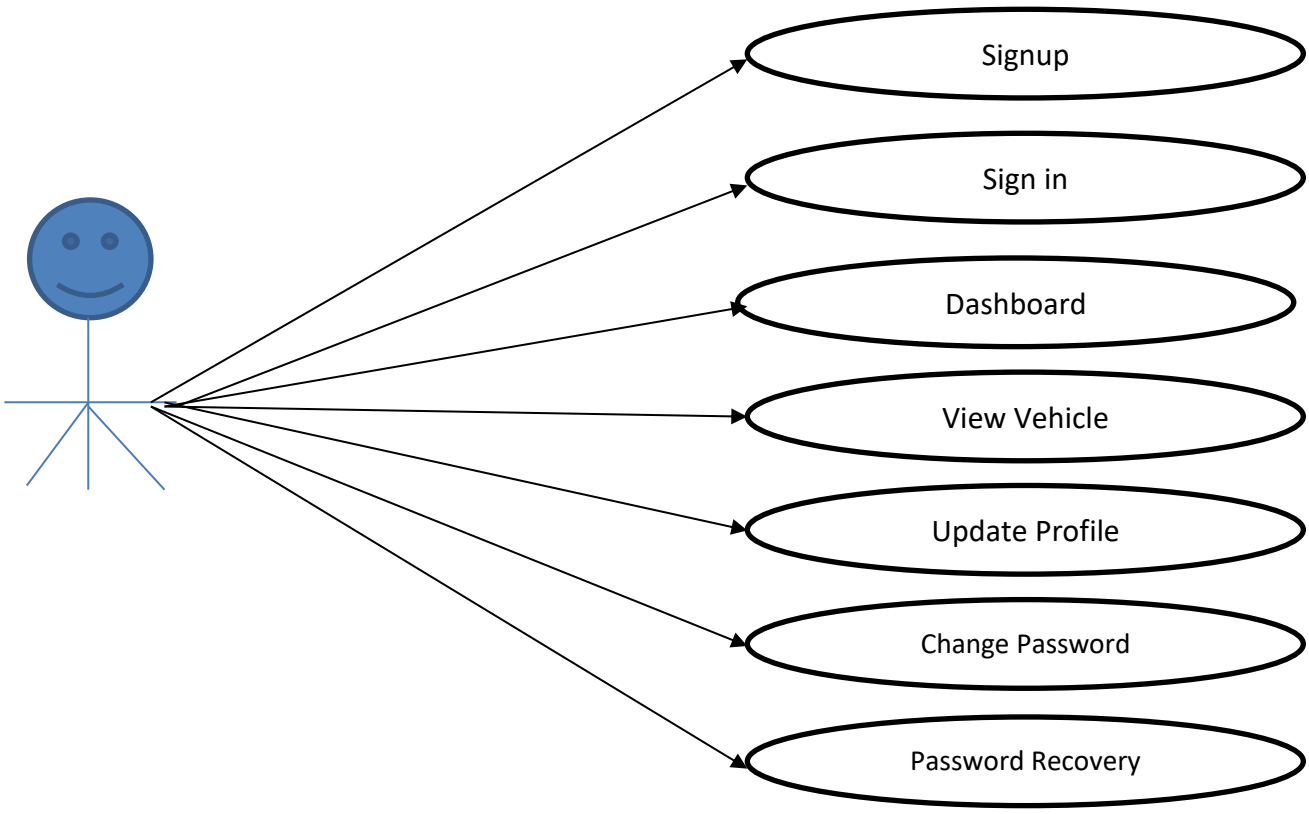
USECASE DIAGRAM: A Use case is a description of set of sequence of actions. Graphically it is rendered as an ellipse with solid line including only its name. Use case diagram is a behavioral diagram that shows a set of use cases and actors and their relationship. It is an association between the use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

Use Case Diagrams:

Admin

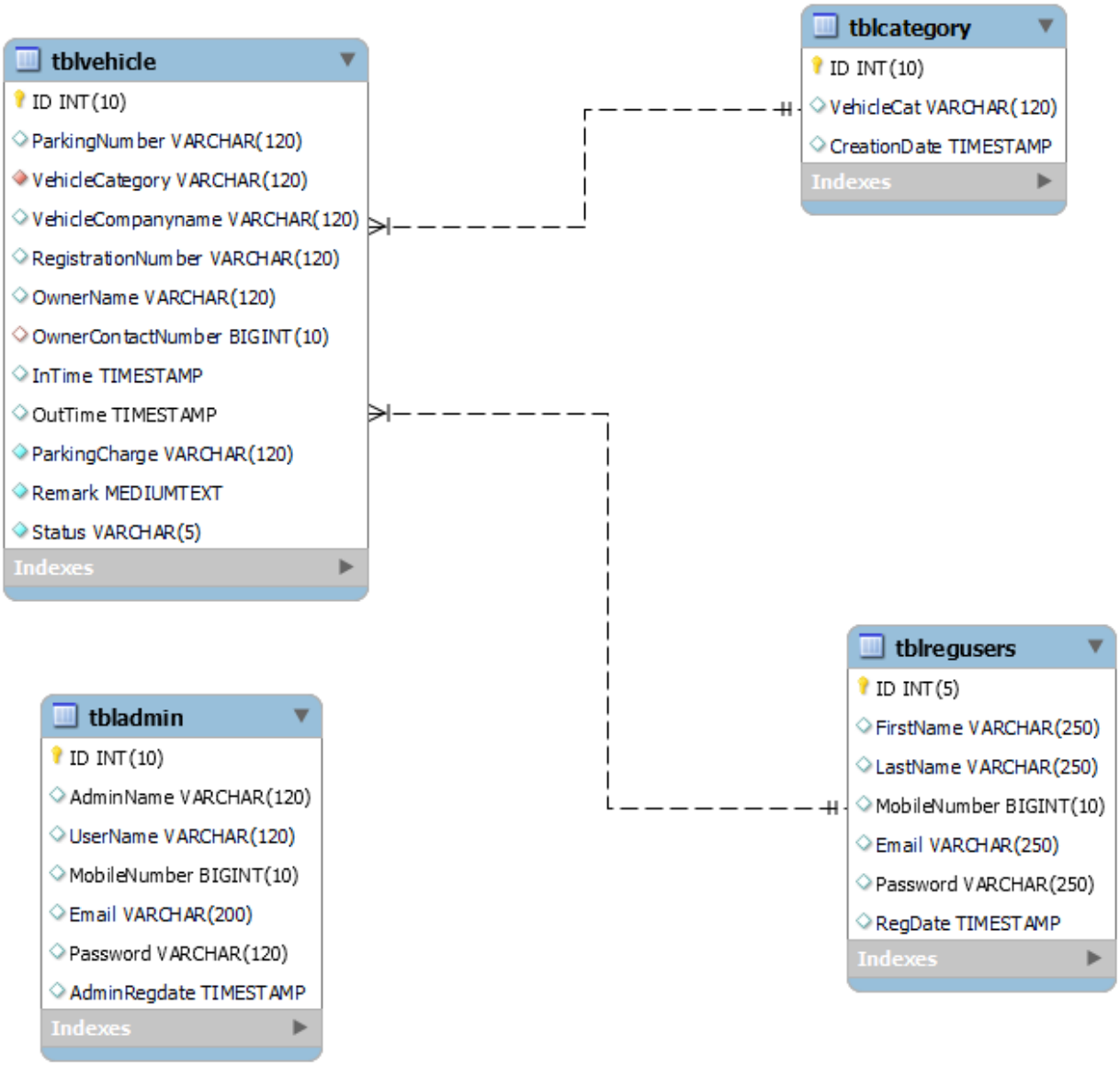


Users



Class Diagram:

A description of set of objects that share the same attributes operations, relationships, and semantics


tblvehicle
ID INT(10)
ParkingNumber VARCHAR(120)
VehicleCategory VARCHAR(120)
VehicleCompanyname VARCHAR(120)
RegistrationNumber VARCHAR(120)
OwnerName VARCHAR(120)
OwnerContactNumber BIGINT(10)
InTime TIMESTAMP
OutTime TIMESTAMP
ParkingCharge VARCHAR(120)
Remark MEDIUMTEXT
Status VARCHAR(5)
Indexes
tblcategory
ID INT(10)
VehicleCat VARCHAR(120)
CreationDate TIMESTAMP
Indexes
tblregusers
ID INT(5)
FirstName VARCHAR(250)
LastName VARCHAR(250)
MobileNumber BIGINT(10)
Email VARCHAR(250)
Password VARCHAR(250)
RegDate TIMESTAMP
Indexes
tbladmin
ID INT(10)
AdminName VARCHAR(120)
UserName VARCHAR(120)
MobileNumber BIGINT(10)
Email VARCHAR(200)
Password VARCHAR(120)
AdminRegdate TIMESTAMP
Indexes

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.

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.

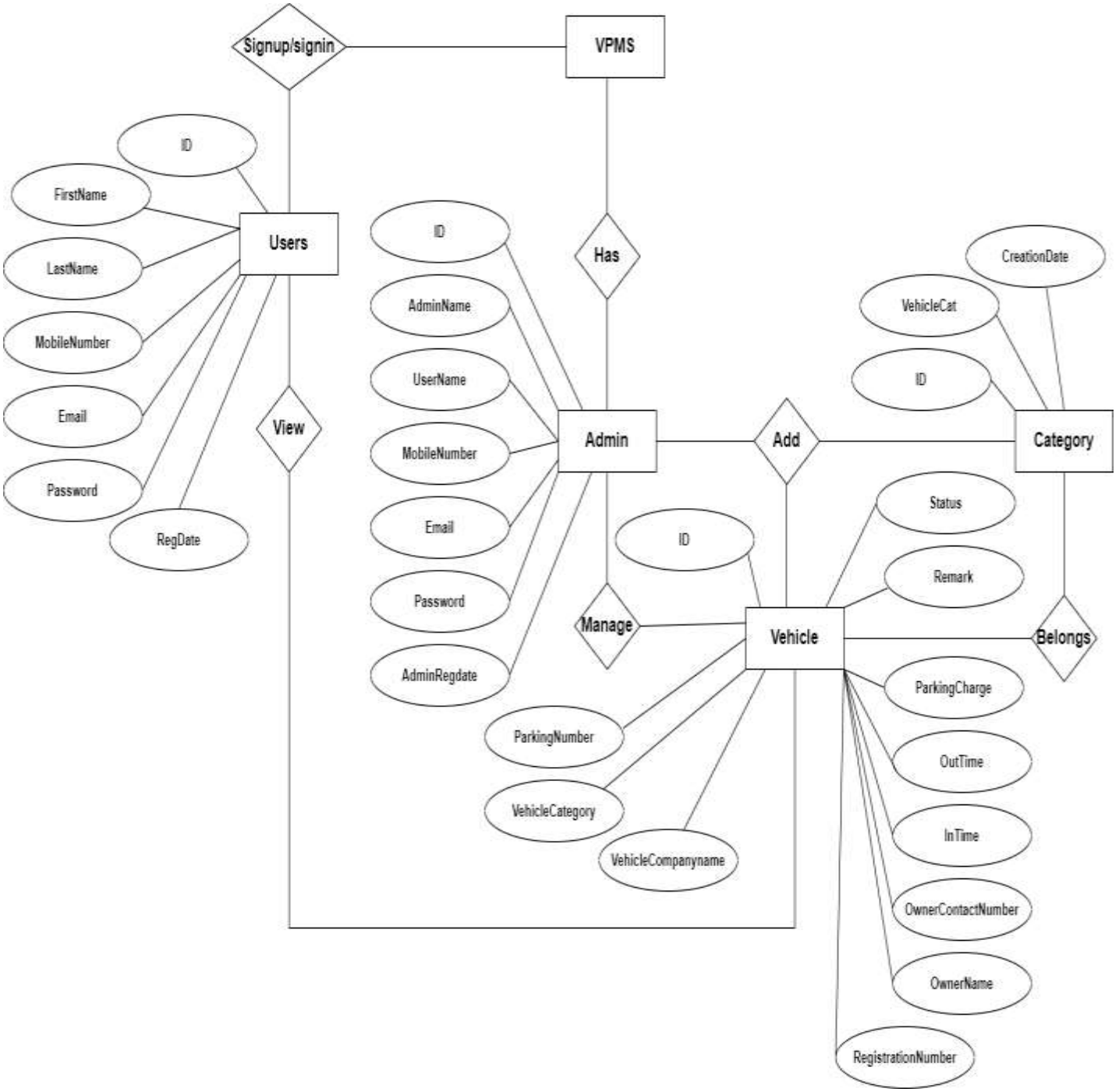
All notational styles represent entities as rectangular boxes and relationships as lines connecting boxes. Each style uses a special set of symbols to represent the

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.

ER Diagram


Signup/signin
VPMS
ID
FirstName
LastName
MobileNumber
Email
Password
RegDate
Users
View
Has
ID
AdminName
UserName
MobileNumber
Email
Password
AdminRegdate
Admin
Add
CreationDate
VehicleCat
ID
Category
Status
Remark
Belongs
ID
Manage
Vehicle
ParkingCharge
OutTime
InTime
OwnerContactNumber
OwnerName
RegistrationNumber
ParkingNumber
VehicleCategory
VehicleCompanyname

Data Flow Diagram

Data Flow Diagrams

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.

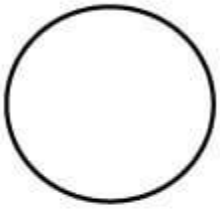
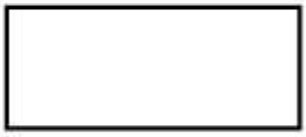
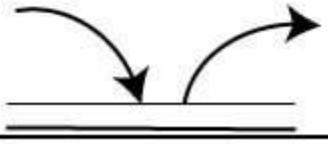
It shows how data enters and leaves the system, what changes the information, and where data is stored.

The objective of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communication tool between a system analyst and any person who plays a part in the order that acts as a starting point for redesigning a system. The DFD is also called as a data flow graph or bubble chart.

The following observations about DFDs are essential:

1. All names should be unique. This makes it easier to refer to elements in the DFD.
2. Remember that DFD is not a flow chart. Arrows is a flow chart that represents the order of events; arrows in DFD represents flowing data. A DFD does not involve any order of events.
3. Suppress logical decisions. If we ever have the urge to draw a diamond-shaped box in a DFD, suppress that urge! A diamond-shaped box is used in flow charts to represents decision points with multiple exists paths of which the only one is taken. This implies an ordering of events, which makes no sense in a DFD.
4. Do not become bogged down with details. Defer error conditions and error handling until the end of the analysis.

Standard symbols for DFDs are derived from the electric circuit diagram analysis and are shown in fig:

Symbol	Name	Function
	Data flow	Used to Connect Processes to each , other , to sources or Sinks; te arrow head indicates direction of data flow.
	Process	Perfroms Some transformation of Input data to yield output data.
	Source of Sink (External Entity)	A Source of System inputs or Sink of System outputs.
	Data Store	A repository of data; the arrow heads indicate net inputs and net outputs to store.

Symbols for Data Flow Diagrams

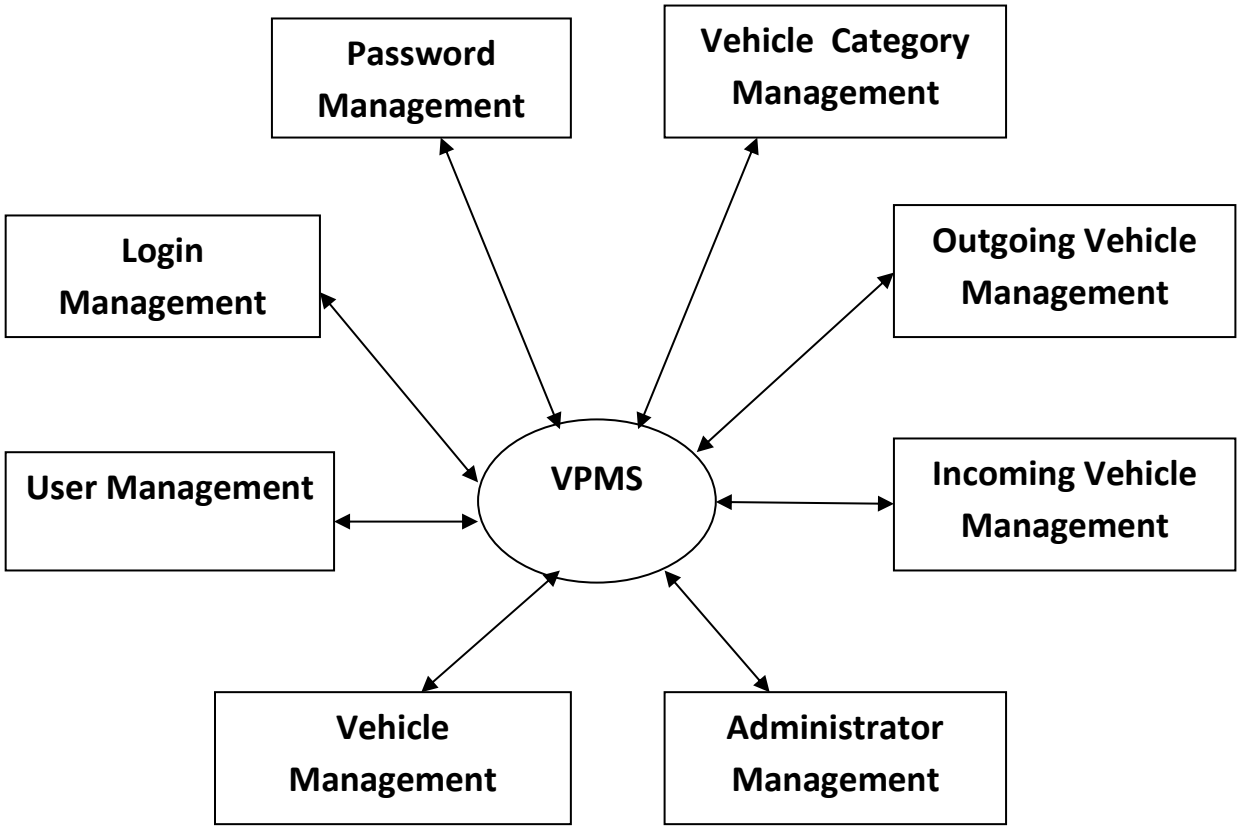
Circle: A circle (bubble) shows a process that transforms data inputs into data outputs.

Data Flow: A curved line shows the flow of data into or out of a process or data store.

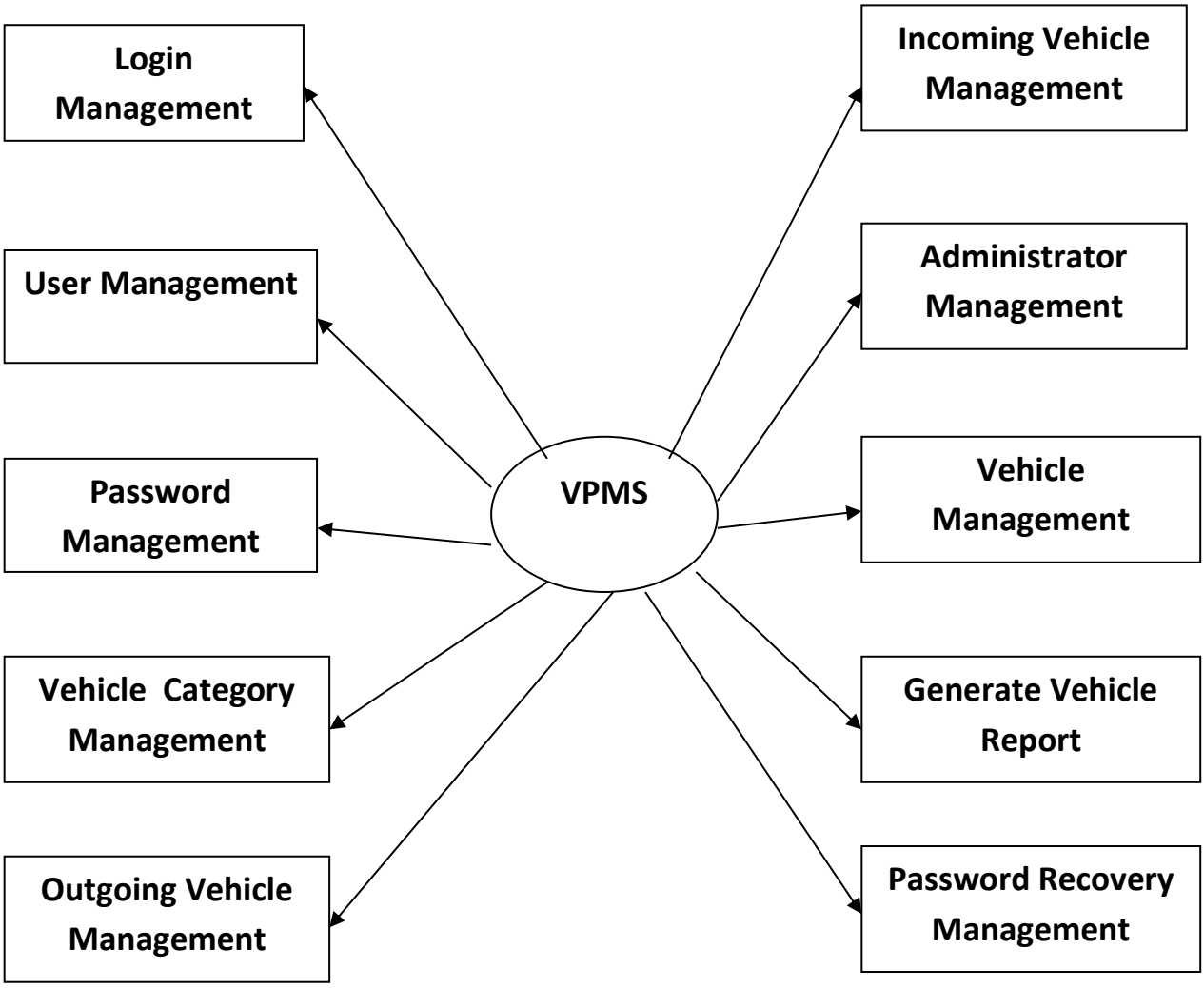
Data Store: A set of parallel lines shows a place for the collection of data items. A data store indicates that the data is stored which can be used at a later stage or by the other processes in a different order. The data store can have an element or group of elements.

Source or Sink: Source or Sink is an external entity and acts as a source of system inputs or sink of system outputs.

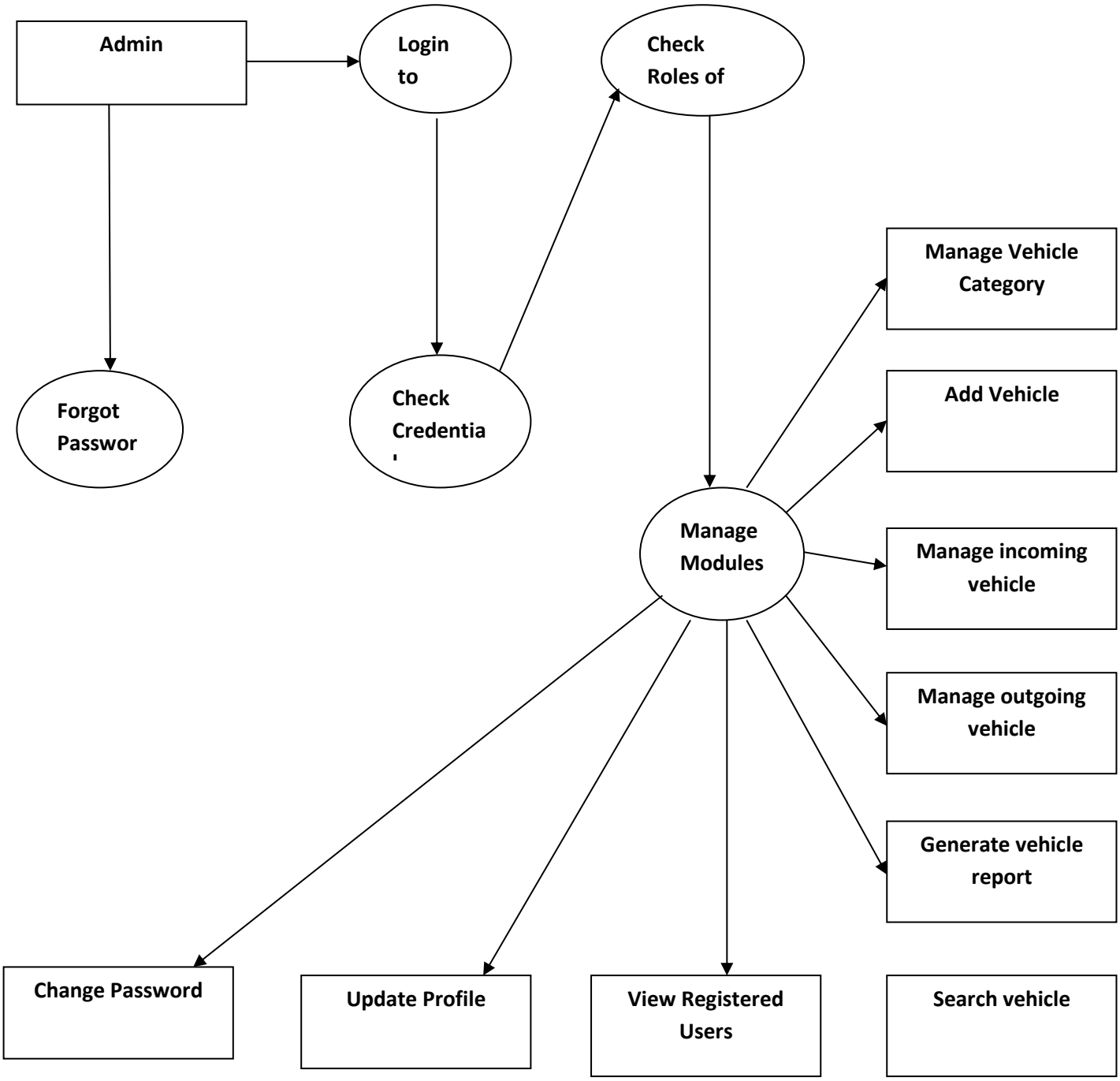
Zero Level DFD

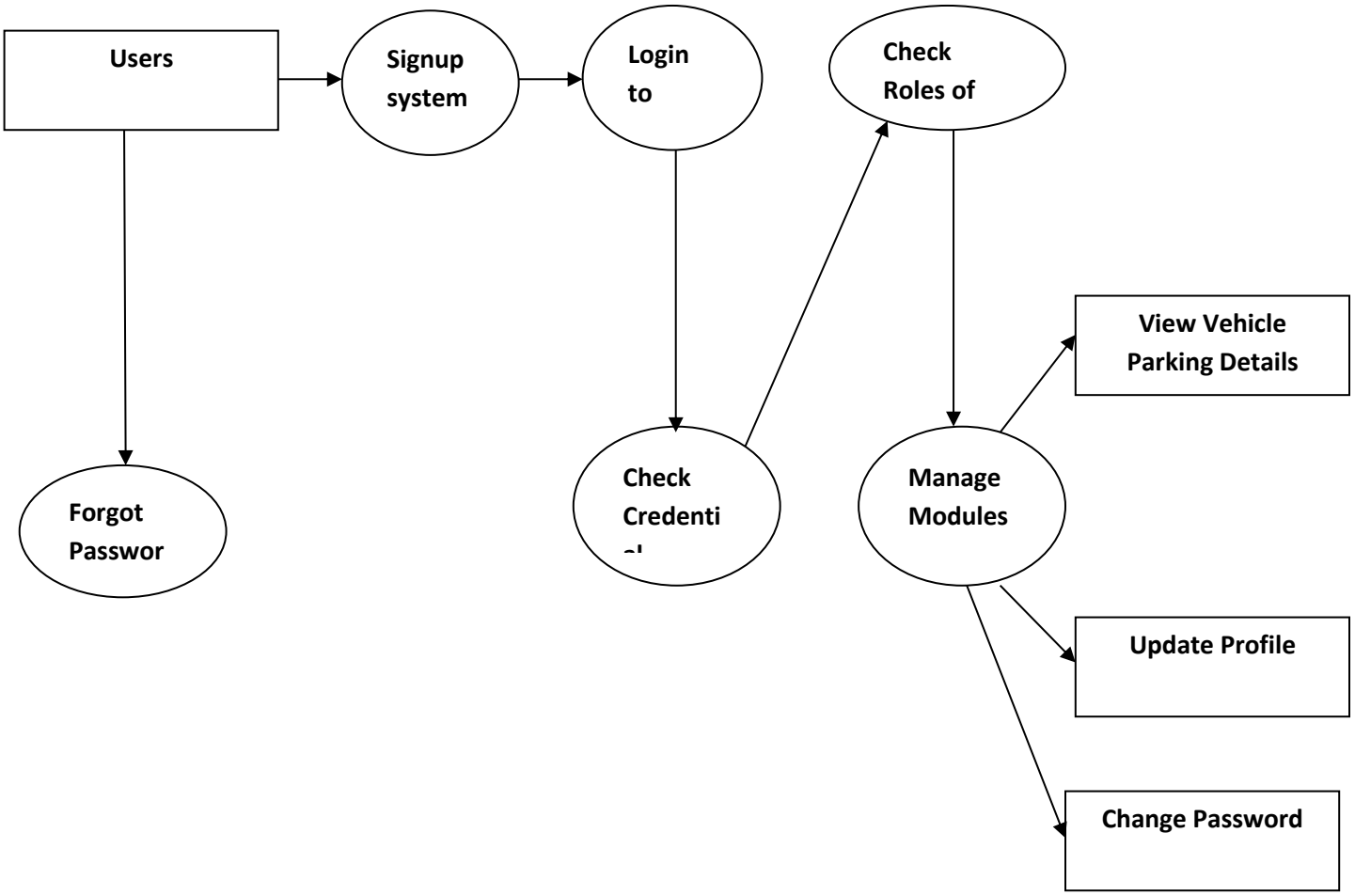


First Level DFD



Second Level DFD




Users
Signup system
Login to
Check Roles of
View Vehicle Parking Details
Forgot Passwor
Check Credenti
Manage Modules
Update Profile
Change Password

MySQL Data Tables:

Admin Table:(Table name is admin)

This store admin personal and login details.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	ID	int(10)			No	*None*		AUTO_INCREMENT
2	AdminName	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
3	UserName	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
4	MobileNumber	bigint(10)			Yes	*NULL*		
5	Email	varchar(200)	latin1_swedish_ci		Yes	*NULL*		
6	Password	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
7	AdminRegdate	timestamp			Yes	current_timestamp()		

Category Table(Table name is tblcategory

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	ID	int(10)			No	*None*		AUTO_INCREMENT
2	VehicleCat	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
3	CreationDate	timestamp			Yes	current_timestamp()		

Vehicle Table: (Table name is vehicle)

This store the vehicle details and admin remark

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	ID	int(10)			No	*None*		AUTO_INCREMENT
2	ParkingNumber	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
3	VehicleCategory	varchar(120)	latin1_swedish_ci		No	*None*		
4	VehicleCompanyname	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
5	RegistrationNumber	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
6	OwnerName	varchar(120)	latin1_swedish_ci		Yes	*NULL*		
7	OwnerContactNumber	bigint(10)			Yes	*NULL*		
8	InTime	timestamp			Yes	current_timestamp()		
9	OutTime	timestamp			Yes	*NULL*		ON UPDATE CURRENT_TIMESTAMP()
10	ParkingCharge	varchar(120)	latin1_swedish_ci		No	*None*		
11	Remark	mediumtext	latin1_swedish_ci		No			
12	Status	varchar(5)	latin1_swedish_ci		No	*None*		

User Table: (Table name is tblregusers)

This table stores the details of registered users

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	**ID**	int(5)			No	*None*		AUTO_INCREMENT
2	**FirstName**	varchar(250)	latin1_swedish_ci		Yes	*NULL*		
3	**LastName**	varchar(250)	latin1_swedish_ci		Yes	*NULL*		
4	**MobileNumber**	bigint(10)			Yes	*NULL*		
5	**Email**	varchar(250)	latin1_swedish_ci		Yes	*NULL*		
6	**Password**	varchar(250)	latin1_swedish_ci		Yes	*NULL*		
7	**RegDate**	timestamp			Yes	current_timestamp()		

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.

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

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

- The procedures belonging to other units that the unit under test calls
- Non local data structures that module accesses

- A procedure to call the functions of the unit under test with appropriate parameters

1. Test for the admin module

- **Testing admin login form-**This form is used for log in of administrator of the system. In this form we enter the username and password if both are correct administration page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask the details.

- **Report Generation:** admin can generate report from the main database.

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.

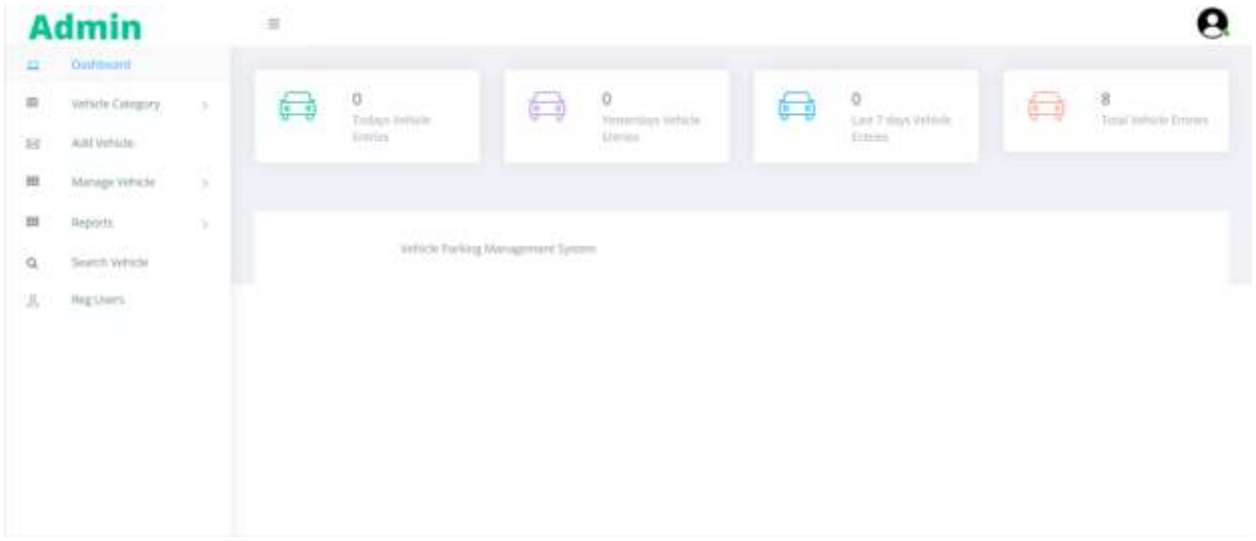
EVALUATION

Project URL: http://localhost/vpms

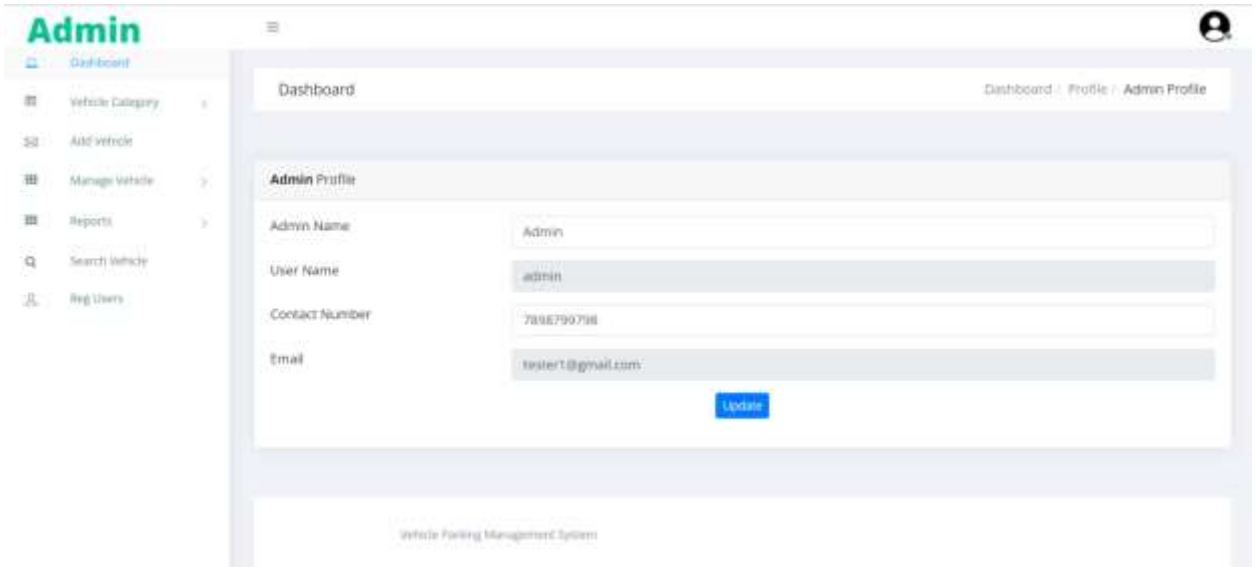
Home Page

Admin Login Page

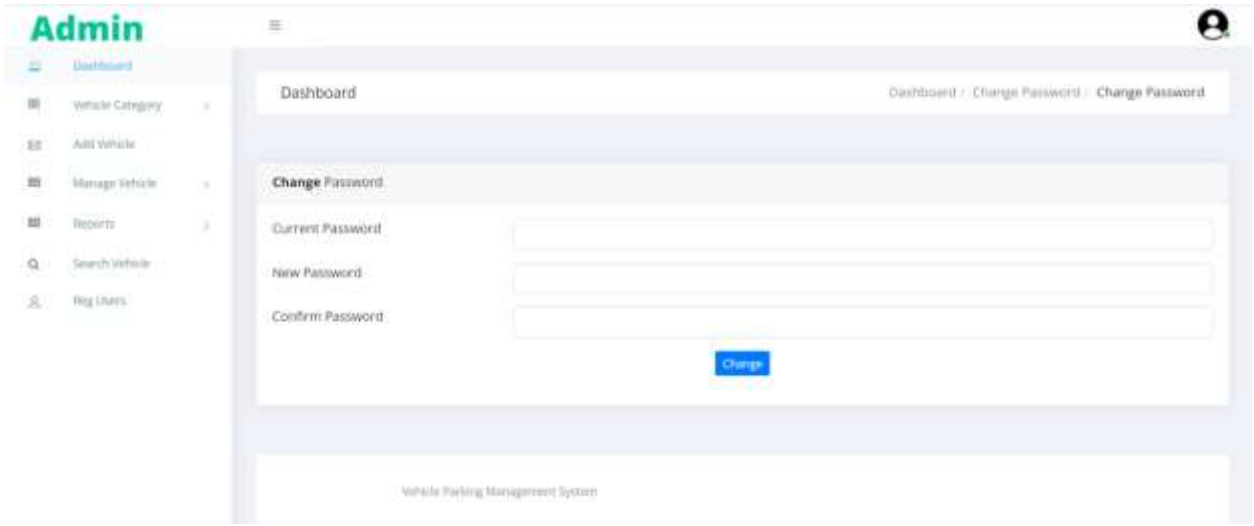
Dashboard



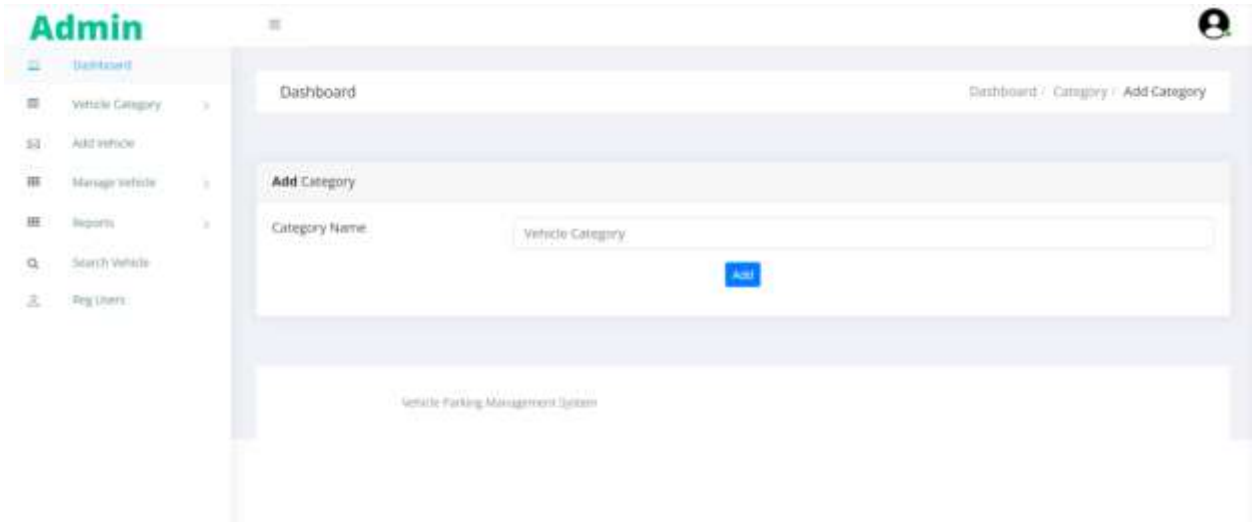
Profile



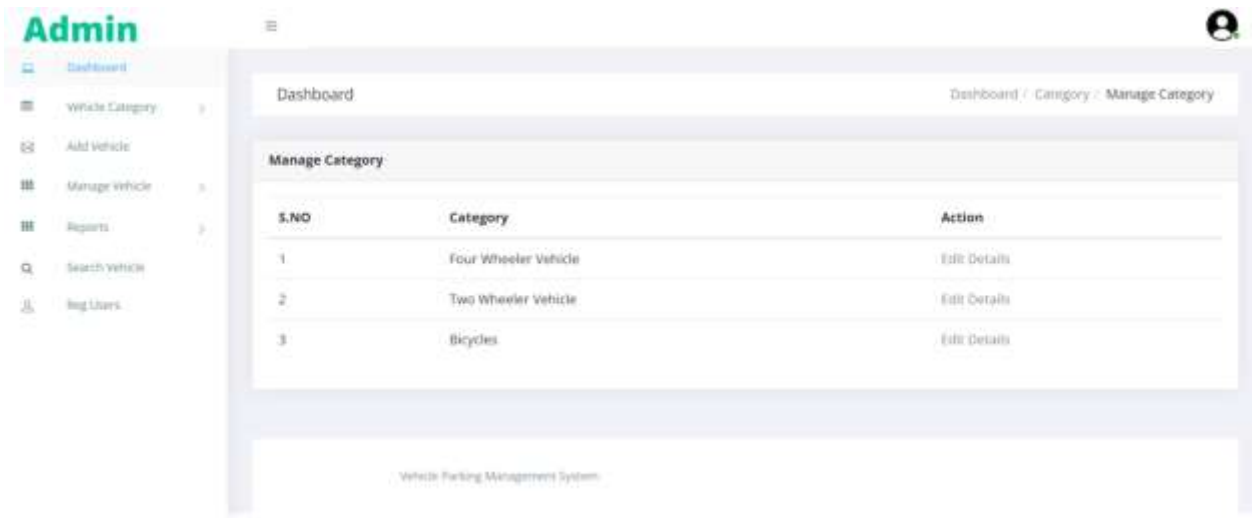
Change Password



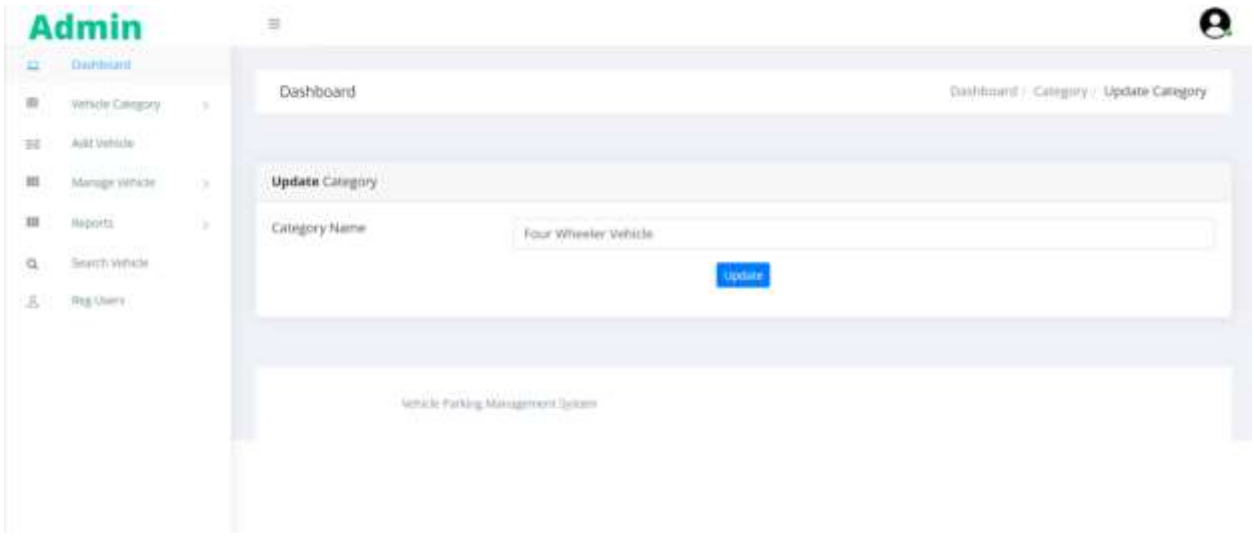
Add Category



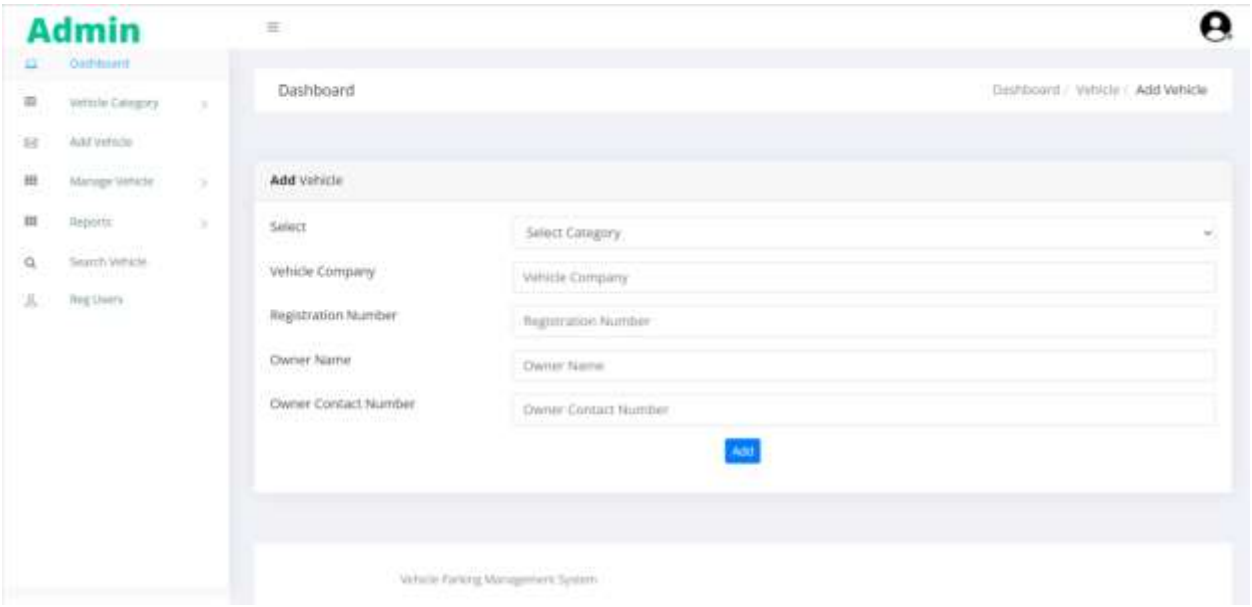
Manage Category



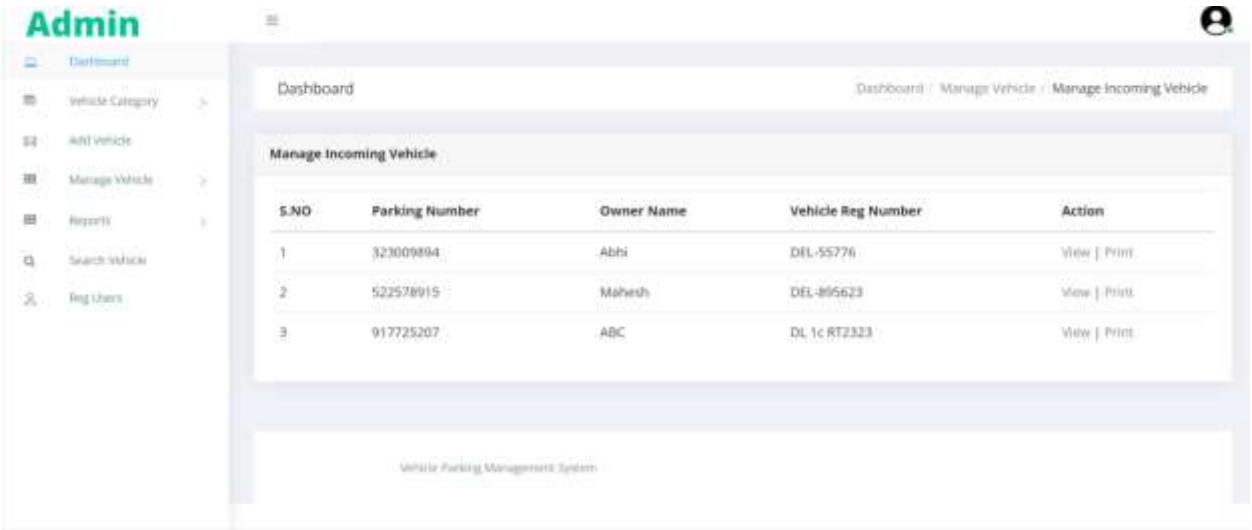
Update Category



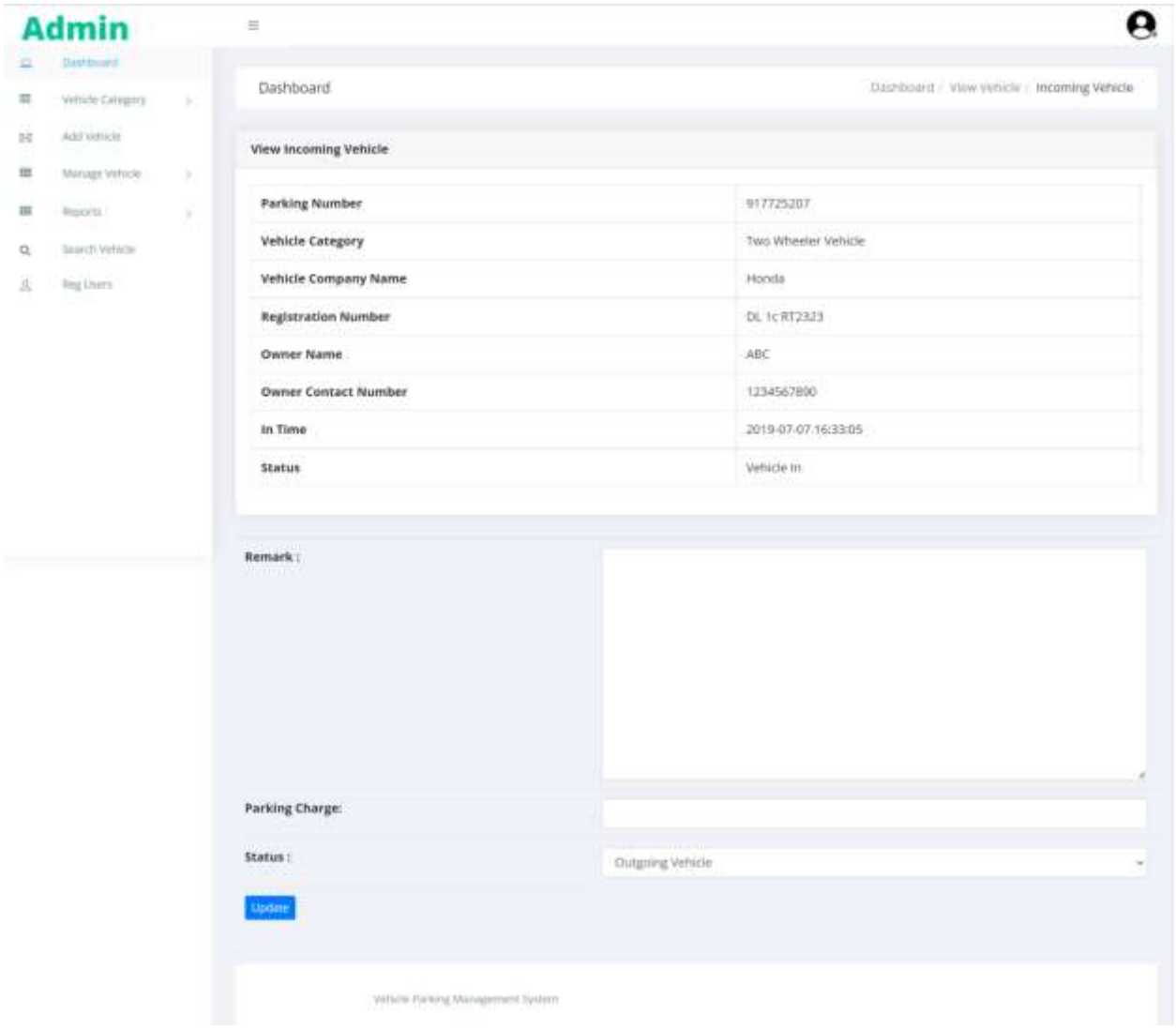
Add Vehicle



Manage Incoming Vehicle



View Incoming Vehicle

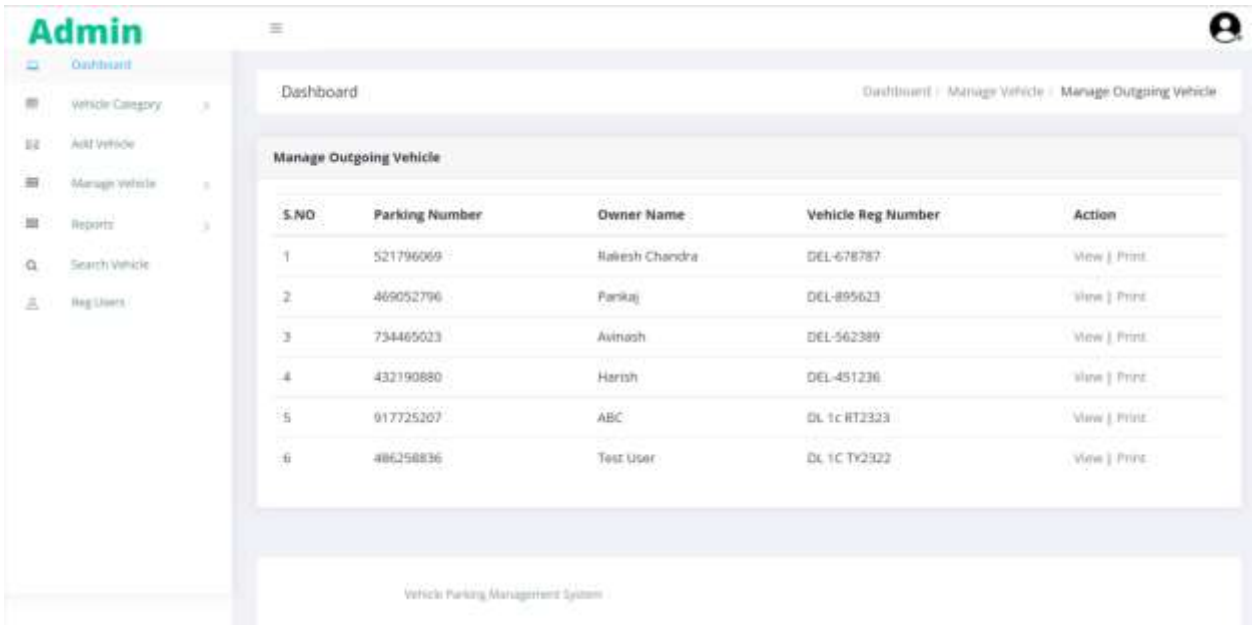


Parking Receipt

Vehicle Parking receipt

Parking Number	323009894	**Vehicle Category**	Two Wheeler Vehicle
Vehicle Company Name	Activa	**Registration Number**	DEL-55776
Owner Name	Abhi	**Owner Contact Number**	4654654654
In Time	2019-07-06 14:28:38	**Status**	Incoming Vehicle

Manage Outgoing Vehicle



Admin

Dashboard

Vehicle Category

Add Vehicle

Manage Vehicle

Reports

Search Vehicle

Reg Users

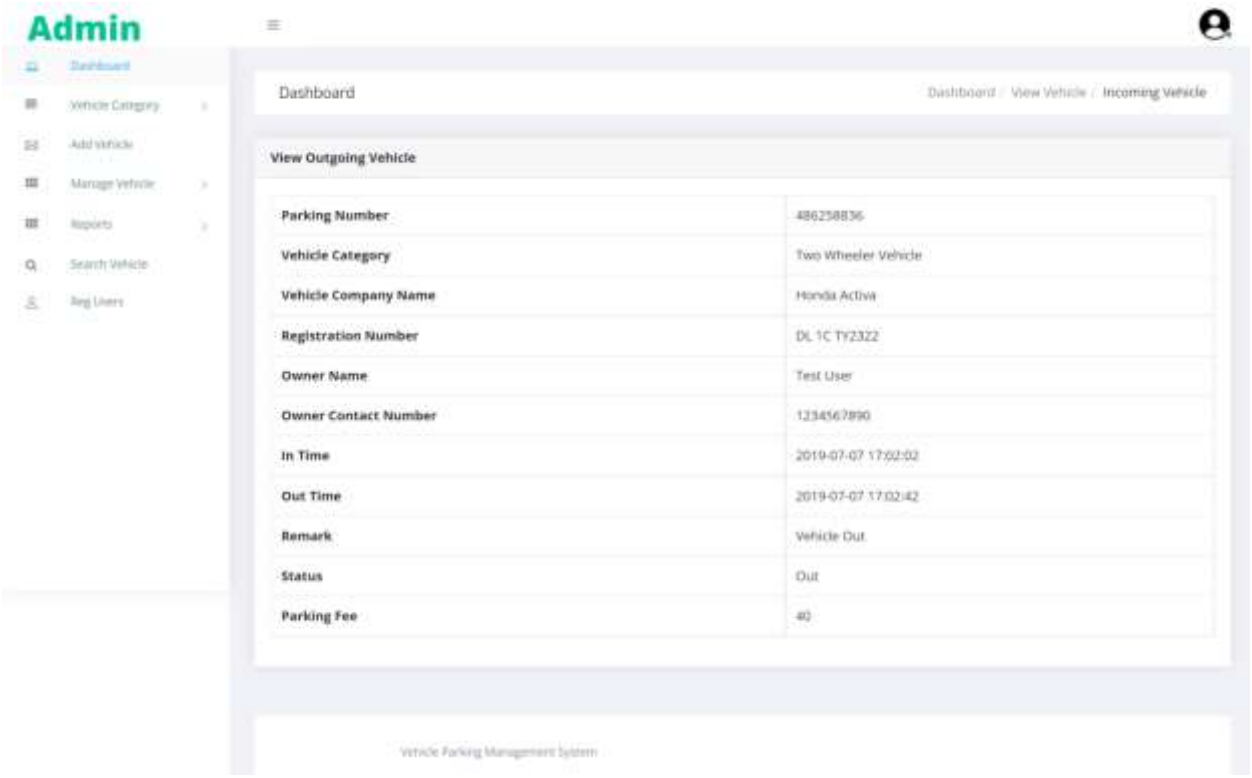
Dashboard / Manage Vehicle / Manage Outgoing Vehicle

Manage Outgoing Vehicle

S.NO	Parking Number	Owner Name	Vehicle Reg Number	Action
1	521796069	Rakesh Chandra	DEL-678787	View | Print
2	469052796	Pankaj	DEL-895623	View | Print
3	734465023	Avinash	DEL-562389	View | Print
4	432190880	Harish	DEL-451236	View | Print
5	917725207	ABC	DL 1c RT2323	View | Print
6	486258836	Test User	DL 1C TY2322	View | Print

Vehicle Parking Management System

View Outgoing Vehicle

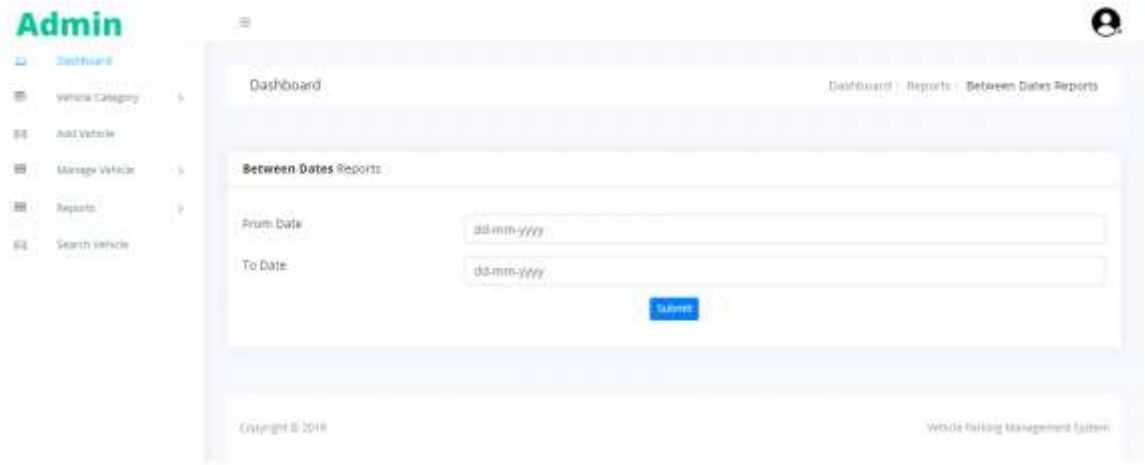


Vehicle Parking Receipt

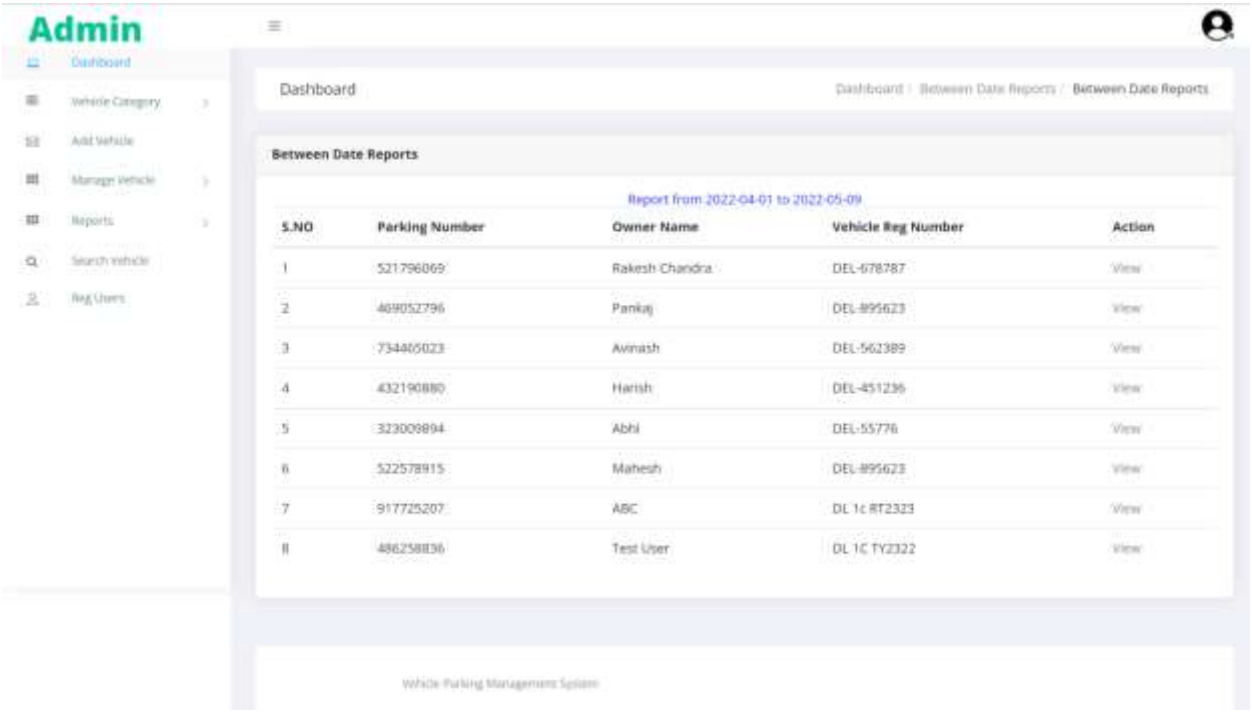
Vehicle Parking receipt

Parking Number	486258836	**Vehicle Category**	Two Wheeler Vehicle
Vehicle Company Name	Honda Activa	**Registration Number**	DL 1C TY2322
Owner Name	Test User	**Owner Contact Number**	1234567890
In Time	2019-07-07 17:02:02	**Status**	Outgoing Vehicle
Out time	2019-07-07 17:02:42	**Rarking Charge**	40
Remark	Vehicle Out		

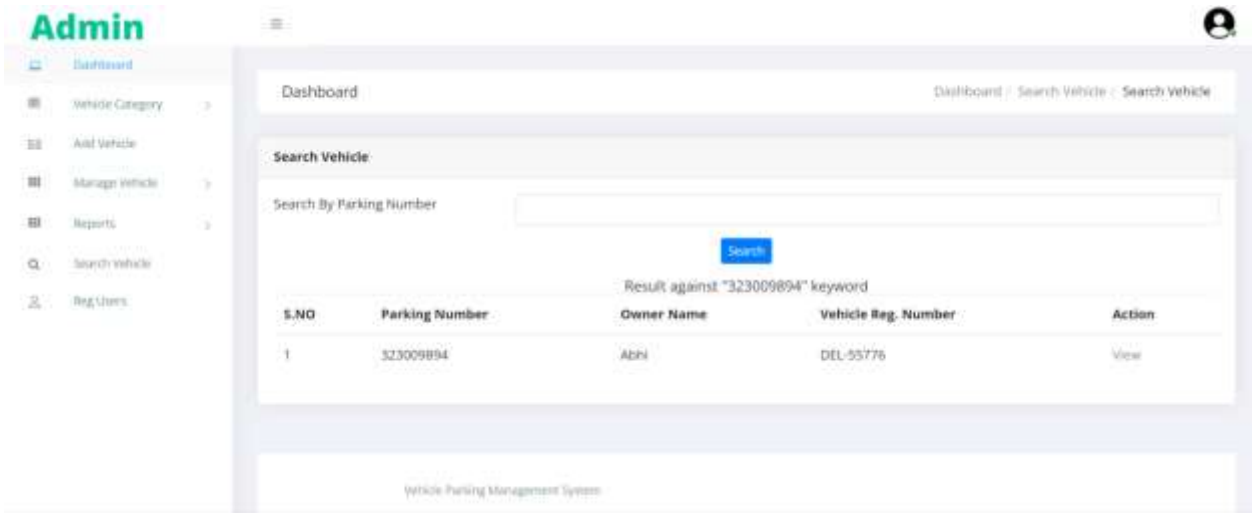
Between Dates Reports



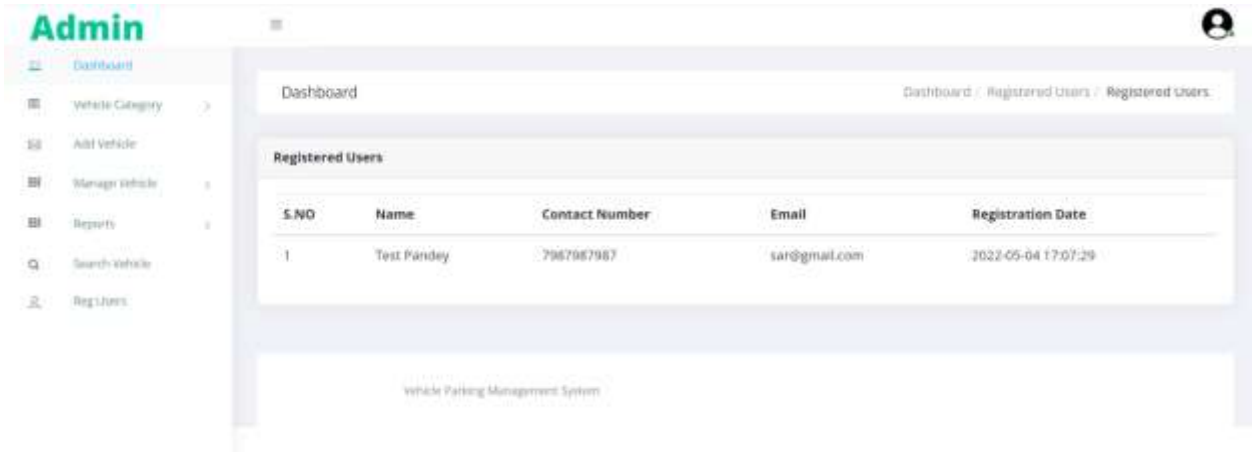
View Report



Search Vehicle



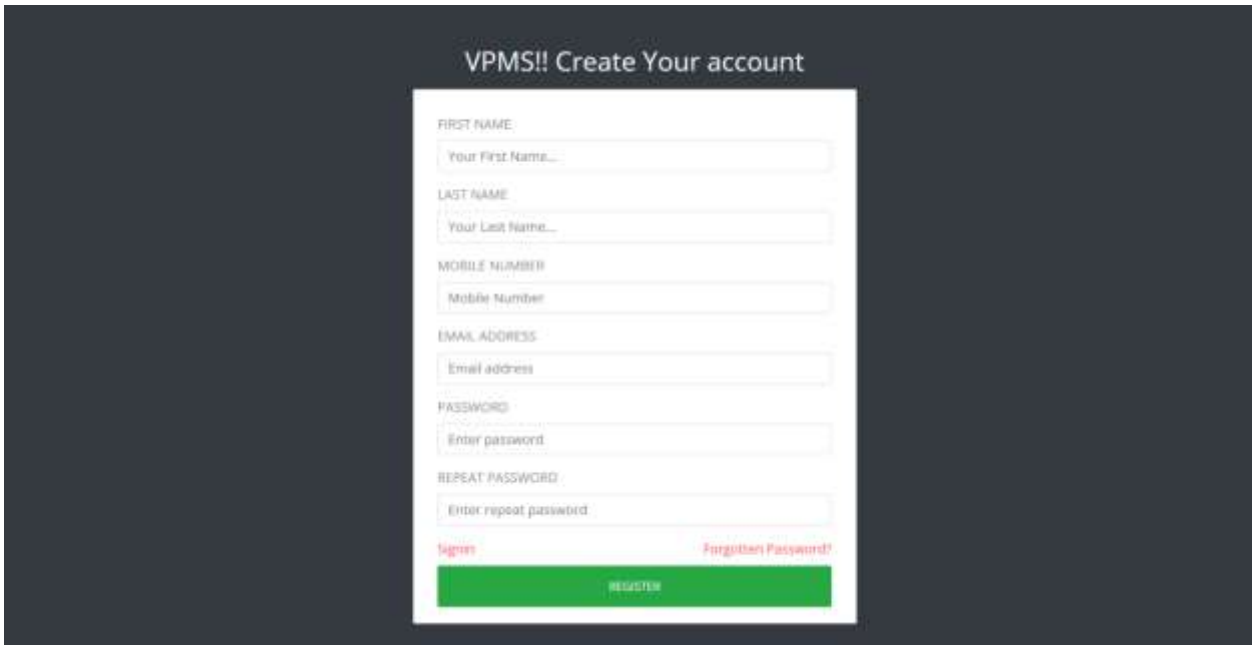
View Registered Users



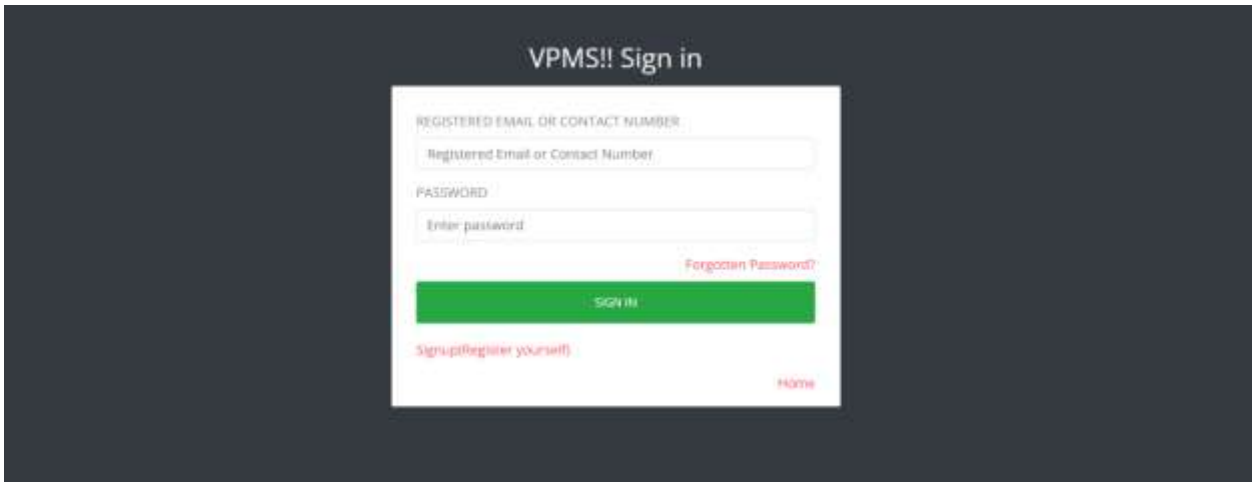
Forgot Password

Reset Password

User Sign up

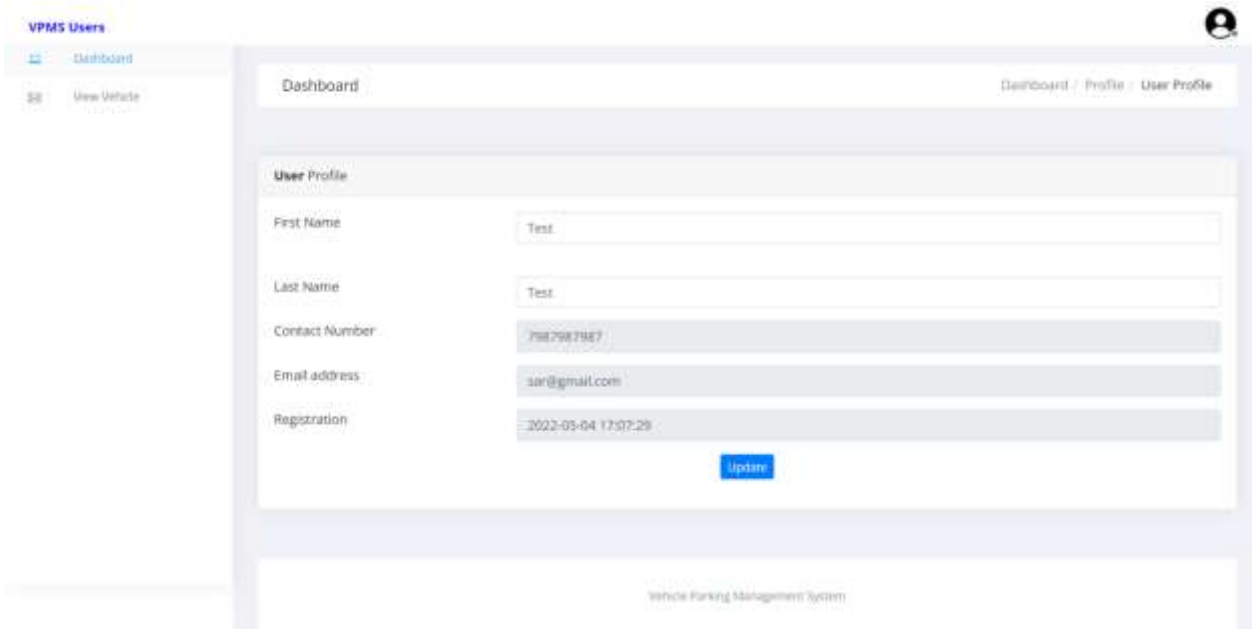


Sign in

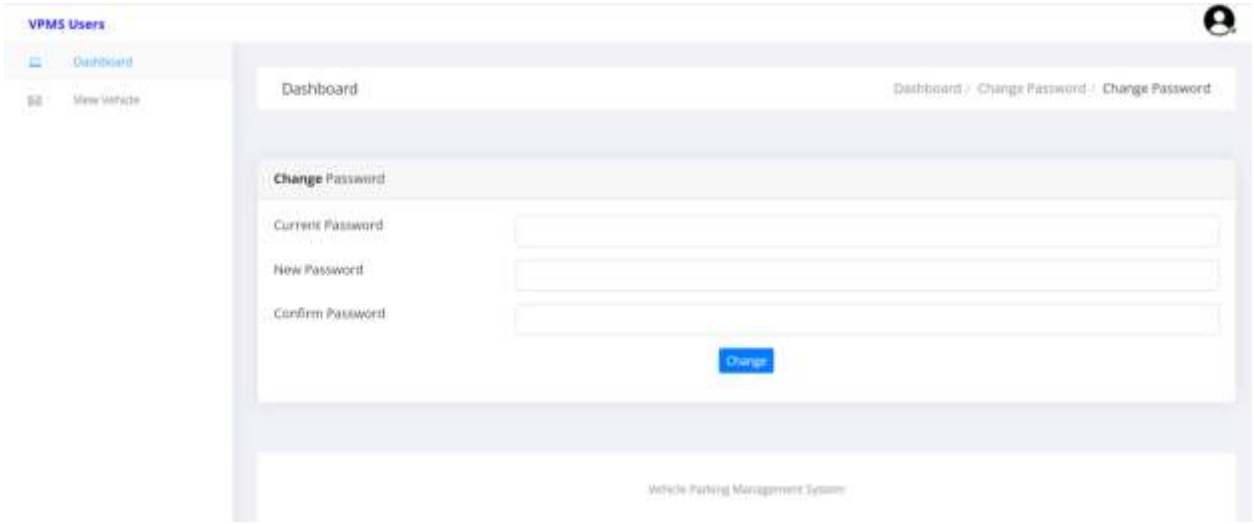


Dashboard

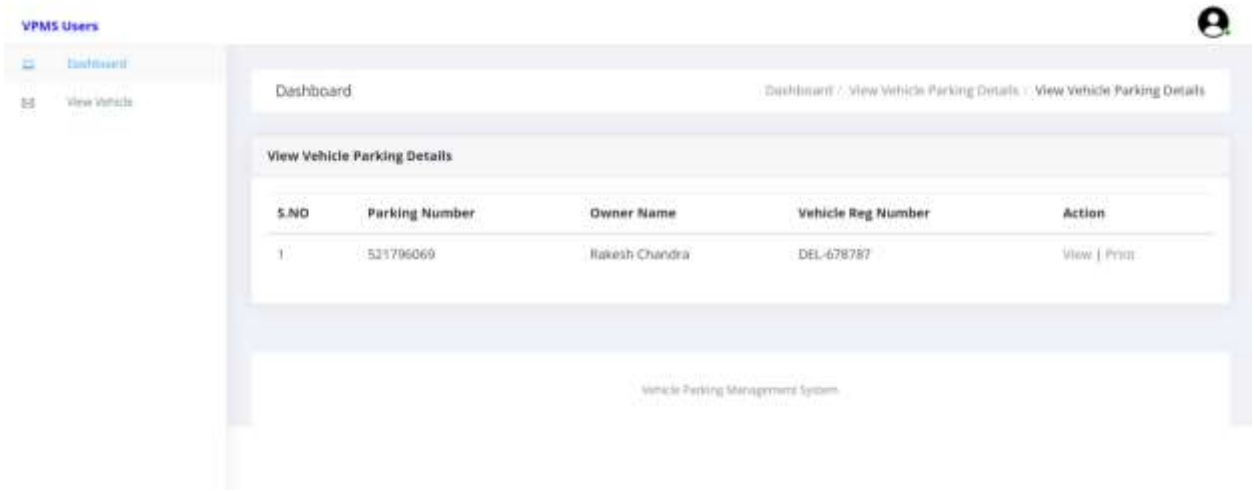
Profile



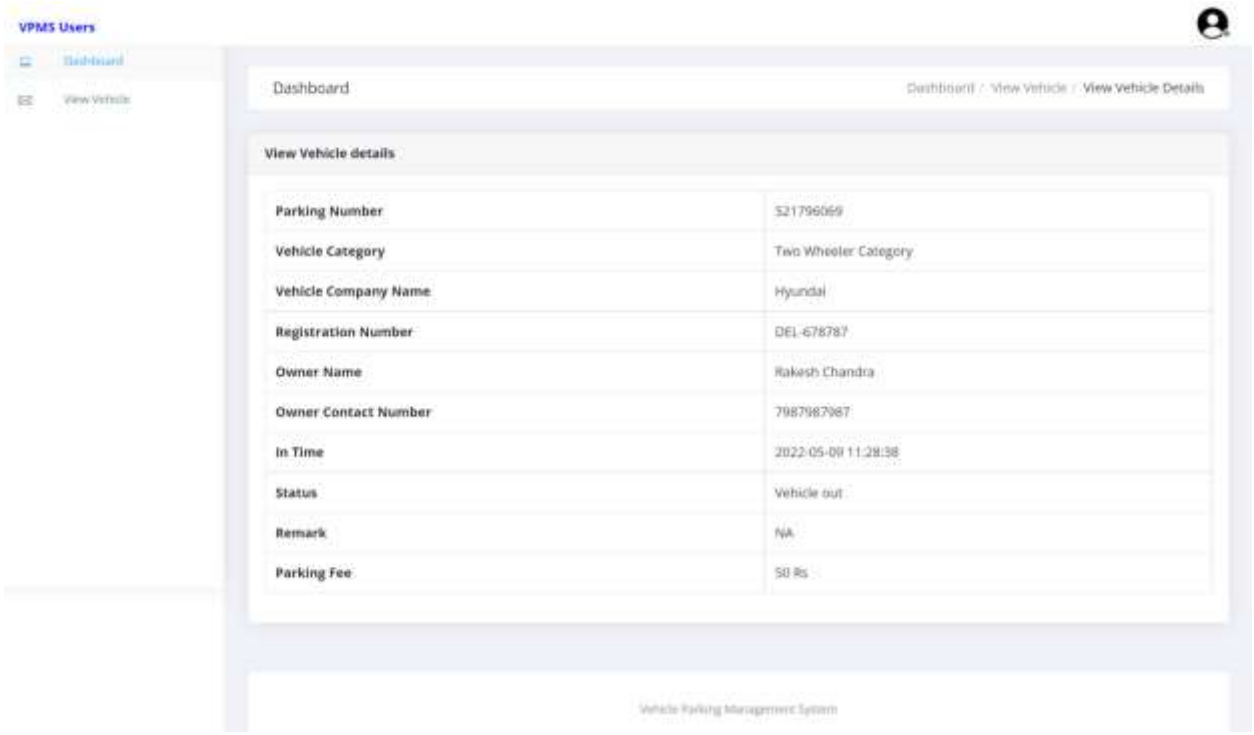
Change Password



View Vehicle



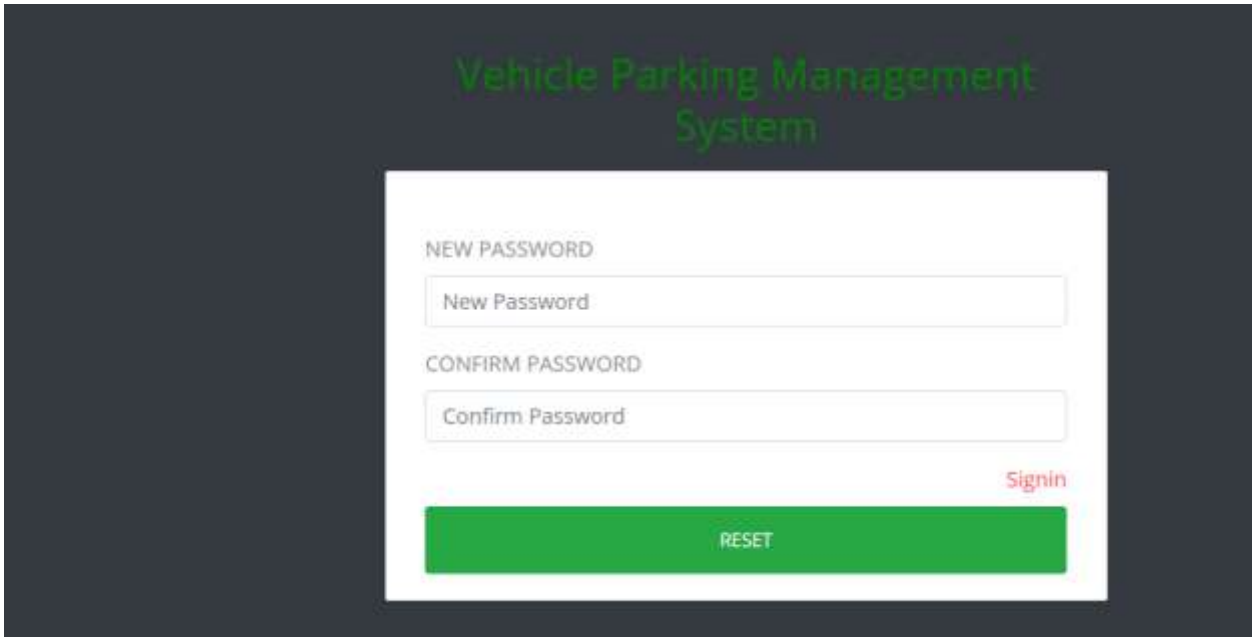
View Vehicle in details



View Parking Receipt

Forgot Password

Reset Password



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.

References

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- http://www.mysqltutorial.org

For XAMPP

- https://www.apachefriends.org/download.html