"Vehicle Parking System"

A PROJECT REPORT SUBMITTED TO

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(An Autonomous Institute under VTU, Belagavi)

In partial fulfillment of the requirements for Project work (Database Laboratory CS5L02), fifth semester

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in

Computer Science and Engineering

Submitted by

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2021-2022

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

THE NATIONAL INSTITUTE OF ENGINEERING

CERTIFICATE

This is to certify that the project work entitled "**Vehicle Parking System**" is a work carried out by **Vamshi M Jois (4NI19CS119) and Suresh Rathod(4NI19CS109)**in partial fulfillment for the project work (Database Laboratory – CS5L02), fifth semester, Computer Science & Engineering, TheNational Institute of Engineering **(**Autonomous Institution under Visvesvaraya Technological University, Belagavi)during the academic year 2021-2022. It is certified that all corrections and suggestions indicated for the Internal Assessment have been incorporated in the report deposited in the department library. The project workreport has been approved in partial fulfillment as per academic regulations of The National Institute of Engineering, Mysuru.

Signature of the Internal Guides **Signature of the HOD**

Padmini M S Assistant Professor	Smitha B Assistant Professor	Dr. V K Annapurna Professor and Head Dept. of CS&E NIE, Mysuru

Signature of theExaminers with date

Name:
Designation:

Name:
Designation:

ACKNOWLEDGEMENTS

The success and the outcome of this project required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along with the completion of project work. We express our profound thanks to **Dr. N V Raghavendra**, principal, NIE, Mysuru for his much needed moral support and encouragement. We are grateful to **Dr. V K Annapurna**, Professor and Head, Dept. of CS&E, NIE for her support and encouragement in facilitating the progress of this work. We sincerely extend our thanks to our Project Guides **Padmini M S**, Assistant Professors and **Smitha B**, Assistant Professor in the Dept. of CS&E, and our Database Management Systems Faculty **Narender M**, Assistant Professor in the Dept. of CS&E, for their guidance, technical expertise, encouragement, and timely help in making this project a reality.

We would also like to give credit to the authors of the various resources which were made available through the Internet for our reference.

-Vamshi M Jois(4NI19CS119)

-Suresh Rathod(4NI19CS109)

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Chapter 1

Introduction

Parking management system for managing the records of the incoming and outgoing vehicles in an parking area. It's an easy for Admin to retrieve the data if the vehicle has been visited through number he can get that data .

Now days in many public places such as malls, multiplex system, hospitals, offices, market areas there is a crucial problem of vehicle parking. The vehicle parking area has many lanes/slots for car parking. So to park a vehicle one has to look for all the lanes. Moreover this involves a lot of manual labour and investment. Instead of vehicle caught in towing the vehicle can park on safe and security with low cost.

Parking control system has been generated in such a way that it is filled with many secure devices such as, parking control gates, toll gates, time and attendance machine, car counting system etc. These features are hereby very necessary nowadays to secure your car and also to evaluate the fee structure for every vehicles entry and exit

The objective of this project is to build a Vehicle Parking management system that enables the time management and control of vehicles using the vehicle details. The system that will track the entry and exit of vehicles, maintain a listing of vehicles within the parking lot, and determine if the parking lot is full or not. It will determine the cost of per vehicle according to their time consumption.

1.1 Problem Defination:

- Now a days in parking like valet parking they maintain just with the tokens and they have records the vehicle details in books so that during some critical situations like police enquiry of terrorist car or vehicle roberrer that case it is difficult to find the details of particular vehicle but in this case is easy to find in 1 to 2 seconds
- By parking the vehicle in public place the vehicle can be claimed by towing person but in this case there is no towing problems and no need to give fine for anything we can park our vehicle securely.

1.2 Advantage For Users:

We can park our vehicle in our own slot by paying.

- Because of that there is no towing problems.
- And our vehicle has been parked as a secure condition.
- There is no risk for vehicle owner for parking the car.
- In case of any damages and problem of vehicle that will claim by parking management.
- As the world is facing many threads daily, robberies are done easily with no track to trace, bomb blasts occur with the use of vehicle, so if a proper system is adopted each and every record can be saved and anyone can be track easily therefore mainly is to make a better and fast software, most important user-friendly
- Maintain records in short time of period.
- Determines the parking area is full or not. And it also Enhances the visitor's experience.

1.3 Functionalities provided by the Website are as follows:

- Managing Vehicle's Category
- Managing Vehicle's Entry
- Managing Outgoing Vehicles
- To Set Parking Charge
- To Print Parking Receipts
- To View Reports
- To view Total Earnings
- To Search Parking Details
- Viewing Graphical Representations
- Updating Profile, vehicle Company Details
- Updating vehicle category
- Changing Password

Chapter 2

System Analysis

2.1 Existing system:

The existing system present in our society is like we enter the parking lot we get a token from a person who issues token .he might or not take the details of the vehicle. In case if he takes the details also he would not take the complete details of the vehicle and the owner.

Disadvantages of the existing system:

- More staff : Existing system requires lot of staff work .Because it is difficult for one person to issue tokens for all the vehicles at the same time.
- Not economical: Suppose if the owner loses the token issued by the admin then he needs to pay the fine for the lost token. and in the other way ,since the admin has to hire more staff he should pay the salary.
- Lack of security: As the world is facing many threads daily, robberies are done easily with no track to trace, bomb blasts occur with the use of vehicle, then the admin would not have the detailed information of the vehicle and its owner.
- Customer's unsatisfaction : Suppose if the customer loses his token then he has to pay the fine for losing his token, sometimes this might lead to conflict between the customer and the admin .this leads to customer's unsatisfaction.
- Total income cannot be caluculated effectively : suppose if the admin is hiring some staff for collection of the money. if the staffs are not loyal to the admin then there is a chance that they may not return the collected money to the admin i.e they make keep some part of the money to the admin. In this case the admin would not get a correct count of the money that he earned on that day.

2.2 Proposed system:

Vehicle Parking System project focuses mainly on keeping track of vehicle's parking. Also, the system diplays all the vehicle's entry and outgoing records. In addition, the system allows adding vehicle categories too. This project only contains an admin panel. In an overview of this web application, an admin has all control over the system. An admin can simply add vehicle categories by providing category names. After the management of vehicle categories, the admin can simply insert the vehicle's entry. For this, he/she has to enter the vehicle's number, model name, category, and owner's information.

Why go for "Vehicle Parking System "?

- Less staff: The proposed system does not require more number of staff as seen in the existing system. Because there is no token system the admin can himself manage the parking system with limited number of staff.
- Non token system: this system is a non token system there is no token issued to the owner of the vehicle instead of this the admin himself records all the details of the details of the vehicle and the owner.
- Economical system: As this system is a non token system the owner need not worry about paying fine if he loses his token.in this way it is economical. In other way as this system requires less number of staff so the salary that had to be given to the staff in case of the existing system is saved.
- Secure system: As the world is facing many threads daily, robberies are done easily with no track to trace, bomb blasts occur with the use of vehicle, so if a proper system is adopted each and every record can be saved and anyone can be track easily therefore mainly is to make a better and fast software, most important user- friendly.
- Total income is calucalated effectively : the proposed system has the capacity calculate the total income of the day unlike the existing system.

2.3 Software and Hardware requirement:

Hardware Requirements:

- Intel i5 or any equivalent.
- 1 GB RAM and Above.
- A dual core CPU.
- Dedicated GPU for smoother debugging.
- Operating system like Windows/Linux.
- 1920 x 1080p monitor for better viewing experience.

Software Requirements:

- XAMPP SQL server.
- Visual Studio Code.
- Any web browser (preferably Chrome/Mozilla Firefox).

Other Requirements:

- Fast and high bandwidth internet connection.

Chapter 3

System Design

3.1 System Architecture:

Input design:

The system has one section:

- **Admin section-** admin has all control over the system. He/she helps to maintain the flow of the system. An admin can simply add vehicle categories by providing category names. After the management of vehicle categories, the admin can simply insert the vehicle's entry. For this, he/she has to enter the vehicle's number, model name, category, and owner's information. Inside the admin section we have many fields like manage vehicle's parking and parking receipts, earning collections ,updating the account information , password etc.

➢ **Managing vehicle's parking and Parking receipts**

After setting up the vehicle's parking, now the admin can manage outgoing vehicles. The system lists out all the entry and outgoing vehicle records. Here, the admin can simply take an action for checking out the parking. In order to exit a vehicle's parking, the admin has to enter the total parking charge with remarks. Once a vehicle exits the parking, those records can be found under the outgoing vehicle records. Here, the system generates invoice receipts for each and every vehicle. The admin can view details of each available vehicle. Also, the admin can view and print out the parking receipt of each. Each record consists of parking number, total charge, vehicle registration number, owner details, and more.

➢ **Updating account , password information**

This whole section will be about additional features in this system. This system allows updating the user's profile where he/she can update his/her name and contact details. Also, an admin can change the password by entering the current password with a new and confirmation password. The last feature is about company information. The system allows the user to update company settings. It includes of company's name, the company's email address, website URL, and company's address.

➢ **Reports and earning collection**

- admin can list out the reports between dates. These reports help out to state vehicle's parking record between the selected dates. Additionally, the admin can view total earnings to date. And also, the system displays the current date and yesterdays' total earning. He/she can search out the vehicle's record using the vehicle's registration number from the sidebar. Besides, an admin can have an overview records of the total vehicle's entry with a number of in and out vehicles and total parking within a 24 hours span time. The system represents overall records using graphical charts like piechart to present a summary of record

Database Design:

The data in the system has to be stored and retrieved from database. Designing the database is part of system design. Data elements and data structures to be storehave been identified at analysis stage. They are structured and put together to design the data storage and retrieval system. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The general objective is to make database access easy, quick, inexpensive and flexible for the user. Relationships are established between the data items and unnecessary data items are removed Normalization is done to get an internal consistency of data and to have minimum redundancy and maximum stability. This ensures minimizing data storage required, minimizing chances of data inconsistencies and optimizing for updates.

Table Design:

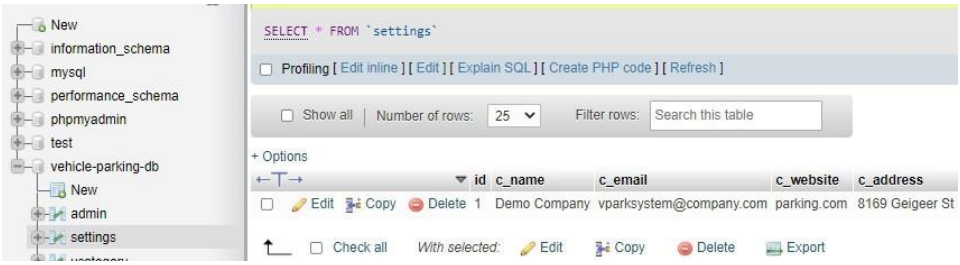
1. **Vehicle parking system tables**: This table includes all the database tables required for this project, this main vehicle parking table contains Admin, Setting, vcategory, vehicle info table data.

(fig:1.1)

2. **Admin table**: Admin table contains information about admin like admin name user name ,mobile number security code, email, password and admin registration date this data will help us to login into the page.The admin table representation is shown below in fig:1.2.

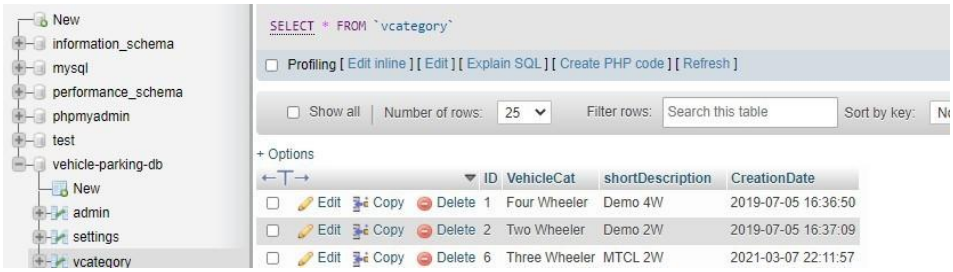
(fig:1.2)

3. **Settings table**: Setting table contains company name ,company email, company website, company address and last update which will us in settings.



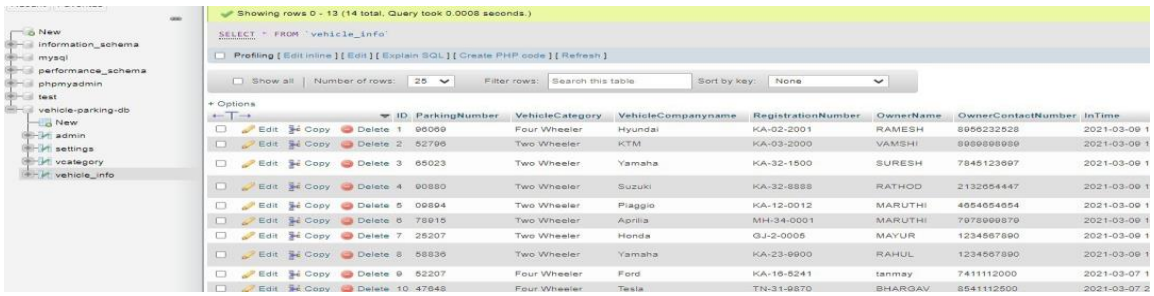
(fig:1.3)

4. **Vehicle category table**: This table contains categories of vehicle those category of vehicle can park inside parking lot it contains three types of categories like Two Wheeler, Three Wheeler and Four Wheelers etc.



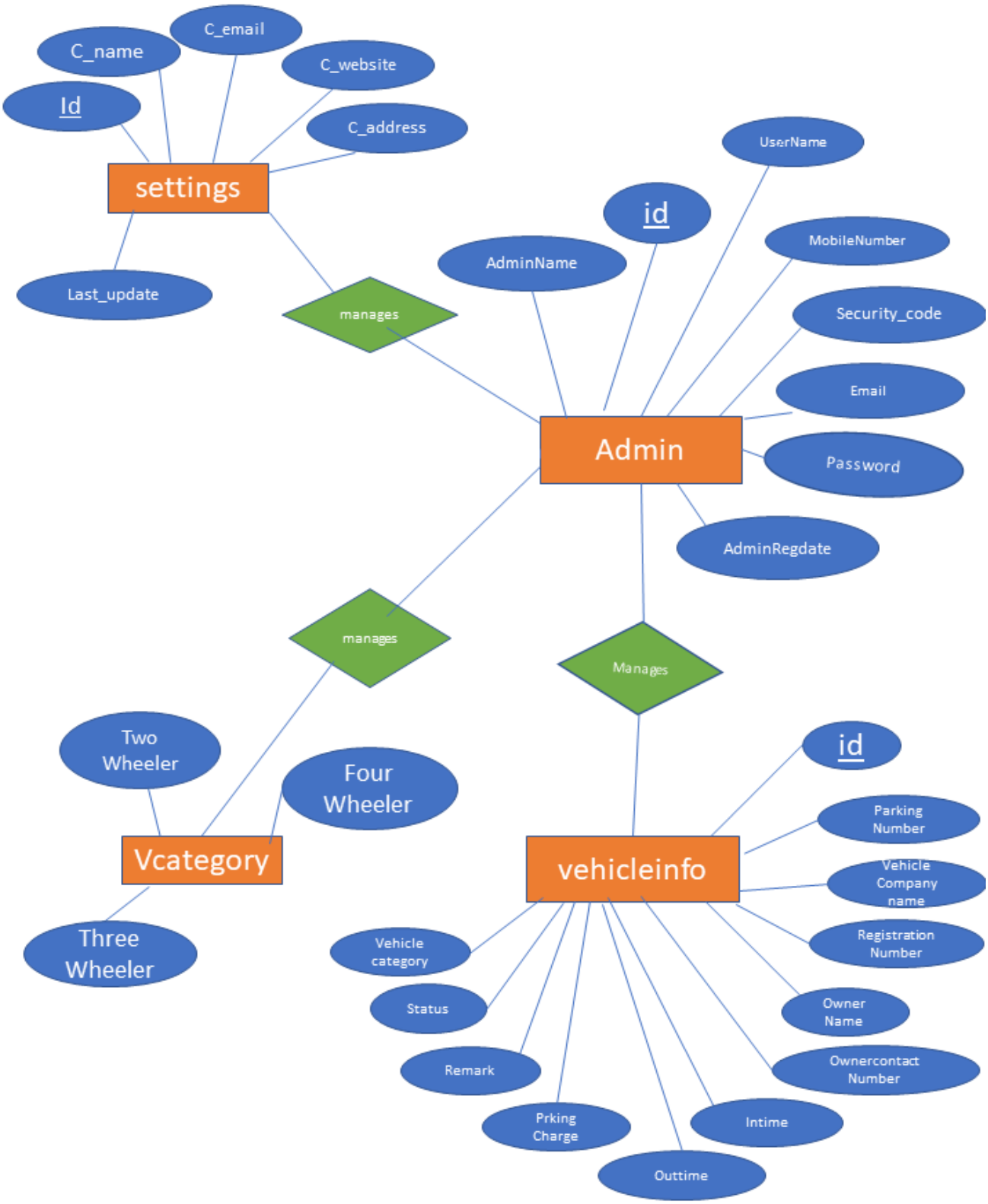
(fig:1.4)

5. **Vehicle info**: This table contains information of all the vehicles parked or not parked means which are checked out from parking lot .This table also contains customers information aswell as vehicle information which are vehicle company name, registration number and also owner name ,contact number and in time ,out time of the vehicle.


Showing rows 0 - 13 (14 total, Query took 0.0008 seconds.)
SELECT * FROM `vehicle_info`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
+ Options
ID ParkingNumber VehicleCategory VehicleCompanyname RegistrationNumber OwnerName OwnerContactNumber InTime
1 96069 Four Wheeler Hyundai KA-02-2001 RAMESH 8956232528 2021-03-09 1
2 52796 Two Wheeler KTM KA-03-2000 VAMSHI 8989898989 2021-03-09 1
3 65023 Two Wheeler Yamaha KA-32-1500 SURESH 7845123697 2021-03-09 1
4 90880 Two Wheeler Suzuki KA-32-8888 RATHOD 2132654447 2021-03-09 1
5 09894 Two Wheeler Piaggio KA-12-0012 MARUTHI 4654654654 2021-03-09 1
6 78915 Two Wheeler Aprilia MH-34-0001 MARUTHI 7978999879 2021-03-09 1
7 25207 Two Wheeler Honda GJ-2-0005 MAYUR 1234567890 2021-03-09 1
8 58836 Two Wheeler Yamaha KA-23-9900 RAHUL 1234567890 2021-03-09 1
9 52207 Four Wheeler Ford KA-16-5241 tanmay 7411112000 2021-03-07 1
10 47648 Four Wheeler Tesla TN-31-9870 BHARGAV 8541112500 2021-03-07 2
New
information_schema
mysql
performance_schema
phpmyadmin
test
vehicle-parking-db
New
admin
settings
vcategory
vehicle_info

(fig :1.5)

3.1 ER DIAGRAM



(fig :1.55)

Chapter 4

System Implementation

4.1 Tools used for implementation

The software tool used for implementation of the system are XAMPP, phpMyAdmin, subline text editor. This system is implemented or hosted on a localhost server which remotely works on the current computer system to receive and store all the data provided. phpMyAdmin is used to define the structure of the database which also handles the backend of this system. As a code editor sublime text editor is used to operate the frontend while accessing our database.

XAMPP:

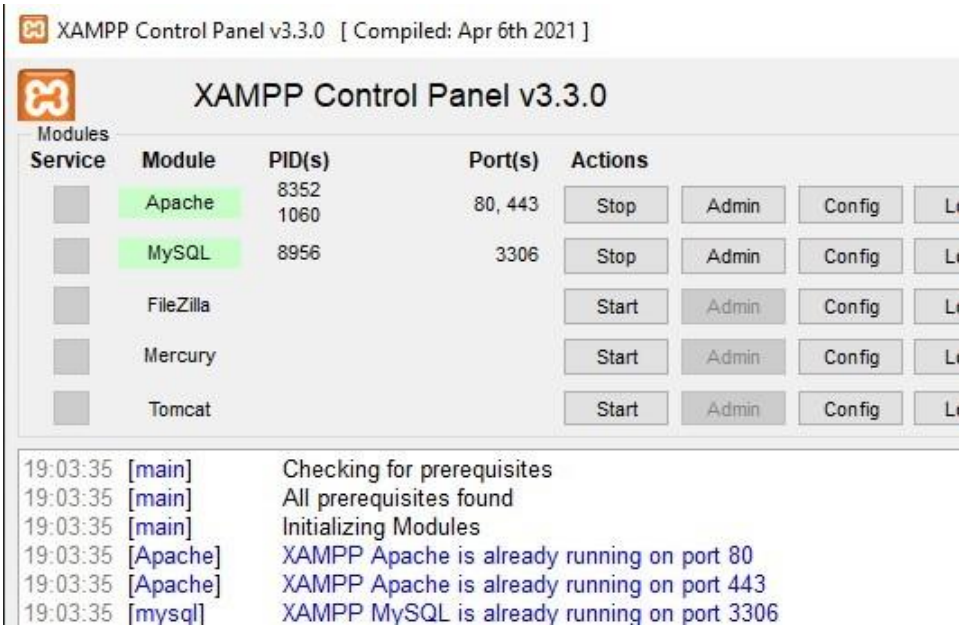
(fig:1.6)

XAMPP is one of the widely used cross-platform web servers, which helps developers to create and test their programs on a local webserver. It consists of Apache HTTP Server, MariaDB, and interpreter for the diff erent programming languages like PHP and Perl. XAMPP is an abbreviation where X stands for Cross- Platform, A stands for Apache, M stands for MYSQL and the Ps stand for PHP and Perl. XAMPP helps a local host or server to test its website and clients via computers and laptops before releasing it to the main server. It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, Perl, MySQL database, and PHP through the system of the host itself.

Where PHP is a backend scripting language, works on different platforms such as Windows, Linux and macOS.

PHP: It is the backend scripting language primarily used for web development. PHP allows users to create dynamic websites and applications. It can be installed on every platform and supports a variety of database management systems. It was implemented using C language. PHP stands for Hypertext Processor.

XAMPP Control Panel:



(fig:1.7)

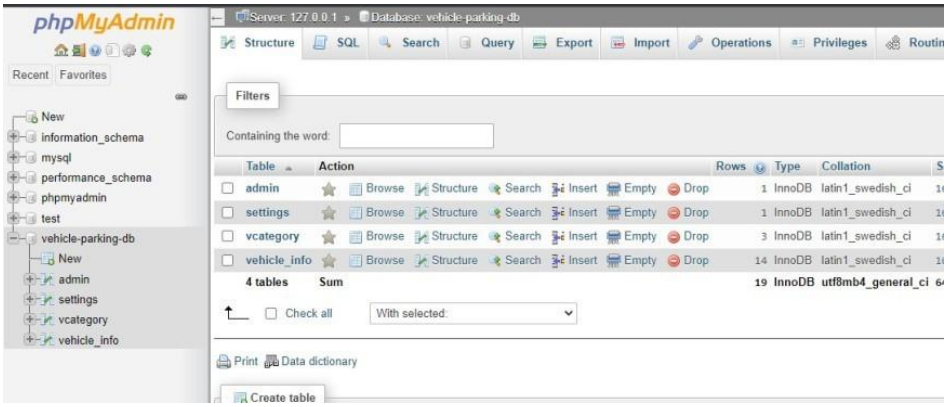
PHPMYADMIN:

PhpMyAdmin is an open-source software tool which is written in PHP. It is a tool to manage the tables and data inside the database. phpMyAdmin supports various type of operations on MariaDB and MySQL. The main purpose of phpMyAdmin is to handle the administration of MySQL over the web.

We can create, update, drop, alter, delete, import, and export MySQL database tables by using this software. phpMyAdmin also supports a wide range of operation like managing databases, relations, tables, columns, indexes, permissions, and users, etc. on MySQL and MariaDB. These operations can be performed via user interface, while we still have the ability to execute any SQL statement. phpMyAdmin can also be used to perform administrative tasks such as database creation, query execution. We can manually create database and table and execute the query on them.

on MySQL and MariaDB. These operations can be performed via user interface, while we still have the ability to execute any SQL statement. phpMyAdmin can also be used to perform administrative tasks such as database creation, query execution. We can manually create database and table and execute the query on them.

It provides a web-based interface and can run on any server. Since it is web-based, so we can access it from any computer. It supports foreign keys and InnoDB table, can track the changes done on databases; views; and tables, also supports mysql, which is the improved MySQL extension. It provides the facility to back up the database into different forms.

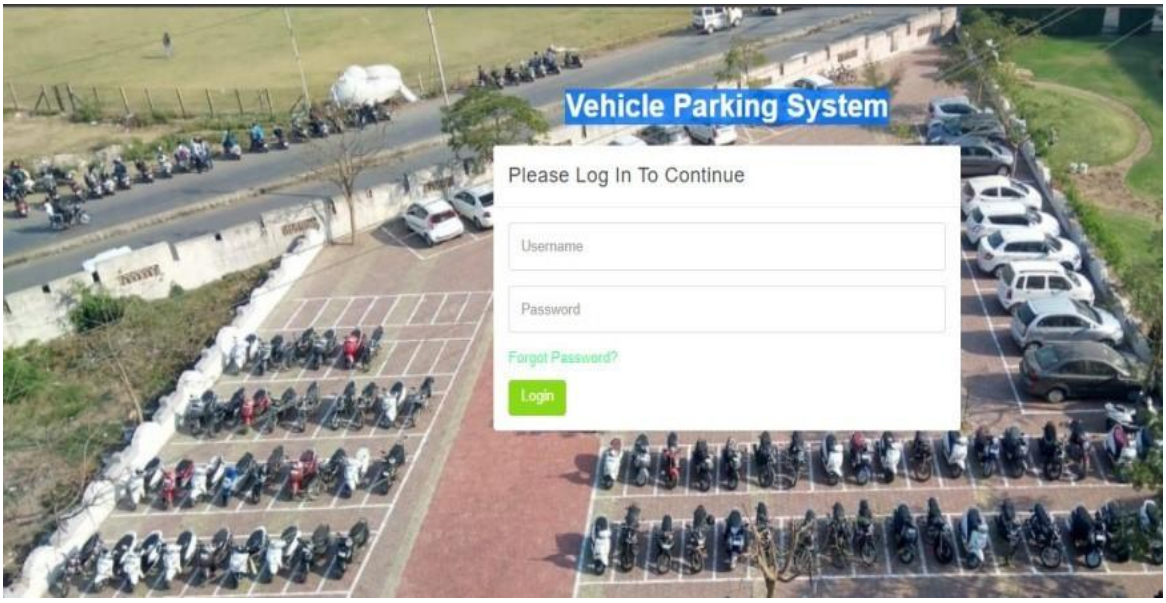


(fig:1.8)

Chapter 5

System Testing

The website system has been tested to almost all the boundary conditions and erroneous inputs



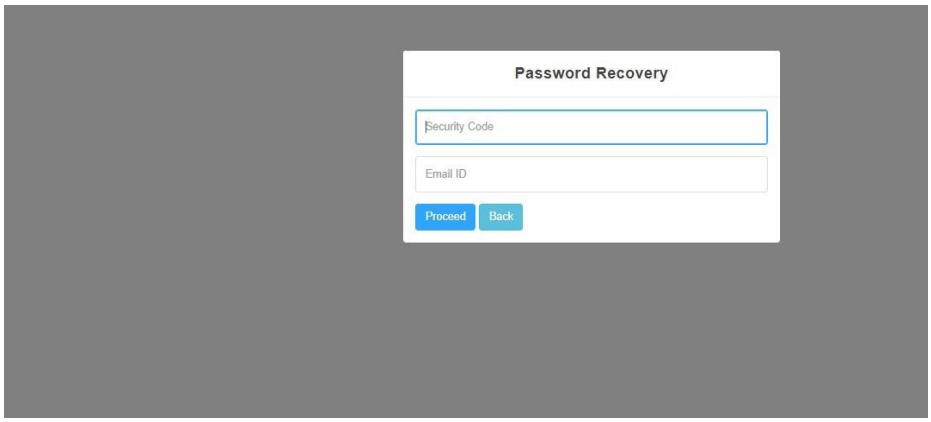
(fig :1.9)

This is the starting page displayed (fig :1.9) when the website is opened. The website asks for the user name and password to login to the website. In this phase of testing the website only continues if the user name and the password entered is correct.

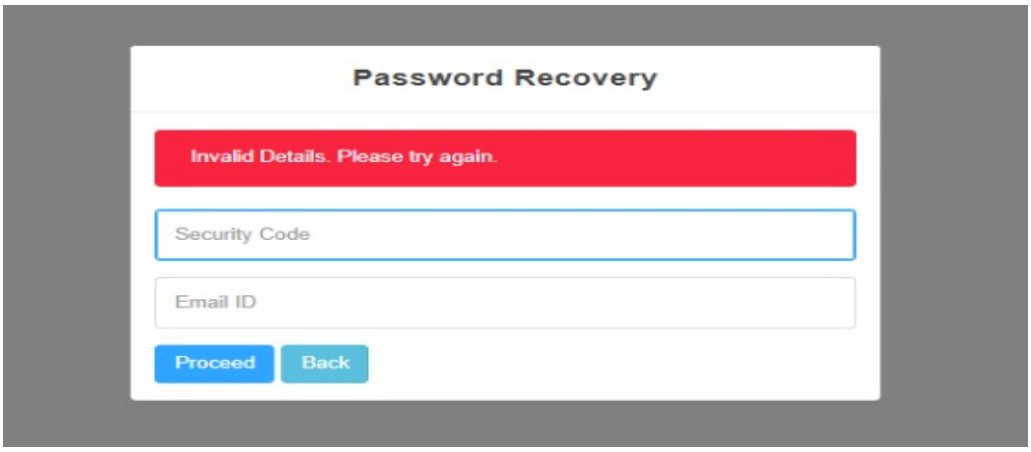
(fig: 2.0)

If the user name or password is not entered properly then the system prompts an error message on the screen it says “invalid login”,it means the the user name or the password entered is not correct. the above picture(fig: 2.0) is displayed by the website if the user name or password

entered is incorrect



(fig: 2.1)

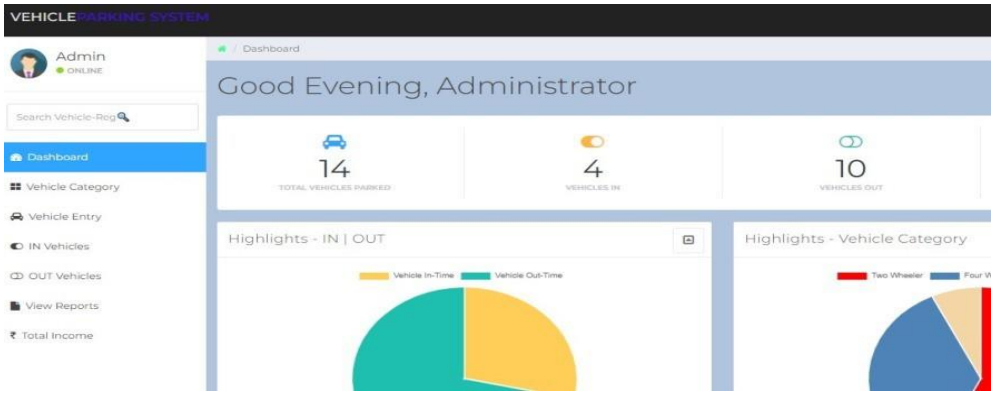


(fig: 2.2)

If the user clicks on the tab"forgot password" then the website takes to the password recovery page(fig: 2.1).

This page asks the user to enter the security code, which must be known to the user and email id.if the entered details are correct then the website takes to the password reset page,else if the security code or the email id entered is not correct the system prompts "invalid details please try again" which can be seen in the (fig: 2.2),this is the next phase of testing ,that is done.

If the the user name and the password is entered correctly then the website takes the user into the dashboard page which is seen in the below figure(fig:2.3).



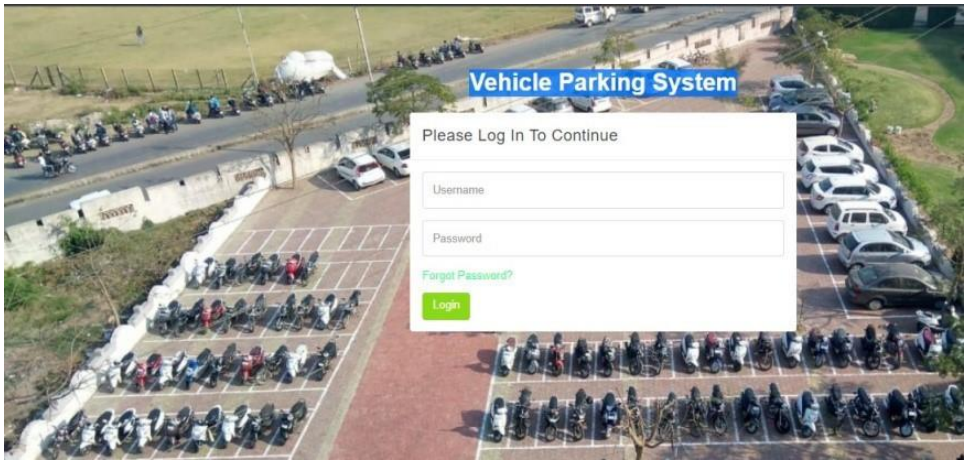
(fig: 2.3)

Chapter 6

Results

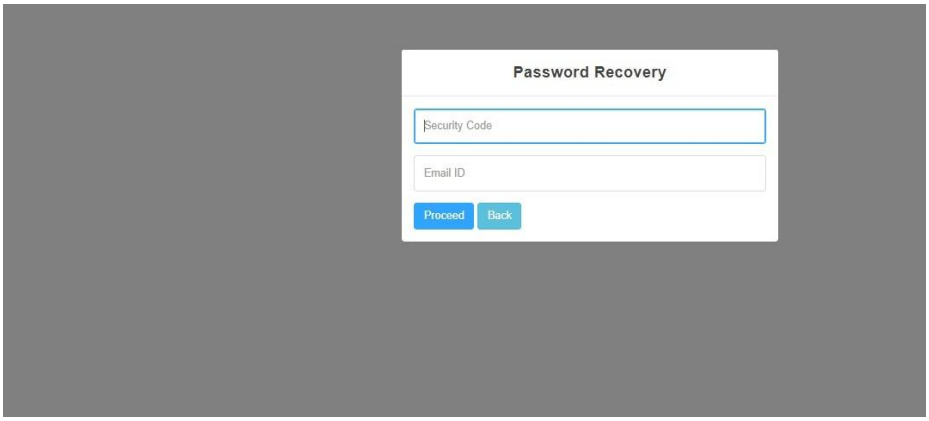
The website system has been tested to almost all the boundary conditions and erroneous inputs.

Login Page: Here is the login page of the project where admin login by providing his Valid username and password.



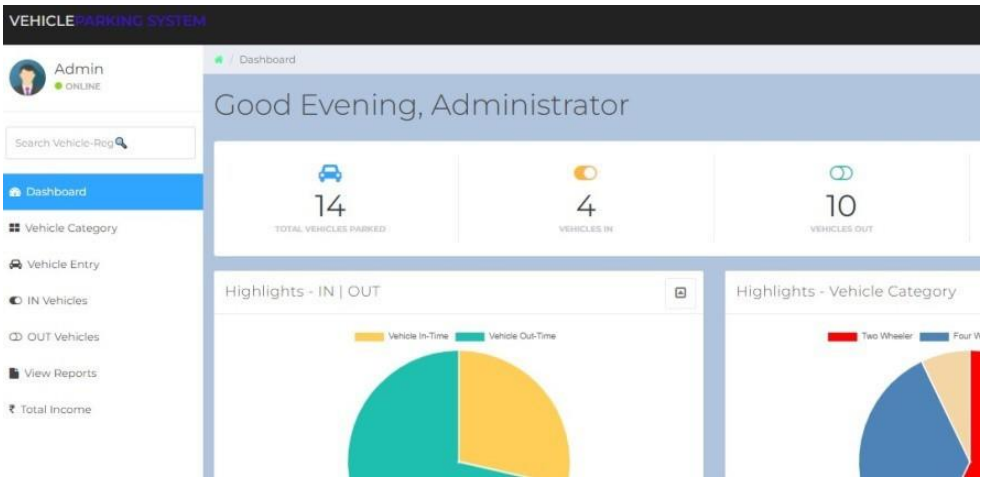
(fig:2.4)

Forgot password: If admin not remember his username and password then he can click on Forgot password after clicking forgot password admin can reset Password by providing his security code and email id after that he set the new password.



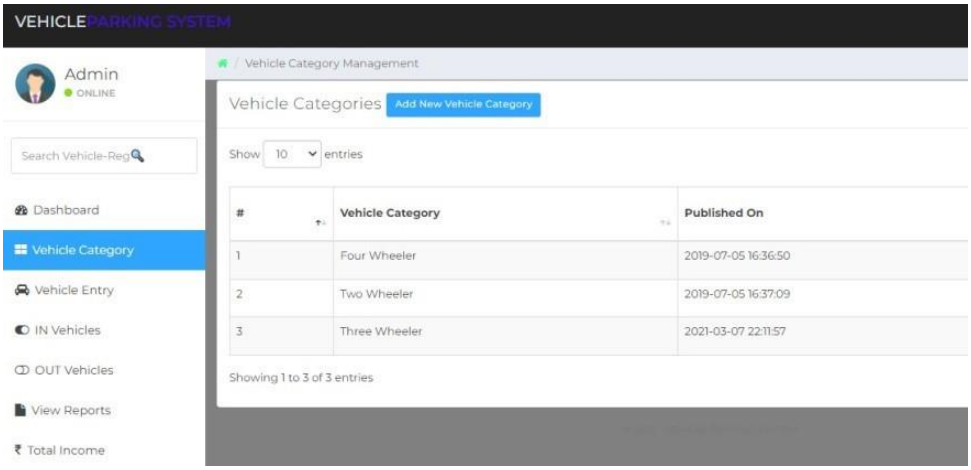
(fig:2.5)

Home Page: The homepage displayed after logging in. the dashboard or homepage is shown below.



(fig:2.6)

Vehicle category: This page shows the types of vehicle categories present. If the admin wishes to edit the vehicle category he can do it .He can also add or delete the vehicle category. The vehicle catogary page is seen below

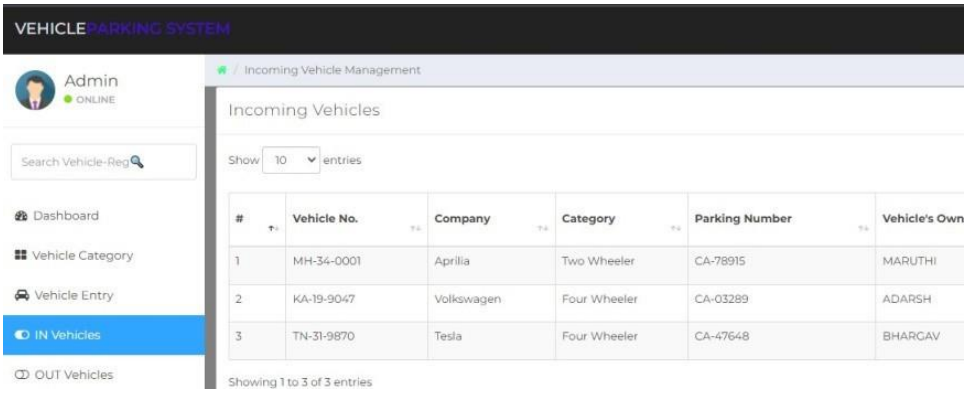


(fig:2.7)

Vehicle Entry: In this section the admin can add the incoming vehicles details like the registration number of the vehicle, vehicle's company, vehicle category , owner's name,owner's contact number. The vehicle's entry page can be seen below

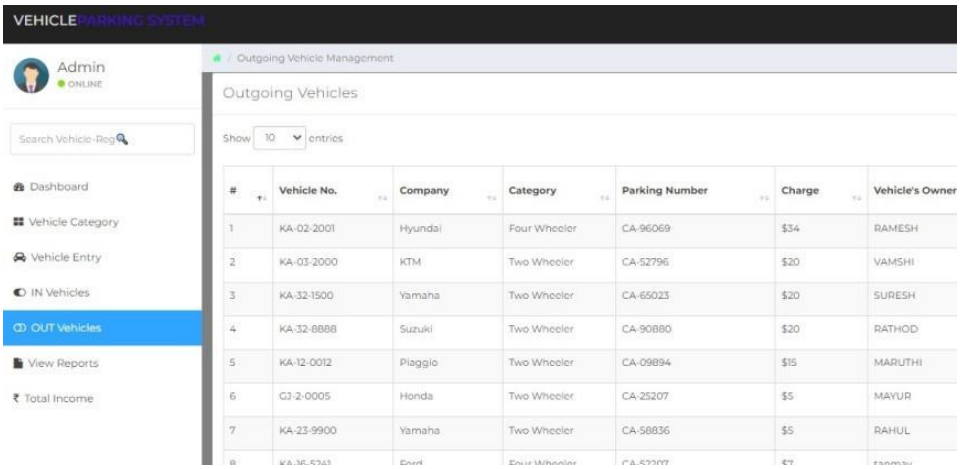
(fig: 2.8)

In-Vehicles: This page shows the information about the number of vehicles present in the parking lot. It also shows the vehicle's category ,parking number,vehicle's typeand the name of the vehicle owner. The in vehicles page can be seen below.



(fig:2.9)

Out-Vehicles: This page shows the list of outgoing vehicles. This page contains some information of the vehicle like vehicle number, vehicle category, vehicle's company name the amount charged for parking and the vehicle's owner's name. The out vehicles page is shown below.

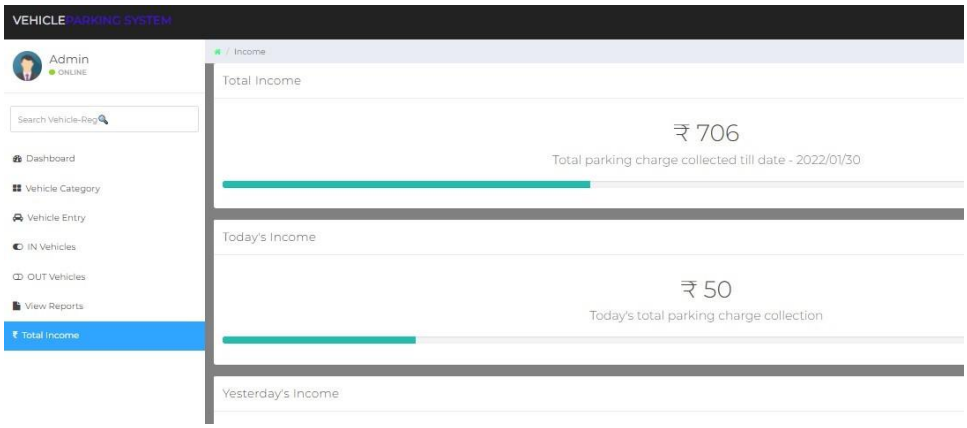


(fig:3.0)

View Report: This page helps the admin to view the reports. He can generate the reports between the desired dates. The view report page is given below.

(fig: 3.1)

Total Income: This page gives the information about income earned on that particular day yesterday's income and the total income of that year. The total income page is shown below.

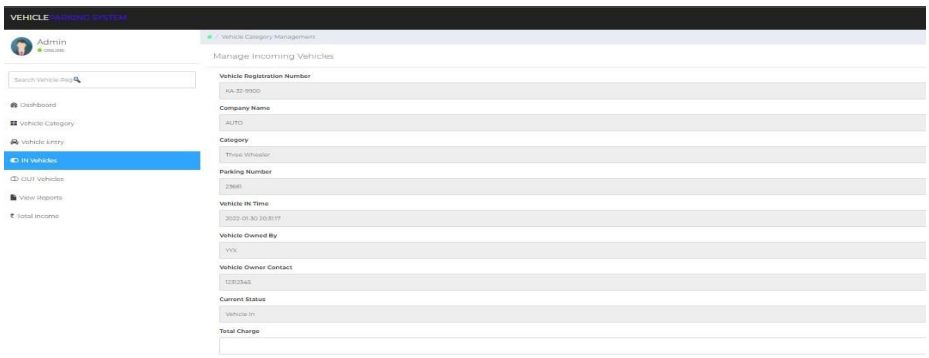


(fig: 3.2)

Receipt: This page shows the final report of the vehicle. The receipt page is shown below

(fig: 3.3)

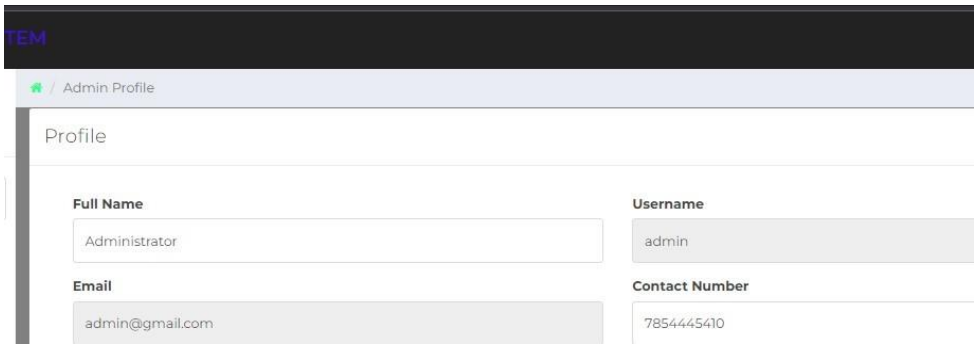
Managing Incoming Vehicle: Suppose if the admin has made some mistakes while entering the details of the vehicle he can edit in this page.



(fig:3.4)

Settings Table: The admin setting contains Profile,change password setting and logout Option Where admin can change profile means he can change fullname username, email and contact number. And there's option change password admin can change password by providing his existing and can Set New password. And he can logout of the system.

(fig:3.5)



(fig:3.6)

(fig:3.7)

Conclusion And Future Enhancements

We have designed and developed a efficient parking system. We have implemented admin login which is not there in existing system. We have tried to make existing vehicle parking system as a computerized system.We have developed a website in such a way that it contains secured login, enter the complete details of the vehicle and the owner. This system also provides an additional feature of printing the vehicle reports with in and out time ,which is not present in the existing system. This Project is minimizing the task of parking a vehicle by paying and saying some details about customer and vehicle to save data .In this the vehicle is parked as a safe and secure. This project is done as Efficient as possible. We also conclude that this project has helped us gain more knowledge about the topic that we are indulged ourselves into this project. We would be glad to enhance and promote this project if given chance and help ourselves and society in the near future. The developed application is tested with sample inputs and outputs obtained in according to the requirement. Even though we have tried our level best to make it a good project. Due to time constraints we could not add more facilities to it.

Future Enhancements:

This project can be implemented in a wide area as there are no such websites for reserving a parking slot. This project can be further enhanced by implementing the following things

- An SMS notification can be sent to the owner's mobile number given which may include the in time and the parking slot number of the vehicle.

- An E-MAIL notification can be sent to the email id of the owner which may include the the in time and the parking slot number of the vehicle.

- The proposed system can be further enhanced in such a way that the owner can book his parking slot by sitting in a remote place, like how we book the movie tickets, bus tickets, air tickets online etc.

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