V TRACK-VEHICLE MANAGEMENT SYSTEM

PROJECT REPORT SUBMITTED TO THE CALICUT UNIVERSITY
IN THE REQUIREMENT FOR THE AWARD OF DEGREE OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

OF

UNIVERSITY OF CALICUT

SUBMITTED BY

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DEPARTMENT OF COMPUTER SCIENCE

MERCY COLLEGE PALAKKAD-678006

MARCH 2023

DEPARTMENT OF COMPUTER SCIENCE

MERCY COLLEGE

(AFFILIATED TO THE UNIVERSITY OF CALICUT)

PALAKKAD-678006

CERTIFICATE

This is to certify that this project work entitled **"V TRACK-VEHICLE MANAGEMENT SYSTEM"** as part of the requirement for NICTS is the work done by **AKSHAYA V, ASWATHI MURALIDHARAN, SAHITHYA S, HAMEESHA SHIRIN S** during the period of study(2022-23) in the Department of Computer Science, Mercy College, Palakkad under the supervision and guidance of **Ms.SUMY T O.**

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Sr.SHINY MOLE P I, MCA SUMY T O

Submitted for the University examination held on ……

External Examiner 1:

2:

Nicts certificate

DECLARATION

We hereby declare the project work titled **"V Track-Vehicle Management System"** submitted to the University of Calicut in the requirement for the award of the **Degree of Bachelor of Science in Computer Science**, is a record of original work done by our group under the supervision and guidance of Ms.Sumy.T.O, Assistant Professor, Mercy College, Palakkad.

Counter signed by the Guide: **Submitted by**

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ACKNOWLEDGEMENT

Success is diligence blessed with God's Grace. We thank GOD Almighty for the graces showered on us for the successful completion of our project. With the pleasure and deep sense of gratitude, we wish to place a record of our sincere thanks to several individuals towards the successful completion of this project work.

Most particularly, we express our heartfelt thanks to our beloved Principal, **Dr. Sr. Gisala George** of Mercy College for providing all the facilities in our college to our convenience. We specially thank **Sumy T O** our project coordinator, for her creative ideas, valuable guidance and encouragement during this period without which, we should not have been able to complete our work successfully

We are obliged to **Sr. Shiny Mole P I, MCA** Head of the Department for her cold hearted support and guidance in the name of lord during our tenure in Mercy College.

It is our privilege to express our heartfelt gratitude to **Mr.SHAMEER V A**, project guide, for being supportive and encouraging during our period of study. Our effusive thanks to **Ms.Sumy T O, Ms.Divya S Nair, Ms.Amitha S** for diligently helping us.

Moreover our parents, family members and well wishers deserve a sincere gratitude for their immaculate support and unstinted inspiration.

SYNOPSIS

The project "Vtrack" is a website for vehicle users. Vehicles have become a necessary need for a human being. Moreover, everyone needs a vehicle for transportation. Without them life would be very difficult .It saves time and also reduces our energy while traveling from one place to another. Today most people are using their own vehicle to travel. While traveling, most of the drivers face trouble as vehicle breakdown causes them to waste their valuable time. When the vehicle breaks down on the road, the driver has to search for a mechanic and have to look for a spare parts shop near their location. At this time if the driver is unable to search for a good mechanic they have to ask someone's help. But that's not always possible. So here comes the solution. Here I am proposing an on road vehicle management system for helping drivers in a virtual manner.

This system provides emergency roadside assistance services round the clock to ensure a pleasurable and uninterrupted journey virtually anywhere. This application is designed to enhance the user experience and to ensure that users get immediate and hassle free service in the event of any vehicle breakdown. This makes possible efforts to locate and direct the nearest service provider to the user's location.

The application doesn't just assure a service in the rare event of a breakdown, but it also helps with all the aspects of a vehicle. You can get a complete report on this system. The system helps you to find your nearby service centers as well as the fuel stations, spare parts shops, workshops in situations like insufficient fuel, puncture, brake failure etc. Users can also record different expenses like insurance, vehicle pollution, tax and test etc. Also a user can download invoices of different transactions and reports.

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INTRODUCTION

1.1 Abstract

In this modern era all can visualize the revolution in the vehicle industry and it is an integral part of today's lifestyle. During these 5 years there is a huge increase in the number of vehicle users. But it's sure that all vehicle users are unaware about the management and maintenance of their own vehicles. Most people own at least one vehicle. However it is a fact that no one pays much attention to things related to vehicles. Therefore, there is a need to coordinate all matters related to vehicles. Here comes the importance of this application which makes the user aware of their vehicle. The goal of this project is to maintain such coordination. This way one can do everything related to their vehicle. The main purpose of this project is to make it available through a single application. This application should provide all the relevant information and make them aware about the expenses incurred due to that vehicle, whether the vehicle is profitable or lost to them, how much tax should be paid and so on.

V Track System has four types: Admin, Users, Workshop, Spare Parts and Fuel. There is only one Admin in this Application. The application is intended to do different major tasks i.e. Track, Order and Search.Track Management keeps track of all the vehicle related transactions.It includes New Vehicle Registration, Listing Vehicles, Checking Availability, Track Vehicles, Order, Calculation, and History. While Fleet Management keeps track of vehicles. It includes Repair and Maintenance Logs, Fuel Logs, Lubricant Logs, Distance Logs, Tax Logs, Tax and Logs details, Test Logs, Parts Changed Records and Vehicle etc. It also keeps track of expenses and bills of the vehicles. Daily Reports can be generated on the basis of these input data collected by user's different types of inputs. User may also print these details if he wants to. It has a Feedback Module where customers of the admin can give their feedback. A customer can also review in different firms.

REQUIREMENTS ANALYSIS

&

SPECIFICATIONS

2.1 System Study

System study is the detailed study of various operations performed by a system and their relationship within and outside the system. It gives the structure and the functioning of the system. System study is done in order to understand the problem and emphasize what is needed from the system. In this step, the main task understands the needs of the system. The information requirements of the user are also determined in this phase. It can be done on an existing system only. The various techniques used in this phase are Observations, Interviews and Discussions.

System study is the process of gathering and interacting facts, diagnosing problems and the information to recommend improvements of the system. Only after the system analysis can we begin to determine how and where a computer system can benefit all users of the system.

The objective of this system is to build emotions that have an important role in our everyday lives, and directly affect decisions, reasoning, attention, prosperity and quality of life of humans. Establishing communication between people is through emotions and facial expressions. Nowadays, With the influence of computers on human lives and the mechanization of lives of individuals, establishment of human and computer interaction has played a crucial and very important role.

2.1.1 Existing System

Online vehicle assistance is not widely available now. Existing does not cover all the details of a vehicle or all the services required for a vehicle. The services provided by existing systems are very limited. It does not contain information on vehicle taxes, insurance, oil, etc., or their renewals. If their vehicles broke down or ran out of petrol or had any mechanical issue in remote locations or any long distant locations, they are unable to provide appropriate services for these issues.

Limitations of Existing System

- We can’t understand whether the vehicle is profitable or not.
- Does not make any alerts about the renewal dates.
- It is not possible to find a suitable mechanic for the desired service at a remote location.
- Completely unaware the services that are available near to them
- There are only few services.

2.1.2 Proposed System

V-track is a site which coordinates all details about a vehicle. One can do everything related to their vehicle through this. It includes the expenses made by the vehicle, services required and so on. If a vehicle had any mechanical issue or broke down or ran out of petrol, users can search their desired service through v-track by giving their location. It will give the nearest location to acquire the service. They can also buy spare parts through this site by ordering. That is access to and the presence of services is made known to the users with Google Maps Navigation System.

It gives full details about insurance, tax, engine oil and it exactly makes alerts as the time draws near its renewal dates. The assistance provided to the travelers are in a wide range where they can enjoy it all in one manner.

Advantages of Proposed System

- Secure registration of user's and mechanics.
- Easy access to the data.
- The site is more user-friendly, reliable and flexible.
- Reduced manual work.
- Search mechanics based on different locations according to their needs.
- User can understand whether the vehicle is profit or not.
- Able to order petrol, spare parts.
- Getting alerts about the renewal dates.
- Users and mechanics can give their ratings.

2.2 Requirements Specification

2.2.1 Hardware Specification

➢ Processor	:	Intel core i3
➢ RAM	:	4 GB or more
➢ Hard Disk Drive	:	500 GB

2.2.2 Software Specification

➢ Operating System	:	Windows 10
➢ Tools	:	Dreamweaver, Wamp
➢ Front End	:	Html, CSS, JavaScript, Bootstrap, Json, Php
➢ Back End	:	MySQL

2.3 Feasibility Study

The feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and time that is spent on it. Feasibility study lets the developer foresee the future of the project and its usefulness. Feasibility study is a test of system proposed regarding its workability, impact on the organization, ability to meet the needs and effective use of resources. Thus when a new project is proposed, it normally goes through a feasibility study before its approved for development.

Steps in feasibility analysis eight steps involved in the feasibility analysis are: Form a project team and appoint a project leader. Prepare system flowcharts. Enumerate potential proposed system. Define and identity characteristics of proposed system. Determine and evaluate performance and cost effective of each proposed system. Weight system performance and cost data. Select the best-proposed system. Prepare and report final project directive to management.

This document provides the feasibility of the project that is being designed and lists various areas that were considered very carefully during feasibility study of the project such as:

- ➢ Technical feasibility
- ➢ Economic feasibility
- ➢ Operational feasibilityeasibility

2.3.1 Technical feasibility

They must be evaluated from the technical viewpoint first. The assessment of this feasibility must be based on an outline design of the system requirement in terms of input, output, programs, procedure and stuff. Having identified an outline

system, the investigation must be go on to suggest the type of equipment, required method of developing the system, method of running the system once it has been designed.

The projects should be developed such that the necessary functions and performance are achieved within the constraints. The project is developed with the latest technology. Though the technology may become obsolete after period of time. Due to the fact that never versions of some support older versions, the system may still be used. So that, there are only minimal constraints involved with this project.

2.3.2 Economic Feasibility

Developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project that will give best return at the earliest. One of the factors that affect the development of a new system is the cost it would require.

Because we used the system, which support Php. Mostly, it does not cause any fault hence maintenance cost to gain. But we can make modifications based on our technological development.

2.3.3 Operational Feasibility

As estimated should be made to determine how much effort and care will go into the developing of the system including the training should be given to the user. Usually, people are reluctant to changes that come in their progression. The computer initialization will certainly affect the multiple person live detections, recognition and prediction. Hence an additional effort is to be made to train and educate the users on the new way of the system.

3. System Design

The most creative and challenging phase of the life cycle is system design. The term design describes a final system and the process by which it is developed. It refers to the technical specifications that will be applied in implementation of the candidate system. The design may be defined as “the process of applying various techniques and principles for the purpose of defining a device, a process or a system with sufficient details to permit its physical realization”.

The designer’s goal is how the output is to be produced and in what format. Samples of the output and input are also presented. Second input data and database files have to be designed to meet the requirements of the proposed output. The processing phase are handled through the program construction and testing. Finally, details related to justification of the system and an estimate of the impact of the candidate system on the user and the organization are documented and evaluated by management as a step toward implementation. The importance of software design can be stated in a single word “Quality”. Design provides us with representations of software that can be assessed for quality. Design is the only way where we can accurately translate a customer’s requirements into a complete software product or system. Without design we risk building an unstable system that might fail if small changes are made. It may as well be difficult to test, or could be one who’s quality can’t be tested. So it Is an essential phase in the development of a software product.

Design is a multi-step process that focuses on data structure, Software architecture, procedural details and interfaces between modules. The design process also translates the requirements into the representation of the software that can be

assess for quality before coding begins. Design is the only way that can be accurately translate a customer into a finished software product.

The most creative and challenging phase of the system development is the system design. It provides the understanding and procedural details necessary for implementing the system recommended in the feasibility study. Design goes through the logical and physical stages of development.

3.1 Users of System

3.2 Module Description

The system comprises of 5 major modules with their sub-modules as follows:

- **Administrator**

  Admin need to login with valid login credentials. They can view all the registered user details and their reports. Admin can search for registered workshops and view their reports. They can also view the spare parts shops and fuel stations and their reports. Admin can view all the feedback given by the user, workshops, fuel stations and spare parts shops.

- **User**

  In this section, user can register if they are a new user else they can login with their credentials. If user forgot the password, they can reset it through the forgot password option. User can set the profile and edit it at any time. They can search fuel stations and order the required fuel. They

can view the invoice. Workshop section will help the user to find the nearest workshops according to their requirements. The current insurance of the vehicle and it's details like date of payment, renewal date will be shown in the insurance section. Also the information of pollution of vehicle and taxes and test will be shown in the pollution section and tax and test section respectively. They can order the required spare parts of vehicle through spare parts section. User can give their feedback accordingly.

- **Workshop**

  Workshops need to register if they are new else they can login with their credentials. If the forget the password, they can reset it by the forgot password and they can edit their profiles. Workshops can register their services of particular vehicles including their amount also. By giving the vehicle type, type of service and location they can find the services. Workshops can give their own feedbacks.

- **Fuel Station**

  Fuel stations need to register if they are new else they can login with their credentials. If the password is forgotten, they can reset it by the forgot password and they can edit their profiles. Fuel station can register their products by submitting the details and also they can search, edit and remove the registered products. The orders and reports will be shown in the orders section and report section respectively. Fuel stations can give their own feedbacks.

- **Spare Parts**

  Spare parts shops need to register if they are new else they can login with their credentials. If the password is forgotten, they can reset it by the forgot password and they can edit their profiles. They can register their products by submitting the details and also they can search, edit and remove the registered products like the fuel stations. The orders and reports will be shown in the orders section and report section respectively. Spare1 parts can give their own feedbacks.

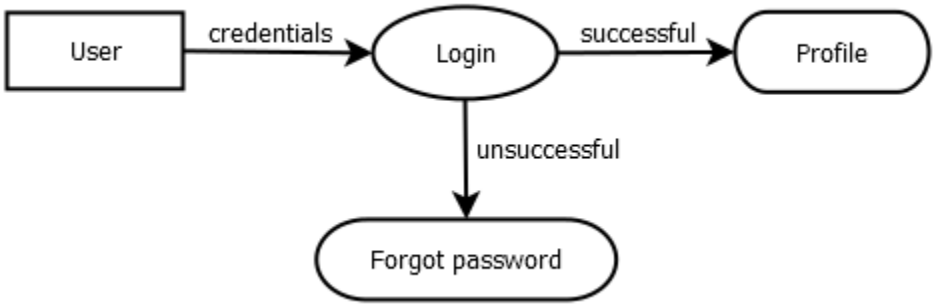
3.3 Architecture Diagram

The architecture diagram is a schematic representation of a collection of ideas that are part of an architecture including its principles, elements and materials. Architecture diagram will support designers and engineers in visualizing a system or application's high-level, overacting layout to ensure the framework addresses the needs of their customers.

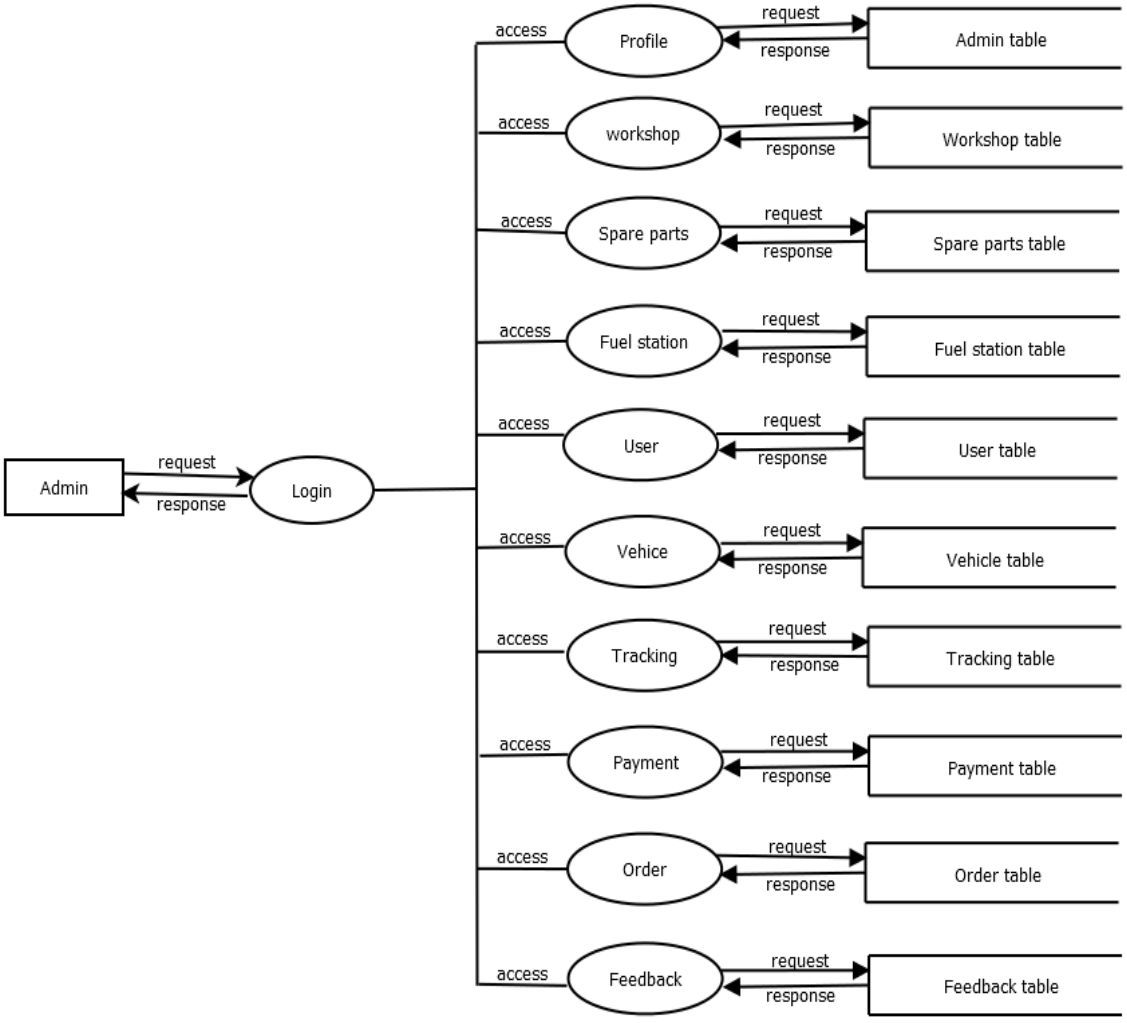
You may also use architecture diagrams to explain patterns which are used in the design. It's a but like a blueprint that can be used as a guide for convenience among your team to discuss, improve and follow.

Data Flow Diagram

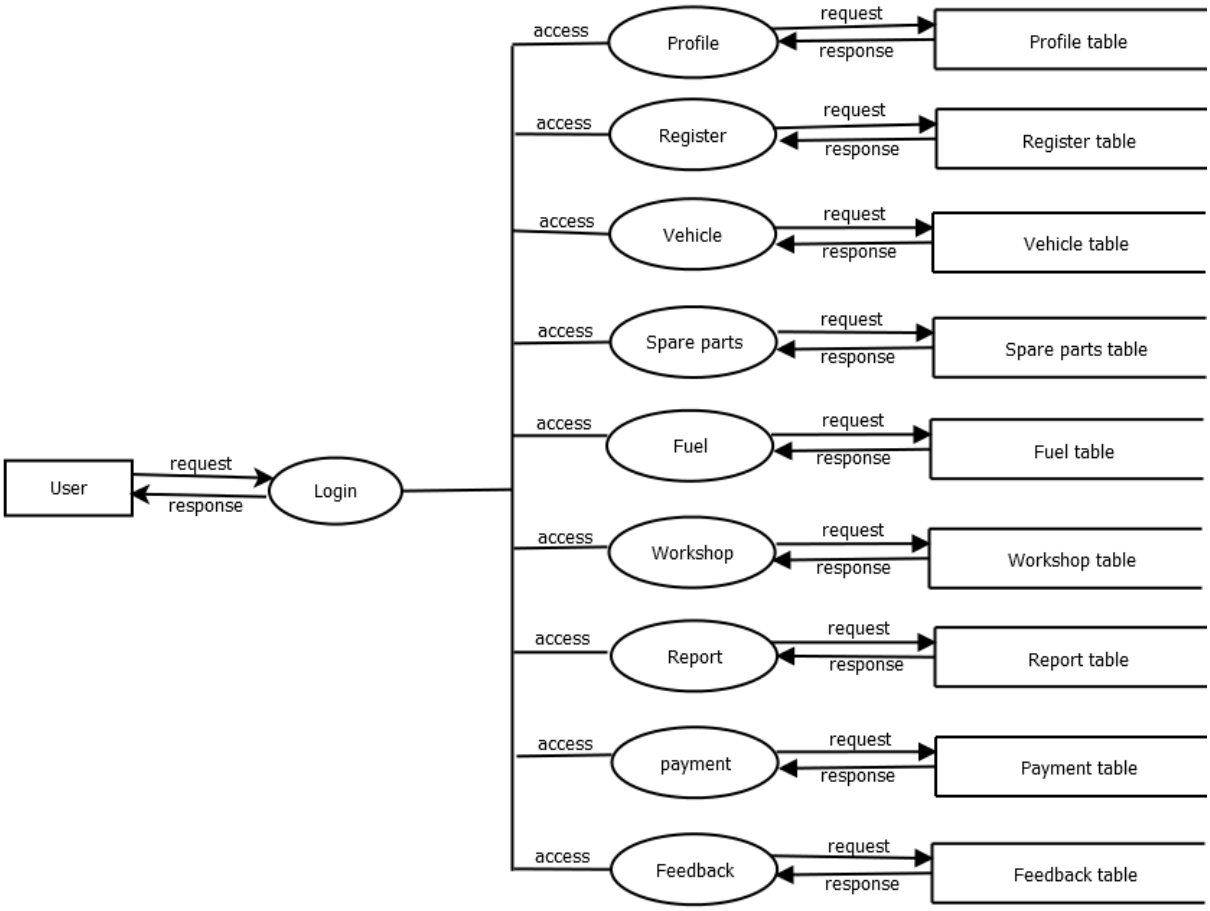
Level 0



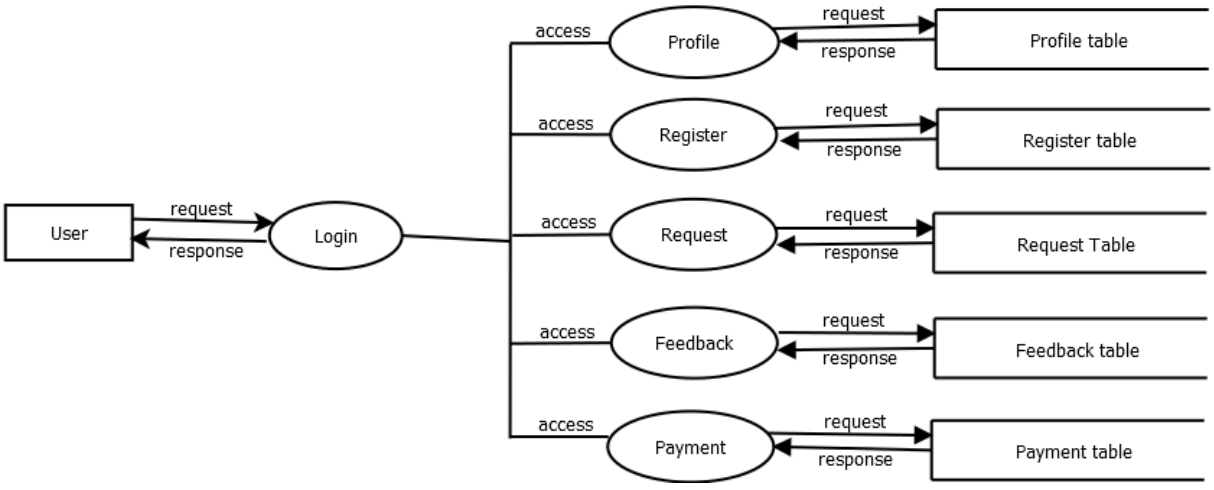
Level 1 Administrator



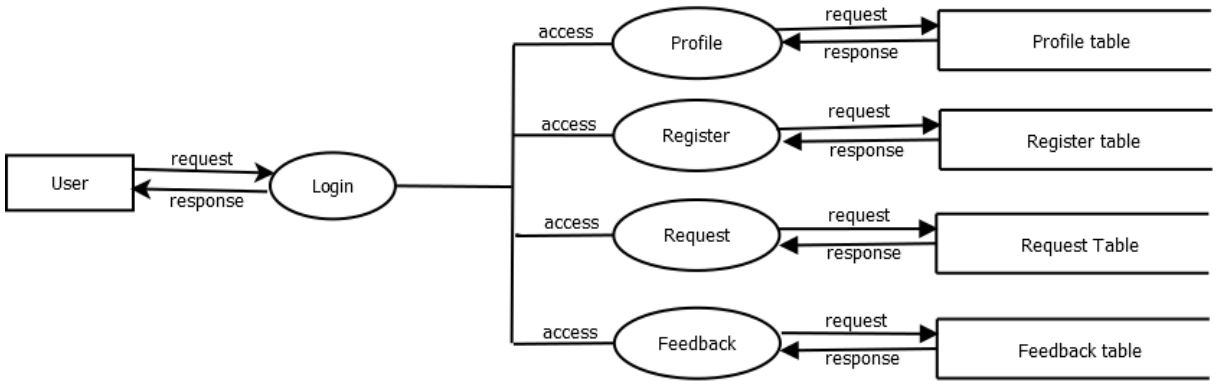
Level 1 User



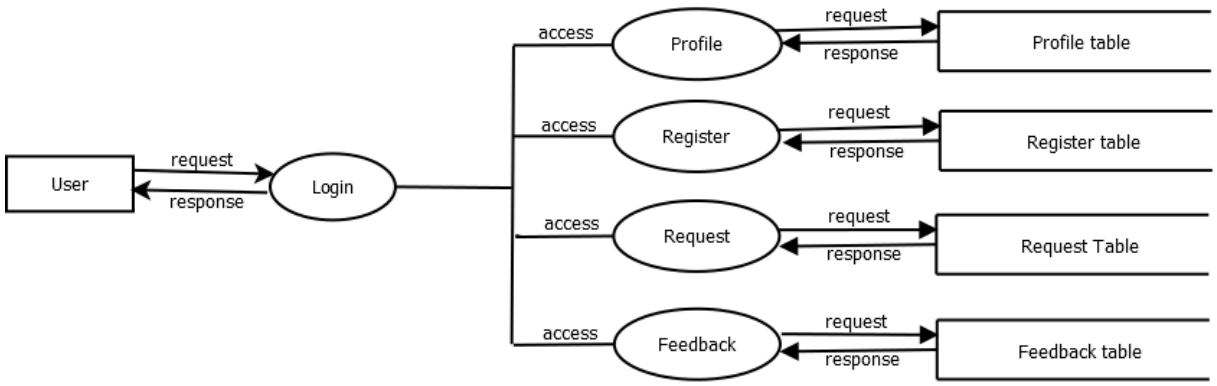
Level 1 Spare parts



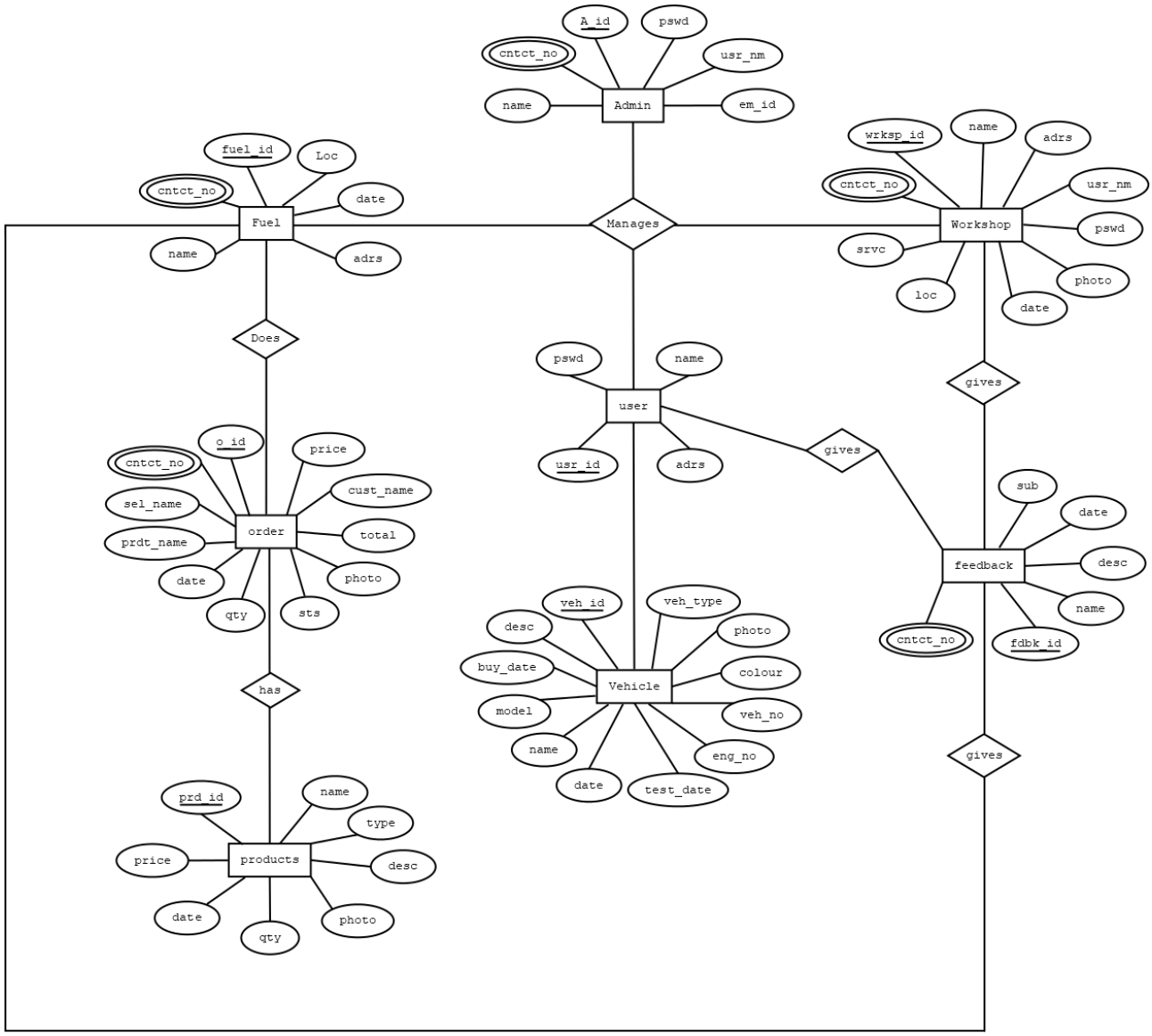
Level 1 Workshop



Level 1 Fuel Station



3.5.1 E-R Diagram



3.5.2 Table Structures

Table Name: Admin

Primary Key: A_id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	A_id	Int	10	Primary key	Administrator id
2	name	Varchar	25	Not null	Name
3	cnct_no	Int	20	Not null	Contact number
4	em_id	Varchar	50	Not null	Email id
5	Usr_nm	Varchar	25	Not null	User name
6	Pswd	Varchar	20	Not null	Password

Table Name: User

Primary Key: Usr_id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	Usr_id	Int	10	Primary key	Workshop id
2	Name	Varchar	25	Not null	Name
3	Age	Varchar	20	Not null	Age
4	Gender	Varchar	20	Not null	Gender
5	Adrs	Varchar	50	Not null	Address
6	Loc	Varchar	50	Not null	Location
7	pin	Int	20	Not null	Pin number
8	cnct_no	Int	20	Not null	Contact number
9	Photo	Text	50	Not null	Photo
10	em_id	Varchar	25	Not null	Email id
11	Pswd	Varchar	20	Not null	Password
12	Date	Date	30	Not null	Date

Table Name: Workshop

Primary Key: wrksp_ id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	wrksp_id	Int	10	Primary key	Workshop id
2	Name	Varchar	25	Not null	Name
3	Adrs	Varchar	50	Not null	Address
4	Loc	Varchar	50	Not null	Location
5	cnct_no	Int	20	Not null	Contact number
6	Srvc	Varchar	50	Not null	Service
7	Photo	Text	50	Not null	Photo
8	Usr_nm	Varchar	50	Unique	Username
9	Pswd	Varchar	20	Not null	Password
10	Date	Date	30	Not null	Date

Table Name: Spare_parts

Primary Key: spr_ id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	spr_id	Int	10	Primary key	Spareparts id
2	Name	Varchar	25	Not null	Name
3	Adrs	Varchar	50	Not null	Address
4	Loc	Varchar	50	Not null	Location
5	cnct_no	Int	20	Not null	Contact number
6	Photo	Text	50	Not null	Photo
7	Usr_nm	Varchar	50	Unique	Username
8	Pswd	Varchar	20	Not null	Password
9	Date	Date	30	Not null	Date

Table Name: Fuelstation

Primary Key: fuel _ id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	fuel_id	Int	10	Primary key	Fuelstation id
2	name	Varchar	25	Not null	Name
3	adrs	Varchar	50	Not null	Address
4	loc	Varchar	20	Not null	Location
5	cnct_no	Int	20	Not null	Contact number
6	Photo	Text	50	Not null	Photo
7	Usr_nm	Varchar	20	Not null	Username
8	Pswd	Varchar	20	Not null	Password
9	date	Date	30	Not null	Date

Table Name: Vehicle

Primary Key: veh_id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	veh_id	Int	10	Primary key	Vehicle id
2	Name	Varchar	25	Not null	Name
3	veh_no	Int	20	Not null	Vehicle no
4	Clr	Varchar	20	Not null	Colour
5	Model	Varchar	20	Not null	Model
6	eng_no	Int	25	Not null	Engine number
7	buy_date	Date	30	Not null	Buy date
8	test_date	Date	30	Not null	Test date
9	Veh_type	Varchar	15	Not null	Vehicle type
10	Photo	Text	20	Not null	Photo
11	Desc	Varchar	100	Not null	Description
12	Date	Date	30	Not null	Date

Table Name: Tracking

Primary Key: trk id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	trk_id	Int	10	Primary key	Tracking id
2	Name	Varchar	25	Not null	Name
3	veh_no	Int	20	Unique	Vehicle number
4	veh_type	Varchar	10	Not null	Vehicle type
5	Sub	Varchar	20	Unique	Subject
6	Amt	Int	20	Not null	Amount
7	Nxt_date	Date	30	Not null	Next date
8	Desc	Varchar	100	Not null	Description
9	Date	Date	30	Not null	Date

Table Name: Products

Primary Key : prdt id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	prdt_id	Int	10	Primary key	Product id
2	Name	Varchar	25	Not null	Name
3	Type	Varchar	20	Not null	Type
4	Qty	Int	50	Not null	Quantity
5	price	Int	50	Not null	Prize
6	Photo	Text	50	Not null	Photo
7	Desc	Varchar	100	Not null	Description
8	Date	Date	30	Not null	Date

Table Name: Order

Primary Key: o_ id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	o_id	Int	10	Primary key	Order id
2	cust_name	Varchar	25	Not null	Customer name
3	cntc_no	Int	20	Not null	Contact number
4	pro_name	Varchar	20	Not null	Product name
5	Qty	Int	30	Not null	Quantity
6	Prize	Int	20	Not null	Prize
7	Ttl	Int	30	Not null	Total
8	Photo	Text	30	Not null	photo
9	sel_name	Varchar	20	Not null	Seller name
10	Date	Date	30	Not null	Date
11	Sts	Varchar	10	Not null	Status

Table Name: Feedback

Primary Key : f_ id

Sl no	Col Name	Data Type	Size	Constraints	Description
1	f_id	Int	10	Primary key	Feedback id
2	Name	Varchar	25	Not null	Name
3	cnct_no	Int	20	Not null	Contact number
4	Sub	Varchar	50	Not null	Subject
5	Desc	Varchar	100	Not null	Description
6	Date	Date	30	Not null	Date

4. Implementation

5. Testing

Software testing is an activity to check whether the actual results match the expected results and to ensure that the software system is Defect free. It involves execution of a software component or system component to evaluate one or more properties of interest.

Software testing also helps to identify errors, gaps or missing requirements in contrary to the actual requirements. It can be either done manually or using automated tools. Some prefer saying Software testing as a white box and Black Box Testing.

5.1 Levels of Testing

The testing procedure that has been used in the system used in as follows:

- **Unit Testing**
- **Integration Testing**
- **Validation Testing**
- **Output Testing**
- **User Acceptance Testing**

5.1.1 Unit Testing

The fist level of testing is called as unit testing. Here the different modules are tested and the specification produced during design for the modules. Unit testing is essential for verification of the goal and to test the internal logic of the modules. Unit testing is conducted to different modules of the project. Errors were noted down and corrected down immediately and the program clarity was increased.

The testing was carried out during the programming stage itself. In this step each module is found to be working satisfactory as regard to be expected out from the module.

5.1.2 Integration Testing

The second level of testing includes integration testing. It is a systematic testing of constructing structure. At the same time tests are conducted to uncover errors with the interface. It need not to be the case, that software whose modules when run individually showing results will also perfect results when run as a whole.

The individual modules are tested again and the results are verified. The goal is to see if the modules integrated between the modules. This testing activity can be considered as testing the design and emphasizes on testing modules interaction.

5.1.3 Validation Testing

The next level of testing is validation testing. Here the entire software is tested. The reference document for this process is the requirements and the goal are to see if the software meets is requirements.

The requirements document reflects and determines whether the software functions as the user expected. At culmination of integration testing, software is completely assembled as a package and corrected and a final series of software test validations testing begins. The proposed system under construction has been tested by using validation testing and found to be working satisfactory.

Data validation checking is done to see whether the corresponding entries made in different tables are done correctly. Proper validation checks are done in case of insertion and updating of tables, in order to see that no duplication of data has occurred. If any such case arises proper warning message will be displayed. Double configuration is done before the administrator deletes a data in order to get positive results and to see that data have been deleted by accident.

5.1.4 System Testing

System testing is a stage of implementation that aims the assurance that the system works accurately and efficiently before live operation commences. System testing makes logical assumption that all the parts of the system are correct; the goal will be successfully achieved. The testing phase is an important part of software development. It performs a critical role for quality assurance and for ensuring the reliability of the software. It is the process of finding errors and missing operations and also a complete verification to determine whether the objectives are met the user requirements are satisfied. The goal of

testing is to cover requirements, design or codding errors programs. Consequently, different levels of testing are employed.

The project "V TRACK -VEHICLE MANAGEMENT SYSTEM" has done the system testing. All modules are combined together to form the entire system and the errors occurred are cleared subsequently.

6.1 Conclusion

It was a wonderful learning experience for us while working on this project. This project took us through the various phases of project development and gave us a real insight into the world of software engineering. The joy of working and the thrill involved while tackling the various problems and challenges gave us a feel of the developers' industry.

We are fully satisfied with the running of the project as it gives expected results and has been proven to be less prone to failure. The project assures easy interaction with the system for users and provides all the functionalities the user expects from the system.

The scope of the project will only increase in future as vehicle management website has begun to be a vehicle users helping method. The projects can be further enhanced by providing an option to link the website with Parivahan and provide more support for users.