

**Web based Vehicle Service Management System**

**For**

**Trinco Automobile**

**T.Matheeban**

**2017**



Web based Vehicle Service Management System  
for  
Trinco Automobile

T.Matheeban  
BIT Registration Number – R092191  
Index Number – 0921912

Name of the supervisor  
Mr. K. Venugoban

**2017**

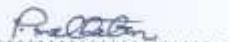


This dissertation is submitted in partial fulfilment of the requirement of the  
Degree of Bachelor of Information Technology (external) of the  
University of Colombo School of Computing

# DECLARATION

## DECLARATION

"I certify that this dissertation does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made available for photocopying and for interlibrary loans, and for the title and abstract to be made available to outside organizations."



Date: 04/11/2017

T.Matheeban

(Name of Candidate)

Countersigned by:



Date: 04/11/2017

Mr.K.Venugoban

(Name of Supervisor)

# **ABSTRACT**

“Trinco Automobile” is one of the major vehicle service stations in Sri Lanka. They have their branches in Trincomalee and Jaffna. Currently they provide booking facility to people through Online based. Nowadays many peoples do not spend more time to purchase services and goods for their daily life. Therefore the buyers would like to purchase services and goods through online based. To full fill that kind of consumers need and to make improvements on company’s business activities, the Trico Automobile Company decided to improve the business trend through online. Because the company is keeping their company records in printed papers and they have found some inconveniences on the traditional paper system to maintain their business.

The “Web based Vehicle Service Management System for Trinco Automobile” is to provide customers to online booking for their vehicle from their places, pay through online with their Credit/Debit cards, ez-cash, and through online banking facility. With the help of this online system “Trinco Automobile” can able to maintain their relationship with their customers through this online system and they are able to maintain their day to day activities such as calculating income and expenditure details, staff details, customers details, and service details.

So they introduced the Web based Vehicle Service Management System to solve above problems. This system development with prototyping is used to develop methodology and design with object oriented concept. This Web based Vehicle Service Management System was mostly been developed using some modern open sourced tools and software. Hypertext Pre-Processor (PHP) which is a powerful server side scripting language has been used for server side scripting along with the Apache web server and MySQL which is relational database management system. The management likes to save the time and decrease the work load by using this system and may help them to achieve their goal. This dissertation was talked about this system and illustrates all the work carried out during the each phase of the project. Each chapter consists of require a details in order to understand the project with help of appropriate figures, graphs and reports.

# **ACKNOWLEDGEMENT**

I developed the effective and efficient system to the Web based Vehicle Service Management System for Trinco Automobile. It was not done easily. I want to thank many people to achieve this success. The Trinco Automobile came and agreement with us to develop the project for their purpose. So we decided to solve their purpose and chosen this system to my BIT project also.

We went to the Trinco Automobile and talked with them and gather information, what are the functions done in manual work, what problems was faced by them and we shared software technology to solve this manual work problem. I discussed this problem with my supervisor and analysis this problem and decided to do this project.

I deepest thanks to, the management of the Trinco Automobile helped me to developed this system and corporate with us to express their problems and listen our solution, our idea and etc. And they gave us permission to implement this software, I would like to thanks Mr Kanesh Venugoban who supervised and guided me with ideas and advice to develop this project, thanks to my family members, friends, other IT teachers, and people who were participating patiently went through this project, without those people it is impossible to develop this system.

Finally I express my sincere thank you to the University Of Colombo School Of Computing (UCSC) for all the support me to finished this project Online reading materials delivery system.

# TABLE OF CONTENTS

DECLARATION .....	ii
ABSTRACT .....	iii
ACKNOWLEDGEMENT .....	iv
TABLE OF CONTENTS.....	v
LIST OF FIGURE.....	viii
LIST OF TABLES .....	xi
LIST OF ACRONYMS .....	xii
CHAPTER 1: INTRODUCTION .....	1
1.1 MOTIVATION .....	1
1.2 OBJECTIVIES OF THE PROJECT .....	2
1.3 SCOPE .....	3
1.4 CRITICAL FUNCTION FOR PROJECT .....	3
1.5 REPORT ORGANIZATION.....	4
CHAPTER 2: ANALYSIS .....	5
2.1 EXISTING MANUAL SYSTEM .....	5
2.1.1 DRAWBACKS OF THE EXISTING MANUAL SYSTEM .....	7
2.2 EXISTING SIMILAR SYSTEM.....	7
2.3 GATHERING TECHNIQUE .....	8
2.4 REQUIREMENTS GATHERING .....	9
2.4.1 REQUIREMENTS ANALISIS FOR THE SYSTEM .....	9
2.4.2 FUNCTIONAL REQUIREMENTS .....	9
2.4.3 NON FUNCTIONAL REQUIREMENTS .....	10
2.4.4 RESOURCE REQUIREMENTS .....	11
2.5 FEASIBILITY STUDY FOR THE PROPOSED SYSTEM .....	12
2.5.1 LEGAL FEASIBILITY .....	12

2.5.2 OPERATIONAL FEASIBILITY .....	12
2.5.3 MARKET FEASIBILITY .....	12
2.5.4 FINANCIAL FEASIBILITY .....	12
2.6 PROCESS MODEL .....	12
<b>CHAPTER 3: DESIGN OF SOLUTION .....</b>	<b>14</b>
3.1 DIFFERENT MODELS IN SOFTWARE ENGINEERING.....	14
3.2 ALTERNATE SOLUTIONS .....	15
3.3 PROCESS DESIGN.....	16
3.3.1 DATABASE DESIGN.....	16
3.3.2 APPLICATION ARCHITECTURE DESIGN .....	18
3.3.3 INTERFACE DESIGN .....	22
<b>CHAPTER 4 IMPLEMENTATION .....</b>	<b>31</b>
4.1 INTRODUCTION .....	31
4.2 IMPLEMENTATION ENVIRONMENT .....	31
4.3 CODE AND MODULE STRUCTURE.....	31
4.4 CODE FEATURES .....	32
4.4.1 DATABASE CONNECTIVITY .....	33
4.4.2 LOGIN .....	33
4.4.3 FORGET PASSWORD .....	35
4.4.4 INSERT CODE.....	38
4.4.5 EDIT THE SUPPLIER DETAILS (UPDATE) CODE .....	39
4.4.6 GENERATE THE ID .....	39
4.4.7 RE-USABLE COMPONENTS .....	40
4.5 SECURITY .....	40
<b>CHAPTER 5 EVALUATION .....</b>	<b>41</b>
5.1 INTRODUCTION .....	41
5.2 TESTING PROCEDURE .....	41

5.3 TEST PLAN FOR OUR SYSTEM.....	42
5.3.1 NEW USER MODULE .....	43
5.3.2 ADMINISTARTION MODULE.....	43
5.3.3 BRANCH MANAGER MODULE.....	44
5.3.4 CLERK MODULE .....	45
5.3.5 CUSTOMER MODULE.....	46
5.3.6 COMMON FUNCTION MODULE.....	46
5.4 TEST DATA.....	49
CHAPTER 6 CONCLUSION.....	51
6.1 PROJECT OBJECTIVES .....	51
6.1.1 THE OBJECTIVES WHICH ARE ACHIEVED .....	51
6.1.2 THE OBJECTIVES WHICH ARE FAILED TO ACHIEVED.....	51
6.2 CRITICAL ASSESSMENT OF PROJECT.....	51
6.2.1 COMPARE WITH EXISTING SYSTEM.....	52
6.2.2 USER SATISFACTION .....	52
6.3 LESSON LEARNT.....	52
6.4 FUTURE WORK.....	52
REFERENCE.....	53
APPENDIX.....	54
APPENDIX A – SYSTEM DOCUMENTATION .....	54
APPENDIX B – DESIGN DOCUMENTATION .....	58
APPENDIX C – USER DOCUMENTATION .....	63
APPENDIX D - MANAGEMENT REPORTS .....	83
APPENDIX E - TEST RESULTS .....	85
APPENDIX F- CODE LISTING .....	89
APPENDIX G- CLIENT CERTIFICATE.....	94
GLOSSARY .....	95

# LIST OF FIGURE

Figure 2.1 Diagram for Management level.....	5
Figure 2.2 Use Case for Existing Manual System .....	6
Figure 2.3 Mitsubishi cars home page .....	7
Figure 2.4 pepboys home page .....	8
Figure 2.5 Rational Unified Process Model.....	13
Figure 3.1 Prototype Model .....	15
Figure 3.2 ER Diagram for Trinco Automobile.....	17
Figure 3.3 Use case Diagram for Trinco Automobile.....	18
Figure 3.4 Activity Diagram for Login.....	20
Figure 3.5 Sequence Diagram for Login.....	21
Figure 3.6 Sequence diagram for booking .....	22
Figure 3.7 Index page .....	23
Figure 3.8 Login page .....	23
Figure 3.9 Forget password.....	24
Figure 3.10 New register.....	24
Figure 3.11 Customer Interface .....	25
Figure 3.12 Available service types .....	26
Figure 3.13 Available service time .....	26
Figure 3.14 Admin Interface.....	27
Figure 3.15 Add new service .....	28
Figure 3.16 Branch Manager Interface .....	29
Figure 3.17 Change password interface.....	30
Figure 4.1 Directories of the system .....	32
Figure 5.1 Acceptance results .....	49
Figure 5.2 Customer Feedback .....	50
Figure A.1 Setup wizard .....	54
Figure A.2 Agreement .....	54
Figure A.3 Folder Location.....	55
Figure A.4 Install .....	55
Figure A.5 In Taskbar .....	55

Figure A.6 Index Page of Wamp Server .....	56
Figure A.7 Welcome Page .....	56
Figure A.8 Database Upload.....	57
Figure A.9 Our Tables .....	57
Figure B.1 Activity Diagram for New User.....	58
Figure B.2 Activity Diagram for Booking.....	59
Figure B.3 Activity Diagram for Report.....	60
Figure B.4 Sequence Diagram for New user .....	61
Figure B.5 Sequence Diagram for booking .....	61
Figure B.6 Network Diagram for network.....	62
Figure C.1 index page .....	63
Figure C.2 Contact page .....	64
Figure C.3 Featured service details.....	64
Figure C.4 Login page .....	65
Figure C.5 Username error message .....	65
Figure C.6 Password error message .....	65
Figure C.7 More than 3 Attempts .....	66
Figure C.8 Forget password form .....	66
Figure C.9 Wrong Telephone number .....	66
Figure C.10 Wrong Telephone number format.....	66
Figure C.11 Send verification code .....	67
Figure C.12 Change Password Interface.....	67
Figure C.13 Wrong Current Password.....	67
Figure C.14 Mismatch New Password.....	68
Figure C.15 Change new Password .....	68
Figure C.16 Admin Menu .....	69
Figure C.17 Add New Staff Form.....	69
Figure C.18 successfully insert staff details .....	70
Figure C.19 Staff View Details.....	70
Figure C.20 Staff details Full view .....	71
Figure C.21 Delete message .....	71
Figure C.22 Add new Branch form.....	71
Figure C.23 Add new Item form.....	72
Figure C.24 Add new Suppliers form .....	72

Figure C.25 Add new Vehicle form.....	73
Figure C.26 Add new Service form .....	73
Figure C.27 Advance payment details form .....	74
Figure C.28 Add new Bill.....	74
Figure C.29 Detailed Bill.....	75
Figure C.30 Add new service time .....	75
Figure C.31 Add New Service Type.....	76
Figure C.32 Compose new message .....	76
Figure C.33 Received messages by admin user.....	76
Figure C.34 Generate reports.....	77
Figure C.35 Branch manager menu .....	77
Figure C.36 Clerk menu.....	78
Figure C.37 Cleaner Menu.....	79
Figure C.38 Customer menu .....	79
Figure C.39 Add New Customer form.....	80
Figure C.40 Customer view .....	80
Figure C.41 Customer full view.....	81
Figure C.42 Customer Edit .....	81
Figure C.43 Add New Service Form .....	82
Figure D.1 Supplier details report.....	83
Figure D.2 Service type details report .....	83
Figure D.3 Service bill details report.....	84
Figure D.4 booking details report .....	84

# LIST OF TABLES

Table 3.1 Narrative for use case .....	19
Table 4.1 Implementation Environment .....	31
Table 5.1 New User Modules .....	43
Table 5.2 Administration Modules .....	44
Table 5.3 Branch manager Module.....	45
Table 5.4 Clerk module.....	46
Table 5.5 Customer Modules .....	46
Table 5.6 Common function module .....	49
Table E.1 Test Results .....	87

# **LIST OF ACRONYMS**

PHP – Hypertext Pre-Processor

CSS – Cascading Style Sheet

OO – Object Oriented

1NF / 2NF / 3NF – First / Second / Third Normal Form

ER – Entity Diagram

DVD – Digital Versatile Disc

GUI – Graphical User Interface

RAM – Random Access Memory

GB – Gigabyte

SMS – Short Message Service

HTTP – Hypertext Transfer Protocol

UCSC – University of Colombo School of Computing

BIT – Bachelor of Information Technology

# **CHAPTER 1: INTRODUCTION**

Jaffna district and Trincomalee district are situated in the Northern and Eastern parts of Sri Lanka. Nowadays the most of the peoples are get the services through online in their daily life. The Trinco Automobile is one of the major leading Vehicle service center in northern and eastern province. Now they are giving online facilities to customers. Through this facilities customers can booking for their vehicle service and also make the payment through online. Through these facilities customers don't waste their time for the waiting.

## **1.1 MOTIVATION**

In the quick growing, competitive business world each individual is incredibly busy with their business thus could not rest even for a second. The customers would really like to get services through online and to full fill that customer's needs. Nowadays the "Trinco Automobile" is keeping their company records in written papers in manual work. They have found some inconveniences on the normal manual work to take care of their daily activities. The "Trinco Automobile" is that the major leading vehicle service company in Trincomalee and Jaffna.

The "Trinco Automobile" Company located in different district. One is located in Jaffna and other one is located in Trincomalee. So "Trinco Automobile" management faces several difficulties in manual works like manage record day to day activities, receive booking from customers, service details, employees' details, manager level details and handles the booking inquiries. As mentioned earlier they facing several bother with the older system once they would like to spot the quick services through online.

So they would really like to implement Web based Vehicle Service Management System to get the booking from customers through online. This project provides effective and efficient web based system for the Trinco Automobile. This Web based system facilitate to minimize the work, increase efficiency of work, identify the day to day Booking and view the daily, monthly and annual reports. The management likes to avoid wasting the time and reduces the work load by using this web based system. And additionally they are available to an agreement with me to develop the project for their purpose. Therefore I have determined to chosen this project for my BIT

project additionally. The developing system can provides a resolution for the problems what they need featured additionally for users or the client further.

## 1.2 OBJECTIVIES OF THE PROJECT

The Company can be able to:

- Develop online booking, Thus increase the company's order level.
- Receives booking alerts through mobile phone to branch managers and Administrator.
- View and printout of daily, monthly and annual reports of the branches.
- Manage staffs details and calculate the staff's salary.
- Make discount to the customer.
- Calculate the vehicle service charge based through booking details.
- Provide better services to customer.
- Communicate among the system through message via email or SMS.
- Get feedback from customers to analysis the company services within the customer point of view.

The customers can be able to:

- Make booking through online.
- Make payments through online (credit card, debit card or ez cash).
- Get the variety of vehicle services and service details.
- By using this system the customer may save their time and money

System can be able to:

- The system provide a user -friendly interface system for Trinco Automobile administration and user of the Trinco Automobile, so this is easy to work for system users without any additional knowledge.
- This system can access in a computer with low memory and low processing power. So this is cost effective system.
- This system has to include authentication rights. So this would be secure method to miss use with any other hackers.

- This system has to include login privilege, Admin level staff only access delete, edit permissions.

### **1.3 SCOPE**

The scope of the project is determined by the allocated time, resources and the client's requirements. Thus, the scope of the proposed Web based Vehicle Service Management System can be summarized as follows:

- The proposed system will provide an overall solution to handle the day-to-day activities related to the Trinco Automobile. This includes activities related to web based booking, web based services details and Human Resources.
- The main deliverables of the system would be Summarised Management Reports, Staff salaries, receive and manage online booking, Make alert through mobile phone to management and customers. Moreover, the proposed system will include record monitoring in different user perspectives and provide a secure system.
- The Intranet system will only be operated by the internal employees. The external interaction concepts like Business to Customer and Business to Business are also implemented in this system.

### **1.4 CRITICAL FUNCTION FOR PROJECT**

- When the customer makes many online booking at a time, it may get delay for the vehicle service depends on the vehicle cleaner's availability.
- Handle inquiries about a booking, services and get payment from online.
- People who ever having the lack of knowledge of Information Technology field they may faced some problem when they used this.
- The Information Technology is a new trend in the northern and eastern province of Sri Lanka therefore may some problem occur during using this system such as how to use a websites and make online payment.

## **1.5 REPORT ORGANIZATION**

The rest of this project is organized as follows. Chapter 2 provides the analysis; this chapter describes the existing system, requirements and feasibility study for the proposed system and the process model used to develop the system. Chapter 3 provides a design including Use case diagram, ER diagram, Activity diagram Sequence diagram of the online reading materials delivery systems and their description. Chapter 4 provides the implementation details, chapter 5 provides the testing procedure, chapter 6 provides conclusion of this project then appendix have some additional documents of this project and last one is glossary.

# CHAPTER 2: ANALYSIS

System analysis could be an important part of software development life cycle. During this analysis chapter we will specialise in this scenario of Trinco Automobile. It'll focus that gathering techniques used to gather issues of current manual system of the company and deliver the goods the project goal. Finally we will compare the existing system with the functional and non-functional requirement of the proposed system.

## 2.1 EXISTING MANUAL SYSTEM

In existing manual system of the company maintains their records in log book. The company divided their manager level into two top level management. They are administrator level, and Regional level management. The customers make booking through telephone and the administrator and staff of the company manage their booking record in manually. Then they gave the information about booking to Branch manager. The management level of the existing system shown in the following Figure 2.1:

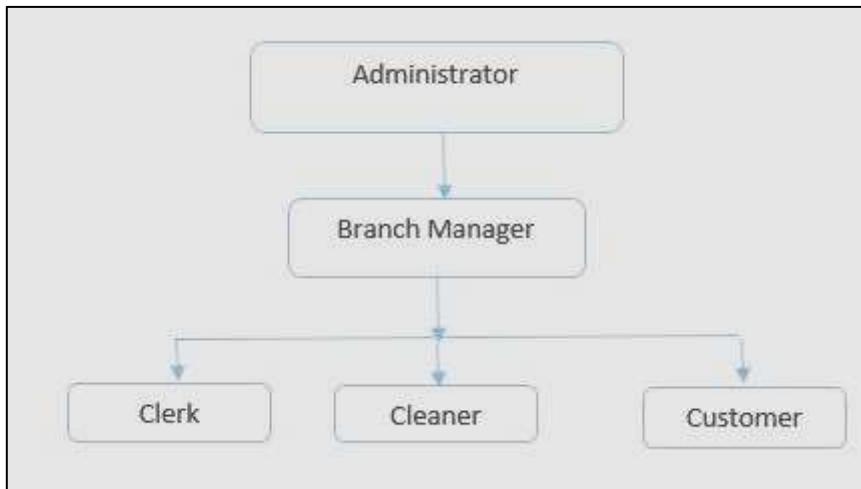


Figure 2.1 Diagram for Management level

This Existing manual system use-case diagram shown in following Figure 2.2:

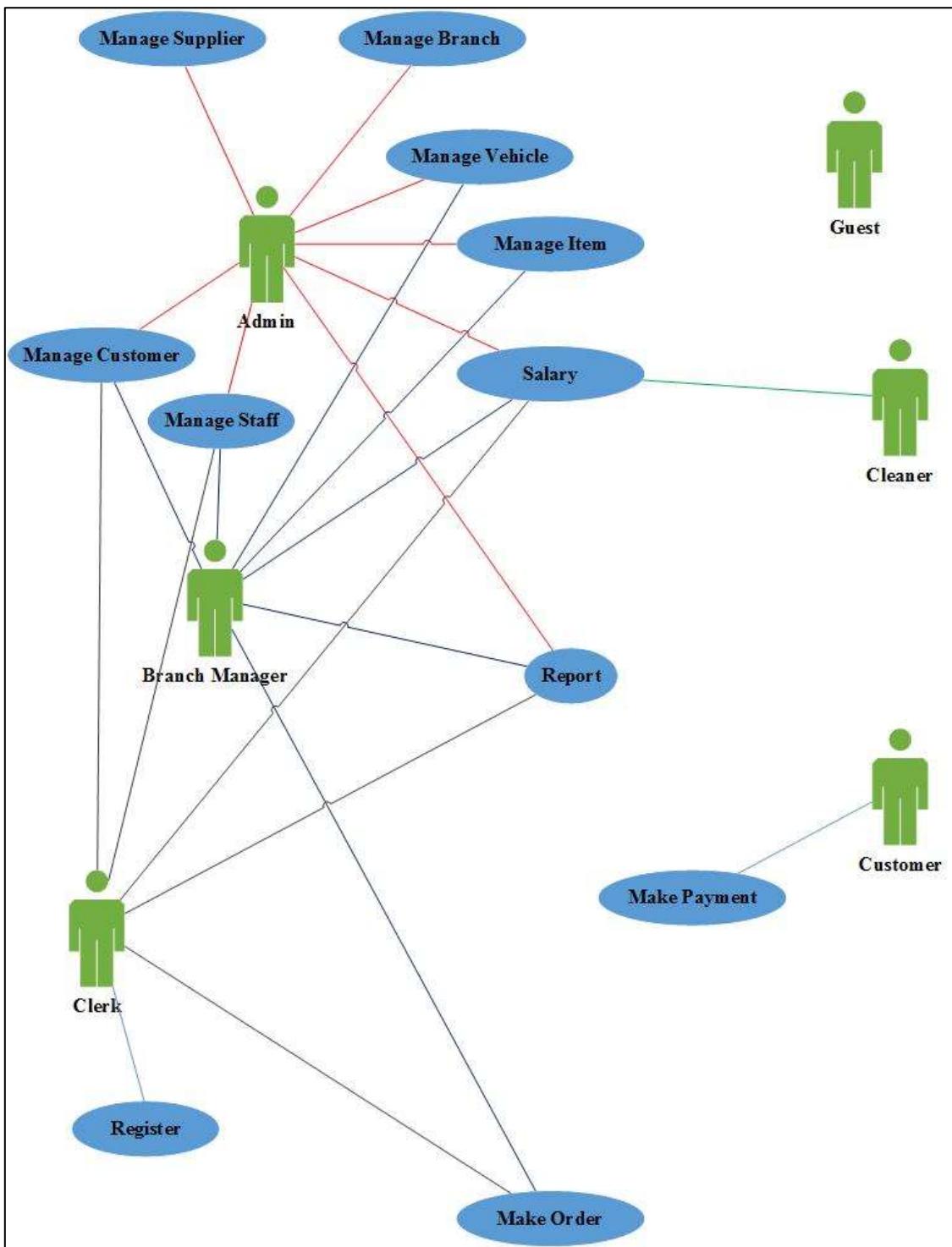


Figure 2.2 Use Case for Existing Manual System

## 2.1.1 DRAWBACKS OF THE EXISTING MANUAL SYSTEM

The following major drawbacks are known within the existing manual management system.

- Hand written contract documents (booking list, payment vouchers, etc.)
- Inflexibility of finding details of booking.
- Confidential data is recorded in a log book.
- No proper customer history and documentation.
- Calculations are done manually.
- Complex monitoring of business progress.
- Poor communication methods with the customers in business.
- Time wasting by paper work.
- No any easy payment methods (online payment, shopping cards) for customer.

## 2.2 EXISTING SIMILAR SYSTEM

This section summarizes various techniques that have been employed closely related with our web based system. This system has some literature reviews that are on sale and services. They gives services through online when we make some booking. They are dealing with services such as, “mitsubishicars”, “pepboys” and etc.

The “mitsubishicars” (<http://www.mitsubishicars.com.sg/>) give facilitate online booking for vehicles services. They have facilitated vehicles selection, select date, select time and make online payment facility using credit card only. The mitsubishicars front page shown following Figure 2.3:

The screenshot shows the Mitsubishi Cars website's service booking interface. At the top, there are logos for Mitsubishi Motors and Cycle & Carriage, with the tagline "WE DRIVE FIRST CLASS". Below the header, there are links for "Book A Service", "Change / Cancel My Bookings", and a search bar. A message box states: "Thank you for using Cycle & Carriage Centralized Booking System (CBS). Created for the convenience of our customers, CBS is an integrated & interactive booking system, which provides hassle-free, instantaneous booking and confirmation of your service appointments. This system allows us to plan our backend operation resources to ensure a shorter waiting time for customers who book in advance." Below this, a navigation bar includes "Particulars", "Select Type", "Select Date", "Select Time", and "Confirmation". A large input field prompts the user to "Please provide your particulars below to book a service". It requires "Vehicle Registration No." (input field with placeholder "e.g. SQT1234X, GV1234X") and "Owner's Identification No." (input field with placeholder "e.g. S1234567X or Passport No. e.g. A1234565"). A note says "Please provide your vehicle registration number" and "Please provide your identification number". At the bottom right is a "Continue >" button.

Figure 2.3 Mitsubishi cars home page

The “pepboys” (<http://www.pepboys.com>) also facilitate online booking for vehicles services. They have facilitated vehicles selection, location selection, select date, select time and make online payment facility using credit card only. They also deliver their services in globally. The flipkart front page shown on following Figure 2.4:

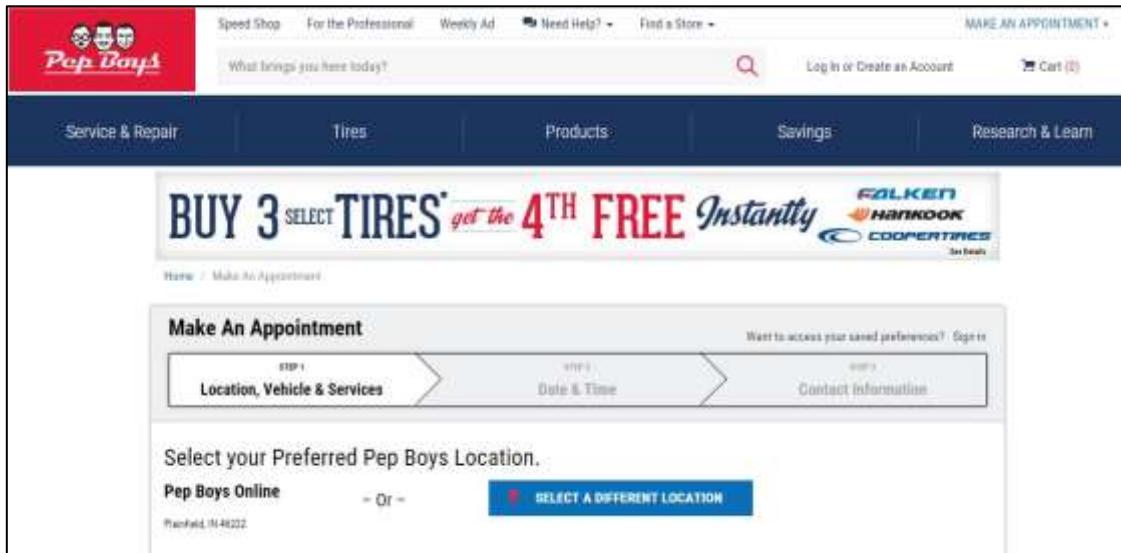


Figure 2.4 pepboys home page

Thus, there are no proper systems available in the literature for web based Vehicle service management system and with other easy payment method (ez-cash) in Sri Lanka.

### 2.3 GATHERING TECHNIQUE

In the software development, analysis part is very important to collect correct and accurate requirements for this system and analysis the requirements and identify the solution. Some information gathering techniques use for collect the requirements are available such as, interviews, observation, questionnaires, site visit and etc. but in this study used the interviews, observation and site visit to find requirements.

An interview is a formal face to face meeting with two or more peoples. It is primary technique for information gathering during the system analysis, we met the client to interview with them and asking about the manual system of their company. From this technique user involvement is high and they easily interact with the system and we collect the clear business objectives. A questionnaire is mostly used to collect information from large number of people for same questions, this approach not necessary to this system.

Direct observe of work performance is an excellent means gathering data. It is useful if the user is not able to clearly explain what they do or their requirements can see ideas for improving process from their work. From site visit, we directly got to work place and observe their work and ask questions about their work, discuss the problems of their system and gather information. From these techniques we clearly identify the requirements, problems of the current manual system.

## 2.4 REQUIREMENTS GATHERING

Requirements gathering are the process of addressing the needs and conditions of the new system.

### 2.4.1 REQUIREMENTS ANALYSIS FOR THE SYSTEM

As mentioned earlier, from information gathering techniques we analysis their process, inquires the booking and services, maintained the data, manager level details and etc. The management responsible for the customer booking. When they receive booking from customers via telephone or personally have inquiry about the booking and send the information to the regional manager. Then they assigns the particular date and time to customers. Cash payments, booking details, customer data recorded on paper and stored in the system based on file.

In their manual system they have manager level department. All the records stored in papers by manual. There is data duplication, not sure about correct data such as staff details, salary details and etc. If they do not have accurate information it is very difficult to manage their records. From evaluate their current manual system they spent waste of time to their work.

### 2.4.2 FUNCTIONAL REQUIREMENTS

Functional requirements capture the intended behavior of the system. This behavior may be expressed as services, task or functions the system is required to perform. In product development, it is useful to distinguish between the baseline functionality necessary for any system to compete in that product domain and features that differentiate the system from competitors.

Requirements of the Trinco Automobile:

- Entering and storing the details of customers and booking.
- Make friendly Graphical User Interface (GUI).

- Obtaining detailed report view and printouts
- Obtaining periodical report view and printouts.
- Updating the online customer profile.
- Sending promotional information to the customers via SMS, E-mail.
- Advertising business promotional details.
- Blacklisting customers.
- Alert news.
- Calculate salary.
- Get users feedback.

Requirements for customer:

- Customers can search the service station near their area.
- Customers make booking through online.
- Customer make payment through online payments
- Finding their booking status.
- Update the profile.
- Make feedback.
- Receiving promotional information from the company via SMS, E-mail.

#### 2.4.3 NON FUNCTIONAL REQUIREMENTS

Non-functional requirements in system engineering and requirements engineering, a non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors.

- Accuracy and consistency, these are very important non-functional requirements that should be considered when storing the details of customers and company calculating values.
- Reliability, this is a non-functional requirement of the system users. There should be trustworthiness between the users and the system.
- Usability, should be very much important in this project when developing the online user profile to the customers.
- Reusability and maintainability, in a case where the system needs any changes in the future, it should not be a tricky task. Proper

documentation and using standard methods when developing the system will ensure this non-functional requirement.

- Security, there should be superior security mechanisms since the system stores very confidential information such as details of user profile, password of the customers and company account.
- Authorized person only login into our system.
- Easy to access the system.
- Reduce the labor cost and time.
- Increase the sales and marketing.
- Reduce the labor cost and time.

#### 2.4.4 RESOURCE REQUIREMENTS

##### **Hardware requirements:**

- Pentium 4 computer or above.
- Basic printer.

##### **Software requirements:**

For development purpose:

- Operating system.
- Wamp server (PHP 5.4.12, MySQL 5.6.12, Apache 2.4.4)
- Adobe Dreamweaver CC
- Adobe Photoshop cs5
- CSS
- JavaScript
- Microsoft Word
- MySQL Workbench 6.0.8 CE
- Microsoft Project 2013
- Microsoft Visio professional 2013
- Browsers

For development purpose:

- Operating system
- Browsers

### **Other requirements:**

- Internet connection
- Webhosting and Domain

## **2.5 FEASIBILITY STUDY FOR THE PROPOSED SYSTEM**

Feasibility study is a process, in order to discover the strengths, weaknesses, opportunities and threats of a proposed system to full fill the main business needs. A detailed study of feasibility has been made regarding this system following facts.

### **2.5.1 LEGAL FEASIBILITY**

Since the proposed systems is a customer booking through the online system, by Trinco Automobile, it has been analyzed to ensure that the system is in accordance to the customer act of Sri Lanka.

### **2.5.2 OPERATIONAL FEASIBILITY**

The proposed system functions were analyzed to see whether they accomplish the business requirements.

### **2.5.3 MARKET FEASIBILITY**

The proposed system will operate in Trinco Automobile situated in Jaffna district and trincomalee district where there is a huge demand for their business. The system is capable of facing the market demand.

### **2.5.4 FINANCIAL FEASIBILITY**

The system is fully web based with very low hardware, maintenance and IT costs.

## **2.6 PROCESS MODEL**

“The Rational Unified Process is a Software Engineering Process. It provides a disciplined approach to assigning tasks and responsibilities within a development organization. Its goal is to ensure the production of high-quality software that meets the needs of its end-users, within a predictable schedule and budget.” The Figure 2.5 Iterative Model graph shows how the R.U.P process is structured.

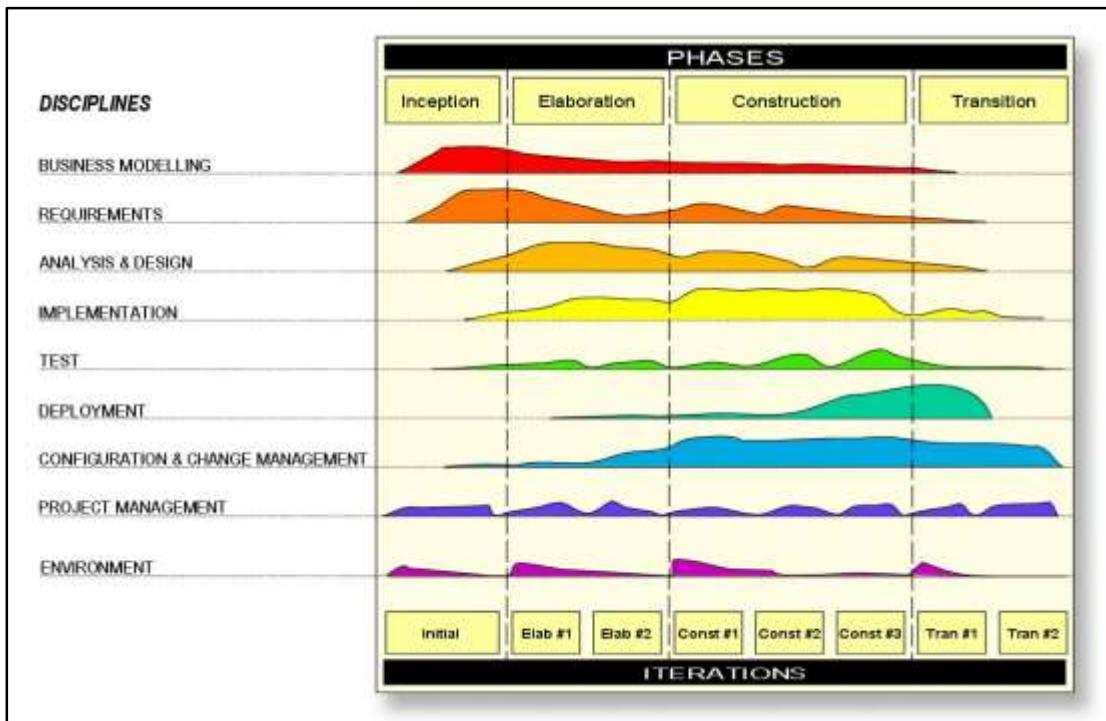


Figure 2.5 Rational Unified Process Model

# CHAPTER 3: DESIGN OF SOLUTION

The system design is the process of defining the architecture, components, modules, interfaces and data for a system to meet the specified requirements. In this chapter, drawing, describes various models of approach and methodologies that can be used for the developed system.

## 3.1 DIFFERENT MODELS IN SOFTWARE ENGINEERING

In the automation, to a methodology developed in making an information system, the more robust it is required and also to provide a validated system to the client. A validated system is one that has no flaws and meets the requirements of the client. A system development methodology is a very formal and precise system development process, which defines a set of activities, methods, best practices, services and automated tools for system developers and project managers to use to develop and maintain an information system [1].

There should be plenty approach as waterfall model, incremental model, rapid application development, prototype model and etc. The waterfall model is suitable for projects that have clear and stable requirements. It has the ability to cascade effects one stage to another stage in leaner cycle development process best suited for where clearly defined requirements [2].

Incremental model, whole system is divided into separate sub-system and these sub-systems implemented separately. In this approach each sub-system is developed separately and development liner approach. This system used for large and complex system. The rapid application development one of the incremental method, it based on technique that speedup the system development with high user involvement [3]. The prototyping [4] model is better understanding on how to develop the system. It helps to clarify the requirements that are stable or unstable requirements. It has two types, one is throw-away prototype [5] it is suitable for vague and stable requirements and another type is evolutionary prototyping [6] that suitable for vague and unstable requirements. We used the evolutionary prototyping model to development our system.

The prototyping model shown following Figure 3.1:

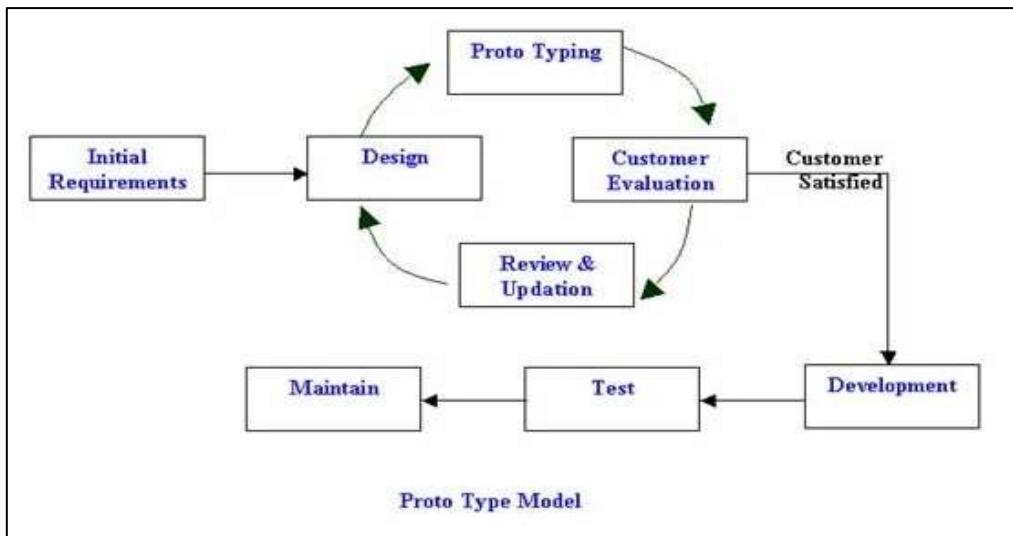


Figure 3.1 Prototype Model

### 3.2 ALTERNATE SOLUTIONS

In developing software throughout the system basically divided into three categories that are standalone, network based and web based systems.

The **standalone system** more suitable for running in with small area with personal computers and workstations, so that the run standalone application only a specific environment. In this system can test the application substantially complete in categories such as GUI, functionality, load and backend (database).

The **network based application** usually developed for local area network (LAN). Depending on the network, the application is loaded on the server computer, while the exe application on each client machine. In this system can test extensively in categories such as, GUI on both sides, the functionality, load, client server interaction and backend (database). This environment is mostly used in intranets. In network based application in connected mode, menu driven and has limited number of users can access.

The **web application** is accessed over a network connection using HTTP. Application is loaded on the server whose location may or may not be known and no exe is installed on the client machine, you have to test it on different web browser. An application in which all or some parts of the software are downloaded from the web each time it is run in user's web browser. The web based application is Uniform Resource Locator (URL) driven; disconnected mode and unlimited number of users can access the application from any various places.

In this system develop as Web based Vehicle Service Management System for Trinco Automobile because the Trinco Automobile has many branches and many customers in various places, they want to access the system in their places. The Trinco Automobile like to centralized the backend (database) in their head office and provide the system to all users in simultaneously. For these reasons the Trinco Automobile has decided to develop the system in web based.

### 3.3 PROCESS DESIGN

The design gives the solution for requirements analysis, based on this design to develop the system. This design was divided into three stages:

- Database design
- Application architecture design
- Interface design

#### 3.3.1 DATABASE DESIGN

Database design is done through data modeling. The database designing is done to specify the structure of the object of the system. To avoid the data redundancies the every table of the database were normalized to third normal form.

In normalization there is several level of normal form but we mostly used first three normal form. First normal form (1NF), eliminate duplicative columns from the same table and create separable tables for each group and identify the unique column or set of columns it is called as primary key for that table. Second normal form (2NF), if any non-key attributes are functionally depended on just a part of the key was remove and create separate table and connect both table with foreign key. Thus 2NF can only be violated only when a key is composite key. Third normal form (3NF), remove columns that are not depend upon the primary key.

After third normal form most of the table mostly avoids the data redundancy, if any additional other normal form will be used. The ER diagram drew by MySQL Workbench 6.0.8 CE shown following Figure 3.2:

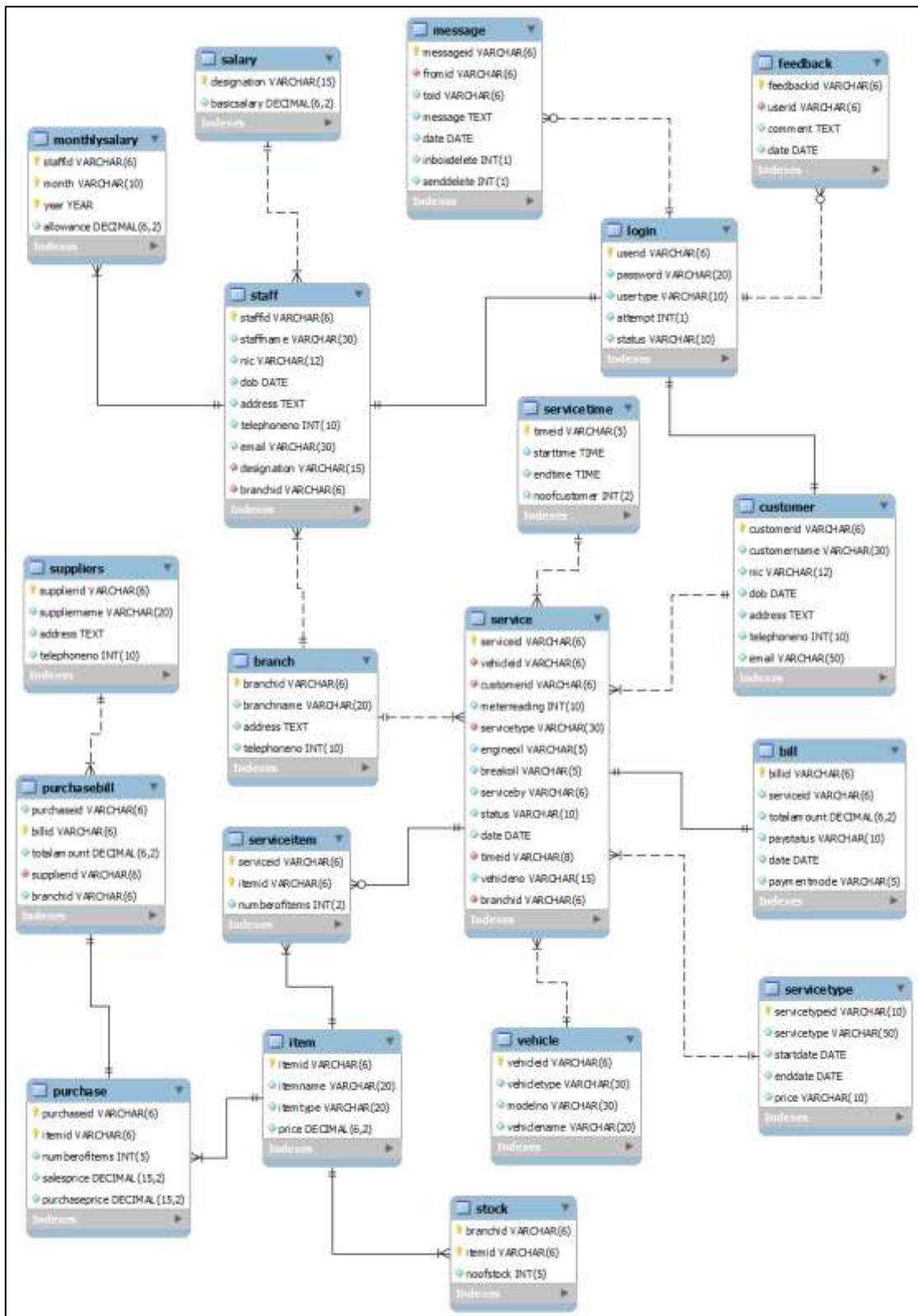


Figure 3.2 ER Diagram for Trinco Automobile

### 3.3.2 APPLICATION ARCHITECTURE DESIGN

This design describes the functionality and task of the system are connected into sub system. In this design we draw activity, class, sequence and use-case diagram. Other use case, class, activity and sequence diagrams are drew using the Microsoft Visio Professional 2013.

#### Use-case diagram:

It is simply represent the user's interaction with the system, summarized the relationship between use-cases, actors (users) and systems. This system use-case diagram shown in following Figure 3.3:

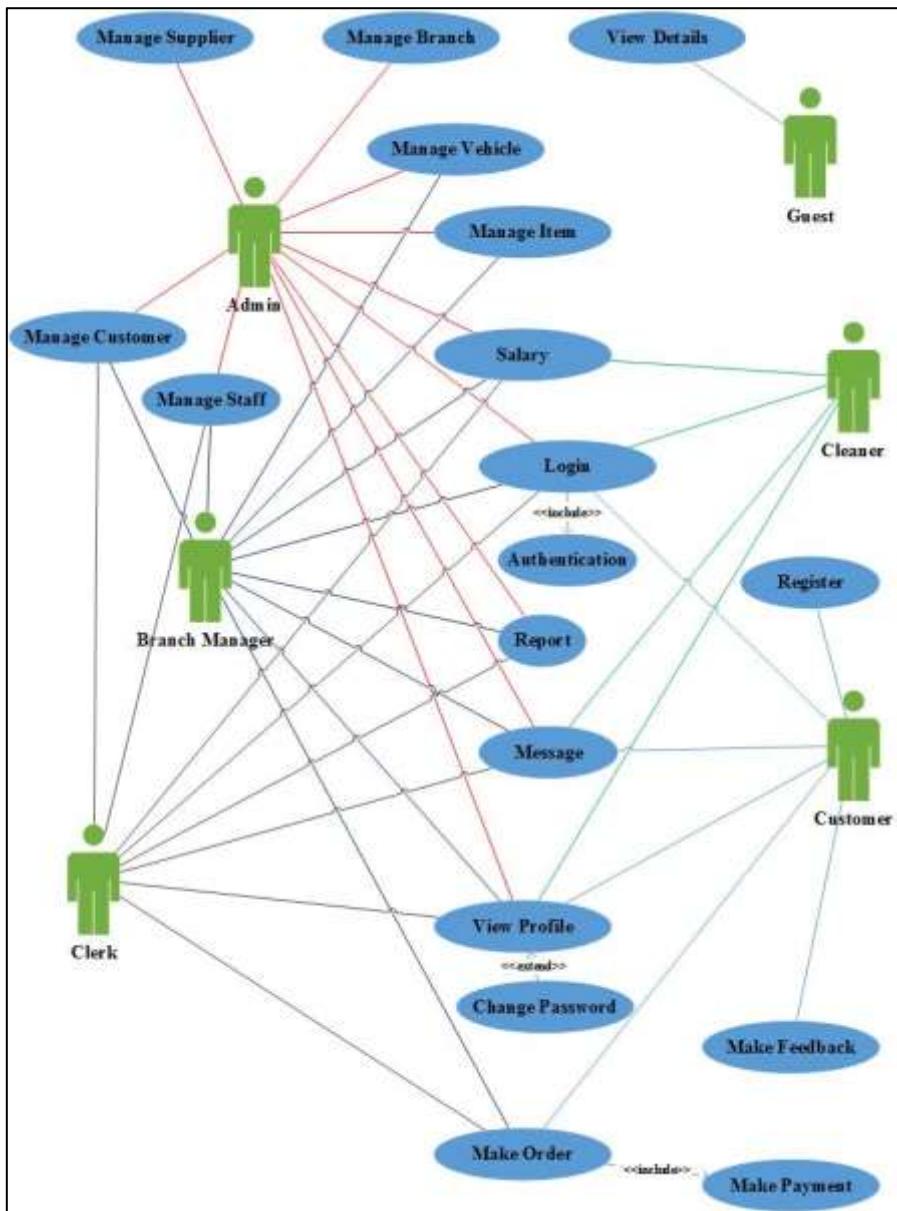


Figure 3.3 Use case Diagram for Trinco Automobile

**Use-Case narrative:**

The use-case narrative for above use case Figure 3.3 is shown in the following Table 3.1:

Use Case	Actor	Description
Login	Admin, Guest, Branch Manager, Clerk, Cleaner, Customer	The users who are registered in the system have to enter their username and password to open the system. At that time username and password will be authenticated.
Make Booking	Admin, Branch Manager, Clerk, Customer	All the users can search service details, service time, available details and etc, when they make booking they want login into this system; after login they can make booking and settle their advance payment via ez cash and system will confirm their appointment.

Table 3.1 Narrative for use case

### Activity diagram:

This diagram represents the graphical view of workflows of stepwise activities in the system. We drew activity diagram for login, new user and booking. Activity diagram for login is shown on following Figure 3.4:

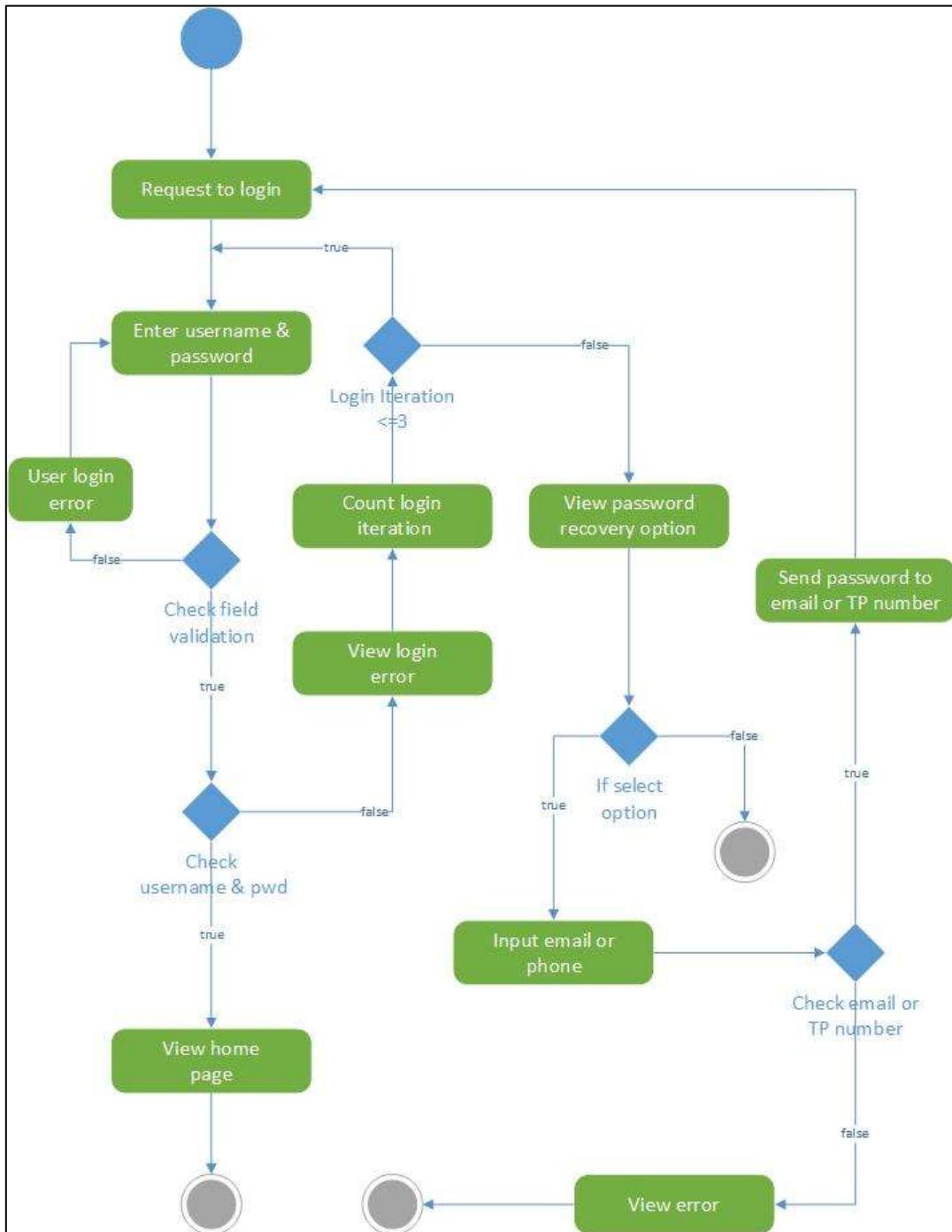


Figure 3.4 Activity Diagram for Login

### Sequence diagram:

This diagram represents how objects interact in given situation or activity. The sequence diagram drew for login, new user and booking process. Sequence diagram for login is shown on Figure 3.5:

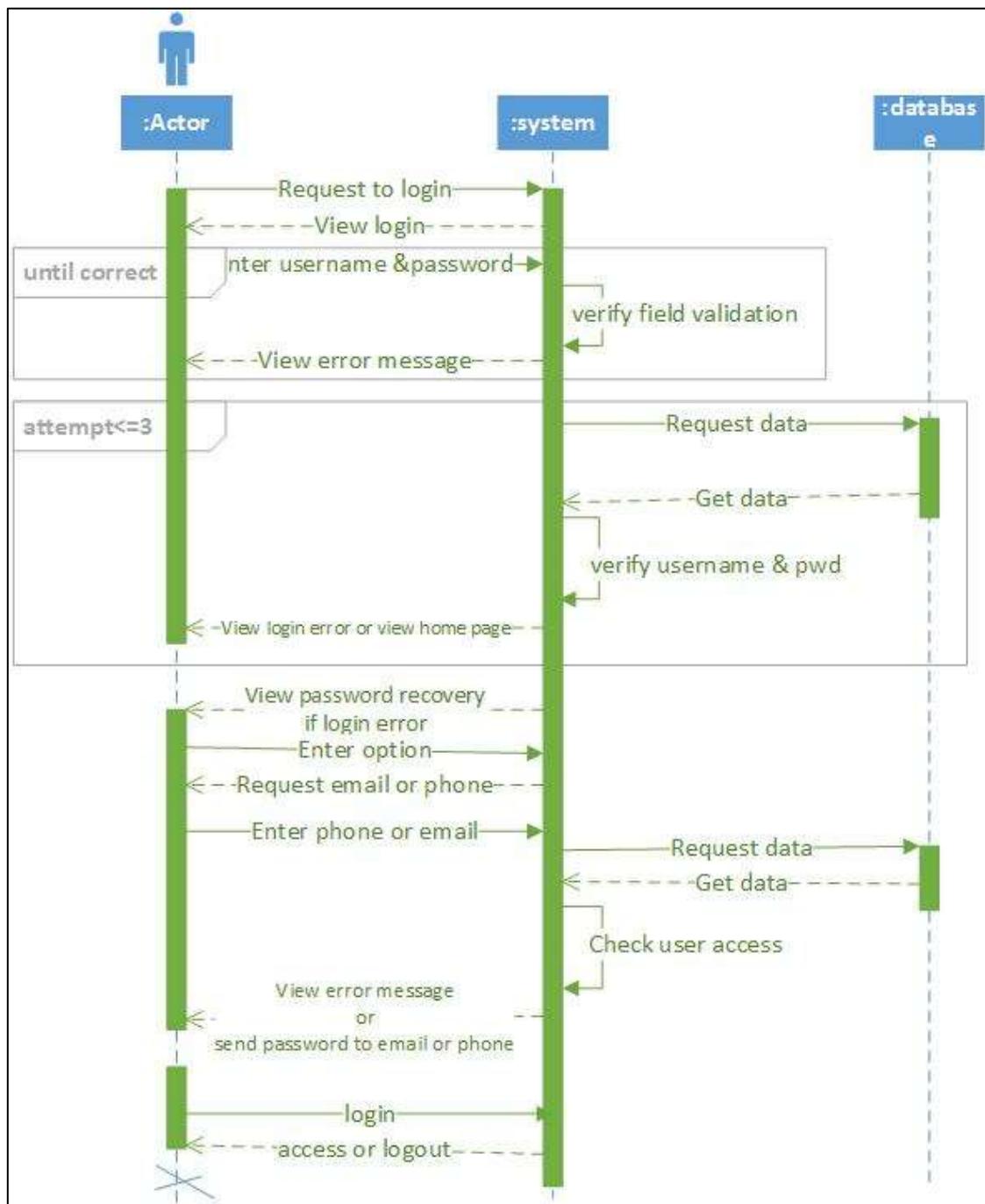


Figure 3.5 Sequence Diagram for Login

Sequence diagram for booking process of this system shown in Figure 3.6:

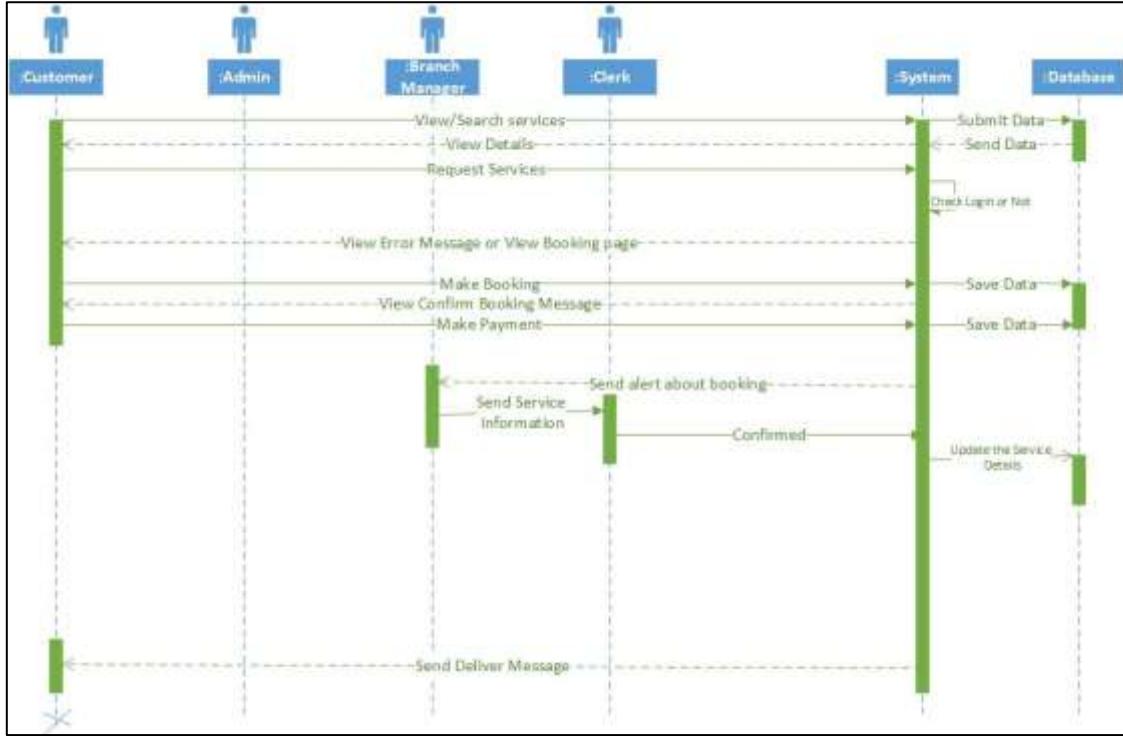


Figure 3.6 Sequence diagram for booking

### 3.3.3 INTERFACE DESIGN

In this Interface Design section we provide the user interface of our Web based vehicle management system. The user interfaces are very user friendly and easy to access. This system consists of icons, button and navigation to provide easy and better access to the system by the user.

#### Main screen

The following Figure 3.7 Index Page, show the home page of our system. This index page named as Guest menu. In home page, there are some tabs Admin, Management, Service, About, Contact and Login. The Admin tabs, displays as Index Page. In Management tabs, displays the branches, item and vehicles details. Service tabs displays the service types and service time details. In about tabs, describe about the Trinco Automobile. In contact tabs contain contact details about Trinco Automobile. Finally Login tabs, facilitates the new user to register their details in our system.



Figure 3.7 Index page

### Login page

The login permits the user to have access to the system. Login is shown on following Figure 3.8 Login page.

The screenshot shows a login form with a dark green background and a light blue header bar. The header bar contains the text 'Enter your username and password' in white. Below the header are two input fields: one for 'Type your username' and another for 'Type your password', both with placeholder text. At the bottom of the form are two buttons: a red 'Submit' button on the left and a green 'Forgot Password' button on the right.

Figure 3.8 Login page

## Forget Password

In forget password form, enter the registered mobile phone number. If any wrong input, the system will provide error message. In telephone field can only insert telephone number other than cant' type no any text. Refer in Figure 3.9.

Enter your valid Phone Number

ST001

Enter Your Phone Number

Submit   Go Login

Figure 3.9 Forget password

## New Register

If the guest want to register as a new customer that time also add new dialog box will be displayed. Refer in Figure 3.10.

Add New customer Details

Customer ID	CU009
Customer Name	Enter your Name
NIC	Enter your NIC Number
Date of Birth	mm/dd/yyyy
Address	Enter your Address
Telephone Number	Enter your Telephone Number
Email	Enter your Email Address

Go Back   Reset   Submit

Figure 3.10 New register

## Customer Interface

After user login as customer the customer interface screen show the customer menu page and common body page. The customer interface screen is shown on following Figure 3.11 Customer Screen.



Figure 3.11 Customer Interface

The customer menu page has some tabs such as Customer, Service, Profile, About, contact and logout. The customer link is navigating the interface to main screen. The service tabs provides the branch, item, vehicle, service, service item, service type, service time and bill details. The service type link shows the available types of services. Through the service time link customer can easily identify the service times. The Item link shows the available vehicle service items in Trinco Automobile. The service link provide a booking form for book through online. The message link provides the message details of that login customer. The feedback link provides the customer to feedback about booking or our Trinco Automobile.

## Available Service types

This service types displayed with service type id, service type and price. Admin user can only use the view, edit and delete button. Other users can only use view button. Refer in Figure 3.12.

Service type Details				
<a href="#">New</a>				
10 ▾ records per page Search: <input type="text"/>				
Servicetype ID	Service type	Price	Action	
SVT001	Quick Wash	750	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
SVT002	Detailed Wash	1500	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
SVT003	Wash & Wax	2000	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
SVT004	Auto Wash	1000	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
SVT005	Exterior detail	1500	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
SVT006	Interior detail	1500	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
SVT007	Full Package	3000	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	

Figure 3.12 Available service types

## Available Service time

This service time view displayed with time id, start time, end time and number of customers. Admin user can only use the view, edit and delete button. Other users can only use view button. Refer in Figure 3.13.

Service time Details					
<a href="#">New</a>					
10 ▾ records per page Search: <input type="text"/>					
Time ID	Start time	End time	Number of customer	Action	
T1001	07:00:00	09:00:00	5	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
T1002	09:00:00	11:00:00	5	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
T1003	11:00:00	13:00:00	5	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
T1004	13:00:00	15:00:00	5	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
T1005	15:00:00	17:00:00	5	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
T1006	17:00:00	19:00:00	5	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	

Figure 3.13 Available service time

## Administration Interface

After user login as admin the Administration interface show the administration menu page and common body page. The administration interface is shown on the following Figure 3.14 Administration Screen.



Figure 3.14 Admin Interface

The Admin menu page has some tabs such as Admin, Management, Service, Staff, Profile and logout. The Admin link is navigating the interface to main screen. The Management tabs provides the branch, item, purchase, purchase bill, suppliers, vehicle, and salary details. The service tabs provides the customer, service, service type, service time, service item and bill details. The staff tabs provides the staff details, salary and monthly salary details. The service link shows the service details of each customers. The service type link shows the available types of services. Through the service time link admin can easily identify the service times. The Item link shows the available vehicle service items in Trinco Automobile. The service link provide a booking form for book through online. The message link provides the message details of that login customer.

### Add new service

Through the service link, admin, manager, clerk and customer can create the add new service details. The Add new button also view with this information. When the admin user click add new paper button, add new dialog box will be displayed. Refer in Figure 3.15.

Add New Service Details	
Service ID	SV005
Branch Name	Select The Branch
Vehicle Name	Select the vehicle
Customer Name	Select The Customer
Vehicle Number	
Service Type	Select The Service Type
Date	09/27/2016
Time	Select The Time
Meter Reading	
Engine Oil	Yes
Break Oil	Yes
Status	Pending
	<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>

Figure 3.15 Add new service

## Branch Manager Interface

After user login as branch manager the branch manager interface has branch manager menu page and common body page. The branch manager interface is shown in following Figure 3.16 Branch Manager Screen.



Figure 3.16 Branch Manager Interface

In Branch manager menu page has some link such as manager, Management, Service, Staff, Profile and logout.

In profile link, there is an additional link for change password. As usual this change password link include the current password, new password and retype new password. The system will check enter correct current password or not first and then check new password and retype new password are same or not. The system only allow the password character is more than six. If we make wrong input, system will provide a message. Refer in Figure 3.17.

Change Password

User Name	ST001
Current password	<input type="password"/>
New password	<input type="password"/>
Re Enter New password	<input type="password"/>
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>

Figure 3.17 Change password interface.

# CHAPTER 4 IMPLEMENTATION

## 4.1 INTRODUCTION

After the design stage, this is the core phase where the system was being constructed as a working one according to the design planning and the client's requirements. The system has been developed by using the adequate tools and techniques which were discussed in the design stage. During the implementation stage the system was being designed as unit by unit and at the end of this stage, all the unit modules were integrated as a complete working system.

In this chapter, the implementation environment, hardware/software requirements, tools & techniques used and codes of the major components are going to be discussed. While coding the system, using appropriate, meaningful comments with the codes is a good habit. The comments can be used for rework or future implementation on the system.

## 4.2 IMPLEMENTATION ENVIRONMENT

The system implementation environment includes the basic hardware and software requirements to develop the system successfully. The table 4.1 illustrates the implementation environment (Hardware and Software environments) which was used for implementing the Web based Vehicle Service Management System for Trinco Automobile.

Software Environment	Hardware Environment
Microsoft Windows 8.1 Pro (x64)	Intel <sup>(R)</sup> Core <sup>(TM)</sup> i3 CPU M380 @ 2.53GHz
PHP (version 5.5.12)	2 GB RAM (DDR3)
Apache 2.4.9	320 GB HDD
My SQL 5.6.17	Intel <sup>(R)</sup> HD Graphics Card

Table 4.1 Implementation Environment

## 4.3 CODE AND MODULE STRUCTURE

In this system, code and modules divided into user management, booking management, staff management. User management considers about add new customer or staff and manage their profile and change password.

Booking management considers about service booking through branch wise. In staff management considers about manage staff. In booking management consider about send details of the booking to branch manager and send verification code to customer.

The directories of the system are arranged like Refer in Figure 4.1. With all the core components separated from the style sheet (css), Java Script (js), Images (img) and other templet components. The index.php page is one of the main building blocks of the system. The config.php file is a configuration file. This page contains the mysql connection, data base connection and the session start.

 assets	3/26/16 11:12 AM	File folder
 css	9/06/16 4:50 PM	File folder
 fonts	3/05/16 9:23 AM	File folder
 images	9/26/16 6:36 PM	File folder
 photos	9/18/16 7:20 PM	File folder
 temp	9/18/16 7:03 PM	File folder
 about	4/04/14 5:09 AM	Chrome HTML Do... 9 KB
 admin_menu	9/25/16 5:58 PM	PHP File 3 KB
 ajaxpage	9/25/16 8:47 PM	PHP File 11 KB
 bill	9/25/16 8:48 PM	PHP File 13 KB
 blog	4/04/14 5:09 AM	Chrome HTML Do... 9 KB
 blog-single	4/04/14 5:09 AM	Chrome HTML Do... 9 KB
 booking	4/04/14 5:09 AM	Chrome HTML Do... 9 KB
 branch	9/20/16 3:46 PM	PHP File 9 KB
 branch_manager_menu	9/25/16 7:33 PM	PHP File 3 KB
 carrepairshop	4/04/14 5:09 AM	IrfanView PSD File 29,966 KB
 changepassword	9/22/16 9:23 PM	PHP File 4 KB
 cleaner_menu	9/25/16 7:35 PM	PHP File 2 KB
 clerk_menu	9/25/16 5:38 PM	PHP File 3 KB
 config	3/12/16 9:34 AM	PHP File 1 KB
 contact	4/04/14 5:09 AM	Chrome HTML Do... 6 KB
 customer	9/26/16 4:56 PM	PHP File 12 KB
 customer_menu	9/25/16 7:43 PM	PHP File 2 KB
 feedback	7/02/16 9:14 AM	PHP File 2 KB

Figure 4.1 Directories of the system

#### 4.4 CODE FEATURES

In this section, list down the main coding of the online reading materials delivery system and describe the about the coding. In the code listing the system has utilized PHP, CSS and JavaScript coding.

#### 4.4.1 DATABASE CONNECTIVITY

When develop the system first we want to connect the system with database. Used the mysql\_connect code to connect the local host. After successful of the connection of local host we want to connect the database. We used the mysql\_select\_db code for connect the database.

Database connection code,

```
<?php  
  
$host      =  'localhost'; //Host name  
  
$user      =  'root'; //User name  
  
$pass      =  ""; //Password  
  
$database  =  'automobile'; //Database name  
  
$connect   =  mysql_connect ( $host, $user, $pass ) ;  
  
if(!$connect)  
{  
    die("A connection to the server could not be establish");  
}  
  
$result = mysql_select_db($database);  
  
if(!$result)  
{  
    die("database could not be selected");  
}  
?  
?
```

#### 4.4.2 LOGIN

The users such as administrators, managers, customers, clerk and cleaner are authenticated by this login module. According to the code, the module checks the authentication of user by their username and password. And also, the status of the user (system accessibility of the user) is checked here.

```

if(isset($_POST["btnsubmit"]))

{
    $uname=$_POST["txtusername"];//get the username from form

    $pwd=$_POST["txtpassword"]; //get the password from form

    $sql1="SELECT * FROM login WHERE userid='$uname' AND password='$pwd'";
    //connect with user table with username and password

    $result1=mysql_query($sql1);

    $sql2="SELECT * FROM login WHERE userid='$uname"'; //connect with user table with
    username

    $result2=mysql_query($sql2);

    $row2=mysql_fetch_assoc($result2);

    if(mysql_num_rows($result2)>0)

    {
        if(mysql_num_rows($result1)>0)

        {
            $_SESSION['username']=$uname; // save the username in session

            $_SESSION['usertype']=$row2["usertype"];// save the user type in session

            $sql4="UPDATE login SET attempt='0' WHERE userid='$uname'";
            $result4=mysql_query($sql4);

            if(isset($_GET["book"]))

            {
                header ("location:index.php?pg=service.php&option=new");// view user interface

            }

        else

        {
            header ("location: index.php");
        }
    }
}

```

```

        }

    }

else if($row2["attempt"]<3)// if login attempt more than three

{
    $sql3="UPDATE login SET attempt=attempt+1 WHERE userid='$uname'";
    $result3=mysql_query($sql3);

echo "<script> alert('Please enter correct password'); </script>";

}

else

{
    echo '<script> alert("You attempt more than three.... Please Give Your Phone number to reset password"); window.location.href="index.php?pg=forget.php&username='.$uname.'"; </script>'; // if enter wrong user name or password

}

}

else

{
    echo "<script> alert('There is no such username'); </script>";//if username is not correct

}

}

```

#### 4.4.3 FORGET PASSWORD

This code used to send a password to user mobile phone number with verification when user forget password. When user enters correct user id and register mobile phone number system send a code to mobile phone for verification, after correct verification system send a password to the user mobile phone number. If we enter wrong user id or mobile phone number system display the alert message with meaningful message.

## Forget password code

```
if(isset($_GET['username']))  
{  
    $forgetusername=$_GET['username'];  
}  
  
else  
{  
    $forgetusername="";  
}  
  
include "config.php";  
  
if(isset($_POST["btnsubmit"])) // forget password start  
{  
    global $phonenumber;  
  
    $forgetusername=$_POST['username']; //Get the username  
  
    $sql1="SELECT * FROM login WHERE userid='$forgetusername'";  
  
    $result1=mysql_query($sql1) or die(mysql_error());  
  
    $row1=mysql_fetch_assoc($result1);  
  
    if($row1["usertype"]=="customer")  
    {  
        $sql2="SELECT * FROM customer WHERE customerid='$forgetusername'";  
  
        $result2=mysql_query($sql2) or die(mysql_error());  
  
        $row2=mysql_fetch_assoc($result2);  
  
        $phonenumber=$row2["telephoneneno"]; //get the customer mobile phone no  
    }  
  
    else  
    {  
    }  
}
```

```

$sql2="SELECT * FROM staff WHERE staffid='$forgetusername'";

$result2=mysql_query($sql2) or die(mysql_error());

$row2=mysql_fetch_assoc($result2);

$phonenumber=$row2["telephoneneno"]; //get the staff mobile phone no

}

$entertpnum=$_POST["txtphonenumber"]; //get the phone number from form

if($phonenumber==$entertpnum)

{

$phonenumber="94".$phonenumber; //send the password to the staff or customer mobile
phone no

$user = "94774127131";

$password = "7455";

$text = urlencode("Your Password is :".$row1["password"]);

$to = $phonenumber;

$baseurl ="http://www.textit.biz/sendmsg";

$url = "$baseurl?id=$user&pw=$password&to=$to&text=$text";

$ret = file($url);

$res= explode(":",$ret[0]);

if(trim($res[0])=="OK")

{

echo      "<script>      alert('Please      Check      Your      Mobile      Phone');"
window.location.href='index.php?pg=login.php';</script>"; //send the password to particular
mobile phone

}

else

{

echo "Sent Failed - Error : ".$res[1];

```

```

    }
}

else
{
    echo "<script> alert('Your telephone number is wrong'); </script>"; //if the mobile phone
no is wrong
}
}

```

#### 4.4.4 INSERT CODE

If user enters all correct information the system insert the details into user table and customer table. If we enter wrong the system provide an alert message box with meaningful message.

##### **Insert code**

```

if(isset($_POST["btnsubmitnew"]))// insert new vehicle start
{
    $sql1="INSERT INTO vehicle(vehicleid,vehicletype,modelno,vehiclename) VALUES(
        '".$_mysql_real_escape_string($_POST["txtveid"])."',
        '".$_mysql_real_escape_string($_POST["txtvetype"])."',
        '".$_mysql_real_escape_string($_POST["txtmono"])."',
        '".$_mysql_real_escape_string($_POST["txtmoname"])."')";

    $result1=mysql_query($sql1) or die("error in sql1 section:".mysql_error());
//insert the area details

    if($result1)
    {
        echo "<script> alert ('Successfully insert vehicle details'); </script>";
    }
}

```

#### 4.4.5 EDIT THE SUPPLIER DETAILS (UPDATE) CODE

After enter correct details the system updates the details in database.

##### Edit the supplier details

```
if(isset($_POST["btncusname"]))//update the suppliers details
{
    $sqlupdate="UPDATE suppliers SET suppliername=
    '".$mysql_real_escape_string($_POST['txtcusname'])."',
    address= '".$mysql_real_escape_string($_POST['txtaddress'])."',
    telephoneno= '".$mysql_real_escape_string($_POST['txtteleno'])."'
    WHERE supplierid='".$_POST['txtsuppid']."' ";

    $resultupdate=mysql_query($sqlupdate);//Edit the supplier deatils

    if($resultupdate)
    {
        echo '<script> alert ("Successfully update suppliers details");
window.location.href="index.php?pg=suppliers.php&option=fullview&supplierid='.$_POST['txtsuppid']."";</script>';
    }
}
```

#### 4.4.6 GENERATE THE ID

Generate the new ID when we load any new entry form.

```
<?php
//get the next customer id

$sqlcustomerid="SELECT customerid FROM customer SERVICE BY customerid DESC
LIMIT 1";

$resultcustomerid=mysql_query($sqlcustomerid);

if(mysql_num_rows($resultcustomerid)>0)
{
}
```

```

$rowcustomerid=mysql_fetch_assoc($resultcustomerid);

$generatecustomerid=$rowcustomerid["customerid"];

$generatecustomerid=++$generatecustomerid;

}

else

{

$generatecustomerid="CU001";

}

?>

```

#### 4.4.7 RE-USABLE COMPONENTS

When, developing the system there were some reusable components were used.

- ▲ Reusable CSS components
- ▲ Reusable jQuery components

Use the Car repair shop [7] template only for user interface, table design and form design. This template is free web template; available in web.

#### 4.5 SECURITY

Proper maintenance of security aspects in a computerized system is essentials to provide better services to the users. This web based Vehicle service management system is accessed by public, admin, staff, clerk and cleaner. The Admin can access the system as an administrator. The administrator has all the privileges in this system. Other registered user has less privileges comparing to administrator. The registered customer of the system are given a username and password to login and access the system. If customer try to login with wrong password, our system allow only three times after three times system automatically loads forgot password page. From forgot password page the system verify the customer ID and registered mobile phone number then system send a password to customer's registered mobile phone number.

# CHAPTER 5 EVALUATION

## 5.1 INTRODUCTION

Evaluation is the process of testing a system or its component with the intent to find whether it satisfies all the specified requirements or not. Further testing is executing a system in order to identify any errors or missing requirements in contrary to the actual desire or requirements. Evaluation phase was used to check validity and verification of the software system. Evaluation process was carried out through the entire software development period.

## 5.2 TESTING PROCEDURE

Software testing process description describes what happens within the software. Testing process provides an operational definition of the major components of the process. This description specifies, in a complete, precise, and verifiable manner, the requirements, design, behavior characteristics of the Software Testing process. There are many different types of software testing as follows [8].

**Black box testing** – Internal system design is not considered in this type of testing. Tests are based on requirements and functionality.

**White box testing** – This testing is based on knowledge of the internal logic of an application's code. Also known as Glass box Testing. Internal software and code working should be known for this type of testing. Tests are based on coverage of code statements, branches, paths, conditions.

**Unit testing** – Testing of individual software components or modules. Typically done by the programmer and not by testers, as it requires detailed knowledge of the internal program design and code. May require developing test driver modules or test harnesses.

**Integration testing** – Testing of integrated modules to verify combined functionality after integration. Modules are typically code modules, individual applications, client and server applications on a network, etc. This type of testing is especially relevant to client/server and distributed systems.

**Functional testing** – This type of testing ignores the internal parts and focus on the output is as per requirement or not. Black-box type testing geared to functional requirements of an application.

**System testing** – Entire system is tested as per the requirements. Black-box type testing that is based on overall requirements specifications, covers all combined parts of a system [9].

**Acceptance testing** -Normally this type of testing is done to verify if system meets the customer specified requirements. User or customer do this testing to determine whether to accept application.

**Performance testing** – Term often used interchangeably with ‘stress’ and ‘load’ testing. To check whether system meets performance requirements. Used different performance and load tools to do this.

**Usability testing** – User-friendliness check. Application flow is tested, Can new user understand the application easily, Proper help documented whenever user stuck at any point. Basically system navigation is checked in this testing.

### 5.3 TEST PLAN FOR OUR SYSTEM

Testing was done each and every part of the system. The entire test plans were done before implementation on client side. From our test plan help to us identify the error and fixed it. Our test modules were designed as follows,

- ✓ New user module (Table 5.1)
- ✓ Administration module (Table 5.2)
- ✓ Branch manager module (Table 5.3)
- ✓ Clerk module (Table 5.4)
- ✓ Customer module (Table 5.5)
- ✓ Common function module (Table 5.6)

### 5.3.1 NEW USER MODULE

New user modules contain the register new module.

Test No.	Test Case	Expected Result	Actual Result	Test Result
01	Login to the system without register	Cannot login into the system	System did not allowed to login into the system	Test case pass
02	Login into to the system with customer ID as user name and NIC No as Password.	Can access the system	System allowed to access the system	Test case pass
03	Change the Password	Can change the password after successful login	System allowed to change the password	Test case pass
04	Recover Password via mobile phone	Can get the password via mobile	System send password to the registered mobile number	Test case pass

Table 5.1 New User Modules

### 5.3.2 ADMINISTRATION MODULE

Administration module contains some test cases. They are add new vehicle, register new customer, add new staff, edit staff details, delete record from database, and generate reports.

Test No.	Test Case	Expected Result	Actual Result	Test Result
01	Register New vehicle	Admin can register new vehicle	System allowed to register new vehicle	Test case pass

02	Register New customer	Admin can register new customer	System allowed to register new customer	Test case pass
03	Add new staff	Admin can add new staff	System allowed to add new staff	Test case pass
04	Edit staff details	Admin can edit staff details	System allowed to edit staff details	Test case pass
05	Delete records from tables	Admin can delete records from tables	System allowed to delete records from tables	Test case pass
06	Manage all the records in database	Admin can manage all the details in database	System allowed to manage all the details in database	Test case pass
07	Generate reports of each services	Admin can generate service reports	System allowed to generate service reports	Test case pass
08	Generate reports under certain criteria	Admin can generate reports under supplies, service, salary & etc	System allowed to generate such reports	Test case pass

Table 5.2 Administration Modules

### 5.3.3 BRANCH MANAGER MODULE

Branch manager module contains some test cases. They are login to the system, view details of vehicle, service type, service time, services and generate general reports.

<b>Test No.</b>	<b>Test Case</b>	<b>Expected Result</b>	<b>Actual Result</b>	<b>Test Result</b>
01	Login to the system as Branch Manager	Can login into the system	System allowed to login into the system	Test case pass
02	View the details of vehicle, service types, service times and services	Branch Manager can view All the details of the services.	System allowed to view the details of services.	Test case pass
03	Generate general reports	Branch manager can generate general reports	System allowed to generate general reports	Test case pass

Table 5.3 Branch manager Module

#### 5.3.4 CLERK MODULE

Clerk module contains some test cases. They are View the details of vehicle, service types, service times, services, manage the customers and manage the report.

<b>Test No</b>	<b>Test Case</b>	<b>Expected Result</b>	<b>Actual Result</b>	<b>Test Result</b>
01	View the details of vehicle, service types, service times and services	Clerk can view All the details of the services.	The system allowed to Clerk to view papers and magazines.	Test case pass
02	Manage the customers and services	Allowed to Clerk to view customers and services only under that branch.	The system allowed to clerk to view customers and services only under that branch.	Test case pass
03	Manage the report	Allow to clerk to generate report in branch	The system allowed to clerk to generate	Test case pass

		of only under that branch.	report in branch of only under that branch.	
--	--	----------------------------	---	--

Table 5.4 Clerk module

### 5.3.5 CUSTOMER MODULE

Customer module contains some test cases. They are View service type, service time and Booking for service.

Test No	Test Case	Expect result	Actual Result	Test Result
01	Login with correct user name and password	Display appropriate user interface based on user type.	The system displayed appropriate user interface based on user type.	Test case pass
02	Booking for service	Only allow to customer to booking for service.	The system allowed customer to booking for service.	Test case pass
03	View the details of vehicle, service types, service times and services	Customer can view All the details of the services.	The system allowed customer to view All the details of the services.	Test case pass

Table 5.5 Customer Modules

### 5.3.6 COMMON FUNCTION MODULE

Common function module contains some test cases. They are login with wrong username and password and login with correct username and password, forget password, logout, database connection and form validation.

<b>Test No</b>	<b>Test Case</b>	<b>Expect result</b>	<b>Actual Result</b>	<b>Test Result</b>
01	Login with wrong user name or password	If enter wrong user name or password display error message, allow only three time with wrong password if try more than three attempt with wrong password automatically go to forget password page.	The system displayed message for wrong password or user name, allowed only three time to login with wrong password and if try more than three time with wrong password system automatically displayed forget password page.	Test case pass
02	Login with correct user name and password	Display appropriate user interface based on user type.	The system displayed appropriate user interface based on user type.	Test case pass
03	Forget password	Get user name and register hand phone number and check the hand phone number correct or not if wrong hand phone number display message if correct hand	The system check the phone number and display message if wrong hand phone number, if correct hand phone number send verification code and verify	Test case pass

		phone number send verification code and check code and if wrong display message and if correct send password to hand phone number.	the code if correct send password to hand phone number if verification wrong display message.	
04	Logout	If user clicks logout then system destroy all session details and display index page. After logout if user click back button in browser then system not allow to go back only stay in index page.	The system destroy all session details when click logout and not allowed to user to go back when click back button in browser after user make logout.	Test case pass
05	The browser support and operating system support	Support all browser and all windows version support to our system access and load.	Support all browser and all windows version support to our system access and load.	Test case pass
06	Database connection	Want to connect	The system connect with database	Test case pass

			successfully	
07	Form validation	If enter wrong input display message.	The system display message when enter wrong input.	Test case pass

Table 5.6 Common function module

## 5.4 TEST DATA

The sample data were entered to the system to all modules need to be tested in order to test the function. We test the all form, view, manage and report with sample data. If we enter wrong input system display meaningful error message.

The client accepts testing result (user evaluation) shown in following Figure 5.1 Acceptance Result:

User evaluation		
Test case Number	Test Case	Satisfied? Yes? Or no?
01	New User Register Module	Yes
02	Administrator Module	Yes
03	Branch manager Module	Yes
04	Clerk Module	Yes
05	Cleaner Module	Yes
06	Customer Module	Yes
07	Common Function Module	Yes
08	User Friendly of system	Yes
09	Clear of error messages, validation and verification code	Yes
10	Access the system	Yes
11	Overall perform of the system	Yes
12	User Education	Yes

How do you feel about the system?  
*The system was Fully satisfied with our Requirements.*

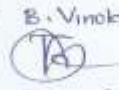
Evaluated By: *B. Vinodkumar*  
Signature:   
Trinco Automobile (Pvt) Ltd  
Kothadi Road,  
Maruthamalai Madam,  
Jaffna.  
Date: *09.11.2017*

Figure 5.1 Acceptance results

This system was used by many customers and them given the feedback about this system and the customer feedback shown in the following Figure 5.2:



Figure 5.2 Customer Feedback

# **CHAPTER 6 CONCLUSION**

In this system, Web based vehicle service management system was give good knowledge to us and we go to next level of our career successfully. This project gave knowledge and how to implement our knowledge what gain throughout from previous semester of BIT (Bachelor of Information Technology) degree.

## **6.1 PROJECT OBJECTIVES**

This system was built using the technologies Object Oriented (OO) concept, HTML, CSS, PHP and JavaScript with back end MySQL. The developed web based system was fulfilled the requirements of our client and was earned their full satisfaction too. The system completely changes their day to day activities from earlier traditional system. The system helps them to realize their needs with in the time schedule, booking on time and able to ignore the delays in generating reports.

### **6.1.1 THE OBJECTIVES WHICH ARE ACHIEVED**

The system was successfully satisfied with user requirements including their functional and non-functional requirements and client was accepting our project with fulfill of satisfaction. From this system the Web based vehicle service management system for Trinco automobile facilitate to increase the online booking through this system, So easy to manage the every branch, Online booking facility to customer, staff salary their allowance, get up to date reports to help make better management decision and support to management employees, receive booking alerts through mobile phone to branch manager of the Trinco automobile and help to make necessary action about booking and identify the service items through the timely generated report, etc.

### **6.1.2 THE OBJECTIVES WHICH ARE FAILED TO ACHIEVED**

The online payment methods and user security of this system can be improved by adding new features such as payment get ways and encryption methods.

## **6.2 CRITICAL ASSESSMENT OF PROJECT**

The developed Web based vehicle service management system was fulfilled the requirements of our client and was earned their full satisfaction too.

### **6.2.1 COMPARE WITH EXISTING SYSTEM**

The system completely changes their day to day activities from earlier traditional system. The system helps them to realize their needs with in the booking and able to ignore the delays in generating reports.

### **6.2.2 USER SATISFACTION**

The system was tested by various category of users based on user privilege and all those satisfy with system. The system was tested with all the modules such as new user, Administration, Branch manager, Clerk, Customer and Common function, user friendliness, time consuming, bill calculation, reports and etc. with using of sample data in real time environment.

## **6.3 LESSON LEARNT**

This project gave me the wide range of practical knowledge in the system development. It gave the great opportunity to apply the theories in system analyzing, designed the diagrams, system development and report writing areas. The developed domain area was considerably large and has complexity. So from the requirement analyzing part to until the implementation were able to learn plenty of knowledge regarding the system development.

Through this project I have acquired more knowledge in CSS, Ajax, JavaScript and PHP web language tools. In addition I could be learnt to write reports according to the recognized standard and in a professional manner.

## **6.4 FUTURE WORK**

Our system satisfy client requirement but further more if we change some function out system make more quality and our country now a days grow up in technology field so we want to do some future work.

These are some future work:

- Improve the security by using encryption methods.
- Allow to customer to make booking with online shopping card.
- Allow more new branches and give more opportunity to customer.
- Developed our system like similar system Toyota, Mitsubishi
- Generate more variety of reports etc.

# REFERENCE

- [1] Wikipedia, the free encyclopedia – *Software development*, [Online]  
Available: [https://en.wikipedia.org/wiki/Software\\_development](https://en.wikipedia.org/wiki/Software_development) , [Accessed: 06.05.2017]
- [2] I.Sommerville, *Software Engineering*, 8<sup>th</sup> edition, Addison-Wesley, 2007.
- [3] UCSC, *The Virtual Learning Environment for the BIT Students*, 2006. [Online]  
Available: <http://vle.bit.lk> , [Accessed: 08.05.2017]
- [4] P. Roger S, *Software Engineering*, 5<sup>th</sup> edition, Thomas Casson, 2001.
- [5] Jeffrey L.Whitten, Lonnie D.Bentley, *System Analysis and design Methods* (fourth edition), 1997.
- [6] J.L. Whitten and L.D. Bentley, *Systems Analysis and Design Methods*, 7th ed. Tata McGraw-Hill, 2007.
- [7] Car repair Template – *template*, [Online]  
Available:<https://freewebsitetemplates.com/preview/carrepairshop/index.html>  
[Accessed 25.05.2017]
- [8] Tutorials point – *Software testing*, [Online]  
Available: [http://www.tutorialspoint.com/software\\_testing/](http://www.tutorialspoint.com/software_testing/) [Accessed 20.07.2017]
- [9] Wikipedia, the free encyclopedia – *Software testing*, [Online]  
Available: [https://en.wikipedia.org/wiki/Software\\_testing](https://en.wikipedia.org/wiki/Software_testing) , [Accessed 20.07.2017]

# APPENDIX

## APPENDIX A – SYSTEM DOCUMENTATION

### Introduction

We give instruction how to install our system and database, and it is help to client to installation and maintenance.

Step 1: Double click on download file Wamp Server 2.4 and just follow the instruction. Everything is automatic. Refer in Figure A.1.



Figure A.1 Setup wizard

Step 2: After click next, accept the agreement and click next. Refer in Figure A.2.

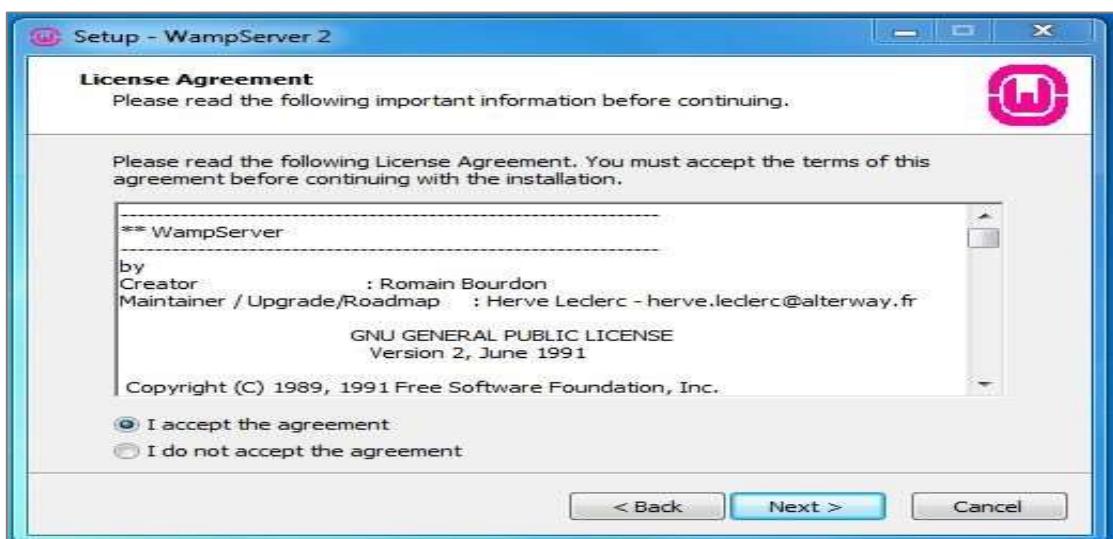


Figure A.2 Agreement

Step 3: Select the installation location of Wamp Server. Refer in Figure A.3.

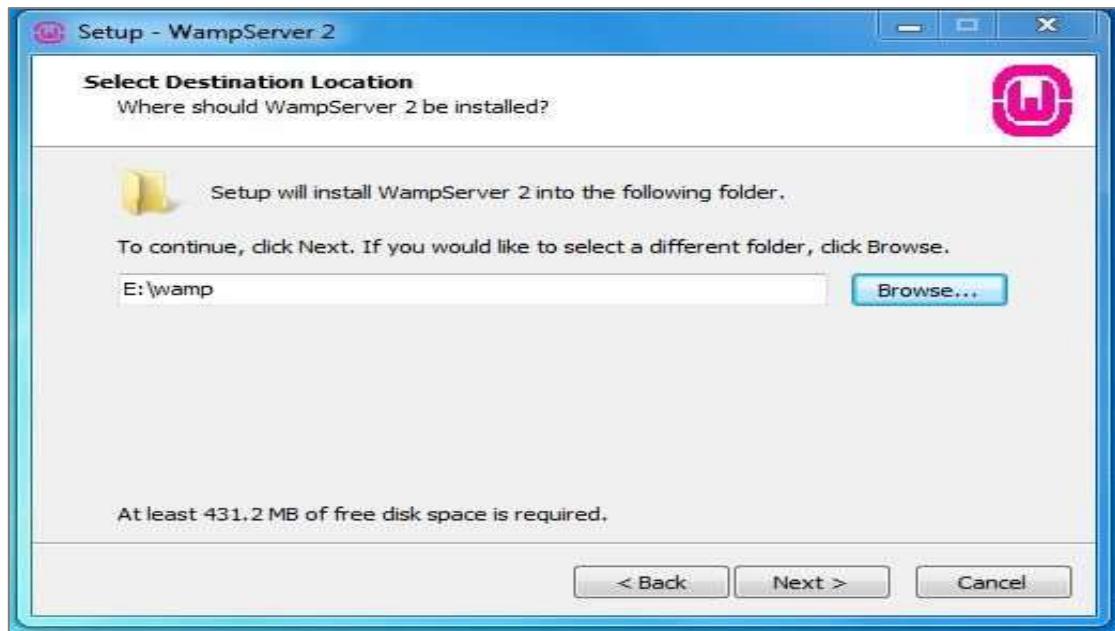


Figure A.3 Folder Location

Step 4: Click Install and It finish automatically. Refer in Figure A.4.

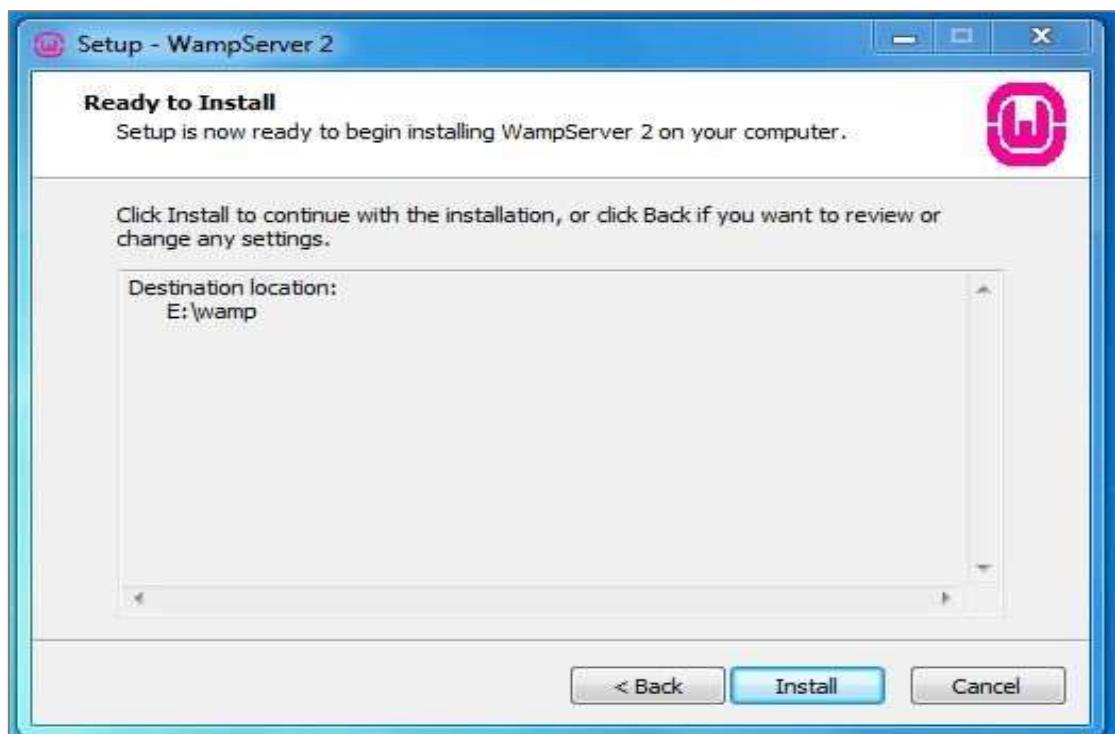


Figure A.4 Install

Step 5: After Install, start the Wamp Sever in taskbar Wamp Server visible in green color. After green color, go and type in browser's address bar "localhost or 127.0.0.1". Refer in Figure A.5.



Figure A.5 In Taskbar

Step 6: In browser, there is phpmyadmin under Tools heading, click that link and type username as “root” and password is blank. And click go button. Refer in Figure A.6. and Refer in Figure A.7.



Figure A.6 Index Page of Wamp Server



Figure A.7 Welcome Page

Step 7: After login click Import tab, in that tab click browse and select the database file automobile.sql file from CD and click go button. Refer in Figure A.8.

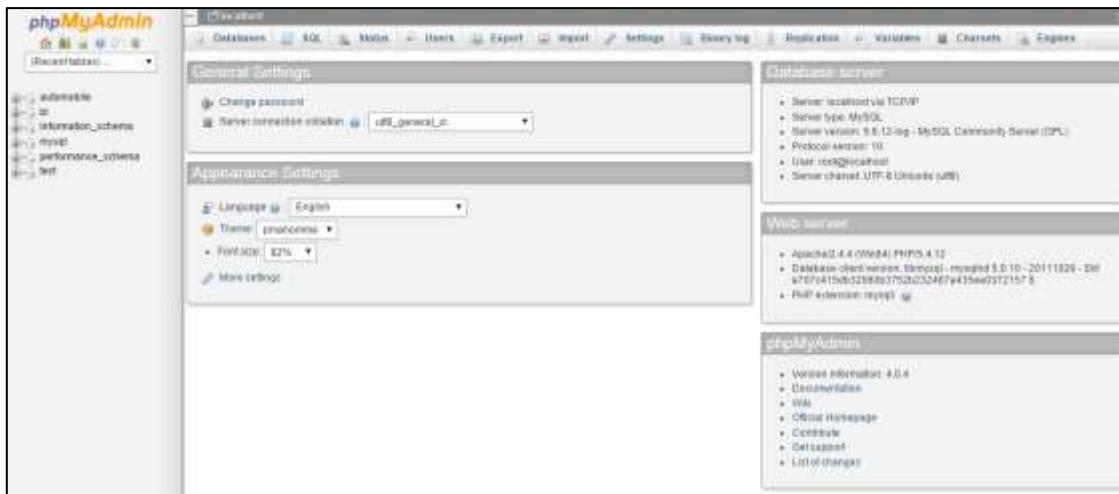


Figure A.8 Database Upload

Step 8: You now successfully upload database. Refer in Figure A.9.

Table	Action	Rows	Type	Collation	Size	Overhead
bill	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	24	InnoDB	latin1_swedish_ci	22 K1B	-
branch	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	3	InnoDB	latin1_swedish_ci	16 K1B	-
customer	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	14	InnoDB	latin1_swedish_ci	16 K1B	-
feedback	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	5	InnoDB	latin1_swedish_ci	32 K1B	-
item	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	15	InnoDB	latin1_swedish_ci	16 K1B	-
login	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	39	InnoDB	latin1_swedish_ci	16 K1B	-
message	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	12	InnoDB	latin1_swedish_ci	32 K1B	-
monthlysalary	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	34	InnoDB	latin1_swedish_ci	16 K1B	-
purchase	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	41	InnoDB	latin1_swedish_ci	16 K1B	-
purchasebill	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	13	InnoDB	latin1_swedish_ci	72 K1B	-
salary	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	4	InnoDB	latin1_swedish_ci	16 K1B	-
service	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	32	InnoDB	latin1_swedish_ci	64 K1B	-
serviceitem	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	29	InnoDB	latin1_swedish_ci	16 K1B	-
servicetime	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	4	InnoDB	latin1_swedish_ci	16 K1B	-
servicetype	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	7	InnoDB	latin1_swedish_ci	16 K1B	-
staff	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	14	InnoDB	latin1_swedish_ci	48 K1B	-
stock	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	38	InnoDB	latin1_swedish_ci	16 K1B	-
suppliers	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	38	InnoDB	latin1_swedish_ci	16 K1B	-
vehicle	<a href="#">Browse</a> <a href="#">Structure</a> <a href="#">Search</a> <a href="#">Insert</a> <a href="#">Empty</a> <a href="#">Drop</a>	9	InnoDB	latin1_swedish_ci	16 K1B	-
19 tables	<a href="#">Sum</a>	333	InnoDB	latin1_swedish_ci	418 K1B	8.8

Figure A.9 Our Tables

Step 9: The “www” directory will be automatically created. According the Step 3, our www folder is under E:\wamp. In www folder we create a subdirectory and put our PHP files.

## APPENDIX B – DESIGN DOCUMENTATION

The additional diagram such as activity diagram and sequence diagram of this system include in this section.

Activity diagram for new user registration is shown on following Figure B.1 Activity Diagram for New user:

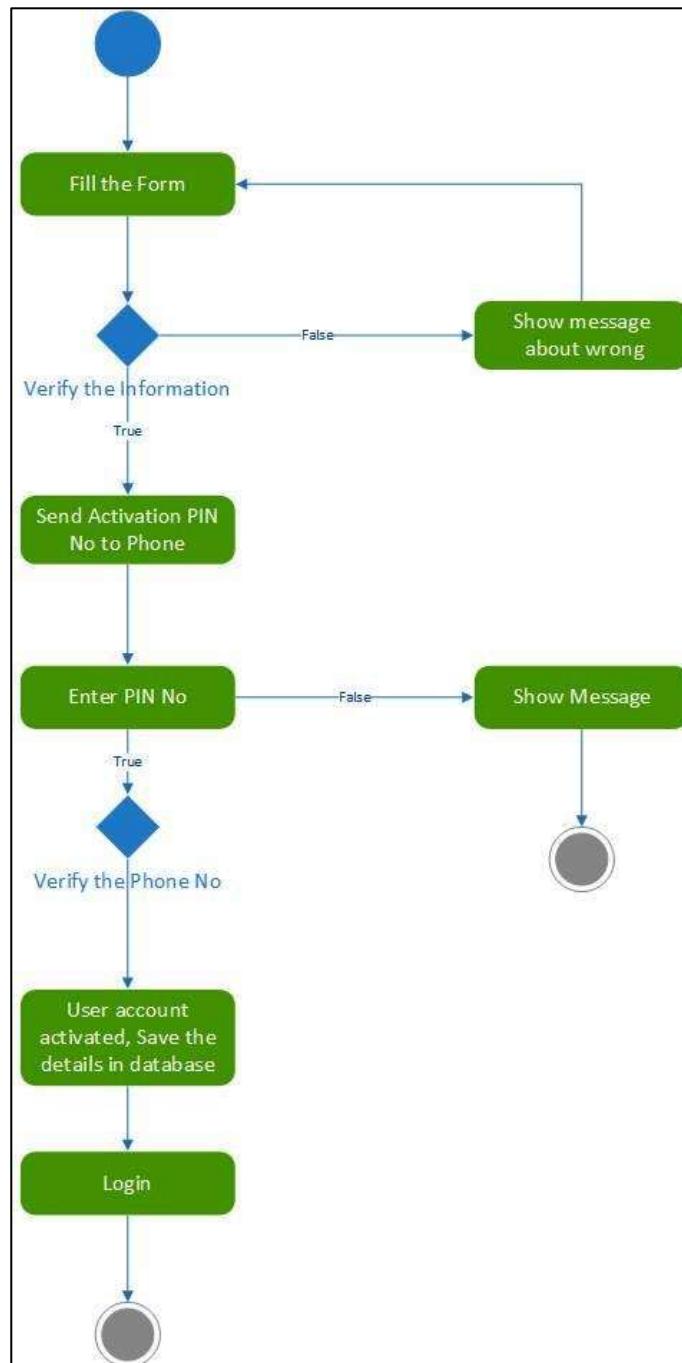


Figure B.1 Activity Diagram for New User

Activity diagram for booking is shown on following Figure B.2 Activity Diagram for Booking:

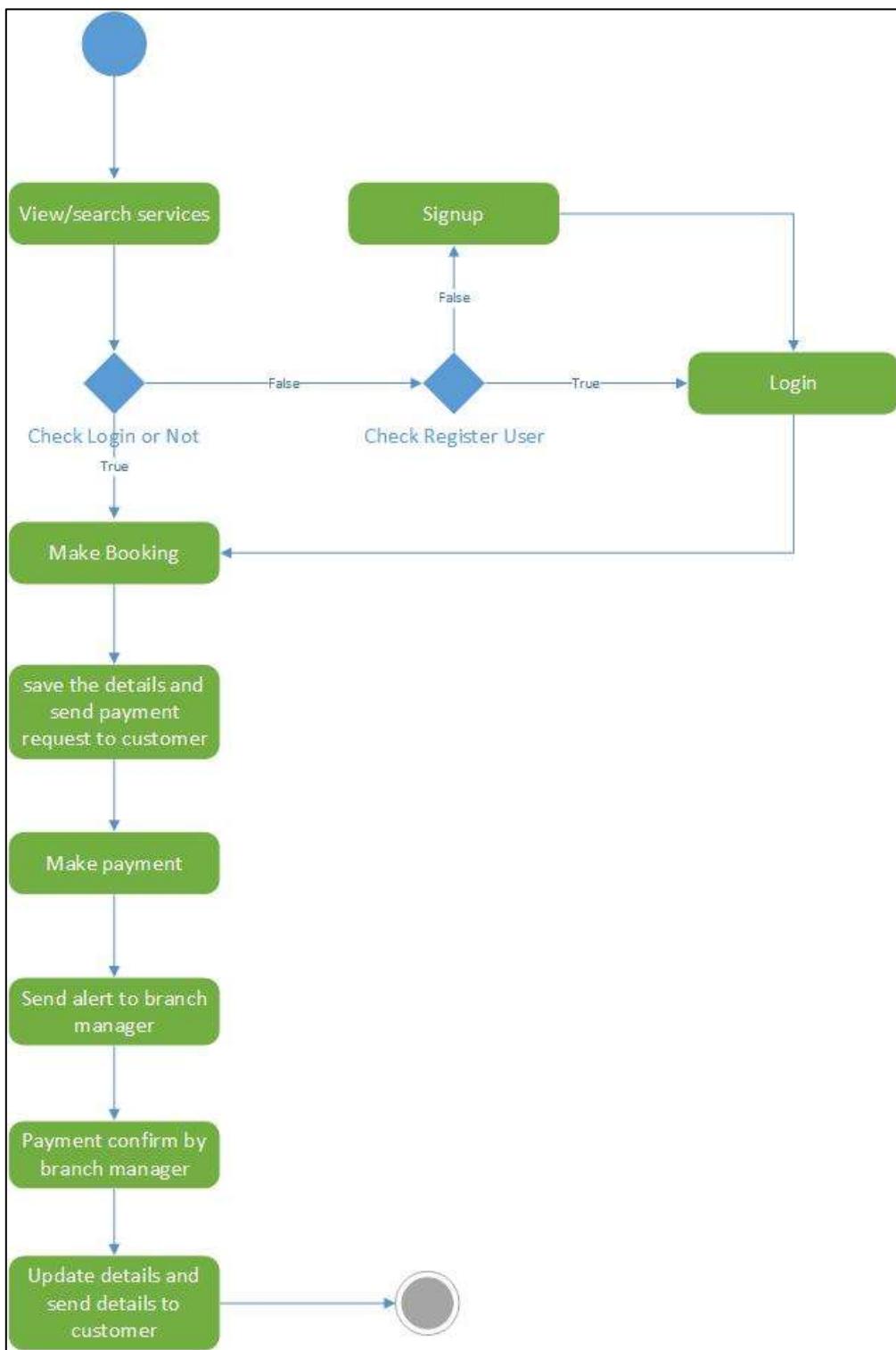


Figure B.2 Activity Diagram for Booking

Activity diagram for print or save report shown on following Figure B.3 Activity Diagram for Report:

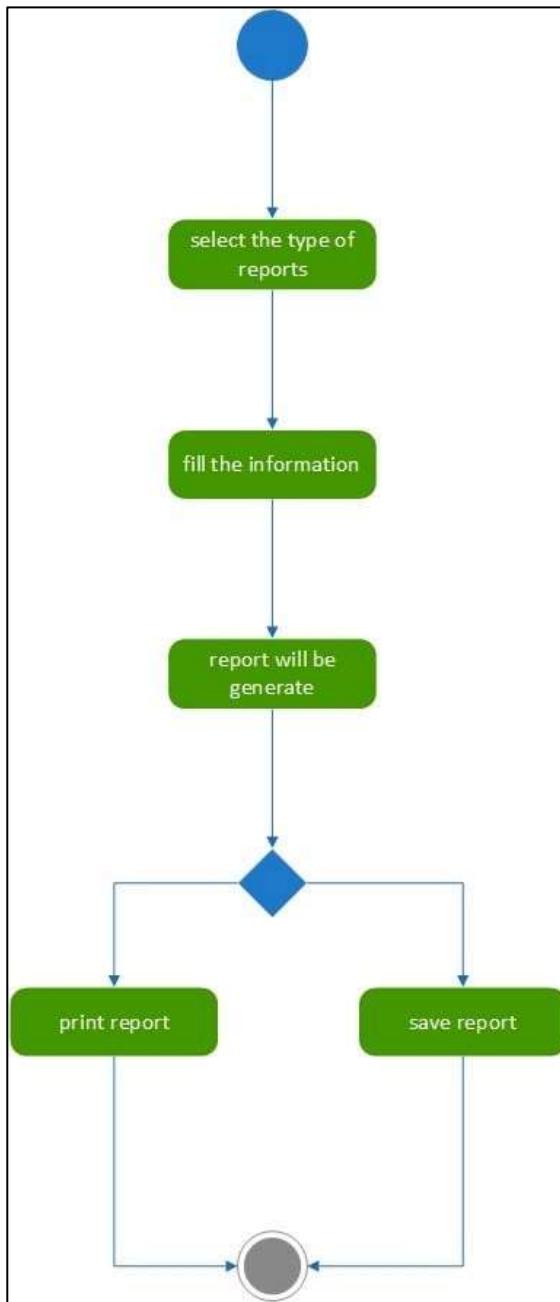


Figure B.3 Activity Diagram for Report

Sequence diagram for booking is shown on Figure B.4 Sequence Diagram for New user:

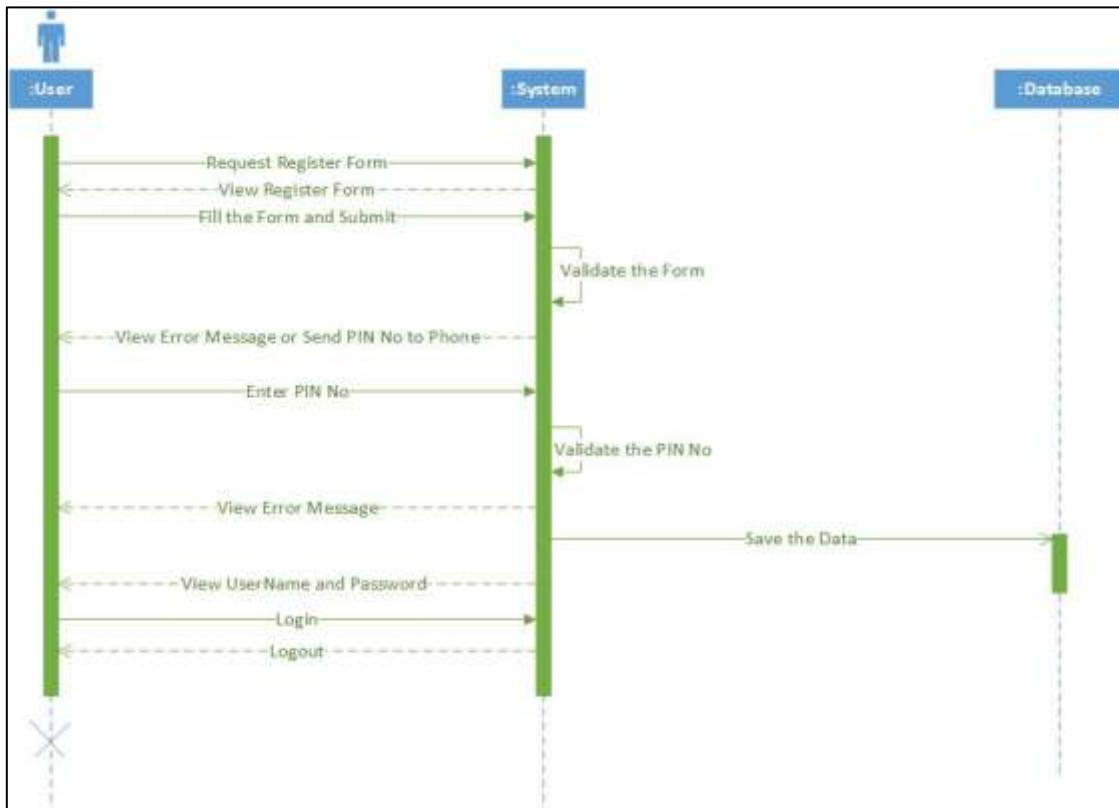


Figure B.4 Sequence Diagram for New user

Sequence diagram for booking is shown on Figure B.5 Sequence Diagram for Booking:

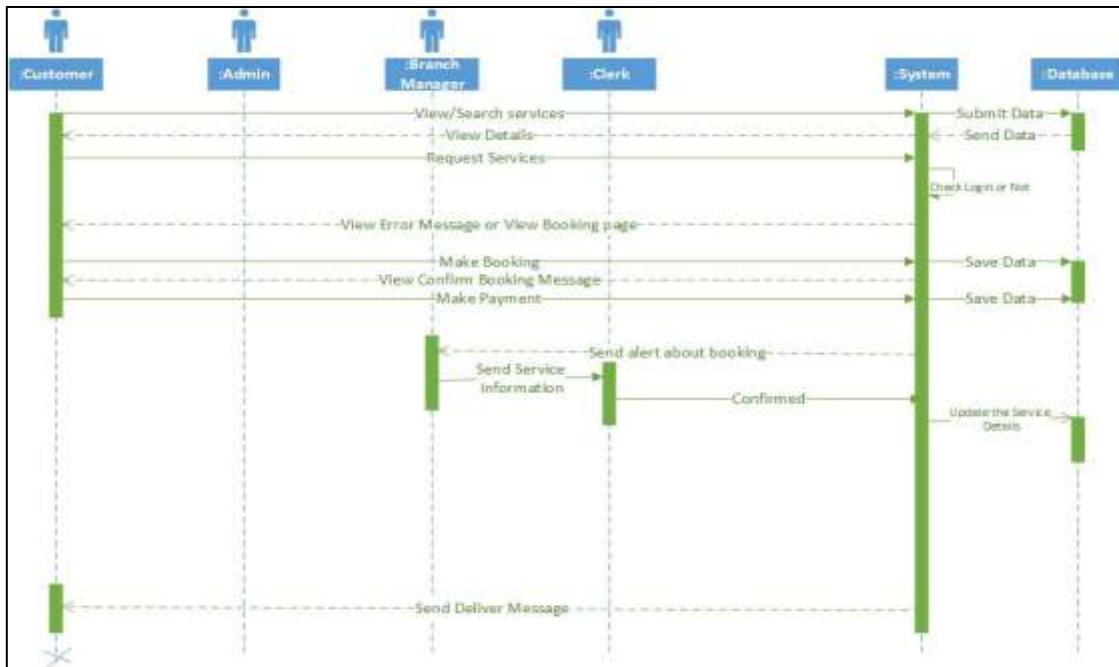


Figure B.5 Sequence Diagram for booking

Network diagram for Network is shown on Figure B.6 Network Diagram for network:

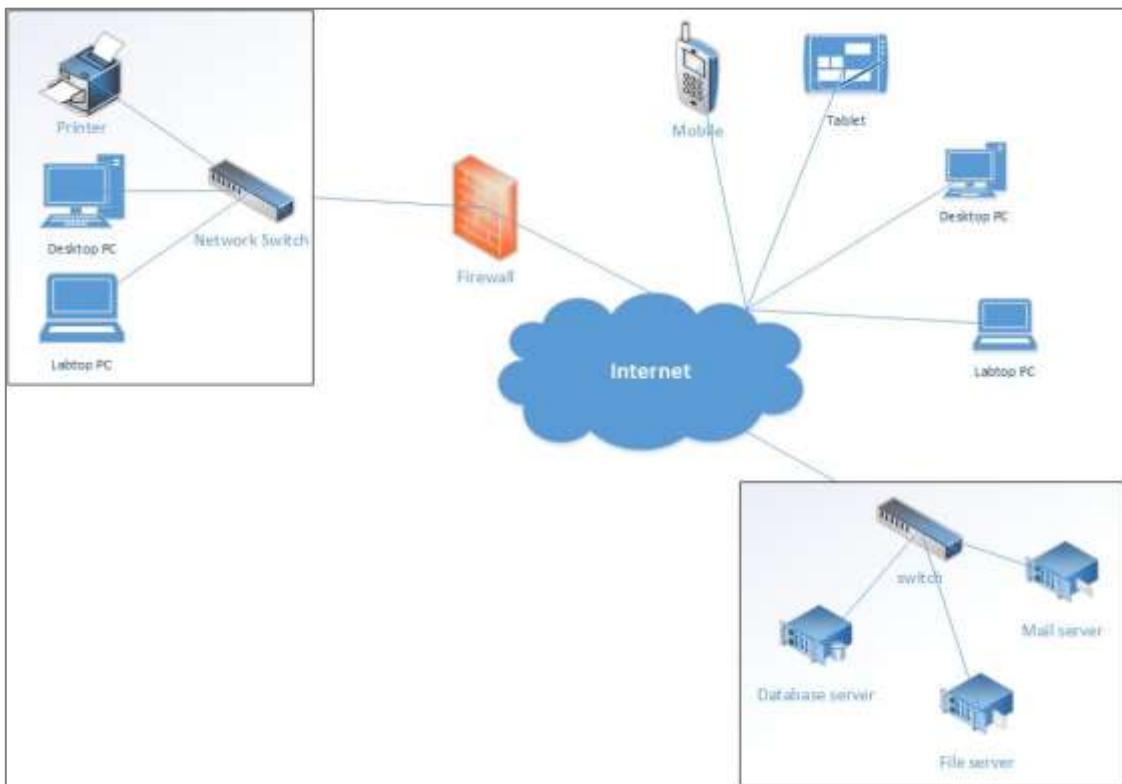


Figure B.6 Network Diagram for network

## APPENDIX C – USER DOCUMENTATION

This documentation gives a total explanation of our Web based Vehicle service management system, how to handle this system.

### Index Page

The following Figure C.1 Index Page, show the home page of our system. This index page named as Guest menu. In home page, there are some tabs Admin, Management, Service, About, Contact and Login. The Admin tabs, displays as Index Page. In Management tabs, displays the branches, item and vehicles details. Service tabs displays the service types and service time details. In about tabs, describe about the Trinco Automobile. In contact tabs contain contact details about Trinco Automobile. Finally Login tabs, facilitates the new user to register their details in our system.



Figure C.1 index page

The Contact menu show as the Following Figure C.2.

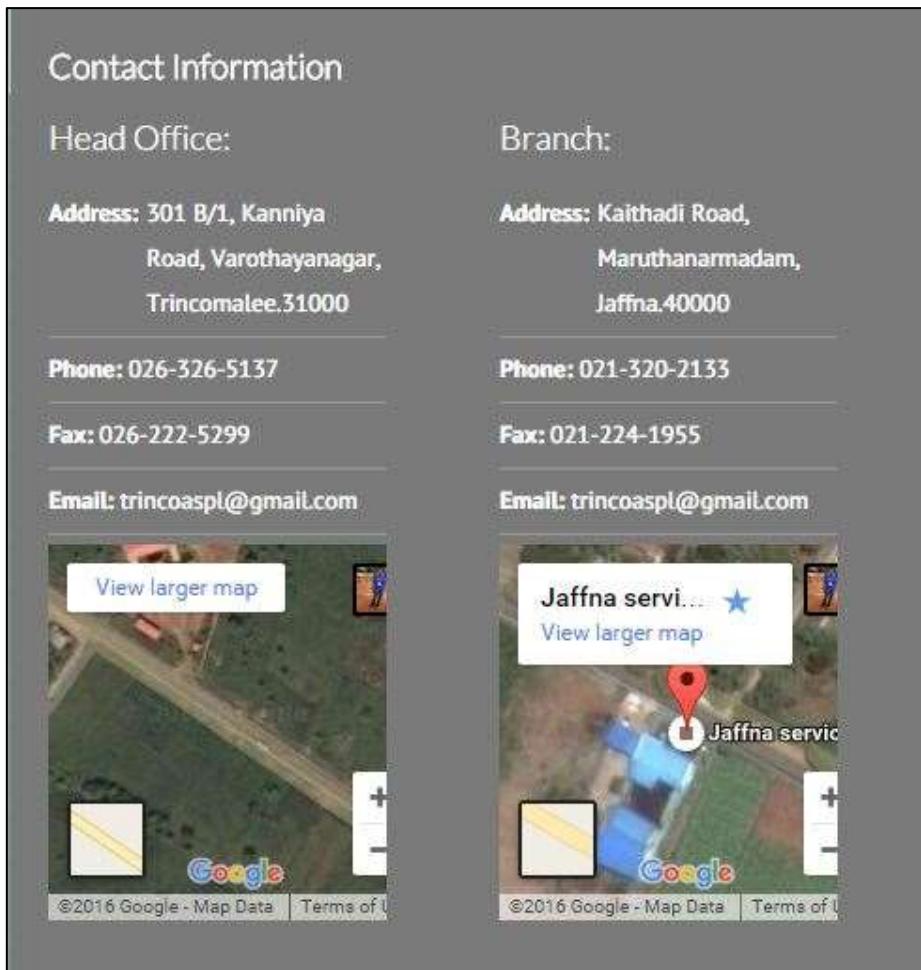


Figure C.2 Contact page

Trinco Automobile featured service menu show as the Following Figure C.3.

<b>Featured Services</b>	
<p><b>Car Wash Packages</b></p> <p><b>QUICK WASH</b> – Body wash, and tyre dressing</p> <p><b>DETAILED WASH</b> – Body wash, carpet wash, glass cleaning and tyre dressing</p> <p><b>WASH &amp; WAX</b> – Body wash, carpet wash, glass cleaning, interior vacuuming, and 3M wax</p> <p><b>AUTO WASH</b> – Body wash, under wash, carpet wash, g and interior vacuuming</p>	<p><b>Lubrication Service</b></p> <p><b>UNDERCARRIAGE DEGREASING</b> - We completely deg undercarrige of the automobile, removing accumulated using the application of pressure washes with advanced sensors.</p> <p><b>VACUUM FLOOR / SEATS &amp; TRUNK</b>- We vacuum the seats and trunk to ensure removal of dust and particle a</p> <p><b>WINDSCREEN &amp; GLASS CLEANING</b> - Our glass treatm wet weather driving visibility. The treatment uses a non- formula, ammonia free and safe for tinted windows. This high humidity conditions.</p>

Figure C.3 Featured service details

From login, only registered users will allow to enter our system. Refer in Figure C.4.



Figure C.4 Login page

When registered user enters wrong username or password the system will provide an error message. It shows on following Figure C.5 Username Error and Figure C.6 Password Error.

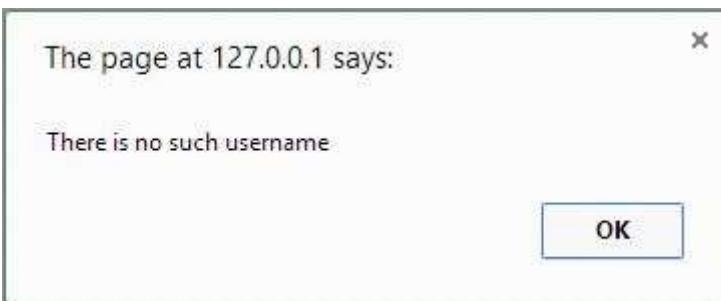


Figure C.5 Username error message

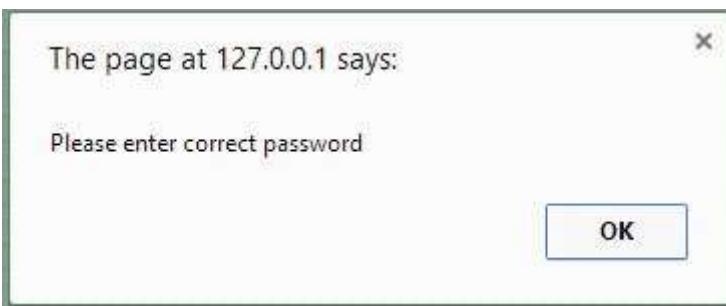


Figure C.6 Password error message

If registered user attempt more than three times login this system, system provide a message and redirect to forget password form. Refer in Figure C.7.

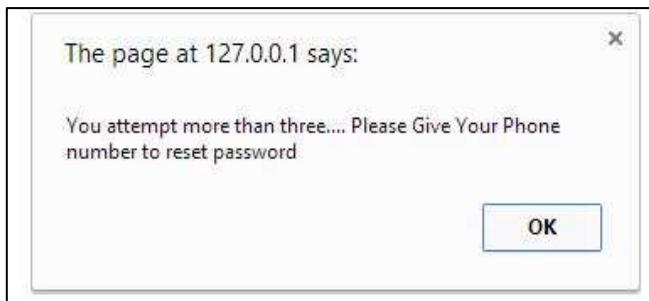


Figure C.7 More than 3 Attempts

In forget password form, enter the registered mobile phone number. If any wrong input, the system will provide error message. In telephone field can only insert telephone number other than cant' type no any text. Refer in Figure C.8.

A screenshot of a web-based "Forget password" form. The header is a blue bar with the text "Enter your valid Phone Number". Below it is a yellow input field containing the text "ST001". Below that is a white input field with the placeholder text "Enter Your Phone Number". At the bottom are two buttons: a green "Submit" button and a blue "Go Login" button.

Figure C.8 Forget password form

If enter wrong mobile phone number, Refer in Figure C.9.

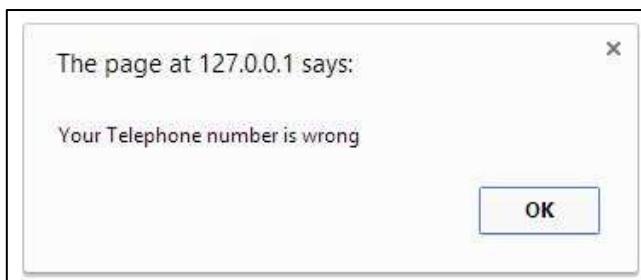


Figure C.9 Wrong Telephone number

If enter wrong telephone format, Refer in Figure C.10.

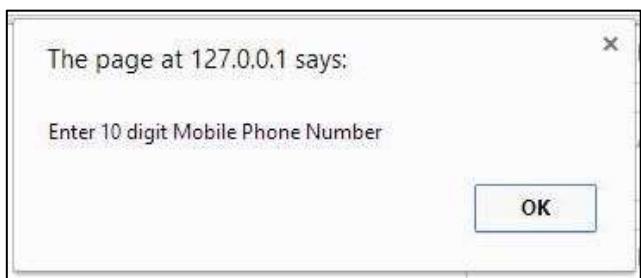


Figure C.10 Wrong Telephone number format

After enter the correct user name and mobile phone number, system send a verification code to mobile phone number and redirect to verification form. Refer in Figure C.11.

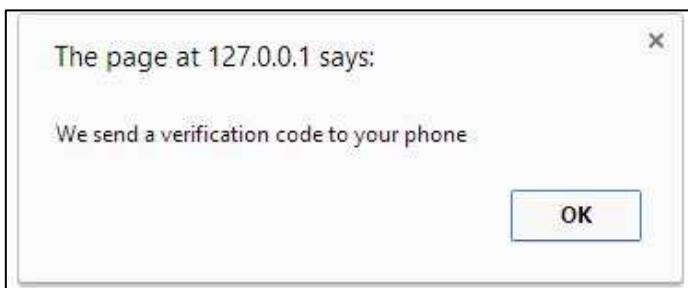


Figure C.11 Send verification code

In profile link, there is an additional link for change password. As usual this change password link include the current password, new password and retype new password. The system will check enter correct current password or not first and then check new password and retype new password are same or not. The system only allow the password character is more than six. If we make wrong input, system will provide a message. Refer in Figure C.12, Refer in Figure C.13, Refer in Figure C.14 and Refer in Figure C.15.

A screenshot of a "Change Password" interface. It features a table with four rows. The first row has "User Name" in the left column and a text input field containing "ST001" in the right column. The second row has "Current password" in the left column and an empty text input field in the right column. The third row has "New password" in the left column and an empty text input field in the right column. The fourth row has "Re Enter New password" in the left column and an empty text input field in the right column. Below the table are two buttons: a red "Clear" button on the left and a green "Submit" button on the right.

Figure C.12 Change Password Interface

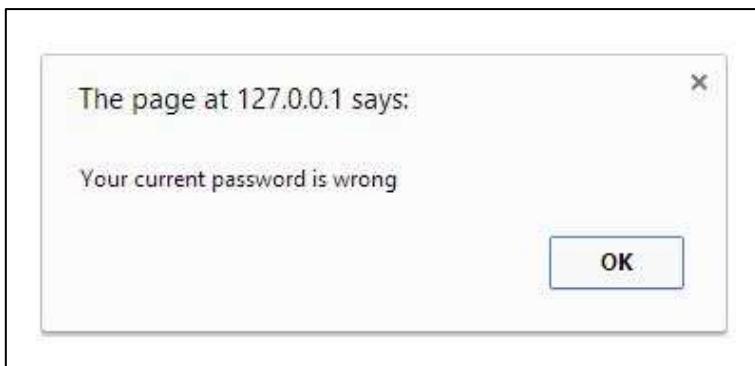


Figure C.13 Wrong Current Password

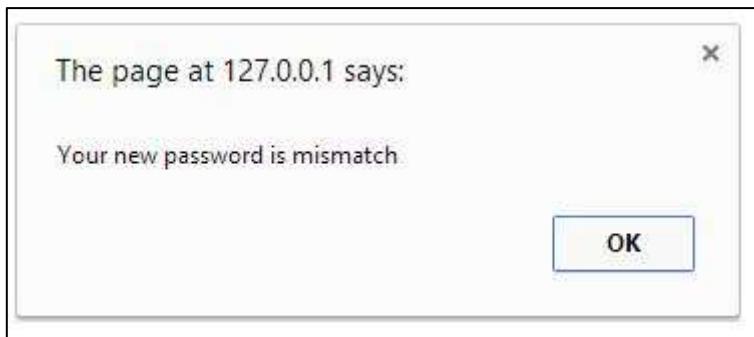


Figure C.14 Mismatch New Password



Figure C.15 Change new Password

## Administrator Interface

After user login as admin the Administration interface show the administration menu page and common body page. The administration interface is shown on the following Figure C.16 Administration Screen. The Admin menu page has some tabs such as Admin, Management, Service, Staff, Profile and report. The Admin link is navigating the interface to main screen. The Management tabs provides the branch, item, purchase, purchase bill, suppliers, vehicle, and salary details. The service tabs provides the customer, service, service type, service time, service item and bill details. The staff tabs provides the staff details, salary and monthly salary details. The service link shows the service details of each customers. The service type link shows the available types of services. Through the service time link admin can easily identify the service times. The Item link shows the available vehicle service items in Trinco Automobile. The service link provide a booking form for book through online. The message link provides the message details of that login customer.



Figure C.16 Admin Menu

The add new staff details link is only for administration. This link facilitate a form shown in following Figure C.17 for add new staff to this system. After enter the new staff details then click the submit button, the system will provide a success message. Refer in Figure C.18.

Add New Staff Details

Staff ID	ST010
Staff Name	
NIC	
Date of Birth	mm/dd/yyyy
Address	
Telephone Number	
Email	
Designation	Select The Designation
Branch Name:	Select The Branch
	<a href="#">Go Back</a> <a href="#">Reset</a> <a href="#">Submit</a>

Figure C.17 Add New Staff Form

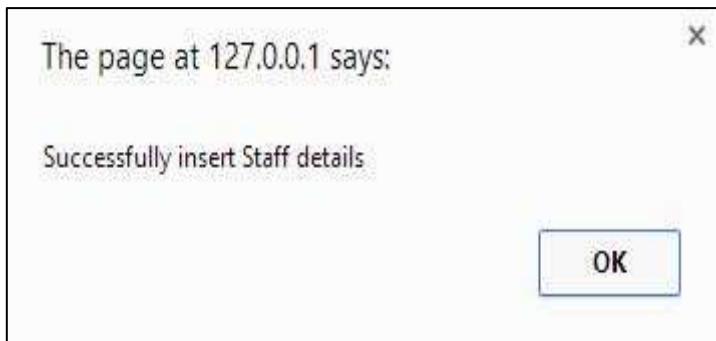


Figure C.18 successfully insert staff details

This staff view displayed with Staff id, Staff name, Address and Telephone number. Admin user can only use the view, edit and delete button. Refer in Figure C.19. Staff users can use the view and edit button. Other users can only use view button. Customer users cannot view the staff details.

View Staff Details					
<a href="#">New</a> <span style="float: right;">Search:</span>					
Staff ID	Staff Name	Address	Telephone Number	Action	
ST001	Sajith	SUTHUMALAI SOUTH, MANIPAY	777352055	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST002	Sujanthan	HOSPITAL ROAD, KONDAVIL	770649111	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST003	Jathusar	BROWN ROAD, JAFFNA	773296587	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST004	Mathes	K.K.S Road, Kondavil	774128576	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST005	Keerpatharan	No29, Central road, Trincomalee	777683173	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST006	Karan	No 56 Kathched Road, Trincomalee	750709831	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST007	Karan	Pirma factory road, Trincomalee	773048415	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST008	Thaya	on hill Road, Trincomalee	777570599	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST009	Kannan	K.K.S Road, Imevil	777123456	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	
ST011	Naveesh	Brown Road, Natur	732116544	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	

Figure C.19 Staff View Details

When you click view button the view all full information about the particular staff. Refer in Figure C.20. If the admin user and particular staff want to show a staff profile that time system provides the staff full view form.

Staff Details Full-View

Customer ID	ST006
Customer Name	Karan
NIC	796512368V
Date of Birth	1979-07-30
Address	no 56 Kachcheri Road, Trincomalee.
Telephone Number	0750709631
Email	karan@gmail.com
Designation	Clerk
Branch	Trincomalee

[Go Back](#) [Edit](#)

Figure C.20 Staff details Full view

If the Admin want to delete one staff from database at the time delete message box appear as this format. Refer in Figure C.21.



Figure C.21 Delete message

The add new Branch details link is only for administration. This link facilitate a form shown in following Figure C.22.

Add New Branch Details

Branch ID	BR004
Branch Name	
Address	
Telephone No	

[Go Back](#) [Reset](#) [Submit](#)

Figure C.22 Add new Branch form

The add new item details link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.23.

Add New Item Details	
Item ID	IT006
Item Name	<input type="text"/>
Price	<input type="text"/>
	<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>

Figure C.23 Add new Item form

The add new Suppliers details link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.24.

New Suppliers Details	
Supplier ID	SID011
Supplier Name	<input type="text"/>
Address	<input type="text"/>
Telephone Number	<input type="text"/>
	<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>

Figure C.24 Add new Suppliers form

The add new Vehicle details link is only for administration, branch manager and clerk. This form has drop down menu for the vehicle type detail. This link facilitate a form shown in following Figure C.25.

Add New Vehicle Details

Vehicle ID	VE006
Vehicle Type	Select The Vehicle Type
Model Year	Car Van Bus Lorry Three Wheeler Pickup
Vehicle Name	

Figure C.25 Add new Vehicle form

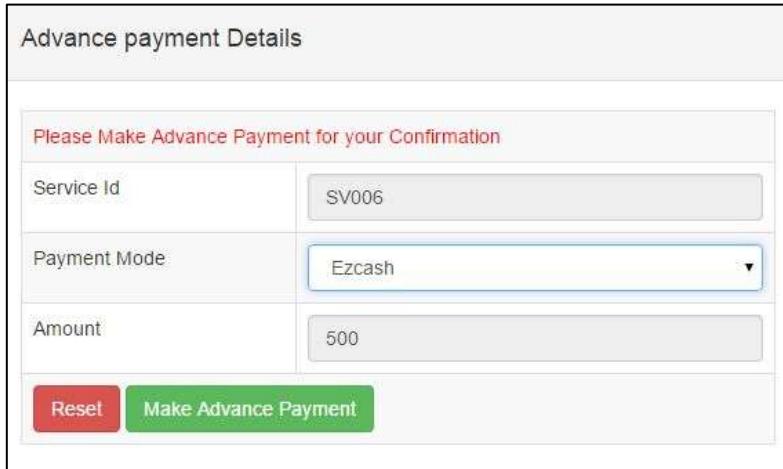
The add new Service details link is only for administration, branch manager, clerk and customer. This link facilitate a form shown in following Figure C.26. When admin, branch manager or clerk add a new service at the time first select the branch name. Then select the vehicle name. After that select the customer name. Then give the vehicle number, select the vehicle type, date, time, give the meter reading, after that if customer want to change engine oil or break oil they select the yes option. Finally status as pending.

Add New Service Details

Service ID	SV005
Branch Name	Select The Branch
Vehicle Name	Select the vehicle
Customer Name	Select The Customer
Vehicle Number	
Service Type	Select The Service Type
Date	09/29/2016
Time	Select The Time Today All Time are book
Meter Reading	
Engine Oil	Yes
Break Oil	Yes
Status	Pending
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.26 Add new Service form

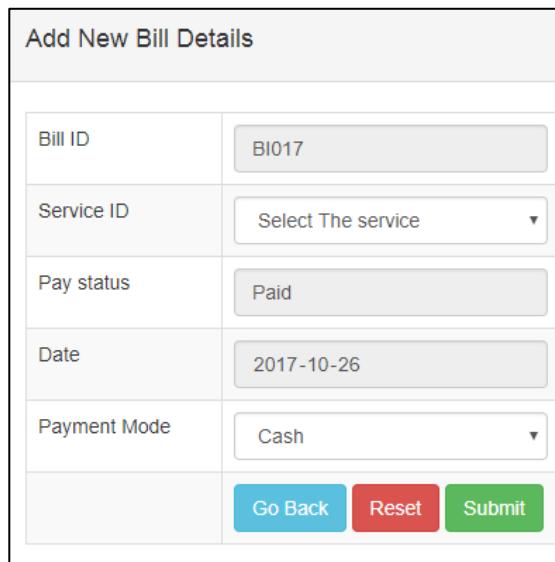
When click the submit button in service form after that advance payment form will display as this format. The form shown in following Figure C.27.



The screenshot shows a web-based form titled "Advance payment Details". At the top, there is a red error message: "Please Make Advance Payment for your Confirmation". Below this, there are three input fields: "Service Id" with value "SV006", "Payment Mode" with dropdown value "Ezcash", and "Amount" with value "500". At the bottom of the form are two buttons: a red "Reset" button and a green "Make Advance Payment" button.

Figure C.27 Advance payment details form

One customer finish his service admin, branch manager or clerk print the service bill. The form shown in following Figure C.28.



The screenshot shows a web-based form titled "Add New Bill Details". It contains five input fields: "Bill ID" with value "BI017", "Service ID" with dropdown value "Select The service", "Pay status" with value "Paid", "Date" with value "2017-10-26", and "Payment Mode" with dropdown value "Cash". At the bottom of the form are three buttons: a blue "Go Back" button, a red "Reset" button, and a green "Submit" button.

Figure C.28 Add new Bill

When admin, branch manager or clerk select the service id to make a bill at the time bill shows the additional details. This format shows the customer name, service type charge, service item details, then total payment, advance payment and balance payment details. Refer in Figure C.29.

Add New Bill Details		Bill Details	
Bill ID	BI017	Service ID	SV035
Service ID	SV035	Date	2017-10-25
Pay status	Paid	Time	09:00:00 - 11:00:00
Date	2017-10-26	Customer Name	Ramanan
Payment Mode	Cash	Service Type	Quick Wash
		Service Type Charge	Rs. 750
		<b>Service Items</b>	
		Total Service Charge	Rs. 750
		Advance Payment	Rs.500
		Balance Payment	Rs. 250

Figure C.29 Detailed Bill

The add new Service time link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.30.

Add New service time Details	
Time ID	TI007
Start Time	--:-- --
End Time	--:-- --
Number of customer	
	<b>Go Back</b> <b>Reset</b> <b>Submit</b>

Figure C.30 Add new service time

The add new Service type link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.31.

Add New service type Details

Servicetype ID	SVT008
Service Type	
Start Date	mm/dd/yyyy
End Date	mm/dd/yyyy
Price	
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.31 Add New Service Type

Through the message link, all users compose new message. The compose message view with this information. Refer in Figure C.32.

Compose

Message ID	ME004
Message To	CU001
Message From	ST001
Message	
<input type="button" value="Go Back"/> <input type="button" value="Clear"/> <input type="button" value="Submit"/>	

Figure C.32 Compose new message

Through the admin user, message view displayed with Message id, Message to and Message. Admin user can only use the view and delete button. Refer in Figure C.33. Other users cannot see this message.

Sent

Sent			
Message ID	Message To	Message	Action
ME002	CU001	Your Vehicle service finished. you can come and settle the balance payment.	<input type="button" value="View"/> <input type="button" value="Delete"/>
ME003	CU007	What are the service items you want?	<input type="button" value="View"/> <input type="button" value="Delete"/>

Showing 1 to 2 of 2 entries

Figure C.33 Received messages by admin user

Through the report link, admin user create the booking details report. Refer in Figure C.34.

The screenshot shows the 'Booking' section of the admin interface. It includes fields for 'Start Date' (09/01/2016) and 'End Date' (09/29/2016), and a 'Print' button. Below this is a 'Service Details' section containing a table with four rows of service information:

Service ID	Vehicle Name	Date	Customer	Status
SV001	Toyota Hiace	2016-09-07	Ramanan	Pending
SV002	Bajaj 125	2016-09-26	Ramanan	Pending
SV003	Toyota Hilux	2016-09-07	Ramanan	Pending
SV004	Nisaan March	2016-09-29	Kukesan	Pending

Figure C.34 Generate reports

### Branch Manager Interface

After user login as branch manager the branch manager interface has branch manager menu page and common body page. The branch manager interface is shown in following Figure C.35 Branch Manager Screen. In Branch manager menu page has some link such as manager, Management, Service, Staff, Profile and report.

The screenshot shows the branch manager menu. At the top, there's a header with the ATS logo and 'TRINCO AUTOMOBILE (PVT) LTD'. Below the header is a navigation bar with links: 'MANAGER', 'MANAGEMENT', 'SERVICE', 'STAFF', 'PROFILE', and 'REPORT'. A blue banner displays 'HOT LINE 021-320-2133'. The main body features a large image of a mechanic working under a car. To the right of the image is a 'SERVICE TIME' section with a table showing daily service hours:

Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

At the bottom right is a yellow button labeled 'BOOK FOR SERVICE'.

Figure C.35 Branch manager menu

## Clerk Interface

After user login as clerk the clerk interface has clerk menu page and common body page. The clerk interface is shown in following Figure C.36 Clerk Screen. In clerk menu page has some link such as clerk, Management, Service, Staff, Profile and report.



Figure C.36 Clerk menu

## Cleaner Interface

After user login as cleaner the cleaner interface has cleaner menu page and common body page. The cleaner interface is shown in following Figure C.37 cleaner Screen. In cleaner menu page has some link such as cleaner, Management, Service, Staff, Profile and report.



Figure C.37 Cleaner Menu

### Customer Interface

After user login as customer the customer interface has customer menu page and common body page. The customer interface is shown in following Figure C.38 customer Screen. In customer menu page has some link such as customer, Management, Service, Staff, Profile and report.



Figure C.38 Customer menu

The add new customer details link is only for administration, branch manager, clerk and customer. This link facilitate a form shown in following Figure C.39 for add new customer to this system. After enter the new customer details then click the submit button, the system will provide a success message.

Add New customer Details	
Customer ID	CU010
Customer Name	Enter your Name
NIC	Enter your NIC Number
Date of Birth	mm/dd/yyyy
Address	Enter your Address
Telephone Number	Enter your Telephone Number
Email	Enter your Email Address
	<b>Go Back</b> <b>Reset</b> <b>Submit</b>

Figure C.39 Add New Customer form

This Customer view displayed with Customer id, Customer name and Address. Admin user can only use the view, edit and delete button. Refer in Figure C.40. Staff users can use the view and edit button. Other users can only use view button.

Customer Details				
<a href="#">New</a> <span style="float: right;">Search:</span>				
10 <select style="width: 20px; height: 15px; border: 1px solid #ccc; margin-right: 5px;"></select> records per page				
Customer ID	Customer Name	Address	Action	
CU001	Ramaman	KOKUVIL, WEST KOKUVIL	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU002	Kukesan	171/3, MANIPAY ROAD, JAFFNA	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU003	Mathurangan	STANLEY ROAD, JAFFNA	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU004	Tharmathasan	HOSPITAL ROAD, JAFFNA	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU005	Vithusari	Kanniya Road, Trincomalee	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU006	Mathumilan	Customs Rd, Trincomalee	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU007	nagulan	Trincomalee Town	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	
CU008	Janagan	k.k.s Road, Jaffna	<span style="color: green;">View</span> <span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>	

Figure C.40 Customer view

When you click view button the view all full information about the particular customer. Refer in Figure C.41. If the admin user, branch manager, clerk and particular customer want to show a customer profile. That time system provides the customer full view form.

Customer Details Full-View	
Customer ID	CU007
Customer Name	nagulan
NIC	786935789V
Date of Birth	1978-04-09
Address	Trincomalee Town.
Telephone Number	0775687984
Email	nagu@gmail.com
	<a href="#">Go Back</a> <a href="#"> Edit</a>

Figure C.41 Customer full view

If the Customer want to edit the customer details at the time edit form display as this format. Refer in Figure C.42.

Edit The Customer Details	
Customer ID	CU007
Customer Name	nagulan
NIC	786935789V
Date of Birth	1978-04-09
Address	Trincomalee Town.
Telephone No	0775687984
Email	nagu@gmail.com
	<a href="#">Go Back</a> <a href="#">Reset</a> <a href="#">Save Changes</a>

Figure C.42 Customer Edit

The add new Service details link is only for administration, branch manager, clerk and customer. This link facilitate a form shown in following Figure C.43. When customer add a new service at the time first select the branch name. Then select the vehicle name. After that displays the login customer name. Then give the vehicle number, select the vehicle type, date, time, give the meter reading, after that if customer want to change engine oil or break oil they select the yes option. Finally status as pending.

Add New Service Details	
Service ID	SV035
Branch Name	Select The Branch
Vehicle Name	Select the vehicle
Customer Name	Select The Customer
Vehicle Number	Enter Vehicle Number
Service Type	Select The Service Type
Date	2017-10-25
Time	Select The Time
Meter Reading	
Engine Oil	Yes
Break Oil	Yes
Status	Pending
	<a href="#">Go Back</a> <a href="#">Reset</a> <a href="#">Submit</a>

Figure C.43 Add New Service Form

## APPENDIX D - MANAGEMENT REPORTS

The system allows the administrator, Branch manager and Clerk to generate reports with their appropriate power. They can generate these reports suppliers, Service types, bill and booking details.

### Supplier details report

TRINCO AUTOMOBILE (PVT) LTD.																																			
	<b>Head Office:-</b> No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee. 31000 Phone :- 026 326 5137, Fax:- 026 222 5299 Email:- trincoaspl@gmail.com	<b>Branch:-</b> Kalithadi Road, Maruthanarmadam, Jaffna. 40000 Phone :-021 320 2133 Fax:-021 224 1955																																	
<a href="#">Print Report</a>																																			
Suppliers Details																																			
<table border="1"><thead><tr><th>Supplier ID</th><th>Supplier Name</th><th>Telephone Number</th></tr></thead><tbody><tr><td>SID001</td><td>Kanthi Motors</td><td>776878745</td></tr><tr><td>SID002</td><td>Sun Lanka Auto Trade</td><td>112683929</td></tr><tr><td>SID003</td><td>Semini Motors (Pvt)</td><td>717689707</td></tr><tr><td>SID004</td><td>Udawatta Motors Pvt</td><td>115744496</td></tr><tr><td>SID005</td><td>Pathma Motor Stores</td><td>112925666</td></tr><tr><td>SID006</td><td>Japan Lanka Auto-Lan</td><td>112754639</td></tr><tr><td>SID007</td><td>Toyota Lanka</td><td>777939052</td></tr><tr><td>SID008</td><td>United Motors Lanka</td><td>112448112</td></tr><tr><td>SID009</td><td>Samarasinghe Motors</td><td>412222768</td></tr><tr><td>SID010</td><td>Jaffna Motors</td><td>774545412</td></tr></tbody></table>			Supplier ID	Supplier Name	Telephone Number	SID001	Kanthi Motors	776878745	SID002	Sun Lanka Auto Trade	112683929	SID003	Semini Motors (Pvt)	717689707	SID004	Udawatta Motors Pvt	115744496	SID005	Pathma Motor Stores	112925666	SID006	Japan Lanka Auto-Lan	112754639	SID007	Toyota Lanka	777939052	SID008	United Motors Lanka	112448112	SID009	Samarasinghe Motors	412222768	SID010	Jaffna Motors	774545412
Supplier ID	Supplier Name	Telephone Number																																	
SID001	Kanthi Motors	776878745																																	
SID002	Sun Lanka Auto Trade	112683929																																	
SID003	Semini Motors (Pvt)	717689707																																	
SID004	Udawatta Motors Pvt	115744496																																	
SID005	Pathma Motor Stores	112925666																																	
SID006	Japan Lanka Auto-Lan	112754639																																	
SID007	Toyota Lanka	777939052																																	
SID008	United Motors Lanka	112448112																																	
SID009	Samarasinghe Motors	412222768																																	
SID010	Jaffna Motors	774545412																																	

Figure D.1 Supplier details report

### Service type details report

TRINCO AUTOMOBILE (PVT) LTD.																										
	<b>Head Office:-</b> No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee. 31000 Phone :- 026 326 5137, Fax:- 026 222 5299 Email:- trincoaspl@gmail.com	<b>Branch:-</b> Kalithadi Road, Maruthanarmadam, Jaffna. 40000 Phone :-021 320 2133 Fax:-021 224 1955																								
<a href="#">Print Report</a>																										
Service type Details																										
<table border="1"><thead><tr><th>Servicetype ID:</th><th>Service type</th><th>Price</th></tr></thead><tbody><tr><td>SVT001</td><td>Quick Wash</td><td>750</td></tr><tr><td>SVT002</td><td>Detailed Wash</td><td>1500</td></tr><tr><td>SVT003</td><td>Wash &amp; Wax</td><td>2000</td></tr><tr><td>SVT004</td><td>Auto Wash</td><td>1000</td></tr><tr><td>SVT005</td><td>Exterior detail</td><td>1500</td></tr><tr><td>SVT006</td><td>Interior detail</td><td>1500</td></tr><tr><td>SVT007</td><td>Full Package</td><td>3000</td></tr></tbody></table>			Servicetype ID:	Service type	Price	SVT001	Quick Wash	750	SVT002	Detailed Wash	1500	SVT003	Wash & Wax	2000	SVT004	Auto Wash	1000	SVT005	Exterior detail	1500	SVT006	Interior detail	1500	SVT007	Full Package	3000
Servicetype ID:	Service type	Price																								
SVT001	Quick Wash	750																								
SVT002	Detailed Wash	1500																								
SVT003	Wash & Wax	2000																								
SVT004	Auto Wash	1000																								
SVT005	Exterior detail	1500																								
SVT006	Interior detail	1500																								
SVT007	Full Package	3000																								

Figure D.2 Service type details report

## Service bill details report

 <b>TRINCO AUTOMOBILE (PVT) LTD.</b>																									
<b>Head Office:-</b> No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee, 31000 Phone :- 026 326 5137. Fax:- 026 222 5299 Email:- trincoasp1@gmail.com																									
<b>Branch:-</b> Kalithadi Road, Maruthanarmadam, Jaffna, 40000 Phone :-021 320 2133 Fax:-021 224 1955																									
<input type="button" value="Print Report"/>																									
<b>Bill Details</b>																									
<table border="1"> <tr> <td>Service ID</td> <td>SV021</td> </tr> <tr> <td>Date</td> <td>2017-11-22</td> </tr> <tr> <td>Time</td> <td>07:00:00 - 09:00:00</td> </tr> <tr> <td>Customer Name</td> <td>nagulan</td> </tr> <tr> <td>Service Type</td> <td>Auto Wash</td> </tr> <tr> <td>Service Type Charge</td> <td>Rs. 1000</td> </tr> </table>		Service ID	SV021	Date	2017-11-22	Time	07:00:00 - 09:00:00	Customer Name	nagulan	Service Type	Auto Wash	Service Type Charge	Rs. 1000												
Service ID	SV021																								
Date	2017-11-22																								
Time	07:00:00 - 09:00:00																								
Customer Name	nagulan																								
Service Type	Auto Wash																								
Service Type Charge	Rs. 1000																								
<b>Service Items</b>																									
<table border="1"> <thead> <tr> <th>Item Name</th> <th>Unit Price</th> <th>Quantity</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Engine Oil - 2L</td> <td>Rs. 1700.00</td> <td>1</td> <td>Rs. 1700</td> </tr> <tr> <td>Radiator Coolen</td> <td>Rs. 570.00</td> <td>1</td> <td>Rs. 570</td> </tr> <tr> <td>Air Freshner</td> <td>Rs. 300.00</td> <td>1</td> <td>Rs. 300</td> </tr> <tr> <td>Polishing Cloth</td> <td>Rs. 100.00</td> <td>1</td> <td>Rs. 100</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>Rs. 2670</td> </tr> </tbody> </table>		Item Name	Unit Price	Quantity	Amount	Engine Oil - 2L	Rs. 1700.00	1	Rs. 1700	Radiator Coolen	Rs. 570.00	1	Rs. 570	Air Freshner	Rs. 300.00	1	Rs. 300	Polishing Cloth	Rs. 100.00	1	Rs. 100	Total			Rs. 2670
Item Name	Unit Price	Quantity	Amount																						
Engine Oil - 2L	Rs. 1700.00	1	Rs. 1700																						
Radiator Coolen	Rs. 570.00	1	Rs. 570																						
Air Freshner	Rs. 300.00	1	Rs. 300																						
Polishing Cloth	Rs. 100.00	1	Rs. 100																						
Total			Rs. 2670																						
<table border="1"> <tr> <td>Total Service Charge</td> <td>Rs. 3670</td> </tr> <tr> <td>Advance Payment</td> <td>Rs.500</td> </tr> <tr> <td>Balance Payment</td> <td>Rs. 3170</td> </tr> </table>		Total Service Charge	Rs. 3670	Advance Payment	Rs.500	Balance Payment	Rs. 3170																		
Total Service Charge	Rs. 3670																								
Advance Payment	Rs.500																								
Balance Payment	Rs. 3170																								

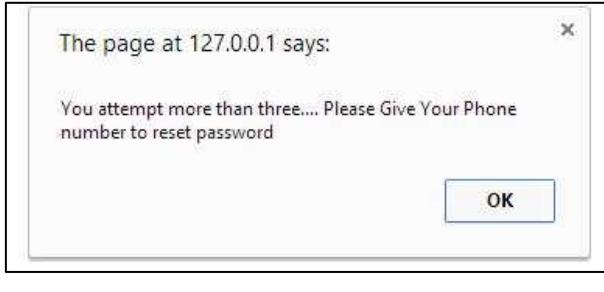
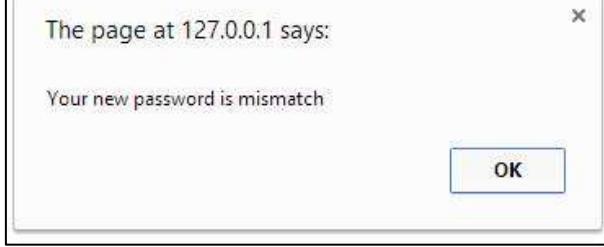
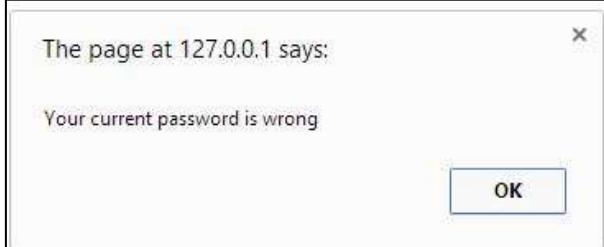
Figure D.3 Service bill details report

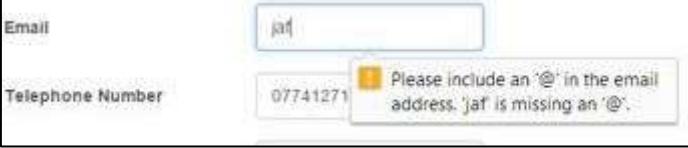
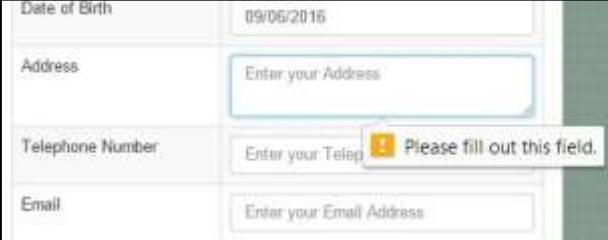
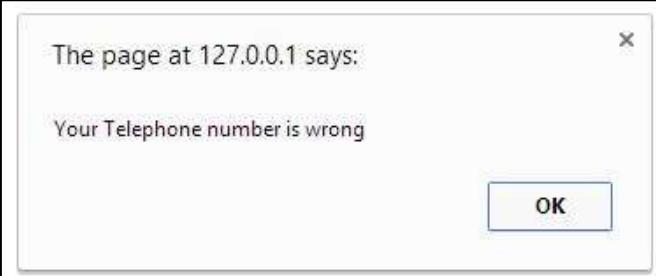
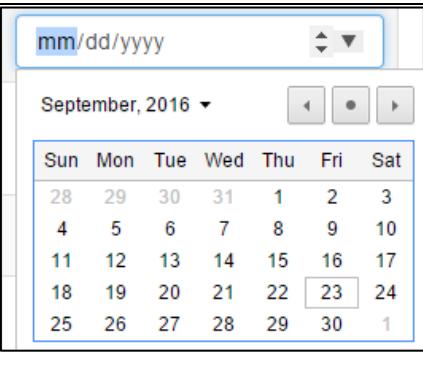
## Booking details report

 <b>TRINCO AUTOMOBILE (PVT) LTD.</b>																
<b>Head Office:-</b> No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee, 31000 Phone :- 026 326 5137. Fax:- 026 222 5299 Email:- trincoasp1@gmail.com																
<b>Branch:-</b> Kalithadi Road, Maruthanarmadam, Jaffna, 40000 Phone :-021 320 2133 Fax:-021 224 1955																
<input type="button" value="Print Report"/>																
<b>Booking</b>																
<table border="1"> <tr> <td>Start Date</td> <td>2017-10-18</td> </tr> <tr> <td>End Date</td> <td>2017-10-31</td> </tr> </table>		Start Date	2017-10-18	End Date	2017-10-31											
Start Date	2017-10-18															
End Date	2017-10-31															
<b>service Details</b>																
<table border="1"> <thead> <tr> <th>Service ID</th> <th>Vehicle Name</th> <th>Date</th> <th>Customer</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>SV035</td> <td>Nisaari March</td> <td>2017-10-25</td> <td>Ramanan</td> <td>Accept</td> </tr> <tr> <td>SV036</td> <td>Toyota Hilux</td> <td>2017-10-26</td> <td>Ramanan</td> <td>Pending</td> </tr> </tbody> </table>		Service ID	Vehicle Name	Date	Customer	Status	SV035	Nisaari March	2017-10-25	Ramanan	Accept	SV036	Toyota Hilux	2017-10-26	Ramanan	Pending
Service ID	Vehicle Name	Date	Customer	Status												
SV035	Nisaari March	2017-10-25	Ramanan	Accept												
SV036	Toyota Hilux	2017-10-26	Ramanan	Pending												

Figure D.4 booking details report

## APPENDIX E - TEST RESULTS

Test case	Screen short	Result
When we enter wrong Username or password	 <p>The page at 127.0.0.1 says:</p> <p>There is no such username</p> <p>Please enter correct password</p> <p>OK</p> <p>OK</p>	Pass
When we enter wrong password more than 3 times	 <p>The page at 127.0.0.1 says:</p> <p>You attempt more than three.... Please Give Your Phone number to reset password</p> <p>OK</p>	Pass
In change password, new password and retype new password are different	 <p>The page at 127.0.0.1 says:</p> <p>Your new password is mismatch</p> <p>OK</p>	Pass
In change password, wrong current password	 <p>The page at 127.0.0.1 says:</p> <p>Your current password is wrong</p> <p>OK</p>	Pass
Enter wrong format of telephone number	 <p>The page at 127.0.0.1 says:</p> <p>Enter 10 digit Mobile Phone Number</p> <p>OK</p>	Pass

Enter wrong format of E-Mail		Pass
Submit without enter value in mandatory field		Pass
Automatically calculate the number of items and total price		Pass
When enter Wrong mobile number		Pass
The date picker		Pass

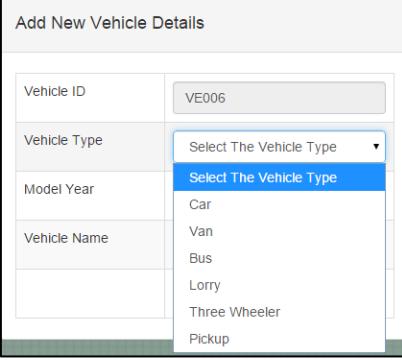
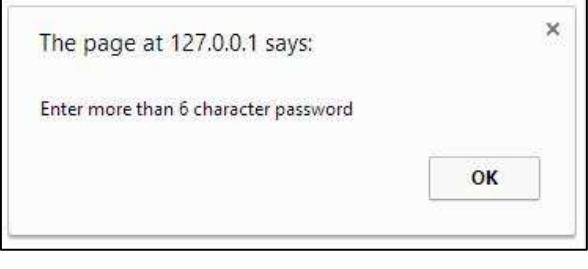
The drop down box shown		Pass
The available service type		Pass
Password more than 6 characters		Pass
Display print button in report		Pass

Table E.1 Test Results

## Acceptance test result

System was developed and we give the final system to the client and they satisfy with our system and give an acceptance report.

	<b>TRINCO AUTOMOBILE (PVT) LTD.</b>	
Head Office:- No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee. 31000 Phone :- 026 326 5137, Fax:- 026 222 5299 Email:- trincoasp1@gmail.com	Branch:- Kaithadi Road, Maruthanarmadam, Jaffna, 40000 Phone :-021 320 2133 Fax:-021 224 1955	
<b>User evaluation</b>		
Test case Number	Test Case	Satisfied? Yes? Or no?
01	New User Register Module	Yes
02	Administrator Module	Yes
03	Branch manager Module	yes
04	Clerk Module	Yes
05	Cleaner Module	Yes
06	Customer Module	Yes
07	Common Function Module	Yes
08	User Friendly of system	Yes
09	Clear of error messages, validation and verification code	Yes
10	Access the system	Yes
11	Overall perform of the system	Yes
12	User Education	Yes

How do you feel about the system?  
*The system was fully satisfied with our Requirements.*

Evaluated By: *B. Vinokanth*  
Signature:   
Date: *04.11.2017*

Trinco Automobile (Pvt) Ltd  
Kaithadi Road,  
Maruthanar Madam,  
Jaffna.

## APPENDIX F- CODE LISTING

**Store user id and user type in session:**

```
if(!isset($_SESSION))
{
    session_start();
}

if(isset($_POST['btn_submit']))
{
    $username=$_POST['txt_username'];
    $password=$_POST['txt_password'];

    $sql="SELECT * FROM login WHERE UserName='$username' AND Password='$password'";
    $result=mysql_query($sql) or die(mysql_error());
    $n=mysql_num_rows($result);
    if($n==1)
    {
        $row=mysql_fetch_assoc($result);
        $usertype=$row['UserType'];

        $_SESSION['username']=$username;
        $_SESSION['usertype']=$usertype;
        header("location:index.php?pg=home.php");
        exit;
    }
}
```

**Session out:**

```
<?php
if(!isset($_SESSION))
{
    session_start();
}

// destroy all session value
session_destroy();
```

```
header("location:index.php");
```

```
?>
```

### Only number input in text-box:

```
function isNumberKey(evt)
```

```
{
```

```
    var charCode = (evt.which) ? evt.which : event.keyCode;
```

```
    if (charCode != 46 && charCode > 31 && (charCode < 48 || charCode > 57))
```

```
        return false;
```

```
        return true;
```

```
}
```

### Only text input in text-box:

```
function isTextKey(evt)
```

```
{
```

```
    var charCode = (evt.which) ? evt.which : event.keyCode;
```

```
    if (((charCode > 64 && charCode < 91) || (charCode > 96 && charCode < 123) || (charCode == 08 || charCode == 127 || charCode == 32 || charCode == 46) && (!(evt.ctrlKey && (charCode == 118 || charCode == 86))))
```

```
        return true;
```

```
        return false;
```

```
}
```

### More than six characters password:

```
function password()
```

```
{
```

```
    var str = document.getElementById("txtpassword").value;
```

```
    var res = str.length;
```

```
    if(res>6)
```

```
    {
```

```
        return true;
```

```
    }
```

```
    else
```

```
    {
```

```
        alert("Enter more than 6 character password");
```

```

        document.getElementById("txtpassword").value="";
        return false;
    }
}

```

### **Validation for hand phone number:**

```

function hand()
{
    var str = document.getElementById("txtteleno").value;
    var res = str.substring(0, 2);
    if(res=="07")
    {
        return true;
    }
    else
    {
        alert("enter 10 digit of hand phone number");
        document.getElementById("txtteleno").value="";
        return false;
    }
}

```

### **Make alert for delete details**

```

function deletedata() // make alert for delete details
{
    var x=confirm("Are You Sure delete this record");
    if(x)
    {
        return true;
    }
    else

```

```

    {
        return false;
    }

Validation for NIC number:

function validatenic()

{
    var nic=document.getElementById("txtnic").value;

    if(nic.length==10)

    {
        var nicformat1=/^([0-9]{9}[a-zA-Z0-9]{1})$/;

        if(nic.match(nicformat1))

        {
            var nicformat2=/^([0-9]{9}[vVxX]{1})$/;

            if(nic.match(nicformat2))

            {

                }

            else

            {
                alert("last character must be V/v/X/x");

                document.getElementById("txtnic").value="";

                document.getElementById("txtnic").focus();
            }
        }
    }

    else

    {
        alert("First 9 characters must be numbers");

        document.getElementById("txtnic").value="";
    }
}

```

```

        document.getElementById("txtnic").focus();

    }

}

else if(nic.length==12)

{

var nicformat3=/^([0-9]{12})$/;

if(nic.match(nicformat3))

{



else

{

alert("All 12 characters must be number");

document.getElementById("txtnic").value="";

document.getElementById("txtnic").focus();

}

}

else if(nic.length==0)

{

}

else

{

alert("NIC No must be 10 or 12 Characters");

document.getElementById("txtnic").value="";

document.getElementById("txtnic").focus();

}

}

```

## APPENDIX G- CLIENT CERTIFICATE



### TRINCO AUTOMOBILE (PVT) LTD.

Head Office:-  
No-301 B/1, Kanniya Road,  
Varothayanagar , Trincomalee. 31000  
Phone :-026 326 5137, Fax:- 026 222 5299  
Email:- trincoasp1@gmail.com

Branch:-  
Kaithadi Road, Maruthanarmadam,  
Jaffna. 40000  
Phone :-021 320 2133 Fax:-021 224 1955

BIT Coordinator  
University of Colombo School of Computing,  
Colombo – 07.

Dear Sir/Madam

#### LETTER OF CERTIFICATION

This is to certify that Mr. Thayaparan Matheeban has successfully designed and developed a Web based Vehicle Service management System for Trinco Automobile. The project was undertaken by his partial fulfillment of a requirement for the Bachelor of Information Technology Degree Program.

The system was fully satisfied with our requirements and this system, web based management system would be solution for us and our customer. From this system customer can easily make booking through online and also enabled the smooth operation of our company to manage booking. It has enhanced our relationships with customer. I'm pleased to certify that the system developed by Mr. Thayaparan Matheeban fulfill the requirements of the company and could be used as our management system and host to public use.

Thank you

Yours Faithfully



Trinco Automobile (Pvt) Ltd  
Kaithadi Road,  
Maruthanar Madam,  
Jaffna.

Mr B. Vinokanth  
Manager  
Trinco Automobile  
04, 11, 2017

# **GLOSSARY**

Apache – Open source web server.

PHP – Hypertext Pre-Processor, it is one of the famous server side scripting languages.

CSS – Cascading Style Sheet described how the structured element must be rendered on screen or on media.

JavaScript – it is one of the Client-side scripting languages.

Database – The backend storage of system.

SDLC – Software Development Life Cycle is a structure imposed on the development of a software product.

OO – Object Oriented, is an approach to designing modular, reusable software systems.

UML – Unified Modeling Language, is a graphical language for visualizing, specifying, constructing and documenting the artifacts of a software-intensive system.

WWW – World Wide Web.

Web browser – is software to access the web.

GUI – Graphical User Interface, utilized to support user interaction with system.