

University of Portsmouth
Technology Extended Campus
Honour's project undertaken in partial fulfillment of the requirements for the
BSc (Honours) Degree in Computing

“Mobile Vehicle Claiming System (MVCS)”

By

Thilini Shashikala Padmasekera

HEMIS No. 381707

Supervisor: Ms.Tharangini Perera

Project unit Code PJ330

November 2007

Abstract

Today, any business in any industry is conducting at a very competitive phase. All the companies wanted to have key competitive edge over the competitors. So they are always trying to give the best but new things to their customers by using the minimum resources with the use of minimum amount of time. This is very challenging because customers are demanding for many things and if they are not satisfied with what they get from a particular company then they quickly move in to the next alternative option and that could be a favor to the competitors. Key objective of any company is to be the market leader by grabbing a larger market share. In order to do this, the company has to give the best product or service to the customer effectively and efficiently. Like in any other business, the insurance industry is also very much competitive in Sri Lanka. Since the customers are very demanding due to the various options available in the market, the Ceylinco has to give their best service to the customers very effectively and efficiently. New technologies would highly help the company to provide a superior service to their valued customers. Therefore it is important to adopt a fully computerized system with the use of current technologies in order to raise the level of customer service provided by the company.

This project, Mobile Vehicle Claiming System is mainly built to support the Ceylinco Insurance Company Limited in order to help them to perform their claiming process effectively and efficiently. This project builds a solution for Ceylinco by gathering user requirements from various forms such as interviews.

In this project, a system which is completely functional is developed as the prototype version that enables the operation staff to perform their activities very effectively and efficiently. This project also enables the agents who are working out the side the Ceylinco premises to link up with the MVCS and to perform their claiming process in acceptable manner. The agent can access the main Database with the use of PDA which has the connectivity of GPRS, via the VIP web service

Keyword List

Mobile Vehicle Claiming System, Online Claiming Management system, PDA, Web Service, GPRS, Console Interface Module, Client Interface Module

Acknowledgement

First and foremost I would like to express my sincere gratitude to my project supervisor Ms Tharangani Perera for all her kind support and assistance given throughout the project. The courage she gave by assessing each and every step of my project and providing quick response, are very much valued. I also take this as an chance to thank DGM Information technology Mr. P.B.M. Fernando, Mr. Dammika from Ceylinco VIP center and all the staff of Ceylinco Insurance Company Limited for spending their precious time to provide support and assistance also by providing priceless information to the project. Also my friends Nandana, Gimhan, Ajith, Himantha and all the others who shared their valuable information and experience to succeed my project.

Last but not least to my darling mother and my family mates for all the scarifies they made by assisting and encouraging for the project and all my studies.

Thank You.
Thilini Padmasekera

“Mobile Vehicle Claiming System”

Submitted by - Thilini Shashikala Padmasekera

Date – 5th November 2007

Student ID - 100191060294

Supervised by - Ms.Tharangini Perera

Type of project - Engineering

**In partial fulfillment of the award of a Bachelor of Science (Honours) Degree in Computing
by the University of Portsmouth.**

DECLARATION

I hereby declare that this is the result of my own investigations and my indebtedness is indicated in the bibliography and elsewhere in the text. I also declare that the documentation submitted is my work and not extracted from any websites or Internet Sources.

Plagiarism Declaration

I confirm that the enclosed assignment including any associated software is entirely my own work except where explicitly stated otherwise. I further declare that when such other work is used it only supports my own work and its inclusion is in accordance with normal scholarly conventions.

Signed by - Thilini Shashikala Padmasekera

Date: 5th November 2007

<http://mydropbox.com/g.pl?i=772491&d=5563e25df3bd6cd2af8b7ea598c99ced>

Paper Information

Student Name: thilini	Class: 2007_03_05_cyber	Save report to disk: <input type="button" value="Save"/>
Student Email: thilini_padmasekera@yahoo.com	Submission: 98246	Print version: <input type="button" value="Print"/>
Title: thilini_projectdraft	Submitted: 2007-11-04 00:48:29 EST	
Matching: <input type="text" value="7%"/>	Paper ID: 772491	

Suspected Sources

- <http://www.handheld-pcs.com/buster.asp?l=P>
- <http://www.igroupltd.co.uk/solutions/industry-solutions/insurance-solutions.html>
- <http://www.prometheusconsulting.com/newsletter/030201.htm>
- http://www.comsure.com.au/uploads/Comsure_Motor.doc
- http://www.centreval.com.au/claim_forms/allianz_mv_claim.pdf
- http://www.aberrossoftware.com/products_faq.php
- http://en.wikipedia.org/wiki/Integration_testing
- <http://www.hardwaredude.com/post-1767.html>
- <http://www.littledomdiggest.com/talkingQuality.htm>
- <http://www.bollywoodstuff.info/index2.html>

Re-process the paper without these sources

Paper Text

This chapter will introduce the project MVCS to the reader. It will also hold descriptions about the project background, reasons to the project, technologies used, project's aim and objectives. This will help the reader to have a basic understanding about the project and how it would be carried out.

Ceylinco Insurance Company Limited is undoubtedly the best insurance company in Sri Lanka. In the past few decades its main competitor was CTC eagle insurance company. Then came Janashakthi Insurance and other insurance companies. The Ceylinco group is now a major business enterprise in Sri Lanka. The Ceylinco group has banks, real estate, housing schemes, production houses, etc in its magnificent enterprise. The company has also been a social worker in many ways where its founder Dacharananwala Lalith Kathawala has worked towards the benefit of many poor families. The nationwide *poor relief* campaign conducted by

Table of Content

1. Introduction to the Project	10
1.1 Introduction	11
1.2 Situation Overview	11
1.2.1 Company Background	11
1.2.2 Vehicle Claiming System	11
1.3 Presenting Problem	12
1.4 Project Aim and Objectives	12
1.5 Introduction to PDA mobile updating system	13
1.6 Application Overview	13
1.7 Summary	14
2. Review of the current policy, problems and technical solutions	15
2.1. Introduction	16
2.2. Ceylinco Insurance Service	16
2.2.1 Features of the current VIP claiming method	16
2.2.2 Problems and limitations	18
2.3. Requirement of a PDA mobile updating system	18
2.4. Similar system existing in other industries	19
2.5. What is a PDA & web service?	20
2.5.1 What is PDA?	20
2.5.2 Payment and synchronize with the web server	22
2.6 Management aspect of MVCS to Ceylinco Insurance	23
2.7 Summary	23
3. Requirements Analysis	24
3.1 Introduction	25
3.2 Overview of the Current Claiming System Requirements	25
3.3 Requirement Collection Plan	26
3.4 Requirements Gathering	27

3.4.1 The Fact Finding Techniques	27
3.5 Requirement Specification for MVCS	33
3.5.1 Functional Requirements	33
3.5.2 Non-Functional Requirements	34
3.5.3 Performance Requirements	35
3.5.4 Technical Requirements.....	35
3.5.5 Usability Requirements.....	36
3.6. Models of the current system.....	37
3.6.1 Identifying use cases.....	37
3.6.2 Use case diagrams.....	38
3.6.3 Activity diagram for the current system - Customer & Policy registration Process.....	39
3.6.4 Activity diagram for the current system – Vehicle Claiming Process.....	41
3.7. Problems and limitations of the current system.....	42
3.8 Models of MVCS.....	43
3.8.1 Identifying use cases.....	43
3.8.2 Use case diagrams for MVCS.....	44
3.9 Summary.....	45
4. System Design.....	46
4.1 Introduction.....	47
4.2 Overall System Architecture.....	47
4.2.1 Application Layer.....	48
4.2.2 Presentation Layer.....	48
4.2.3 Data Layer.....	48
4.3 Software Architecture.....	48
4.4 Module architecture.....	50
4.5 Database design.....	59
4.6 Interface design.....	62
4.7 Class Diagram for Proposed MVCS.....	70
4.8 Activity Diagram for Proposed MVCS.....	71
4.9 Summary.....	73

5. System testing and Implementation	74
5.1 Introduction	75
5.2 Program Development – Technology Considerations	75
5.2.1 Language Selection	75
5.2.2 System Development Strategy	78
5.3 Testing	79
5.3.1 System Testing Objectives	79
5.3.2 Testing Strategy	80
5.3.3 Test Plan	81
5.3.4 Test Results	84
5.4 Implementation Plan	106
5.4.1 System overview	106
5.4.2 Major tasks on system implementation	106
5.4.3 Installation	107
5.4.4 System Changeover	107
5.4.5 Data Conversion	107
5.4.6 User Training	108
5.5 Summary	108
6. System Evaluation	109
6.1 Introduction	110
6.2 Types of Evaluation	110
6.3 Evaluation of Project Outcome	110
6.4 Significance of the Solution	114
6.5 Evaluation of Project Practices	114
6.6 Summary	116
7. Conclusion	117
7.1 Introduction	118
7.2 System Summary	118
7.3 Future Enhancement	118

7.4 Authors Conclusion	120
7.5 Critical Appraisal	120
7.6 Summary	121
REFERENCE	122
Appendix A – Code Listing	124
Appendix B – Project Specification	131
Appendix C – Project Plan	137
Appendix D – Interview Summary	138
Appendix E – Sample of Questionnaires	140
Appendix F – Summary of the Fact-findings	142
Appendix G – Steps of Normalization & Database Design	144
Appendix H – Test Results of Online Claiming Management System	149
Appendix I – Installation and Configuration	154
Appendix J– Approval Letter	168

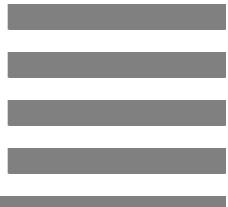
List of Figures

Figure 1.1 - Proposed System Overview	14
Figure 2.1 - Current System Overview	17
Figure 2.2 - Web Service Technology and working procedure	22
Figure 3.1 - Satisfactory Level of Current Claiming Procedure	31
Figure 3.2 - Satisfactory Level of Current Customer Registration Process	31
Figure 3.3 - Satisfactory Level About the current system	32
Figure 3.4 - Satisfactory level on Accepting and Rejecting the proposed system	32
Figure 4.1 - Overall Systems Architectural Design	47
Figure 4.2 - Overall Software Architectural Design	49
Figure 5.1 - System Development Order	78

List of Tables

Table 3.1 Requirement Collection Plan	26
Table 3.2 Interview Plan	28
Table 3.3 Questionnaire – Agent	29
Table 3.4 Questionnaire – Staff	30
Table 3.5 Identifying Use case	37
Table 3.6 Identifying Use case	43
Table 5.1 Test Scenario Description	82
Table 5.2 Test Scenario Description	83
Table 6.1 Functional Evaluation – PDA	111
Table 6.2 Functional Evaluation – Online Claim Management System	112
Table 6.3 Usability Evaluation	113
Table 6.4 Significant solution Provided	114

CHAPTER 1



Introduction to the Project

1.1 Introduction

1.2 Situation Overview

 1.2.1 Company Background

 1.2.2 Vehicle Claiming System

1.3 Presenting Problem

1.4 Project Aim and Objectives

1.5 Introduction to PDA mobile updating system

1.6 Application Overview

1.7 Summary

Introduction to the Project

1.1 Introduction

This chapter will introduce the project MVCS to the reader. It will also hold descriptions about the project background, reasons to the project, technologies used, project's aim and objectives. This will help the reader to have a basic understanding about the project and how it would be carried out.

1.2 Situation Overview

1.2.1 Company background

Ceylinco Insurance Company Limited is undoubtedly the best insurance company in Sri Lanka. In the past few decades its main competitor was CTC eagle insurance company. Then came Janashakthi Insurance and other insurance companies. The Ceylinco group is now a major business enterprise in Sri Lanka. The Ceylinco group has banks, real estate, housing schemes, production houses, etc in its magnificent enterprise. The company has also been a social worker in many ways where its leader Deshamanya Lalith Kothalawala has worked towards the benefit of many poor families. The nationwide peace project named solo-u is a program conducted by Deshamanya Lalith Kothalawala backed by the Ceylinco Group.

Ceylinco insurance has its branches open in all Provinces of the country and it has covered many districts. Since the liquidity of vehicles are very much dens in the Colombo district naturally most of the company's workforce is situated in Colombo.

Ceylinco is booming in this area of the insurance industry and intends to further improve on the aspects of its service to the clients and optimizing profit to the company.

Ceylinco Insurance Company Limited is the selected company for the development of the Mobile Vehicle Claming System (MVCS). It is one of the most established insurance companies in Sri Lanka. It was the company that pioneered the 'on the spot' vehicle insurance claiming concept in Sri Lanka. Ceylinco Insurance branded it as the "Ceylinco VIP" service.

The company has categorized the Ceylinco VIP on the spot insurance scheme according to the customers as Private Car claiming method, Commercial Vehicle claiming method, Motorcycle claiming method.

1.2.2 Vehicle Claiming System

When the vehicle meets with a motor accident the usual practice was to wait until the police produce a report of the motor accident. By the time the reports are generated the vehicle owner would have to bare the cost of repairs on his own before claiming it form the insurance company. This sometimes took more than 2 weeks in the past. With the 'on the spot' cash insurance policy, this entire burden has now been terminated.

This service is provided throughout the island at any time of the day. All the vehicle owner has to do is to call the hotline of the insurance company. The insurance company then contacts the regional office and its' claiming officers to visit the site of the motor accident. The claiming staff member will consider the level of accident and damages and Insured value of the vehicle.

The experienced claiming staff member will assess the damages on his personal judgment. If the insuring value is less than the market value of the vehicle he would not be entitles to the full amount of the payment.

1.3 Presenting Problem

Many activities of the vehicle claiming process are currently done manually and due to this reason two main failures can occur

- Giving a less amount to the customer
- Paying an amount that is more than the real damage cost

According to the normal vehicle insurance claiming procedure, when there is an accident, the respective vehicle claiming staff member will visit the location of the accident. Then he calculates cost of the damage based on different factors such as damages, insured value of the vehicle and the market value of the vehicle. The staff member will just pay for the damage by considering an average price of a damaged vehicle component without referring to the actual market price. Another point that should be taken into consideration is that the same component of different vehicle types has different prices. Also such prices are always volatile in an economy such as Sri Lanka. So it is difficult as to keep in touch with market value variations manually. This will effect the customer and the company in different adverse ways.

If company pays lesser amount to the customer than the actual price, then the customer will fall in to a trouble by not being able to purchase the damaged vehicle component for the received amount. It will also create a bad reputation to the insurance company and result in breaking the faith the customer has on the company.

If staff member pays a higher amount than the actual damage to the customer, then it will create a loss to the company.

There had been incidents of vehicle owners and claiming officers teaming up to fabricate accidents and gain through over calculated claims. There is no room for such mischief if the exact values are gains from an updated database.

Another major problem faced by the company is that, it has to wait until the staff member provides the clients payment details in order to update because the claiming staff member has no real time update facility with the company database.

The real time access facility to the current claiming system would be like how PepsiCo does with PDA's (**Note :- case is available in chapter 2**). This will save a considerable period of time and effort. This also would reduce human errors on the data that has been updated because the claiming data is not updated after a delay and not by a different data operator. If all these errors are not dealt with, it will lead to produce an erroneous report at the end of the year.

1.4 Project Aim and Objectives

Aim

To streamline all 'on the spot' vehicle claims online with minimum effort and maximum accountability to the benefit of the customer as well as insurance company.

Objectives

- To develop a user friendly system to handle the vehicle claiming process to both the vehicle owner and the claiming staff member.
- To monitor activities of independent claiming staff members.
- To make evaluations of damages more effectively and efficiently through access to an online database.

- To maximize profits on the long run
- To improve customer satisfaction by the reduction of miscalculated claims.

1.5 Introduction to PDA Mobile Updating system

The PDA (**P**ersonal **D**igital **A**sistant) is a handheld computer. It functions as a personal information manager. Wireless PDA's offer e-mail and internet facility through GPRS, Web browsing and cellular phone service. Data can be synchronized between the PDA and a desktop computer via a cabled connection or wireless beaming process.

The PDA can also install applications and run such applications online. The MVCS model system will also be an application which will have a user interface for uploading and downloading data.

1.6 Application Overview

Mobile Vehicle Claming System is the proposed application to be installed in PDA's given to claiming staff members. By installing a system like MVCS, the following benefits will be received by the company.

MVCS will help the vehicle claiming staff member to pay the most reasonable amount to the customer for the damage. This system will help the vehicle claiming staff member to do his work effectively and efficiently. This will help to boost the efficiency of the vehicle claiming process and increase the productivity of the insurance company. MVCS will help to reduce the human errors made by other staff members (like data operating staff members), since it provides the real time access and update facilities to the staff member. This will help improve better customer relationship by providing the most effective and efficient service to the customer. This system will help the company to take better managerial decisions.

By using MVCS, the staff member can directly link to the web service of the insurance company and is able to acquire only related information. Through the web service he can get details of each damaged vehicle part (e.g. price of a buffer of maruti vehicle). And this information will be updated in the company database according to the market condition. The claiming staff member will have the most updated information and he will be able to pay the most reasonable amount for the damage of the vehicle to the customer.

To do this there should be a PDA Mobile device that is given to the claiming staff member and through that he can get connected to the insurance company database via a web service. Staff members can enter all the details regarding the vehicle accident to the PDA device which will connect to the web service. By this system, the staff members can get the exact price of the vehicle part that should be paid via the PDA Mobile device.

What happens is, that at a claiming situation the claiming officer logs on to the company database through the PDA, GPRS and a web service to the company database. The PDA would have an application installed for web browsing. The browser would allow the claiming staff member to log in to the database. Then the officer has to verify the data such as the place of the accident, the name of the customer, etc. Then he would immediately log on the customers personal section of the company's main database. It would automatically detect the insurance policy involved and the amount of the premium. He would then send the data of the damaged parts of the vehicle and other claims. These will also be quickly assessed according to the current market prices and the claiming amount would be calculated and sent to the PDA through the web service and it would only take a matter of a few seconds.

Every action taken in the process will be recorded and stored in a database and all the actions taken can be monitored as and when it happens.

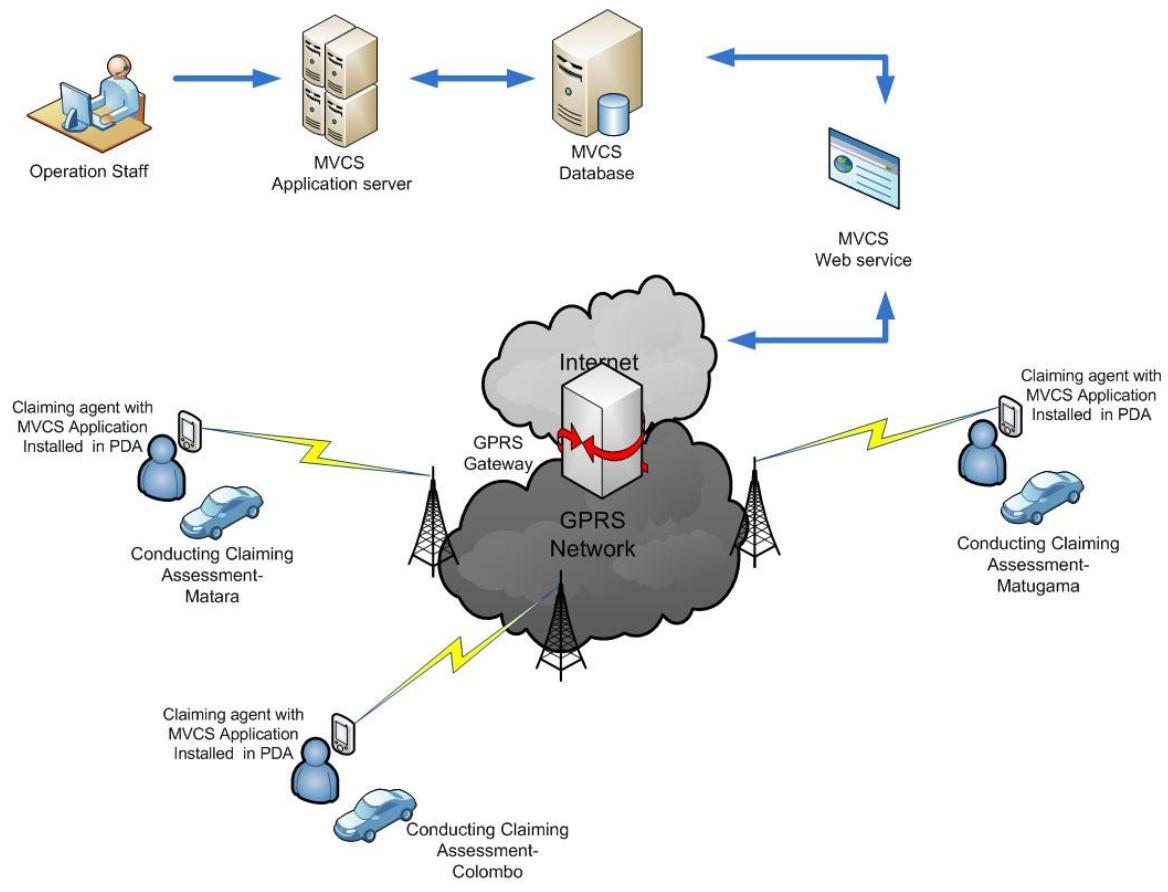
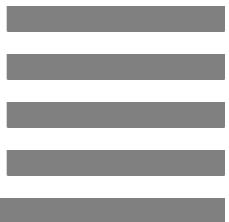


FIGURE 1.1
Proposed System Overview

1.7 Summary

This chapter makes the reader understand what the project is, why it is needed, technologies used and the implementation. The Ceylinco Insurance Company will be introduced the mobile application called MVCS to its insurance claiming staff members. Ceylinco doesn't have control of the loss by miscalculations due to human error. The introduction of mobile applications would benefit the company in many ways. This would be done through the use of PDA's.

CHAPTER 2



Review of the current policy, problems and technical solutions

- 2.1. Introduction
- 2.2. Ceylinco Insurance Service
 - 2.2.1 Features of the current VIP claiming method
 - 2.2.2 Problems and limitations
- 2.3. Requirement of a PDA mobile updating system
- 2.4. Similar system existing in other industries
- 2.5. What is a PDA & web service?
 - 2.5.1 What is PDA?
 - 2.5.2 Payment and synchronize with the web server
- 2.6 Management aspect of MVCS to Ceylinco Insurance
- 2.7 Summary

Review of the current policy, problems and technical solutions

2.1 Introduction

In this Literature review we shall learn more about the Ceylinco Insurance Company and how the VIP vehicle claiming system already works. The faults and mishaps of the current system will be evaluated and the use of the PDA would be proposed as a solution for these problems. The web service technology will also be used to describe the MVCS vehicle claiming system.

2.2 Ceylinco Insurance Service

2.2.1 Features of the current VIP claiming method

Ceylinco had introduced many insurance policies in the past but the recent policy introduced by them has taken a twist in the whole insurance industry in Sri Lanka. The VIP on the spot insurance scheme has become very popular amongst the vehicle owners of Sri Lanka. The policy features in bringing the claiming officer to the scene of the motor accident on the delay of a phone call. The claiming staff member or officer will then assess the damages and pay the client according to the premium and other evaluation methods used by the company. This has resulted in many customers opting for the VIP policy and former customers had wanted to convert their old policies to new VIP policies.

The claiming process happens in the following way;

The vehicle meets up with a motor accident, where it could be a collision while the driver is driving on the road with another vehicle or a collision with a stationary object on the side of the road such as a lamp post. At times in a motor accident we are able to find the two parties involved and at times a party could flee away without halt after the accident. Sometimes there is no proof as to how the accident occurred if it happened in a remote area. Then the insurance claiming officer investigates the incident with his personal judgment to verify the authenticity of the accident.

Then the claiming officer is called in through the company hotline. He visits the accident place and makes his observations on the surrounding environment as to how the accident occurred. He would also check if there were physical injuries involved. He would also make a notice of the damage which has taken place to another party if it is visible. He would also make a note on the nature of the driver as to whether he was drunk at the time of the accident. Then he would have to make an observation on the body of the car to evaluate damages. The damage at that time is to be assessed very carefully because he has to make sure that the damage was due to the same accident on that spot.

Then after making notes of these observations he has to take photographs of each damaged item and possible causes of damages. As an example we could take an incident where a car buffer hits a lamp post. The claiming officer would have to take a photograph of the buffer and the lamppost with clear evidence of an impact.

The vehicles engine would be checked to see for its road worthiness. The insurance officer has to make sure that the vehicle is functioning well after the accident if it has to be driven again. Otherwise the driver might meet with another accident if the vehicle is not in good condition to drive. If it is not in any condition to be moved then Ceylinco has a new feature called road side assistance where a team of mechanics and engineers from Ceylinco itself would repair the vehicle. This feature is not for all VIP policy holders.

Next step is for the evaluation. The calculation is done manually by the claiming officer and amount is detailed accordingly. Then the claiming officer awards the money after the client's policy documents and other identifications are all verified. The officer gains a signature of acceptance from the client in the form of a receipt of the cash.

Then the claiming officer would have to develop the photographs on hard copy and note down on a detailed folder at his office. After all the paper work is done he hands it over to his manager. The manager would collect all the claims weekly and send it to the head office where it would be entered to the company database by a data entering officer.

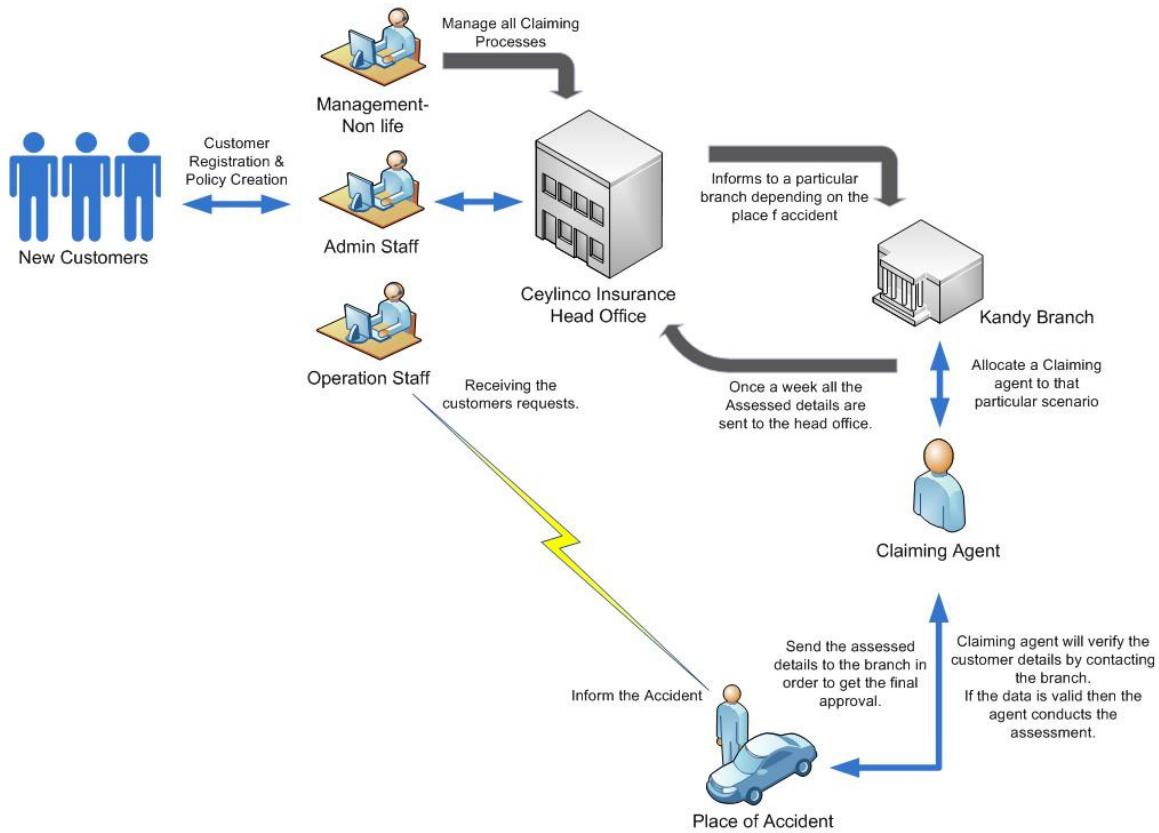


FIGURE 2.1

Current System Overview

2.2.2 Problems and limitations

The main problems encountering this process system is that at times the claiming officer names an amount more than the amount actually needed for repairs. The result is that the insurance company loses come if its profits. The other side of the problem is that the evaluation is done less than the actual cost of repairs. When this happens the client vehicle owner is highly dissatisfied with the insurance company. This affects the good name of the company and its relationship with the clients.

Also we noticed that though the money is given at the time without delay, the data updating process of the claim takes a very long time. Also the paper work done has to be done twice which namely is the rough papers at the place of the motor accident and the papers at the office of the claiming officer. This results in the waste of time.

We have observed that most of the claiming officers travel by motor bikes and the company had heard of documents been damaged on the way. Since vehicle claiming officers have to travel all over the country and there is no rain protection or much protection on a motor bike the documents have been damaged or lost in delivery.

Also it takes an extra effort and time to send the hard copies of photographs to the head office. It is much easier if the documents could be sent in electronic data which would save more time, energy and money.

We can also see that the data goes through many pit stops before it goes to the main database. Firstly it goes through the rough notes of the claiming officer, then the official filing, then the manager, then the head office data receiver. At any point of these pit stops of data it can be faulted and altered by human error. This is also a main problem that we have in the present claiming system.

2.3 Requirement of a PDA Mobile updating system

All these problems mentioned above can be solved if a PDA is given to the claiming officer. The claiming office need not do an extra filing of the claims. Then if the data is sent electronically the officer need not have the danger of loosing or damaging of data while traveling. He also need not carry all the documents back to office and to the head office. This would reduce a lot of the travel cost. It will also make the date travel faster and instantaneous. It would stop the date being delayed for a week before it reaches the company main database. This would also give an advantage to the management to have an overview of the running of the activities of the officers and the latest claims made. It would also enhance a client situation service system where the customer service executive could be able to log in to the personal details of the vehicle owner and give details of the current status of his account.

Paper forms of insurance data are often submitted with missing information. This lack of completeness wastes considerable time in the insurance office as the management staff try to contact the insurance claiming officer to complete the missing data. Paper forms can often be left on the clipboard for days or weeks, so there is a delay in getting the information transferred from the paper form into a computer software application for processing.

Handwriting on the paper forms is often hard to interpret. This leads to bad data entry in the computer system. Paper forms can not validate the information entered on them. So invalid information can be written on the paper forms. Paper forms are easily misplaced, lost or damaged by environmental factors and irresponsibility. Paper forms can not effectively provide you with a list of all possible correct answers. Electronic forms such as the PDA can provide you with "pick lists" or "drop down" menus that limit your answers to only valid ones.

Paper forms do not provide you with the ability to query all "products" in a catalogue. Electronic forms that are tied to a database on the handheld PDA, can enable you to "look-up" lists and databases with product listings and product attributes that will automatically fill in the electronic form.

Paper forms do not compute. Electronic forms can compute the market prices of damaged items, the insurance premium, etc.

Paper forms can not link to many other applications that can provide GPS coordinates, RFID reading, bar code scanning, digital images, CAD drawings, etc. But the PDA which will be used in the claiming process can do all that if necessary. For the moment what it necessitates is to log on to the company database. That can be done through GPRS very simply by the PDA

We also mentioned that the photographs taken have to be developed and then attached to the files of the claim before it needs to be sent to the office. The PDA can take the photograph on its in built camera and directly send the data through electric means.

Since an instant log in is created, the claiming officer can enter the database of the main company and gather the present market values of the items to be claimed. This is one of the main areas where the claiming officer could make a mistake. If the officer is allowed the right and exact market price of that day, he could make the best evaluation of the claim.

The officer could also synchronize the data with a desktop computer at his office with the press of just one button. That could work as the backup and the management could have a monthly synchronize with the main company database for extra data protection.

The data would be transferred from the PDA to the web service through means of the GPRS technology which is available in PDA's.

2.4 Similar system existing in other industries

Company Profile :-

Company Name	: PepsiCo
Company Headquarters	: Purchase, New York.
Revenue Earned by the Company	: \$29 billion
Number of Employees	: 153,000

Company History :-

PepsiCo is one of the world's largest convenient food and beverages companies. The Pepsi Cola began in 1898. But it only became known as PepsiCo, Inc. when it combined with Frito lay in 1965.

PepsiCo consists of Frito-Lay North America, PepsiCo International and Quaker Foods North America, PepsiCo Beverages North America. Various brands of PepsiCo, Inc. have been spread out in 200 countries all over the world and company generates sales at the retail level of about \$78 billion.

Technology Profile :-

PepsiCo has taken a one step further form technological perspective in order to improve their sales levels. They are taking the mobilization of company sales and delivery sales by introducing immediacy of countrywide wireless data coverage to companies' mobile sales technology.

Technology :- Handheld PDA device

Since they are the key player in convenient foods and beverages industry, they know the importance of information that they collect on the road. They do delivery services and sales with thousands of company's sales outlets, mass merchandisers, supermarkets and convenience stores. They want to make sure that the consumers are pick of their products which also includes Frito-Lay snacks, Pepsi-Cola beverages, Gatorade sports drinks, Tropicana juices, Quaker Foods. That's a large amount of sales and fulfillment of data to track, and company has moved to mobile technology to help.

In order to perform the sales and delivery effectively, the company's sales and delivery force uses PDA based on Intel® Mobile Media Technology which includes important sales and delivery records, mobilized for use in the field. Applications like these have avoided difficult, expensive and error-prone paper based procedures like making an order entry with applications which supports have direct communication with back-office systems. With the help of this application, the staff of PepsiCo can get many services and job related information like real-time demand forecasting, promotional information, route management information, inventory management and this application also provides training resources through this small handheld device. Application like this is highly helping the sales force of PepsiCo to progress against the sales plans, to sell more products, to handle individual customers' accounts properly and effectively and to perform smart work.

2.5 What is PDA & Web Service?

2.5.1 What is PDA?

PDA is the shortened form for Personal Digital Assistant. It is a handheld device which integrates computing, fax, telephone, Internet and networking facilities. A usual PDA can operate as a cellular phone, personal organizer, Web browser and fax sender. Unlike portable computers, most PDAs began as pen-based, using a stylus rather than a keyboard for input. This means that they also incorporated handwriting recognition features. Some PDAs can also react to voice input by using voice recognition technologies. PDAs of today are available in either a stylus or keyboard version.

Even the most basic PDAs handle standard personal information management (PIM) functions, run application software and synchronize with PCs. All PDAs come with some kind of personal information management (PIM) software that typically handles the following tasks to keep you organized such as Store contact information, Make to-do lists, Take notes, Track appointments, remind you of appointments and perform calculations

PDAs can also run specialized software appliances too. Windows Mobile devices come with Pocket versions of Excel, Word, Outlook (includes e-mail and PIM functions), and Internet Explorer along with Windows Media Player and voice memo recording. Most Palm OS devices include applications such as DataViz Documents to Go (compatible with Microsoft Word, Excel, and PowerPoint), palmOne Media (for photos and video), VersaMail e-mail software, and web-browsing software. All types of devices can run other kinds of software including games, multimedia, expense, diet and exercise, travel, medical, time and billing and reference.

Because PDAs are designed to complement your PC, they need to work with the same information in both places. If you make an appointment on your desktop computer, you need to transfer it to your PDA; if you jot down a phone number on your PDA, you should upload it later to your PC. Synchronization software on the PDA works with companion software that you install on your PC. Microsoft Pocket PC devices use ActiveSync and Palm OS devices use HotSync synchronization software. On your computer, you also need an application like Microsoft Outlook or the Palm Desktop that holds PIM information on the PC side.

The beauty of synchronization is that you always have a backup copy of your data, which can be a lifesaver if your PDA is broken, stolen, or completely out of power. Common Functions Today, most PDAs incorporate wireless and multimedia functions of some type. Functions found on most (but not necessarily all) devices include:

Short-range wireless connectivity using Infrared or Bluetooth technology IR is found on most PDAs and needs a clear line of sight. It is normally used to sync with a notebook computer that has an IR port. Bluetooth wirelessly connects (it's a radio frequency technology that doesn't require a clear line of sight) to other Bluetooth-enabled devices, such as a headset or a printer. Internet and corporate network connectivity through Wi-Fi and wireless access points Support for Wireless WAN (Wide Area Networks); the cellular data networks that provide Internet connectivity for smart phone devices. A memory card slot that accepts flash media such as Compact Flash, Multi Media Card, and Secure Digital cards (Media cards act as additional storage for files and applications.) Audio support for MP3 files and a microphone, speaker jack and headphone jack

High-end PDAs offer multimedia, security and add-on features not found on less expensive devices: A SDIO which has been shorten from Secure Digital Input/Output card slot for add-on peripherals contained in an SDIO card, for example, a Wi-Fi card, a Bluetooth card, a global positioning system (GPS) card, Built-in GPS capabilities, A built-in digital camera for snapping digital images ,capturing short videos, Integrated security functions such as a biometric fingerprint reader.

Such PDA devices are already used in the USA for Insurance, Mortgage, Sales and Marketing. Blackberry has introduces applications for such sales updating. In an easy way of installing the application in the hand held and the install in a local desktop computer or a server computer of the sales store or the sales company. The sales person will come to the main computer and synchronize all data gathered during the day and save it on the hard disk of the main computer.

The same system can be used on the Insurance Claiming industry of Sri Lanka. If we take the Ceylinco Insurance *on the spot* Vehicle Insurance Policy (VIP) the system could very much be benefited by the PDA technology.

Why use the PDA instead of any other data operating device? The answer is simple. It's a popular choice of anybody. The PDA is also a phone which can be used by the agent. It is much better to use the PDA than a custom made data entry tool because it is abundant in the market and the cost involved would be very much less due to this reason. It also becomes a personal organizer for the claiming officer. He would use it to organize his routines and even personal information. By allowing this facility to the claiming officer the insurance company can hand over the ownership of the PDA to the claiming staff member by sponsoring half of the cost of the PDA and through a monthly deduction scheme to transfer the ownership to the staff member. This would make the claiming officer very careful of the device since he too would have an interest in looking after the device. If the claiming officer doesn't wish to own the device it could continue to be property of the company.

The PDA is also easy to carry to any insurance claiming officer. The claiming officer is a person who travels in a motor bike. He could simply carry the device in his pocket and not worry about strapping it on the back seat of the motor bike or attaching a pouch bag behind the bike. If the claiming officer was to carry a laptop computer on the bike he would always worry about the computer and also it is in a threat of getting wet. It has been a hindrance to many motorists to protect their luggage from sudden rains.

The PDAs today comes with both a stylus and a keyboard in tact. The data entry system is much easier because of that. It is true that the keyboard of the PDA is not as easy as it would be to type on a real size keyboard. But if you would ask anyone who had used a PDA they would tell you how soon they would get used to the typing on the

PDA. The PDA is also easy than a computer because you could set shortcut keys to enter the application you wish to work with. It is the equivalent of a shortcut on your desktop.

2.5.2 Payment and synchronize with the web service

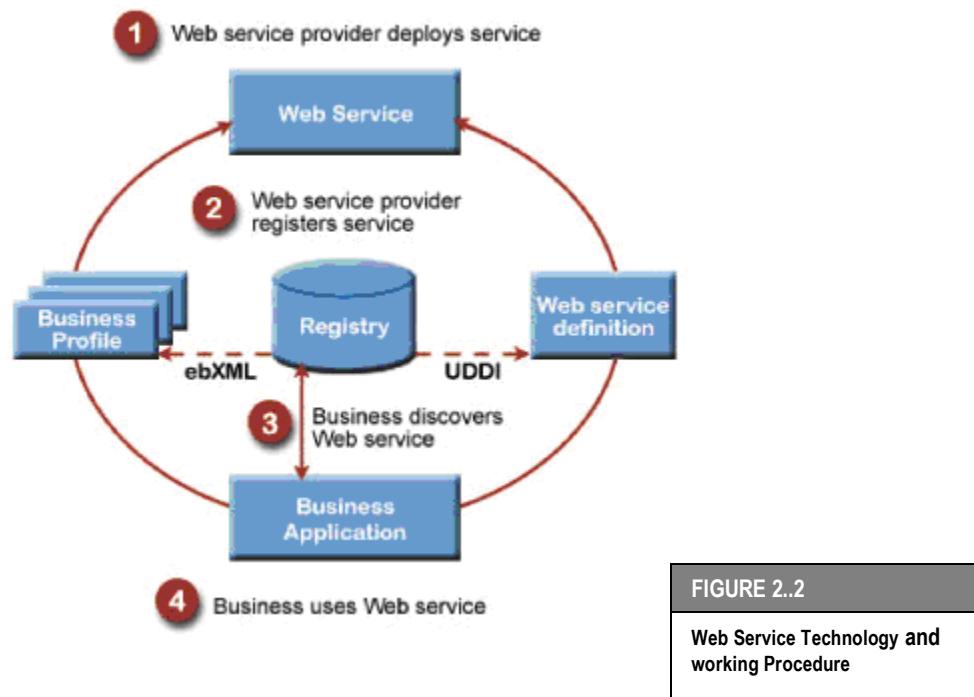
A web service is a software system which is developed to help interoperable machine-to-machine communication over a network. It is run totally without any intelligence or input by a human being. One of the main idea's in developing such systems is that the human involvement is to a minimum and the human error is dealt to a nullity. The communication will run through the mobile client and the server.

When the claiming officer makes the payment the data has to be synchronized with his main database. This happens through the web server. The web server would be developed through XML. Extensible Markup Language (XML) which is derived from Standard Generalized Markup Language (SGML) is a simple, flexible text format. When using XML, user has to define its own tags since there are no predefined tags. Document type definitions are used by XML in order to describe data. XML works as a message carrier in web services.

We also may use SOAP. SOAP is a framework which supports exchange XML based information in a network environment. SOAP is a wrapper class which encapsulates XML based information within HTTP packets in order to send through internet. SOAP stands for Simple object Access Protocol.

Next we would focus on WSDL. This is a XML based language which describes network services. WSDL describes capabilities and locations of services, which uses SOAP as its communication protocol. This can be defined as a XML based service description on how to work with the web service. WSDL means Web Service description language.

UDDI is the shortened form for Universal Description, Discovery and Integration. This provides a platform independent, XML- based registry mechanism between the server and client in order to situate each other. Soap is used as the communication protocol used by the UDDI.



2.6 Management aspect of MVCS to Ceylinco Insurance

There are many advantages that come with the MVCS. The management is able to have a check on the whereabouts and monitor work of the independent working agents distributed all around the island. This happens because every agent would need to log on to the main database and communicate with it on each claim that he visits. There is also less room for mischief amongst the staff members of the claiming section since the exact market value is taken from the database for each damage assessment. There was a possibility that the claiming staff member could over value the vehicle component and break a piece with the vehicle owner of the excess cash paid. This is one of the greatest advantages that the management would have control over the discipline of the staff. Also since the procedure becomes more and more automated the margin for human error lessen and also the need for human resources. This results in better focus on the claiming staff and allocation of more responsibility.

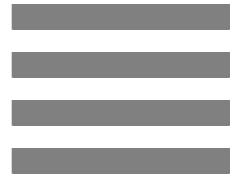
The practical aspect of the benefit was given above. The technical aspect of the benefit would be immense to the company. Any company or organization is now trying to expand connectivity amongst its members. In the age of communication the internal communication within a company is of great importance. The importance is so that some companies hire separate employees for such work and have staff training seminars and so on. What we should understand is that the management tries its best to convince the staff members that they all should have a corporate responsibility and a corporate loyalty. It is something difficult to achieve through seminars and workshops and some times even incentives. Then there is another method to increase company transparency of work. That is to automate the work processes through electronic data and store it for analysis when the need arises. If you codify the company dataflow there will be fewer chances to hide transparency. Hiding transparency can be defined to be management hiding things from the lower staff and the lower staff hiding from the management. When this is subjected to the MVCS system we find that all the activities can be supervised due to electronic data flows.

This would also result in speeding up the chain of work. We know that many companies and workflows are interconnected in a chained system. So if there is a delay in one part of the chain the delay results in slowing up the whole chain. The reciprocal aspect of this is that when one part of the chain increases its speed it results in the whole network of the workflow to speed. So if the staff members in Colombo had been telling that the work flow from the insurance claiming agents from around the island had been delaying their work, its stops there. Then the people in the head quarters in Colombo have to kick off from their seats and increase their flow. Therefore automating the process at the bottom will have a huge benefit on the company to the level of the topmost management.

2.7 Summary

In this chapter we discussed what Ceylinco Insurance is and what the VIP on the spot insurance procedure was?. When describing it we found many areas that the company could improve on. The company could well avoid these problems if PDA's were introduced to the claiming offices. The instant updating system was to be done through a web service which would link the PDA to the main database of the company.

CHAPTER 3



Requirements Analysis

3.1 Introduction

3.2 Overview of the Current Claiming System Requirements

3.3 Requirement Collection Plan

3.4 Requirements Gathering

 3.4.1 The Fact Finding Techniques

3.5 Requirement Specification for MVCS

 3.5.1 Functional Requirements

 3.5.2 Non-Functional Requirements

 3.5.3 Performance Requirements

 3.5.4 Technical Requirements

 3.5.5 Usability Requirements

3.6. Models of the current system

 3.6.1 Identifying use cases

 3.6.2 Use case diagrams

 3.6.3 Activity diagram for the current system - Customer & Policy registration Process

 3.6.4 Activity diagram for the current system – Vehicle Claiming Process

3.7. Problems and limitations of the current system

3.8 Models of MVCS

 3.8.1 Identifying use cases

 3.8.2 Use case diagrams for MVCS

3.9 Summary

Requirements Analysis

3.1 Introduction

The aim of this chapter is to provide a comprehensive understanding on the areas which the proposed **MVCS** system is to be developed and implemented.

The chapter will feature the current business and operational environment, the fact finding techniques, functional/non-functional requirements, models of current and proposed MVCS system. This chapter also contains the drawbacks of the current business processes.

The last segment of the chapter is to analyze critically as to how the proposed system will fill in the blanks of the faults of the current system and business processes.

3.2 Overview of the Current Claiming System requirements

The current claiming system was actually one of the best systems in the South Asian region. Sri Lanka seems to be well ahead of others when it comes to the insurance claiming industry. But the continuous improvement is needed. Therefore the current system needs to be re-scrutinized.

The current claiming system is a manual system. The involvement of technology in the form of information technology comes after the claiming process is taken to the reporting process at the head office. Most of the claiming staff members would not attempt to feed data to a desk top in a local office for the simple reason that the current system does not require them to do so. Therefore they remain in the manual forms and papers and send the papers to the head office after another sorting done at the regional office.

The Current system requirements are of two parts, they are, Material requirements and investigative requirements. The Material requirement will be a vehicle for the transport when going to the scene of the accident, a camera, collection forms, and a simple calculator. The information requirements are drawn out according to the nature of the accident. The investigation is done with experience and the personal skill of the insurance claiming officer.

When the initial studies of the claiming system was carried out something we observed was that there are many improvements that could be made to the present claiming system. Such improvements were discussed in the chapters before this chapter.

3.3 Requirement Collection Plan

Requirement plan of the MVCS is expressed here. The key reason of perform a requirement collection plan is to express how the user requirement gathering process were planned and to show how we have carry out the plan practically in order to get the optimum use of user requirement gathering process for the proposed MVCS development.

According to the schedule, the requirement gathering process were stared on 15th of June 2007 and finished on 12th of July 2007. During that period, there were many interview sessions, observation sessions, questionnaire sessions and many document reviews were done, with the support of staff at Ceylinco Insurance. Requirement gathering process was mainly done at ceylinco premises.

Requirement collection plan contains all the participants and any resources used in order to complete the fact-finding process successfully. Requirement collection plan of MVCS is given in table 3.1.

Objective	Resource People and resources	Fact Finding Technique	Duration
Obtaining the background information about ceylinco and its insurance claiming procedure.	<ul style="list-style-type: none">▪ Annual report▪ Company Website▪ Head of claiming insurance department	Document review / Interview	7 days
Obtaining the in depth details about the existing insurance claiming procedure.	<ul style="list-style-type: none">▪ Manager – Administration▪ Customer service executive▪ Manager – Insurance (Non Life)▪ Operation staff▪ Regional mangers▪ Claiming agents	Interview	5 days
Observe the existing claiming procedure in order to get a clear understanding	<ul style="list-style-type: none">▪ Manager – Administration▪ Customer service executive▪ Manager – Insurance (Non Life)▪ Operation staff▪ Regional mangers▪ Claiming agents▪ Customers	Observation	5 days
Obtaining the responds for the existing system and for the new system.	<ul style="list-style-type: none">▪ Customers▪ Employees	Questionnaire	3 days

TABLE 3.1

Requirement Collection Plan

3.4 Requirement Gathering

The fact finding technique which was to be used was a very well known method that we use in any form of fact findings. The information was taken in the form of questioners, interviews and observations.

For any requirement gathering to be successful a proper fact finding plan and strategy needs to be implemented. The plan used was very helpful to gather enough information to determine the problems in the system and the limits and the boundaries involved. The purpose is to find out how suitable the new system is to the current system and whether it will be have actual use.

3.4.1 The Fact-finding techniques

Interviews

The use of personal interviews involve soliciting requirements through direct, face to face interaction as described by Whitten, Bentley, Dittman (2003,p.250). The goals for the use of interviews in a system development project is for the fact that, interviews can be a great tool to find facts, verify facts, clarify facts, generate enthusiasm, get end user support, identify requirements and solicit ideas and opinions according to Whitten, Bentley, Dittman (2003,p.236).

The easiest method to get close to the staff and their information was the interview method. The staff was more conversant in the local language of Sinhala. They were much more comfortable with the interviews than the questioners. The interviews were conducted amongst some senior managers as well. They came up with good suggestions.

It was important to start off the research with interviews because that the company and the staff would get to know about the project. They also developed a trust in between the researcher and themselves. So they were much comfortable to share their company information with us. This creates the pathway to the other fact finding techniques such as questionnaires and observations.

The preparation of the interview took an insight into the background of the company and a preliminary research into the claiming process.

**The interview summaries are given in the APPENDIX D
The Summary of the Fact-finding is given in the APPENDIX F**

Duration	Interviews conducted from June 19 th to July 3 rd , 2007
Total interviewed	7 individuals, 7 interviews
Covered Aspects	<ul style="list-style-type: none"> ▪ Obtaining the background information about ceylinco and its insurance claiming procedure. ▪ Obtaining the in depth details about the existing insurance claiming procedure.
User Perspectives covered	<ul style="list-style-type: none"> ▪ Manager – Administration ▪ Customer service executive ▪ Manager – Insurance (Non Life) ▪ Operation staff ▪ Regional managers ▪ Claiming agents

TABLE 3.2

Interview Plan

Questionnaires

A questionnaire is a collection of questions submitted to the employees surveyed in a quantitative survey. We also have used this method in order to gather information from the employees of Ceylinco Insurance. There were separate sets of questionnaires that were been distributed among a range of 20 claiming staff members. One was to capture the details from the existing employees of the Ceylinco Insurance Below are the samples of questionnaires that were presented to a number of 20 people who were 10 each from the employees and the external transport providers. The questioners were also easily handed down to the members. The answering was a little bit delayed due to a little bit of reluctance by the claiming staff members. Some of the staff members did not comprehend the questioners and answered irrelevant answers. Some were left in blanks. I gave them the freedom to leave out any question which they feel uncomfortable to answer.

Some of them were a little bit speculative of as to why they were questioned. Some of them were a little worried when the purpose of the questioner was told to them.

The questioners consisted open ended and short ended question and was used to cover areas which would take more time on personal questioning. In other words it was used to gather large volumes of information.

The results of the questionnaire were illustrated by using several charts.

**The samples of the questionnaires will be attached in APPENDIX E
The Summary of the Fact-finding is given in the APPENDIX F**

Assessment of the claiming procedure												
Name(optional) -.....												
How long have you worked for (Company)?												
Area you cover?												
Time taken to verify the customer details(maximum)?												
No of assessments you handle per day (maximum)?												
Time taken to asses a particular claim(maximum)??												
Time required to approve a particular claim (maximum)?												
<table style="width: 100%; text-align: center;"> <tr> <td>Very satisfied</td> <td>Somewhat satisfied</td> <td>Neutral</td> <td>Somewhat dissatisfied</td> <td>Very dissatisfied</td> <td>N/A</td> </tr> </table>							Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	N/A
Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	N/A							
Easiness of verifying the customer details Easiness of identifying the damage spare part category Easiness of identifying the current market Price Of a particular spare part Easiness of calculating the total claiming Amount Usage of provided facilities (like camaras) Getting approval from the branch manager												
Overall - Comments -.....												
<table style="width: 100%; text-align: center;"> <tr> <td>Very high</td> <td>high</td> <td>medium</td> <td>low</td> <td>Very low</td> </tr> </table>							Very high	high	medium	low	Very low	
Very high	high	medium	low	Very low								
Usage level of mobile familiarity of accessing GPRS IT Knowledge												
Would you support the Mobile Vehicle Claiming System? Yes/No												
Thank you very much for your coorporation												

TABLE 3.3

Questionnaire – Agents

Assessment of customer registration and vehicle insurance account creation procedure												
Name (optional) -												
Position(optional) -												
Please select your department: (Operation/ Claiming/ admin- insurance non life)												
How long have you worked for (Company)?												
No of new accounts created per a day?												
No of policies available for vehicle insurance?												
How long it takes to create a new account (maximum time)?												
<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Very satisfied</td> <td style="text-align: center;">Somewhat satisfied</td> <td style="text-align: center;">Neutral</td> <td style="text-align: center;">Somewhat dissatisfied</td> <td style="text-align: center;">Very dissatisfied</td> <td style="text-align: center;">N/A</td> </tr> </table>							Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	N/A
Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	N/A							
Manual Customer registration Maintain the customer profiles Categorization of vehicle insurance policies Maintain the vehicle details efficiency of retrieving the spare part details generate reports on the particular periods Overall - Comments -												
Would you support the Mobile Vehicle Claiming System? Yes/No												
Thank you very much for your coorporation												

TABLE 3.4

Questionnaire - Staff

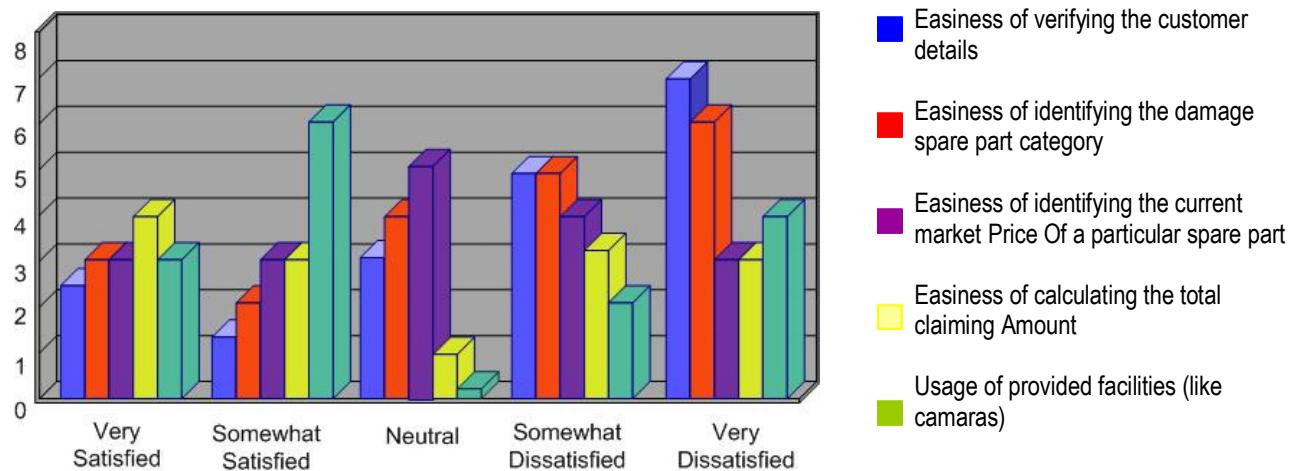


FIGURE 3.1

Satisfactory level of current claiming procedure

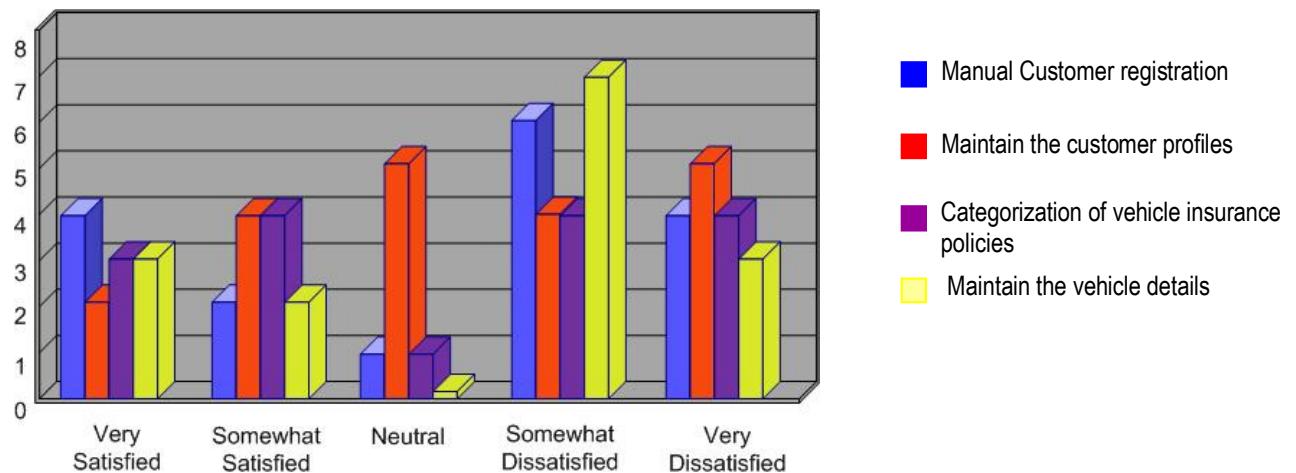


FIGURE 3.2

Satisfactory Level of current customer registration process

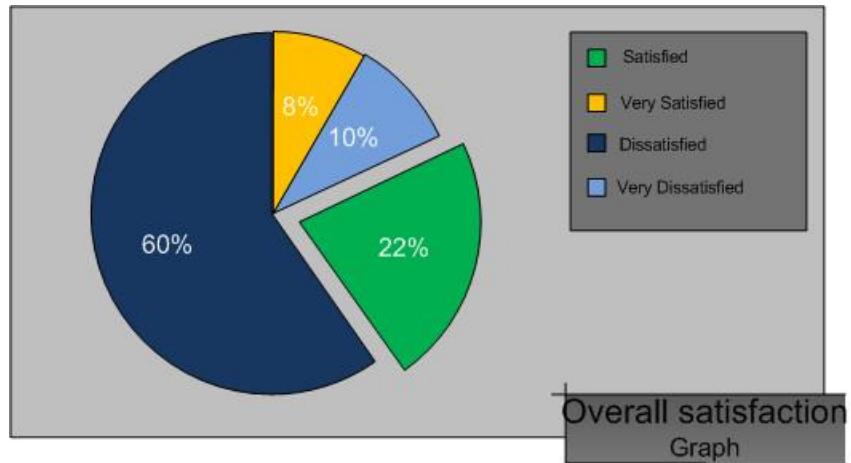


FIGURE 3.3

Satisfactory levels about the current system

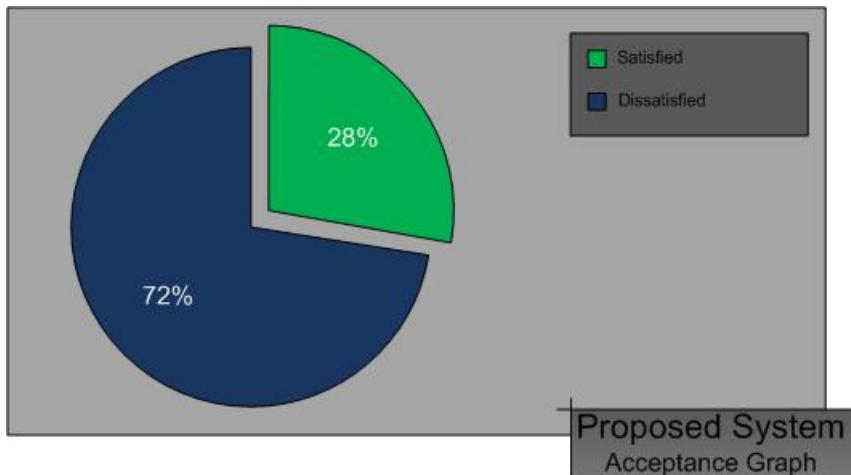


FIGURE 3.4

Percentage level on accepting and rejecting the proposed system

Observations

Observation is another method that we used to gather data. This is method which performs an informal assessment technique which involves specifying, counting, and recording MVCS procedure. The observation is an interesting part of the research as to the practical experience. The agonizing part was to wait until an accident or breakdown occurred. The observation was made on a car which reversed back on to a lamp post on the road. There were two agents who helped me in the observation. One claiming staff member was evaluating the accident while the other was showing me how and what he was doing with identical specimen forms.

The biggest advantage of an observation tour is that you get a picture of the whole spectrum of the system. We see for ourselves that the claiming staff members are actually quite competent and pretty quit in their work. It just seems so that they want to finish off the evaluation as soon as possible. The important factor to consider here is that it shows us on what other areas do they might be vulnerable to make an error.

The Summary of the Fact-finding is given in the APPENDIX F

3.5 Requirement Specification for the MVCS

The requirement specification will expresses the objectives, performances and needs that the proposed MVCS should carry out in terms of functional, non-functional, usability, performance and technical requirements. Such requirements need to be taken into consideration to make the best present ability of the proposed system. All requirements related to the development of the system and the requirements of the insurance claiming process will be considered.

3.5.1 Functional Requirements

These are requirements that say what a system does or is expected to do. It would involve or include process descriptions, details of all inputs/outputs and details of all the data that must be held in the system.

First the **customer details** are taken from the database when the customer ID is given through the PDA such as Policy No, Name of insured person Name of registered owner of vehicle, Date of birth, Postal address, Town Postcode, Residential address, Telephone Mobile Home Work, Occupation, Drivers License No, Class Expiry, Vehicle Purchase Date Price, etc.

Then the **Insured vehicle description** will be taken from the database which has been updated at the time of the registration of the vehicle such as Year Make, Model, Series, Body, Turbocharged Y/N, Transmission (Auto/Man), No. of gears, No of cylinders Cubic Capacity, Registration No. VIN/Chassis No, Details of modifications from standard, is the car serviced regularly? Y/N Date of last service, Name of service provider, etc.

The **Drivers insurance history** will be assessed then. Does the driver hold motor insurance on any other vehicle? Name of insurance co. Within the last five years, has the driver had any insurance or renewal of insurance declined or cancelled or special conditions imposed? If yes, give details. Has the driver ever been charged or convicted of any driving or criminal offence Details of any offence. If there is insufficient space, please give reference of such case in the magistrates court or the traffic court and the district of that court in Sri Lanka.

The **Driver Details** will come next. Was the vehicle being driven by you at the time of the incident or in your charge? If the answer is YES then his details were already taken as the customer details. If NO then the relationship of driver to the customer is found out. Driver name Date of birth, License no. License class, Expiry date,

Years licenced in Sri Lanka? Was your vehicle being used with your knowledge & consent? How often does this driver use the vehicle in a year? Such questions will be taken from the driver of the damaged vehicle.

Photo graph and video of the incident is also needed or a sketch of the incident from the PDA and can be updated accordingly.

The details of the **place of accident** is also very important. Weather at time of accident Width of road at place of accident: Condition of road: Sealed Unsealed Wet Dry Rough At time of accident, was the vehicle; Stationary, Parked or Moving, Estimated speed of the vehicle at time of impact in kilometres per hour, Estimated speed of the vehicle 25 metres before impact in kilometres per hour, On what side of the road was your vehicle traveling? Had the driver consumed any intoxicating liquor or taken any drugs during the 12 hours prior to the accident, Details & Quantity if he had, Was the driver required to undergo a breath or blood test? If the accident occurred after dusk, were the dark/headlights operating? Did the driver sound your horn or give any warning?

Damage to the insured vehicle. Was your vehicle damaged? Give Details. Quotation for repairs supplied by: Name, Address, Tel Fax, Where can the vehicle be inspected? Was your vehicle towed from the scene of the accident. Were any other vehicles involved in the accident? Who do you consider was responsible for the accident? Why? Did either party admit liability? Which one? Did either party make an offer of payment? Has any demand for damage been made against you?

Assessment of the damages will be automatically calculated by involving the database and the web server. The claiming agent is totally able to **make the payment** on the spot.

3.5.2 Non-functional Requirements

According to Bennett, Mcrobb, Farmer (2004, p.121), Non-functional requirements are describes as, the aspects of the system that are concerned with how well it provides the functional requirements. Some of the non-functional requirements which will be used in the MVCS system are mentioned below,

The main non-functional is the efficiency of the claiming agent coming to the scene of the incident. The traveling, vehicle and correct detailing of the location of the accident should be taken.

The other requirement is that the PDA should have the proper battery powering and that it is in good working condition. Also its GPRS connection and the service should have coverage to the many places of the country.

The Operating Staff Member should see to that the database is updated periodically with the latest costs of the parts and components. The updating of the online database or the online claiming management system is supported from this non functional requirement.

3.5.3 Performance Requirements

This is usually understood to mean requirements that describe aspects of the system that are concerned with how well it provides the main functional requirements.

When considering the performance, this would depend on factors such as the GPRS connection involved. Who would be the most suitable GPRS provider for the job? Will it be dialog, mobitel, tigo or some other mobile service provider? The current GPRS systems in mobile service companies today is fast enough to do the work as in the data entered would be easily sent in a matter of two seconds maximum. But still it should be considered as an important performance requirement.

Another requirement is the PDA which is going to be used. There are PDA's with Different Operating Systems. For example the *Treo Palm* comes with a unique operating system for the treo itself. But 90% of most PDA's today in the world tend to use windows based operating systems simply because people are so used to the windows framework. The O2 brand is a good example. Therefore another main performance requirement would be to have PDA's of a windows based OS.

In considering the PDA, another important factor which should be considered is the hardiness of the PDA. We should remember that this will be used outdoors and taken in the Sri Lankan tropical climate. The housing and covering is another factor to consider when opting for the suitable PDA.

The mobile vehicle insurance claiming agent should also have a method of backing up his own data. Therefore there should also be a desktop in the office separated for the purposes of backing up. The company database should also be updated with the current vehicle component values in the market and there should be constant updating done on the part of the head office.

3.5.4 Technical Requirements

This aspect of requirement looks at the tools and method used to build the system. Development language should be selected to be compatible with the current database in the Ceylinco Main System. Also should compatible with different operating systems and support gathering of large volume of data.

As a solution for the growing demand for mobile software, Microsoft has come up with a solution which is a plug-in to .NET visual studio 2003 environment. In the latest release .NET 2005 environment they have integrated mobile development environment as well into the framework. Microsoft has provided a simpler version of the .Net framework for programming of hand held devices. This is called .Net Compact Framework. (Roof, 2002)

The main advantage of this framework is that it helps to develop robust services, applications and software for mobile devices. It also provides a secure environment for XML web services for smart devices. The Microsoft .NET compact framework is an abstraction of .NET framework. Therefore the majority of software requirements could be satisfied through its standard functionality. Using .NET Compact Framework and Visual Studio .NET mobile developer tools, developers can build mobile applications in programming languages such as Visual Basic.NET or C#.NET. Also it provides the ability for developing mobile applications that interacts with a database with support of SQL Server CE which is a compact relational database. SQL server CE is compatible with Windows SQL Server and runs on Windows CE devices

The Database Connectivity tools used on database connectivity should be fully compatible with the programming language used. SQL Server 2000 is identified as the proper tool for database handling in this system. In the Security Mechanism, the proper security mechanism techniques are identified to protect the data from intruders. Such mechanisms are user login authorization, secured database and logging user activities.

3.5.5 Usability Requirements

As the usability requirements we expect the following standards from the proposed system. Effectiveness, Efficiency, Safety Utility, Learnability and Memorability are factors which will be taken in discussion. Consistency and Standard Visibility of system, status Flexibility and efficiency of use, User control and freedom Match between system and the real world will be taken into consideration too.

Requirements that ensure that there is a good match between the system and its users. In most cases usability is expressed in terms of measurable objectives. The usability of the MVCS is to be considered with the education of the claiming staff members, how well they are conversant with technology and a PDA and such conditions.

The system is going to be on a small screen compared to a desktop. Also since the claiming staff members would be using it under direct sunlight the visibility of the screen would be an important aspect on what they would need to look into. The wisest option is to have the interface with dark black letters for more clarity. The use of colours might lessen the visibility of the claiming staff member to input data on to the PDA. Anyhow PDA's which come in the market have brightness adjustments suited to outdoor work but it would lessen the amount of battery life of the PDA and more comforting to the eyes of the Claiming agent to keep the PDA in the normal brightness level.

Another factor to consider was to have the formats in the same fonts and the way which they were presented in the old forms they have been using. The reason this requirement cannot be given 100% would be that the PDA screen will not be as big as the forms they used previously. But it is safe to say that the agents would get used to the system very soon after some trials as a boy would get used to a video game.

The system should be in a form of ticking formats where the agent could use the stylus to tick boxes necessary. Since the system would easily bring the proper database relevant to the vehicle the information needed could be decreased to a large amount. The reason is that the present forms and sheets used are mostly in a generalized form. And sometime the vehicle does not contain the specifications mentioned in the form. But since the MVCS would give a customized form according to the vehicle, things would be much user friendly to the claiming staff member.

3.6 Models of the current system

3.6.1 Identifying use cases

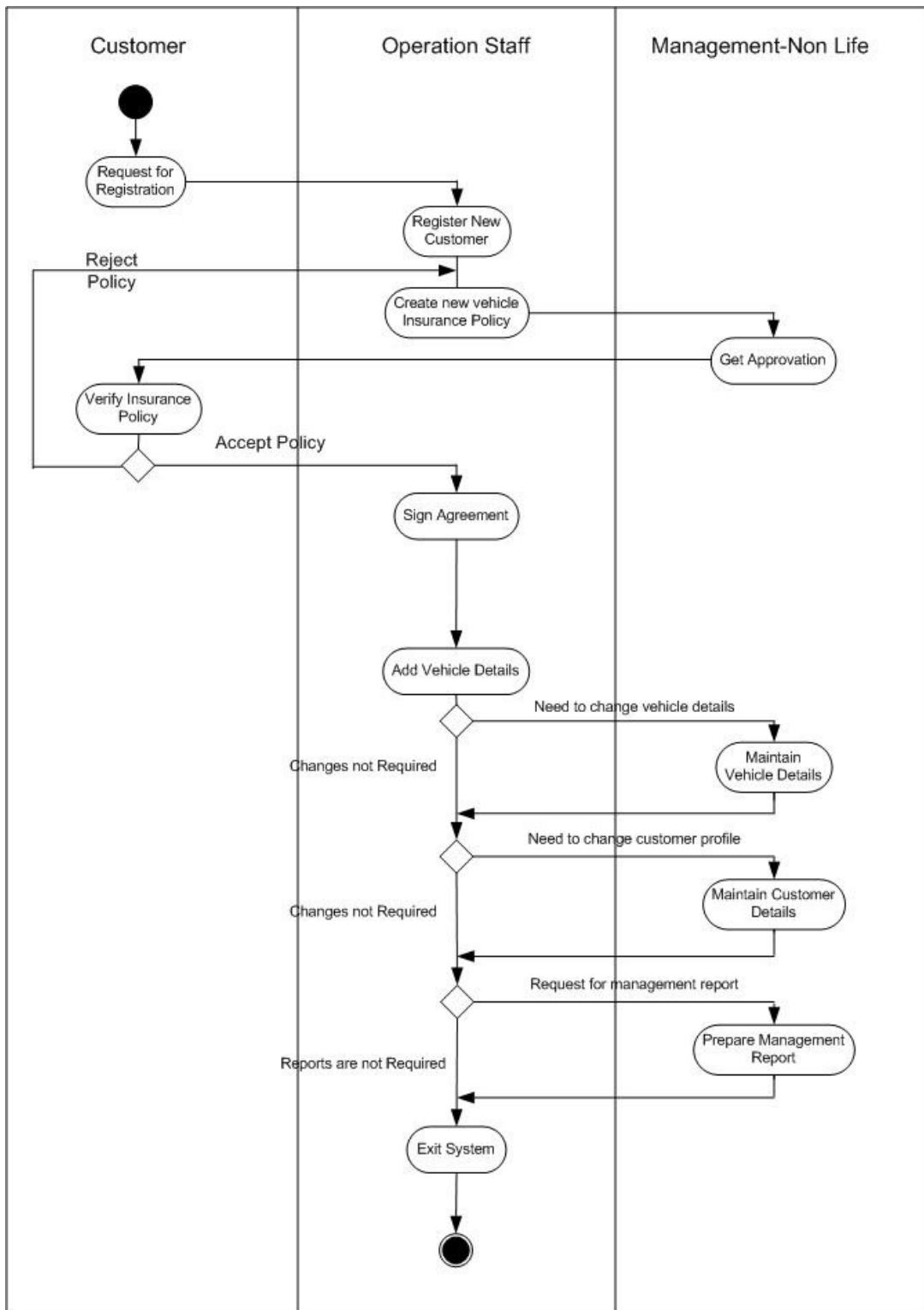
Claiming Processes or Activities	Use Case
The customer would want to sign up with the insurance company and contact a marketing agent. The agent would then act as the operating staff member	Register new customer and create account
The monthly premium is decided according to the features that the policy would provide.	Agreement of policy details
The operating staff member adds the vehicle parts which are covered by the insurance policy to the file of the client.	Add vehicle details and insured components
After all the data is verified by the data entry operator, the operating staff member issues a policy registration number to the client.	Issue the policy registration number
When the claiming agent hears of the accident, he would visit the place of accident and assess the damages.	Assess the damaged vehicles
Then he would obtain the necessary information about the accident. And record it in the documents he carries with him.	Obtain information about the accident
Then he would use a calculator and manually calculate the amount	Calculate the insurance claims
He would then make the payment without any verification with the company data or the management	Release the approved claim amount
He would submit the details of the claim after all the payments are done and the vehicle components are assessed.	Submit the information to the area management
The details are sent to the head office weekly and during that time only the claiming agent would be answerable to the claiming incident.	Send all claiming details to head office
The head office operation staff would then update the information to the company's main database.	Update and verify the claiming details

TABLE 3.5
Identifying Use Cases

3.6.2 Use case diagrams

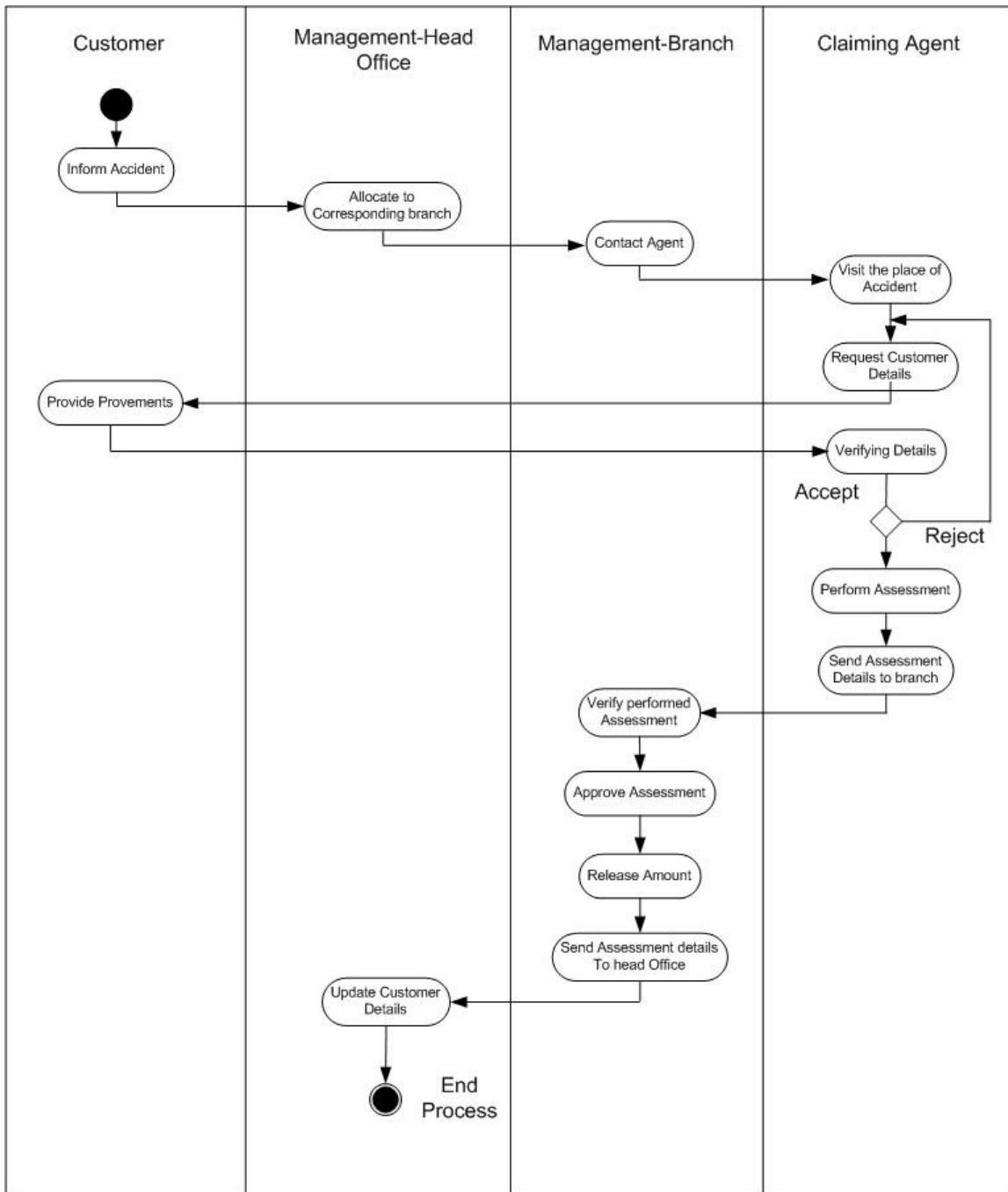


3.6.3 Activity diagram for the current system - Customer & Policy registration Process



The above diagram illustrates all the actions involved with the current Customer & Policy registration Process. When the customer requests for a registration, then the operation staff at Ceylinco begins to register a new customer by creating a new vehicle insurance policy account. Then the manager- non life approves the newly created vehicle insurance policy. Operation staff manger continues the process only after receiving the approval from the manager-non life. Thereafter approved policy should be verified by the customer. After that the operation staff attempts to sign agreement, and add vehicle details. In any given time administrator can maintain vehicle details, maintain customer profiles and prepare reports in order to fulfill the requirements of clients and the company management.

3.6.4 Activity diagram for the current system – Vehicle Claiming Process



Above diagram involves all the activities related to the current vehicle claiming process. Once the customer informs an accident to the head office, then head office allocate the issue to the corresponding branch. There after manager at the branch contact the agent and the claiming agent visit the place of accident. Then the claiming agent requests for a customer details in order to continue the assessment. Once the customer produces it, then the agent verify it by contacting the manager at branch by either through a telephone or any other communication method. Then the agent performs the assessment and sends the assessment details to the particular branch. Thereafter the manager at the branch verifies the performed assessment, approve assessment, release amount and send the assessment details to the head office. Lastly the manager at the head office can update the customer details.

3.7 Problems and Limitations of current system

The staff members gave their opinions on the current claiming system through the interviews and questioners. They were much open to me during the interviews. The questioners were not answered at times.

The main problem regarding the current system was that the claiming staff members could not control the pattern of accidents that occurred. They told that the idle time of the claiming staff members were at times very long and when the duties come, that they come in bundles. The staff members say this by their experience in work and jokes that when accidents happen they have a knack of happening in many places at the same time. The management cannot afford to hire more claiming staff members because though the accidents would be covered on time, the idle time of the staff members would increase more when no accidents occur. They have found some simple solutions like stationing more claiming staff members in main road junctions and halts. Another method they use is to hang around the police station because most people with an accident comes to the police or on their way to the police when the call Ceylinco VIP call centre.

The solution the PDA would provide is to make the process much easier to the claiming staff members and to slow down the traffic when the peak times come.

The staff also gave their ideas on how the mechanism works on the field. The limitations come when they start complaining on the outdoor experience. It is obvious that certain things such as the hindrances which come because that this is an outdoor venture is irrelevant since how much the system is improved, it will still be an outdoor practice.

Then comes the situation where insurance claiming evaluations were over evaluated and under evaluated. Most of the time the company keeps a margin to make sure that they don't under evaluate the insurance claim. This results in the claiming officer having a lot of pressure from the management on this regard. The claiming officers say that the managers are always out to get them when they find out that an over evaluation has occurred. This creates tension between the claiming staff members and the management. The management also has no option but to be adamant with the claiming staff members since they have to look after the organizations benefit.

The MVCS would definitely narrow down this conflict, the tension and the pressure off the claiming staff members when analyzing the accident and evaluating the insurance claim. If it happens in an automated way the staff members are given freedom of the personal responsibility.

Filling the forms and filing the claim is of not much trouble to the claiming staff members. They say that the process is somewhat good because they have a second check on the work that they have done. Still the manager's perspective is that the claiming staff members make mistakes for the second time in the second filing division. There is a contradiction as to the information gathered from the claiming staff members and the managers but MVCS would be the authority and both the managers and the claiming staff would have to answer MVCS.

The documentation is seen to be quite updates when we consider the claiming process. The management keeps a good eye on the documentation and also the claiming staff members have off peak times to work on the documentation as well. There is said to be a practice as provided by un named claiming staff members to a mischief in the filing process. Some of the staff members forget to fill in blanks with due to the congestion of the work load. They tend to take the necessary information for the evaluation only and they fly off to the next client who would be waiting for him. This is sometimes done in good faith but at other times done simply because the agent wants to cover as more claims as possible due to commissions paid by the company. This results in the person filling the documents in half and he fills the rest of the blanks according to his memory or assumptions. Such a practice cannot be undertaken when you will be monitored of all your data inputs by the management because a log is created every time you would log into the MVCS system.

3.8 Models of MVCS

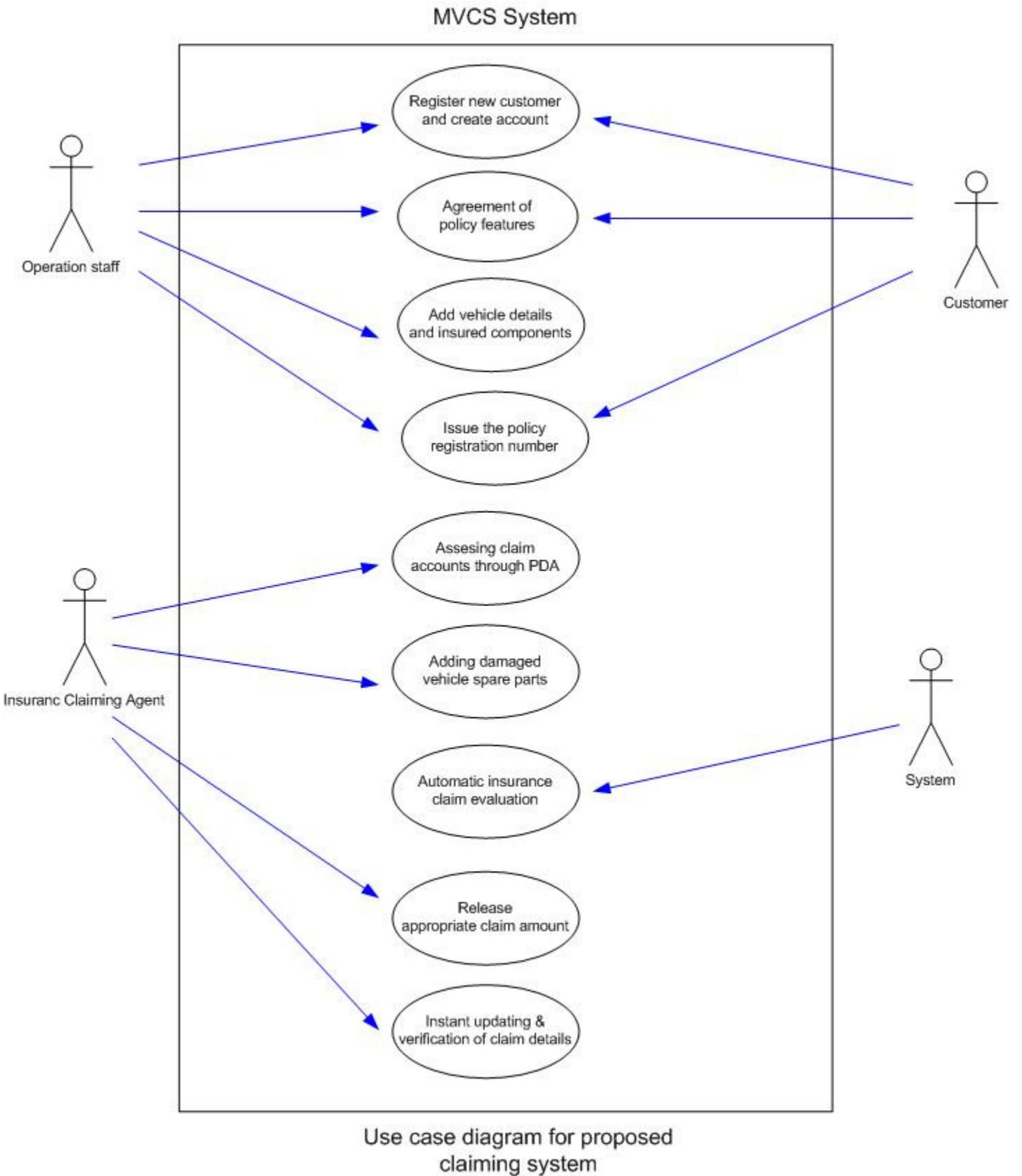
3.8.1 Identifying use cases for the proposed system

Use Case	Description
Register new customer and create account	The operating staff member will create the account on the online claim management system with the customer.
Agreement of policy features	After the agreements of the policy features the agreed features will be uploaded.
Add vehicle details and insured components	The operating staff member will input data on to the main database. And also link in the appropriate vehicle spare parts.
Issue the policy registration number	An identification number for the account is issued in the form of the policy registration number.
Assessing claim accounts through PDA	When the insurance claiming agent visits the site he begins to assess through the PDA by login on the MVCS system
Adding damaged vehicle spare parts	He adds each damaged vehicle part in a step by step process.
Automatic insurance claim evaluation	When the final amount is added, the system will automatically generate the final claiming amount
Release appropriate claim amount	The claiming staff member will then issue the amount which the system approves him to pay according to the present market values.
Instant updating and verification of claim details	The updating is already done on the system and the steps of manual documentation are not necessary anymore

TABLE 3.6

Identifying Use Cases

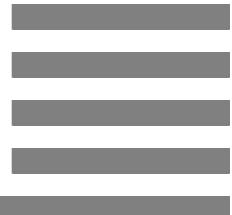
3.8.2 Use case diagrams for MVCS



3.9 Summary

The intention of this chapter was to find out all the information necessary for the implementation of the MVCS system. The fact finding started through interviews to questionnaires and then on to field visits and observations. An in-house analysis was carried out on how the management and the staff members were crippled in some situations and the need of the MVCS system was highlighted. The MVCS use case diagrams were compared to the current system and the requirements were identified in four ways, which would be functional requirements, performance requirements, technical requirements and usability requirements.

CHAPTER 4



System Design

4.1 Introduction

4.2 Overall System Architecture

 4.2.1 Application Layer

 4.2.2 Presentation Layer

 4.2.3 Data Layer

4.3 Software Architecture

4.4 Module architecture

4.5 Database design

4.6 Interface design

4.7 Class Diagram for Proposed MVCS

4.8 Activity Diagram for Proposed MVCS

4.9 Summary

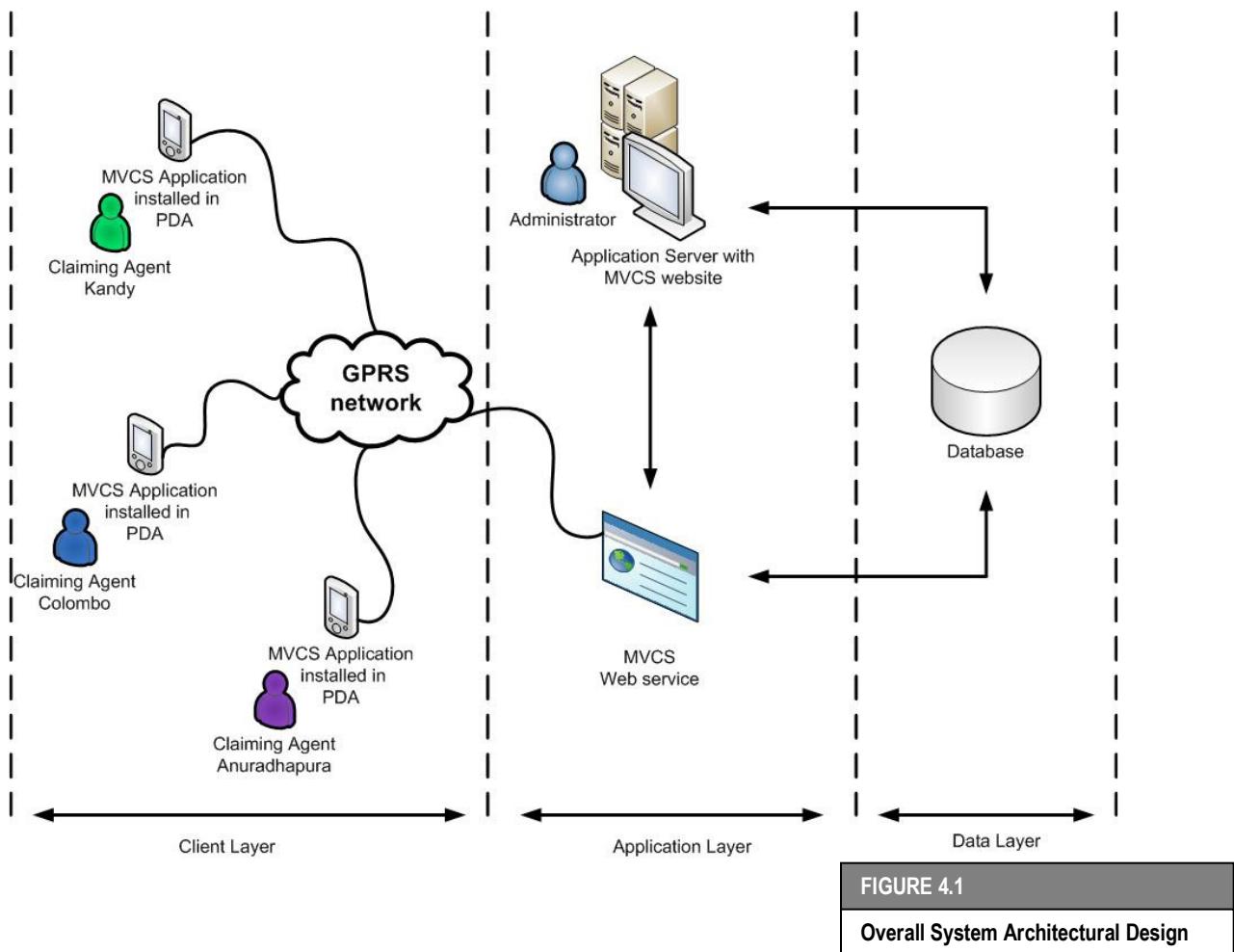
System Design

4.1 Introduction

This chapter would dig into the core of the total designing process. The MVCS systems design is presented gradually by stating the overall system architecture. Then the rest of the architectural designs would be described independently. The software design, the module architecture, the database, web page, PDA application and the interface design would all be dealt with in detail. This chapter would be the place where all the analysis and research comes in to usage. The theory will be tested in to practice and the limitations and ideas would be spelt out at each level of the design.

4.2 Overall System Architecture

Architectural design is the first illustration of the overall structure of the main components of the MVCS system. The total structure is based on how it would suit the software architecture of the PDA and its compatibility with the web server. Based on this structure, the components will be divided in to separate modules to manage the operations of all components. Overall system will be split in to three layers names as application layer, data layer and presentation layer. Overall system architecture of the proposed system is given below.



We understand that the overall system architecture talks of three layers. These three layers are introduced below

4.2.1 Client Layer

This layer is responsible of handling interactions with users by controlling interfaces to present requested information and receive the inputs provided by the user. Information gathered by this layer will be provided to the application layer in order to manipulate according to the given instructions. The presentation layer is what the claiming officers would interact with. They would input the necessary details for the accident or insurance claiming situation. The presentation will also be accessible to the management without the ability of altering data.

4.2.2 Application Layer

The company logics and processes of the system will be executed at this layer in order to achieve the expected objectives of the system and can be named as the heart of the overall system. This layer will interact between application layer where the interfaces are running and data layer where the information is stored. Data gathered by user inputs or by other processes will be manipulated according to the predefined operational instructions at this layer. The client, incident and vehicle information will be applied in the application for the user to access and input data.

4.2.3 Data Layer

This layer handles the data storage operations of the overall system where the database management applications are running. A database containing the present market prices of vehicle parts and details of different vehicle types will be implemented in the MVCS system in order to manage information storage effectively. Information gathered from user inputs through interfaces or by other processes of the application layer will be stored in respective database after manipulating information at the application layer.

4.3 Software Architecture

The software architecture is details in the following illustration and we see the different layers of the total system. The data system is totally run on its own. The company data is fed in through the operation staff and they are in the application layer as the administrators. The data is gathered at the main database and the whole system is then run though the database information module. The web service is then connected to the database information module and the system is then linked up the database information module and the web service.

The MVCS system is run in two different places and therefore the system is broken down to two parts. One part is known as the online claiming management system and is linked to the database information module from one direction and linked to its sub modules from the other direction. The online claiming management system is where the PDA of the agent retrieves the information necessary for the claim to complete.

The online claiming management system has to be operated by the operating staff member. It is later is authenticated to the administrator to alter, delete or add any new details regarding the details of the car or the customer. The operating staff also needs to monitor the existing variations of the market prices of the various components of the vehicles.

The other part of the MVCS system is the PDA Claiming Assessment system or the system on the PDA. This is to be accessed by the claiming agent on the arrival of the scene of the accident. Then he has to start entering details according to the modules given on the system, which is accessed through the web server. The details are taken in from the database interface surface.

Both the systems have an authentication module because the data should be accessible to the users who are supposed to.

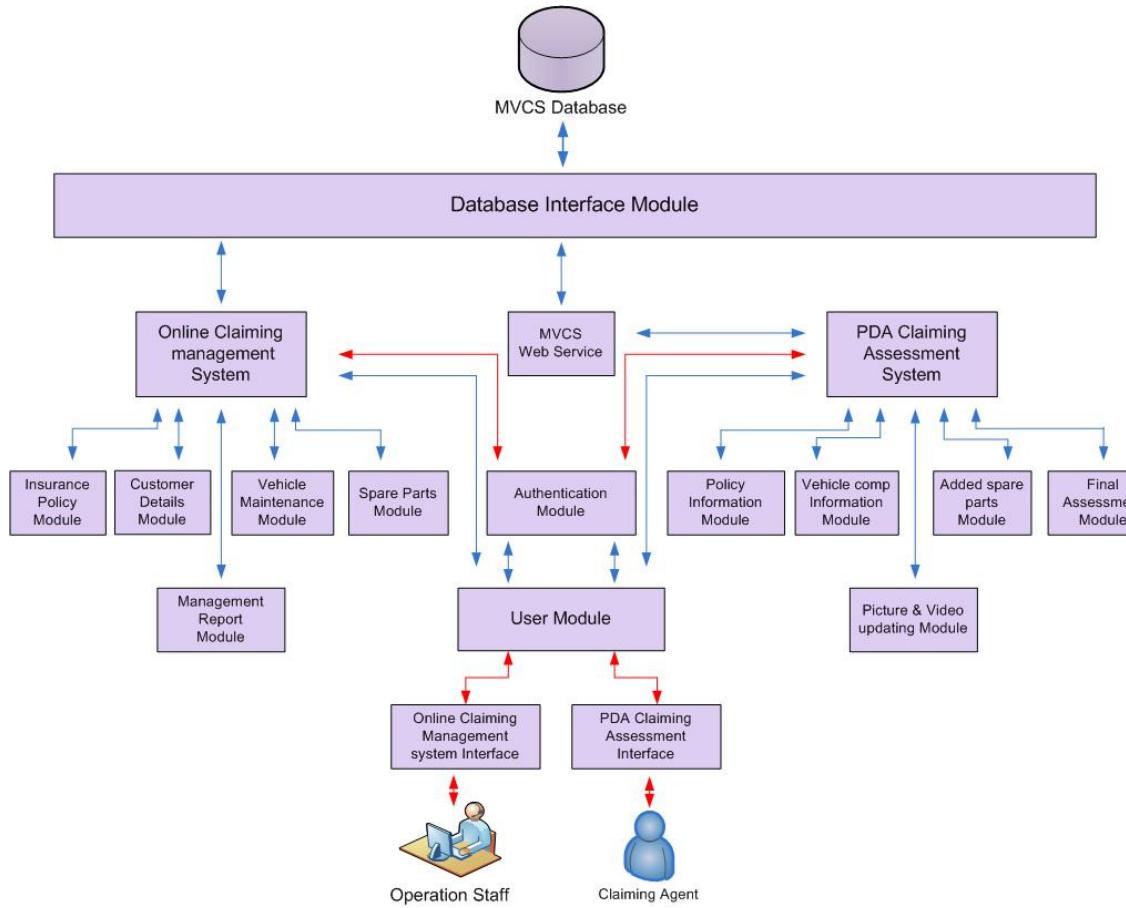


FIGURE 4.2

Overall Software Architectural Design

4.4 Module Architecture

The overall system will be broken down into two main components and 17 sub-modules (figure 4.2).

Main modules and sub-modules

- Online claiming management system
 - Insurance policy Module
 - Customer Details module
 - Vehicle maintenance module
 - Spare parts module
 - Management Report module
- Database Interface module
- Authentication module
 - Online claiming management system
 - PDA claiming management interface
- PDA claiming assessment system
 - Policy information module
 - Vehicle component information module
 - Added spare parts module
 - Final assessment module
 - Picture and video updating module

- **Online Claiming Management Interface module**



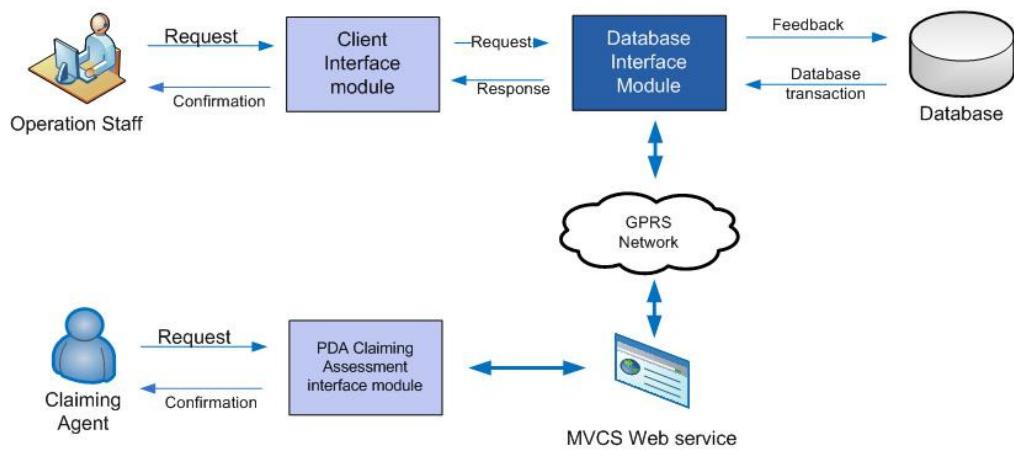
Online Claiming Management Interface module is the operation and administrative staff interface of the proposed MVCS. Online Claiming Management Interface module consist all the modules that related to the administrative functionalities of the MVCS. These modules are Insurance policy Module, Customer Details module, Vehicle maintenance module, Spare parts module and Management Report module. Online Claiming Management Interface module is designed in such a way that the module is very interactive, user friendly which supports for all the requirements of the administration.

- **PDA Claiming Assessment Interface**



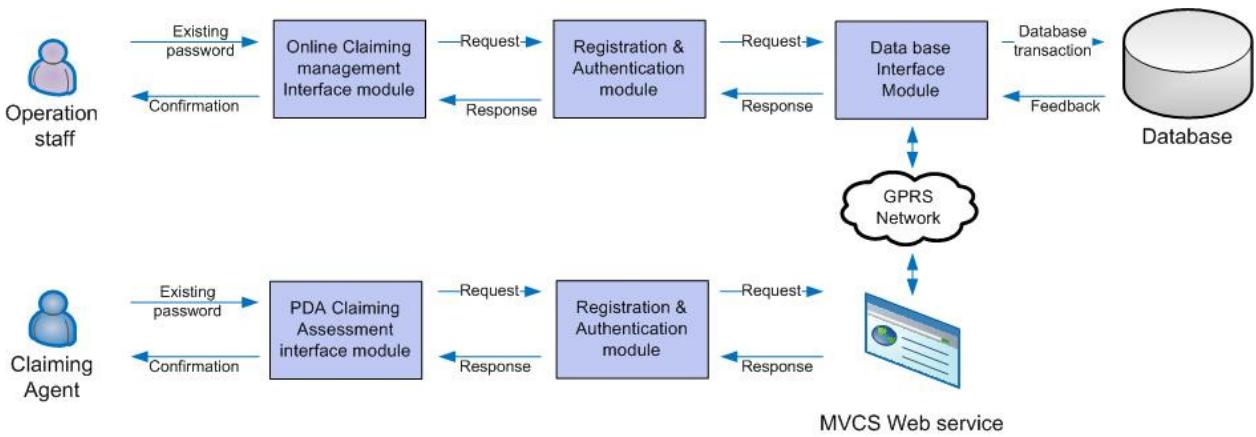
PDA Claiming Assessment Interface module shown above is where the claiming agent interacts with the MVCS. The claiming agent has given less functionality than the operation and administrative staff because the claiming agent carries out fewer numbers of functionalities. The other module the PDA Claiming Assessment Interface facilitates interaction are Policy information module, Vehicle component information module, Added spare parts module, Final assessment module, Picture and video updating module. PDA Claiming Assessment Interface also designed in a way that it provides high level of interaction, user friendliness. This interface supports the novices and expertise by maintaining its consistency and standards. PDA Claiming Assessment Interface module always keep inform the claiming agent about the current situation through feedbacks by within sensible time.

▪ Database Interface module



The Database Interface Module which is represented above is operate as a central switch for both PDA Claiming Assessment Interface module and Online Claiming Management Interface module when carrying out database transactions like retrieving information, storing information executing simple queries. The request will be sending either PDA Claiming Assessment Interface or Online Claiming Management Interface in order carry out a database transaction will be direct to the MVCS database through Database Interface module. Once the database transaction is completed, the feed back created at the database for that transaction will be direct to the user via the same route where the request came. There will be two different approaches which are slightly different to each other will be used by the two interface module in order to reach the database Interface module and the database. Online Claiming Management Interface module will be connects and interacts directly with the database because both the Online Claiming Management Interface module and database are implemented in the single central computer. Because of this reason Online Claiming Management Interface are in a position to set up a direct connectivity with the Database Interface Module. PDA Claiming Assessment Interface module which is installed in the Agents PDA must reach the Database Interface Module via GPRS network.

▪ Authentication module



To describe the authentication module I have broken it down to two modules. The two modules of the MVCS and its user authentication is described below. The reasons for such authentication and how it will be done will also be described below.

○ Online claiming management system

The existing password is given by the operating staff member who is authorized by the administrator. This request is run through the registration and authentication module to the database interface module to the database and the response is sent back. It will authorize the operating staff member to access if the password is correct. It is only the operating staff of the system who should be able to update the system. The administrators will hold the right over the operating staff but it is them who will be functional at all times.

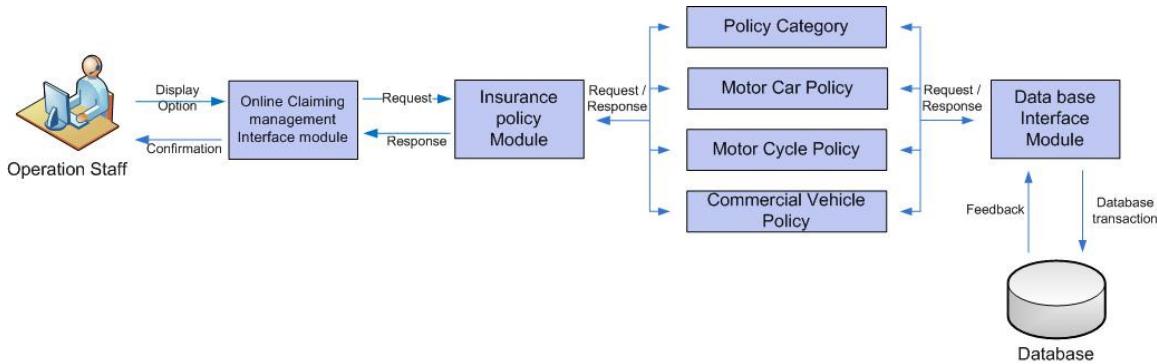
○ PDA claiming management interface

The PDA claiming management interface would need the claiming agent to enter his user name and password as shown in one of the interface modules in the next topic of this chapter. It will be finally shown in the registration and authentication module. The agent should keep his password secret since he would be responsible to all the information updated under his name. Since the PDA is a device which can go from one persons hand to hand, the agent should be careful that no one other than him would operate the MVCS system. Even if someone operates the system, the intruder will not be able to get through the system since he wouldn't have the password.

▪ Online claiming management system

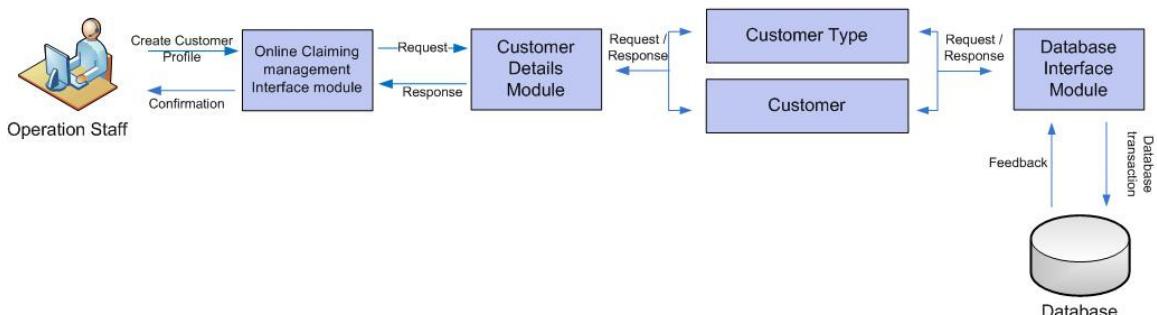
The online claiming management system is the part of the MVCS system that runs on the management side of the insurance company. The details entered on this module and the system is done as routine and as management policy.

○ Insurance policy Module



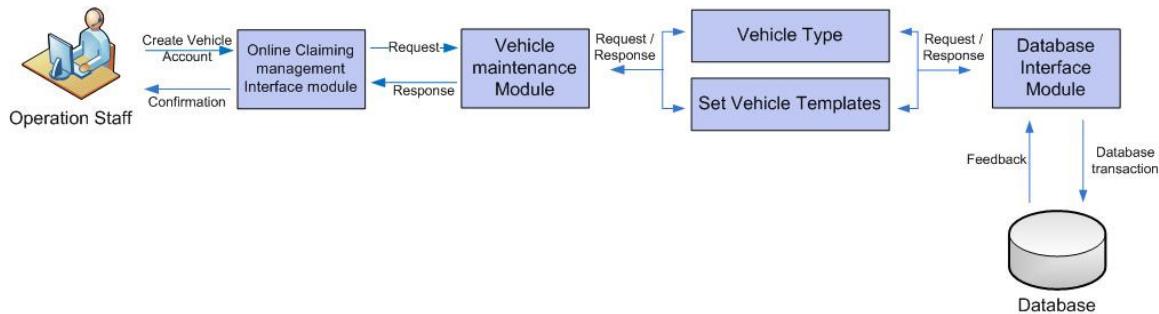
In the insurance policy module we told that it is the routine administrator who would add or alter the data. The authority is transferred on to the operating staff member to access the online claiming management interface module. The operating staff member uses his authentication and works on the display option while the online claiming management interface requests the Insurance policy module. The insurance policy module would respond with the policy details necessary for the operating staff member. The operating staff member could look into the policy categories such as light vehicle, heavy vehicle, on the spot claim or other category provided. Then he would choose to fill details of the motor cycle, car, commercial vehicle, etc. this is run through the database interface module and data transaction and the feed back is taken and given to the main company database.

○ Customer Details module



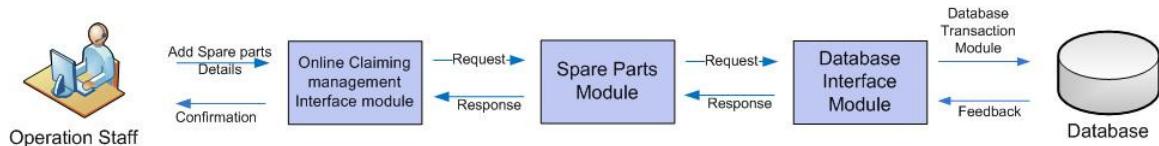
The operating staff member would then input data referring to the details of the customer. This is explained in the customer details module. This module is further divided into two categories such as customer sub module and category type sub module. In customer sub module, it creates all the customer profiles including customers' general information. And in customer type sub module, it categorizes the customers into different categories depending upon the policy they have taken. By doing a categorization like this makes things easier to the company when they have to track a particular customer. As an example we can introduce a VIP customer category which will identify a group who has taken special kind of vehicle insurance.

○ Vehicle parts maintenance module



The vehicle maintenance module is further broken into sub-modules of vehicle type and the module which sets the vehicle templates. In the vehicle template the vehicle type ID, the name of the type and the description of the vehicle type is given. Then the status of the vehicle type is also mentioned as to whether the particular vehicle type is active or not. If the client or customer has defaulted insurance payments then the operating staff member could either hold or deactivate the customer from this module. The operating staff member would access this through the online claiming management interface module and enter the details and make the module to connect with the database through the database interface module. When the module gets feedback from the database it would get the necessary customer payments. The module requests in the form of ID numbers in this transaction.

○ Spare parts module

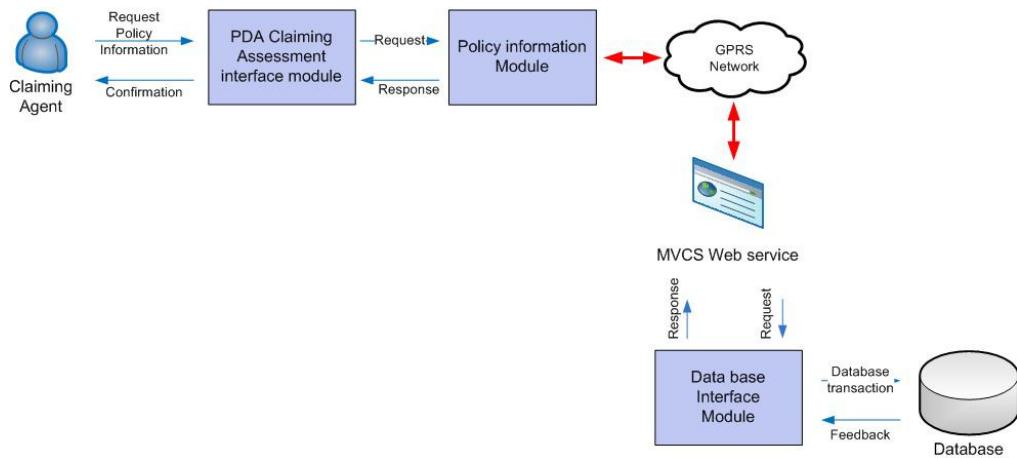


We know that vehicle parts costs differ from time to time. When the insurance claim is made the right prices and the most updated prices are needed for the most accurate evaluation. This module helps us achieve that level. The operating staff member, who is based at the head office of the insurance organization, logs on to the vehicle maintenance module through the online claiming management interface module. There he would create a vehicle parts maintenance account and add insured vehicle parts and the relevant ID number of that part. With the ID number of the vehicle part it is easy to access the database through the database interface module and get the relevant price of the vehicle part of that date. The vehicle maintenance module is further broken into sub-modules.

vehicle type, parts ID number and part name. The number of parts increases as customized by the insurance policy.

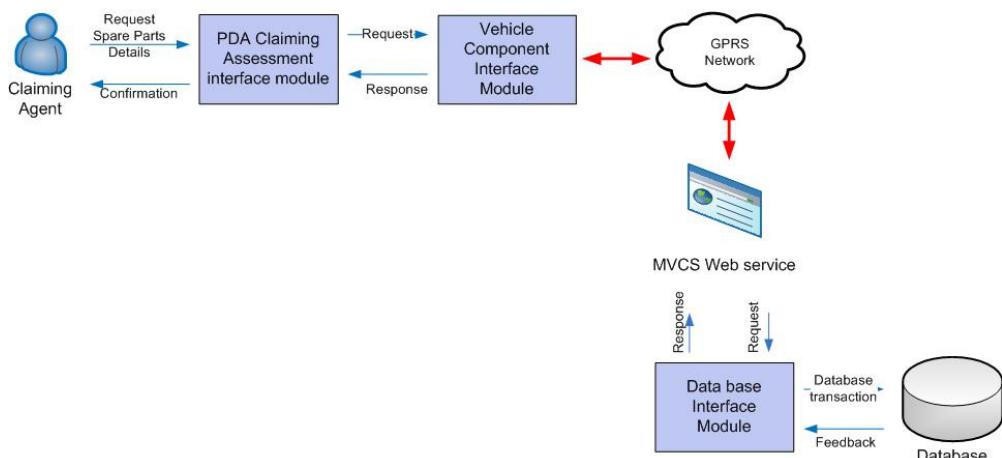
▪ PDA claiming assessment system

○ Policy information module



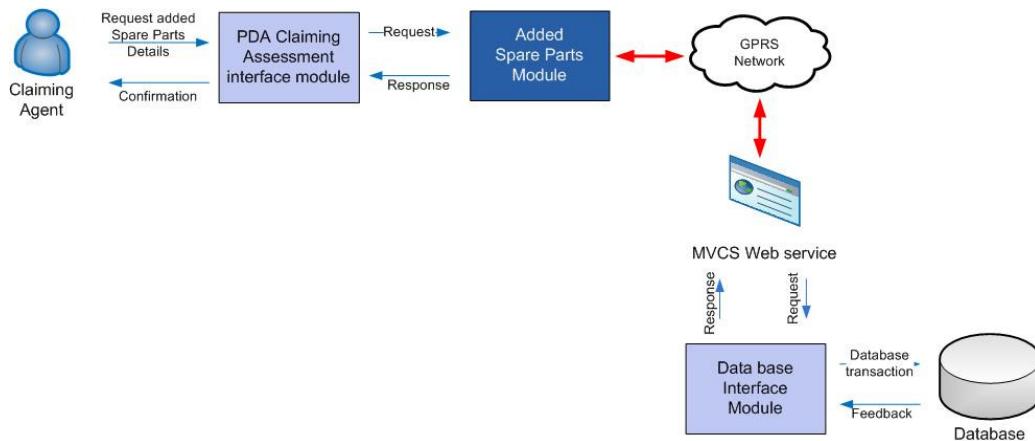
As soon as the mobile insurance claiming staff member logs on to the system through the PDA, he would approach this module. The PDA claiming assessment interface module given the claiming agent policy information such as customer, policy type, vehicle number, vehicle color, effective date etc. The agent receives all the information of the customer by simply requesting the information with the policy ID number which the customer would provide the claiming agent on the arrival to the scene of the accident. In the former system the agent would usually use his memory or some other reference to get the policy information. There would have been instances that the customer would have argued with the claiming agent about the policy details. In this present system such arguments will not be necessary because the information is taken from an automated database which had been initially filled by the operating staff and the customer.

○ Vehicle component information module



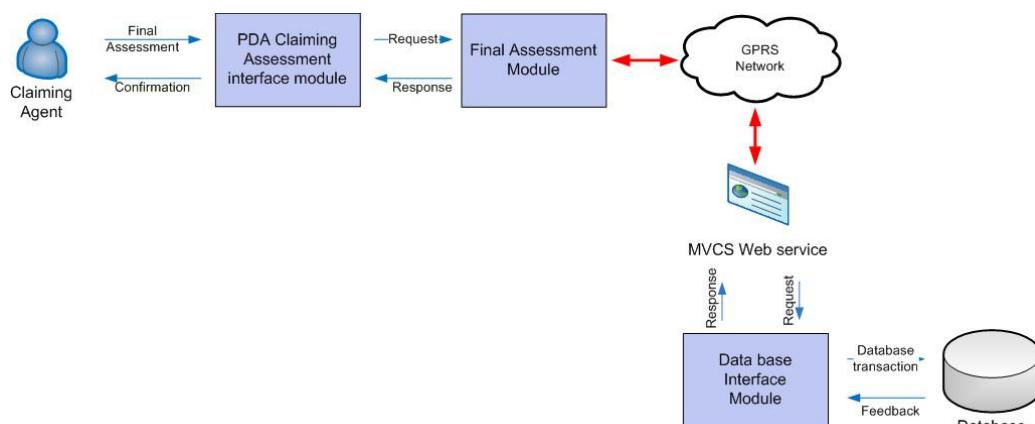
Previously in the Online Claiming Management Interface module the operating staff member adds all the details necessary of the vehicle components or vehicle parts. The vehicle component information is taken from the database on the spot of the insurance claim by the agent. This has been the novel feature of the system. He need not go into details as to examining the parts in and out for its model details and put the vehicle owner under all sorts of queries at the stressful time as an accident. He will simply get a list of the vehicle components and he would have to mark the necessary damaged vehicle components and add them in the next module.

○ Added spare parts module



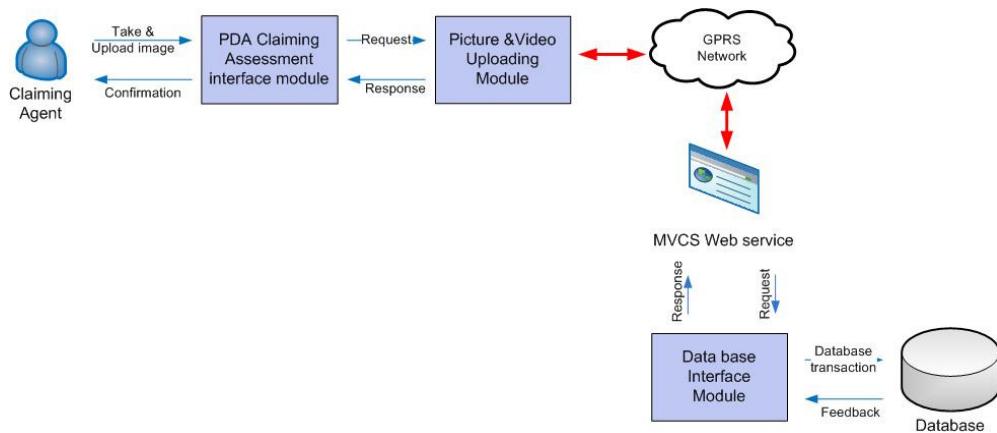
In the added spare parts module the claiming agent would only have to add the damaged spare parts or vehicle components. This is a very simplified method than the old system where the claiming agent had to fill in blanks very unnecessarily which the accident had no relevance to. In this method he would simply have to add the damaged vehicle components name or choose it by its ID number and simply add it to the main addition. In this module he has to identify the damaged vehicle component from a given list in the database. He need not go under the carriage of the vehicle and inspect what the brand of the spare part, its number and all the details. The details are easily filtered and sorted for him to choose. When he chooses the right damaged item it automatically is listed for the final assessment of the claiming amount.

○ Final assessment module



After all the damaged vehicle components are fed in to the system by the claiming agent the database gives the relevant prices and with each addition of a damaged part it adds it on the final assessment. When the final component is also added the final addition is shown on the interface module of the PDA. The claiming agent would be able to take the final evaluation on the Final Assessment module without any calculation done by himself. When the mobile vehicle claiming agent had to do this process manually it had a possibility of being erred by the agent. The other advantage of using the system to evaluate the final assessment is that it is done with the current market values of the spare parts. A usual claiming agent wouldn't know what the variations are when it comes to spare parts and types of spare parts. The operating staff covers the agent on this aspect when they fill in the current market values of the various types of spare parts in the database.

○ Picture and video Uploading module

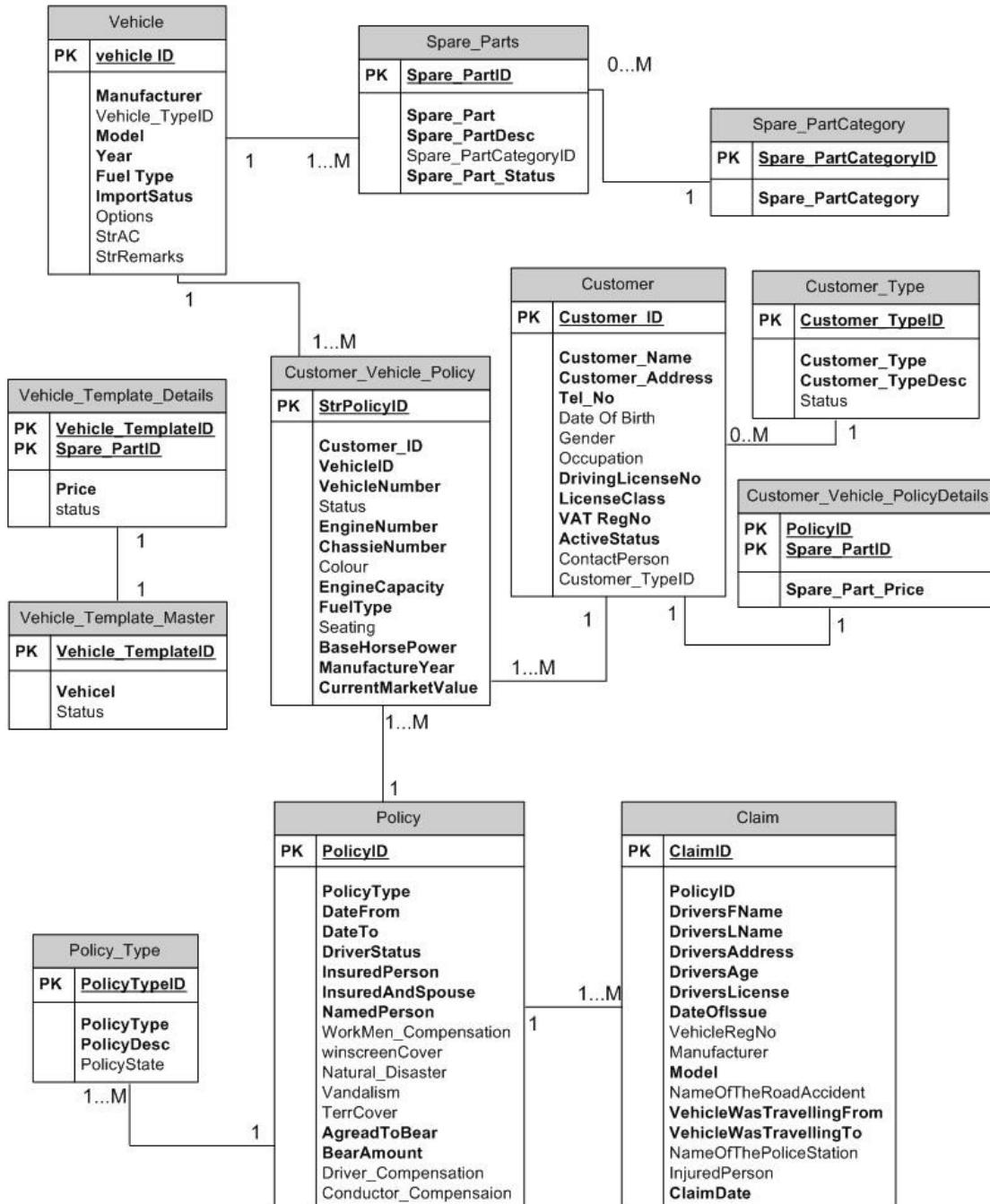


Another remarkable feature given for the first time in the Mobile insurance claiming industry is the quick upload of video images or picture images. In the old claiming system the agent would take photographs and clip them on to the report. He would have to wait until the photographs are developed and in hard copy to attach them on to the report. That hindrance is all looked after since the data is stored in electronic data and is simply carried out through the PDA. Since the PDA is capable of both taking pictures and video the recorded files can be simply uploaded when the command is given to extract the file from a given location of the PDA memory to the main database of the company. The mobile claiming agent will make the transaction on the Picture and Video updating module on the PDA claiming Assessment Interface Module. It is also necessary to mention that since this feature is an additional feature and not an essential feature that the claiming agent could send this upload even a few minutes after the payment of the claim has been made.

4.5 Database Design

The database is very important in running the system of MVCS. Since we are giving a lot of assurance of data and sorting and calculation of data the database should also have a good foolproof design. I have used SQL server for this section of the system design because it is easy and quick to respond for the online claiming system.

Database Relationship diagram



The Database 1st, 2nd, 3rd Normalization Forms APPENDIX G

Given below are some of the data tables.

Attribute	Data Type	Length
Vehicle ID	Integer	10
Manufacturer	Text	20
Vehicle_TypeID	Integer	10
Model	Text	20
Year	Date/Time	
Fuel Type	Integer	10
ImportStatus	Text	30
Options	Text	30
StrAC	Text	20
StrRemarks	Text	30

This table signifies the Vehicle Relation in describing what the vehicle is about and what major items of the vehicle would be insured. The vehicle's ID number, manufacturer, vehicle type, year of manufacture, fuel type, engine type, import status and such other details of the vehicle is stored in this table of the database. When this data is tabulated, we could access this database anytime and take all information with regarding to the vehicle as far as the insurance is concerned.

Attribute	Data Type	Length
StrPolicyID	Integer	10
Customer_ID	Integer	10
VehicleID	Integer	10
Vehicle Number	Integer	10
Status	Text	30
Engine Number	Integer	10
Chassis Number	Integer	10
Color	Text	20
Engine Capacity	Integer	10
Fuel Type	Integer	10
Seating	Text	20
Base Horse Power	Integer	10
Manufacture Year	Date/Time	
Current Market Value	Integer	20

This table gives the insurance policy details such as the insurance policy ID number the premium the time span of the insurance policy, the main insured items of the vehicle and other such details corresponding to the insurance policy details.

Attribute	Data Type	Length
Customer_ID	Integer	10
Customer Name	Text	30
Customer Address	Text	40
Tel_No	Integer	10
Date Of Birth	Date	
Gender	Boolean	
Occupation	Text	20
DrivingLicenseNo	Integer	10

License Class	Text	20
VAT RegNo	Integer	10
Active Status	Text	20
Contact Person	Text	20
Customer_TypeID	Integer	10

It is important that the customer is identified by the database and that the agent does not have to depend on the third party at the scene to give the necessary customer details. The customer information is entered in this relation. The attributes can be the customer ID, the customer name, his personal details, his contact information etc. the data type and the length of such data will also be entered in the customer relation.

Attribute	Data Type	Length
Spare_PartID	Integer	10
Spare Part	Text	30
Spare_PartDesc	Text	30
Spare_PartCategoryID	Integer	10
Spare_Part_Status	Text	20

The spare parts relation is shown in this table and the attributes such as the name of the spare part, its ID code number, its category and make, its present status and such information is provided. Why we have this database table is that the claim is added by the amount of spare parts damaged. When we add the claim amount through spare parts, these spare parts need a proper coding and identification at a glance.

Attribute	Data Type	Length
Spare_PartCategoryID	Integer	10
Spare_PartCategory	Text	20

Details of other Data tables will be attached in APPENDIX G

4.6 Interface Design

Interface design for PDA Claiming Assessment System

Authentication Module



Policy information module Interface

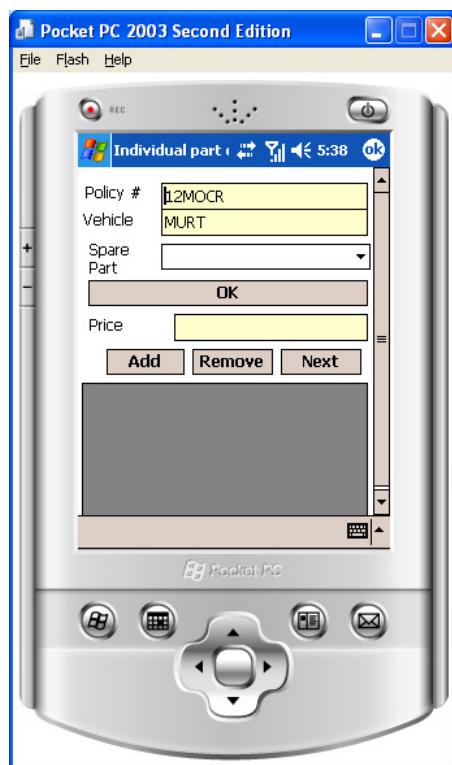


Vehicle component information module Interface





Added spare parts module interface



Final assessment module Interface





MVCS Web Service Interface

The following operations are supported. For a formal definition, please review the [Service Description](#).

- [Bind_Combo_parts](#)
- [HelloWorld](#)
- [acceptClaim](#)
- [bindDataGrid](#)
- [getCustomerName](#)
- [getPolicyType](#)
- [getSparepartCategory](#)
- [getSparepartPrice](#)
- [getSparepartPrice_for_policy](#)
- [getTotalAmount](#)
- [getVehicle](#)
- [getVehicleColor](#)
- [getVehicleNo](#)
- [isValidUser](#)
- [load_sparePartVehicle](#)
- [rejectDetails](#)
- [saveDetails](#)

Online claiming management system Interfaces

Main Interface

The screenshot shows the homepage of the Ceylinco VIP Motor Insurance website. At the top, there is a navigation bar with links for Home, logout, profile, gallery, portfolio, and contact. Below the navigation is a banner for 'Ceylinco VIP Motor Insurance' featuring a globe icon. The main content area contains a logo for 'CEYLINCO VIP ON THE SPOT' with a hand pointing at a car wheel. A mission statement is present: "Our Mission is to provide protection and financial security of the highest quality to society, whilst adding to shareholders' wealth and recognising, rewarding and valuing the dignity of our staff." Below this is a section titled "Big or Small Ceylinco Protects Them All!" which discusses the company's history and growth. A footer at the bottom right mentions "Ceylinco Group of companies". On the right side of the page, there is a sidebar titled "About the site..". It includes a welcome message, a note about the website's purpose, and links for "Insurance policies" and "Customers". Below this is a note about mobile devices and a sitemap.

Policy Information Interface

The screenshot shows the 'Policy Type Maintenance' page of the O-Das Online Damage assessment system. The left panel displays a form with fields for Policy Type ID (empty), Policy type (empty), Description (empty), and Status (set to Active (A)). Below the form is a table showing policy types:

policyTypeID	policyType	policyDesc	policyState	Action
3POLICYCAT	commercial vehicle	policy for motor vehicle	A	Edit Delete
4POLICYCAT	as	as	A	Edit Delete
5POLICYCAT	q	q	A	Edit Delete
BICY	Motor Bicycle	Policy For motor Bicycles	I	Edit Delete

The right panel shows a sidebar with a tree view of system modules: Online Damage System, Insurance Policy, Policy Category (selected), Motor Car Policy, Motor Cycle Policy, Commercial Vehicle, Report a claim, Customer, Vehicle maintenance, Spare parts, Management Reports, and Claim History.

Customer Information Module interface

The screenshot shows the 'Customer Type Maintenance' page. On the left, there is a form with fields for Customer Type ID (text input), Customer type (text input), Description (text area), and Status (dropdown menu showing 'Active (A)'). Below the form is a table with columns: Customer_TypeID, Customer_Type, CustomerType_Desc, and strStatus. A single row is shown with values: 4CUSTYP, x, x, A. At the bottom of the table are 'Edit' and 'Delete' buttons. On the right side of the page, there is a sidebar with a navigation tree:

- Online Damage System
- + Insurance Policy
- Customer
 - Customer Type
 - Customer
- Vehicle maintenance
 - Vehicle type
 - Set Vehicle Template
- Spare parts
 - Spare parts
- Management Reports
- Claim History

Vehicle template interface

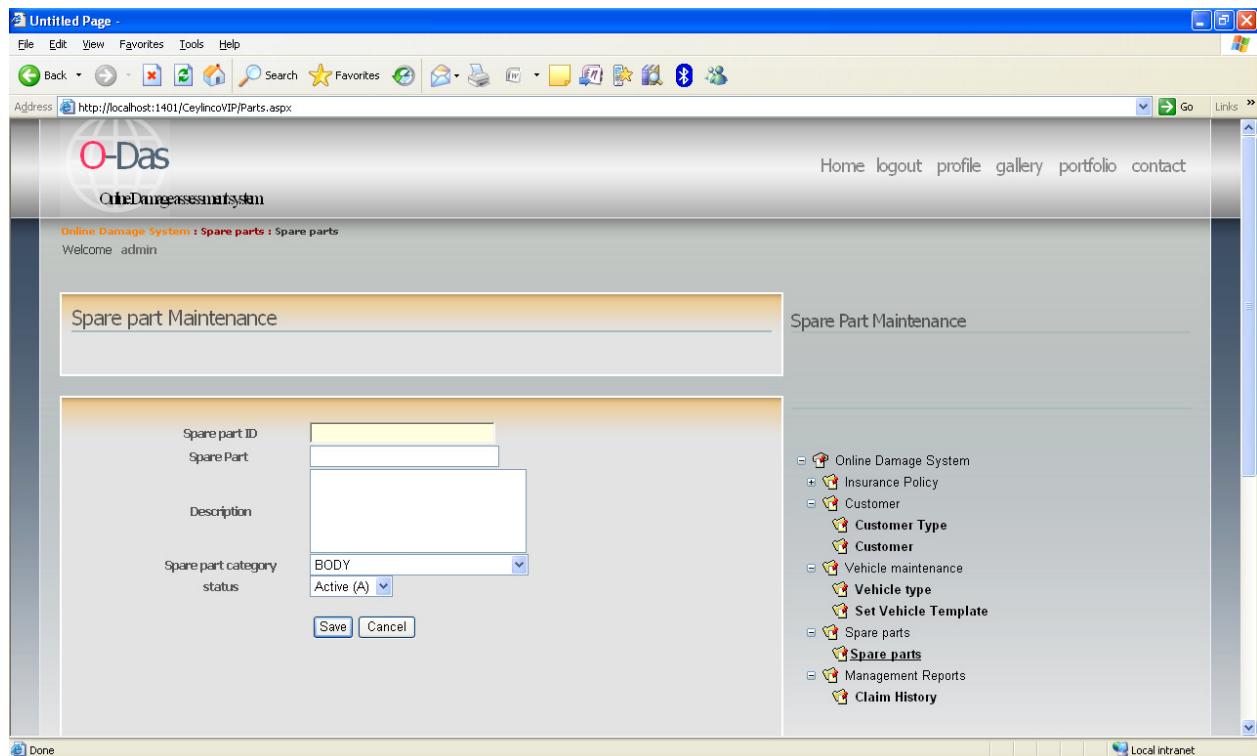
The screenshot shows the 'Vehicle Template Maintenance' page. On the left, there is a form with fields for Template ID (text input), Vehicle Code (text input), and Status (dropdown menu showing 'Active (A)'). Below the form is a table with columns: Vehicle_Template_ID, Vehicle, strStatus, and buttons for Edit and Delete. Several rows are listed:

Vehicle_Template_ID	Vehicle	strStatus	Edit	Delete
2VH-TMP	ASD	A	Edit	Delete
3VH-TMP	klg	A	Edit	Delete
4VH-TMP	a6AS	A	Edit	Delete
5VH-TMP	saasa	A	Edit	Delete
asd	asd	A	Edit	Delete
MURT	ALTO	A	Edit	Delete
x	x	A	Edit	Delete

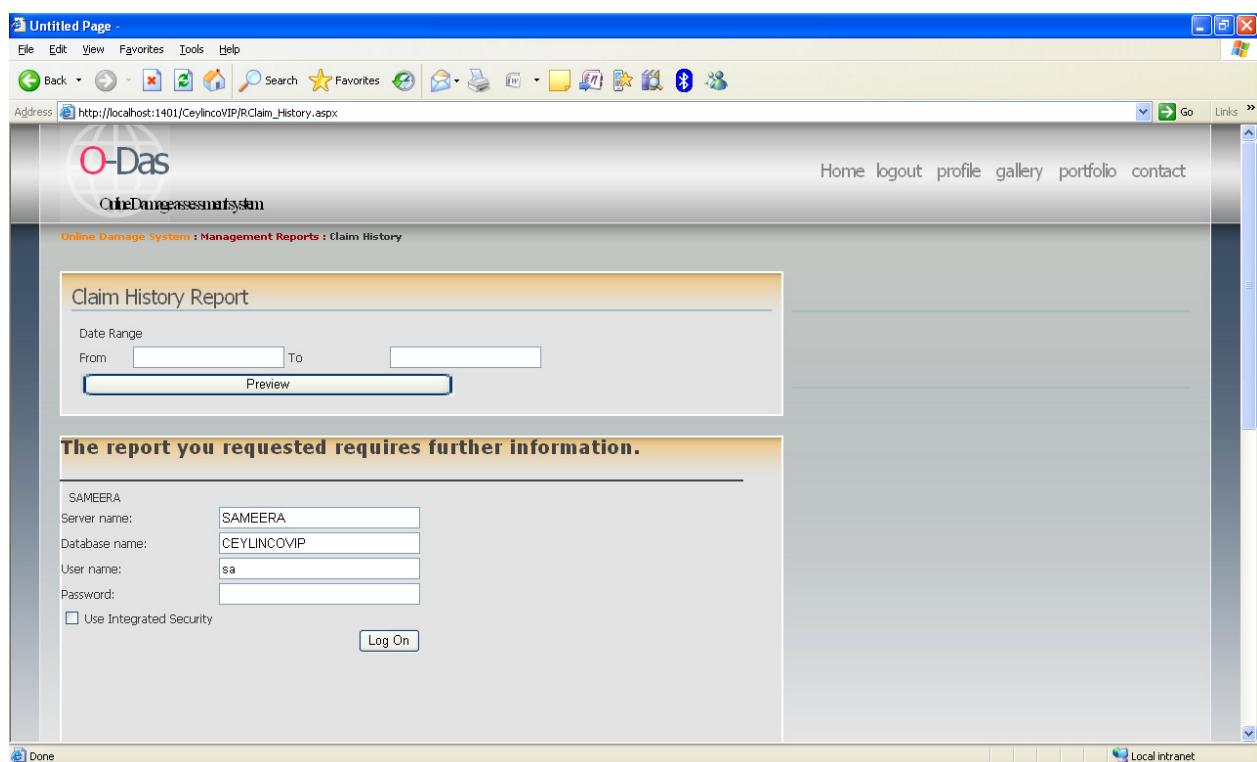
On the right side of the page, there is a sidebar with a navigation tree:

- Online Damage System
- + Insurance Policy
- Customer
 - Customer Type
 - Customer
- Vehicle maintenance
 - Vehicle type
 - Set Vehicle Template
- Spare parts
 - Spare parts
- Management Reports
- Claim History

Spare Part Module Interface

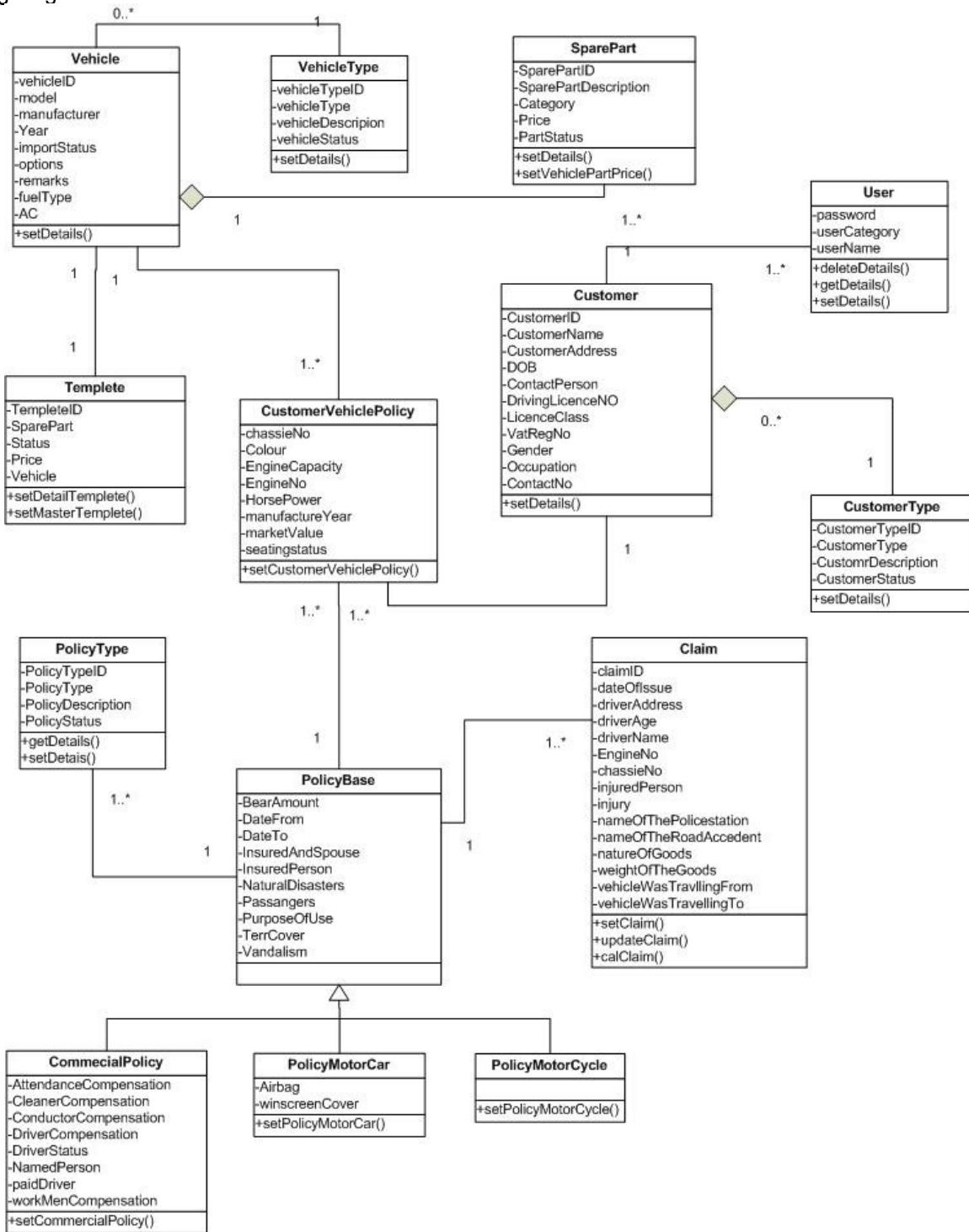


Generating Management Report Module Interface



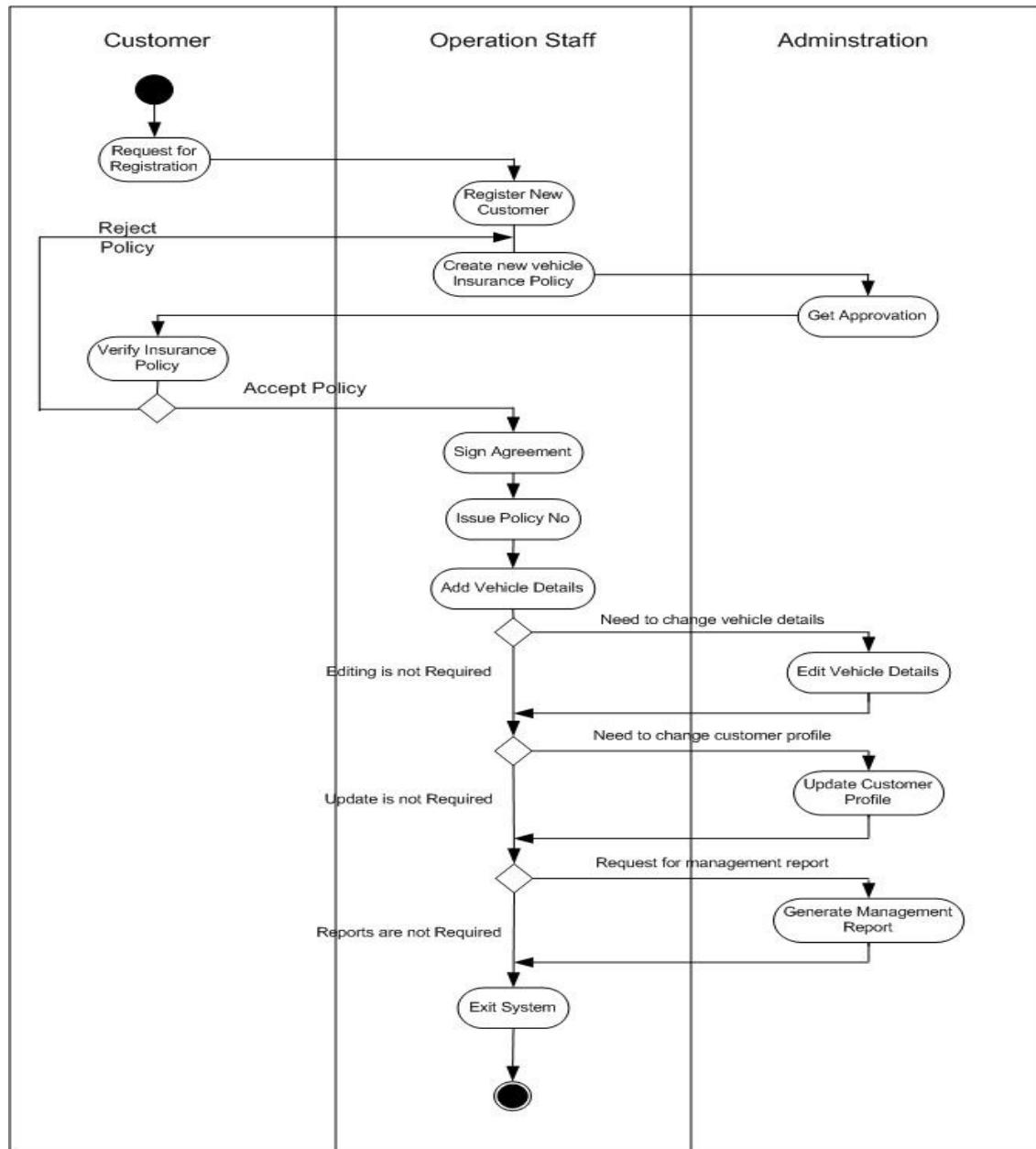
4.7 Class diagram for Proposed MVCS

Class diagram expresses the various kinds of system objects and different types of relationships exist among those system objects. System objects and relationships that are involved in the proposed system are represented in the following diagram.



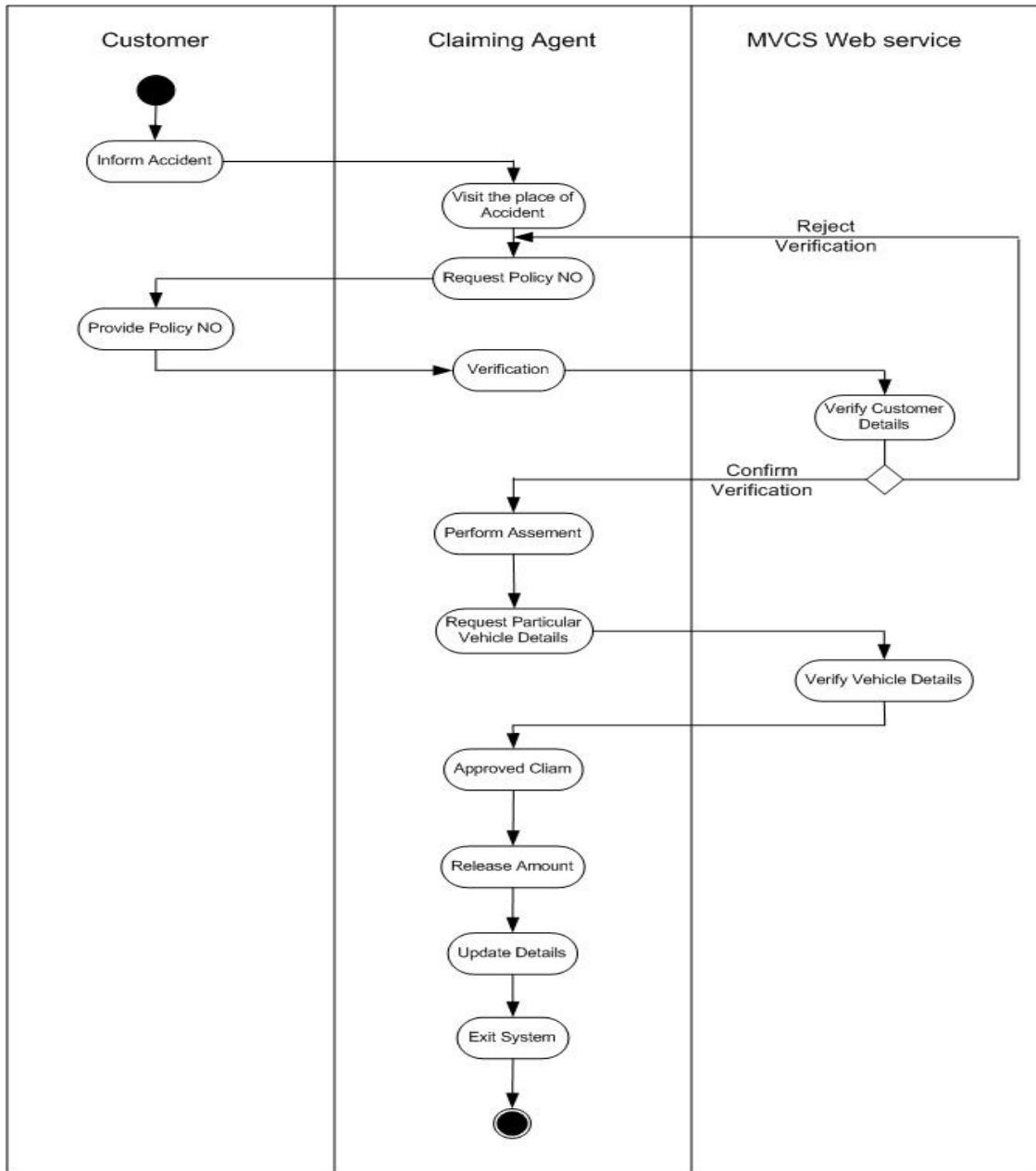
4.8 Activity Diagrams for Proposed MVCS

Activity Diagram for Online Claiming Management System



The above diagram illustrates all the activities involved with the Online Claiming Management System. Once the customer requests for a registration, then the operation staff starts to register a new customer by creating a new vehicle insurance policy. Then the operation staff member attempts to get the approval from administrator in order to continue the registration process. Once the policy is approved then that policy should be verified by the customer. After that the operation staff attempts to “sign agreement”, “issue policy no” and “add vehicle details”. At any instance, the administrator can “Edit vehicle details”, “update customer policy”, “generate management reports” in order to fulfill the requirements of clients and the company management. Once the process is successfully completed, the operation staff can “Exist the system”.

Activity Diagram for PDA Assessment System

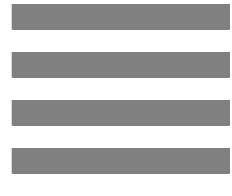


Above diagram involves all the activities related to the PDA Assessment System. Once the customer informs an accident, then the claiming agent "visit the place of accident" and "request for policy no" from the customer. Once the customer produces it, then the agent verify it with the use of details that he got from the web service. Then the agent performs the assessment and verifies all the vehicle details via the web service. Then the agent approves the claim, release the amount and update the details. Once the claim process is completed successfully, then the agent can exist the system.

4.9 Summary

In this chapter we created an outlook to the design of the MVCS system. We went through the total system architecture and the software design to find out how this system runs. Then we have discusses how the system is broken down to modules and sub modules and what these module do. While discussing the modules we have briefly gone through all the actors participating in the implementation and the process of the system and what they have to do to keep the system running. Then we spoke of the database design on general terms and the interface screen shots were given later. With this chapter anyone could have a general feeling of what the system is or what the system is going to be.

CHAPTER 5



System testing and Implementation

5.1 Introduction

5.2 Program Development – Technology Considerations

 5.2.1 Language Selection

 5.2.2 System Development Strategy

5.3 Testing

 5.3.1 System Testing Objectives

 5.3.2 Testing Strategy

 5.3.3 Test Plan

 5.3.4 Test Results

5.4 Implementation Plan

 5.4.1 System overview

 5.4.2 Major tasks on system implementation

 5.4.3 Installation

 5.4.4 System Changeover

 5.4.5 Data Conversion

 5.4.6 User Training

5.5 Summary

System testing and Implementation

5.1 Introduction

The MVCS project so far discussed needs to be put into operation. This chapter would post the implementation of the new system in the vehicle insurance claiming process. The chapter will begin with a technical aspect of the programming language used for the system. A full evaluation for the testing would take place next to make sure that there are no bugs or errors in the system. The system testing objectives, strategies, the system implementation procedures are the next three topics. The data conversion, the user shift or handover and final implementation will all be discussed in this Chapter.

5.2 Program Development – Technology Considerations

It is very vital to use appropriate tools in order to develop a successful system. Use of any inappropriate tools will only leads to develop a system with unnecessary errors and faults and use of these badly chosen technologies also will leads to be crashed after the new system implementation. Badly chosen technologies which may be highly advanced and complex will allow producing a system with a high quality, but these technologies may also leads to develop a system that use up lots of time and resources in order to perform a task which is expected by the system.

It is very vital to use appropriate computer language and any other necessary tools in order to develop a successful system. So these technologies and tools will help to develop the system within a minimum development time. The main objective of our MVCS is to do a fast, easy, accurate claiming process via PDA. And this is done by connecting to the company database via web service with the use of GPRS technology. So it is very important to consider some factors such as supportiveness and the efficiency of the system. And in order to meet above mention factors we must use the most appropriate tools available in the market to develop the system.

Technological considerations - followed during the development of the system

- Efficiency and Performance
- Re-usability and flexibility
- Object oriented development support

5.2.1 Language Selection

The programming language that is going to use as the developing language for the system development was greatly depended on accuracy, efficiency, and essentially on PDA tools support.

Core function of the system is vehicle claiming through the PDA, researchers have been done on many software development languages in order to recognize the appropriate language that helps efficient data retrieval and updating from the company database via web service.

There are several factors that have been considered during the process of the language selection and they are as follows :-

- Powerful Windows-based Applications
- Building Web-based Applications
- Powerful, Flexible, Simplified Data Access
- XML Web Services
- Mobile Applications
- Improved Coding
- Direct Access to the Platform
- Full Object-Oriented Constructs
- COM Interoperability
- Reuse Existing Investments
- Upgrade Wizard

Researches have been done on many computer programming languages in order to evaluate the programming language selection criteria which are mentioned above.

- Java (Sun Microsystems)
- Visual Basic .NET (Microsoft)
- Visual Basic 6 (Microsoft)
- C# (Microsoft)

After considering all the above mention languages, Visual Basic .NET (Microsoft) has been chosen as the system development language.

When we consider PDA application using in the world wide, 90% of PDA applications are run on windows platform and windows platform gives it maximum support to the PDA application. So by using the VB.Net as our system development language, we get lot of opportunities to develop a successful system. VB.Net is selected mainly because of the many features it supports like, Mobile Applications, Reuse Existing Investments and Powerful, Flexible, Simplified Data Access

JAVA also fulfill the criteria's of language selection process but as developers we have selected the VB.net as our developing language due to many reasons such as windows based PDA are the current market trend (90% Of PDAS are run on the windows platform), customers trust on windows based PDAs, etc.

Features of VB.Net that lead to be chosen are,

Powerful Windows-based Applications

This is a language that has some interesting features such as in place menu editor, new forms designers and also it contains features like automatic control anchoring and docking. Its also provide new productivity features for developing a robust application quickly and easily.

Building Web-based Applications

VB. Net helps us to create a web application s by using the “drag and drop” feature and the shared Web Forms Designers. This language also supports to work with any complex Web pages by providing an enhanced HTML editor. WYSIWYG editor, tag completion and IntelliSense technology also can be used for visual authoring of any interactive web application.

Powerful, Flexible, Simplified Data Access

Any kind of data access scenario can be easily tackled with the use of ADO data access and ADO.NET. ADO.Net is very flexible and this flexibility allows doing the data binding to any of the databases, arrays, classes, collections and it's also gives XML representation of information. Faultless access to ADO allows simple data entrée for any connected data binding circumstances. high-speed entrée to MS SQL Server, DB2, Microsoft Access, Oracle, and more can be gained by using Visual Basic .NET and ADO.NET .

XML Web Services

XML Web Services allow us to call components that are running on any kind of platform by using open Internet protocols. Working with XML Web services is easier where enhancements simplify the discovery and consumption of XML Web services that are located within any firewall. XML Web services can be built as easily as you would build any class in Visual Basic 6.0. The XML Web service project template builds all underlying Web service Infrastructure

Mobile Applications

VB.NET 2003 and .NET Framework 1.1 provides incorporated support for building up the Mobile Web applications for many mobile devices that are Internet-enabled. These features provide developers a single, programming model and mobile Web interface to support a wide collection of Web devices, including compact HTML (cHTML) for i-Mode phones, WML 1.1 for WAP—enabled Mobile phones, handheld devices, HTML for Pocket PC, and pagers.

Full Object-Oriented Constructs

This enables us to create reusable, enterprise-class code by using full object-oriented constructs. Features of language include encapsulation, polymorphism and full implementation inheritance. Structured exception handling gives eliminates spaghetti code and global error handler.

Reuse Existing Investments

VB .NET 2003 gives a robust container for on hand ActiveX controls and this allows us to reuse all the AcativeX Controls which are currently available. Additionally, its also gives full support to the ADO code which is currently available and data binding which enable an even transition to VB .NET 2003.

5.2.2 System Development Strategy

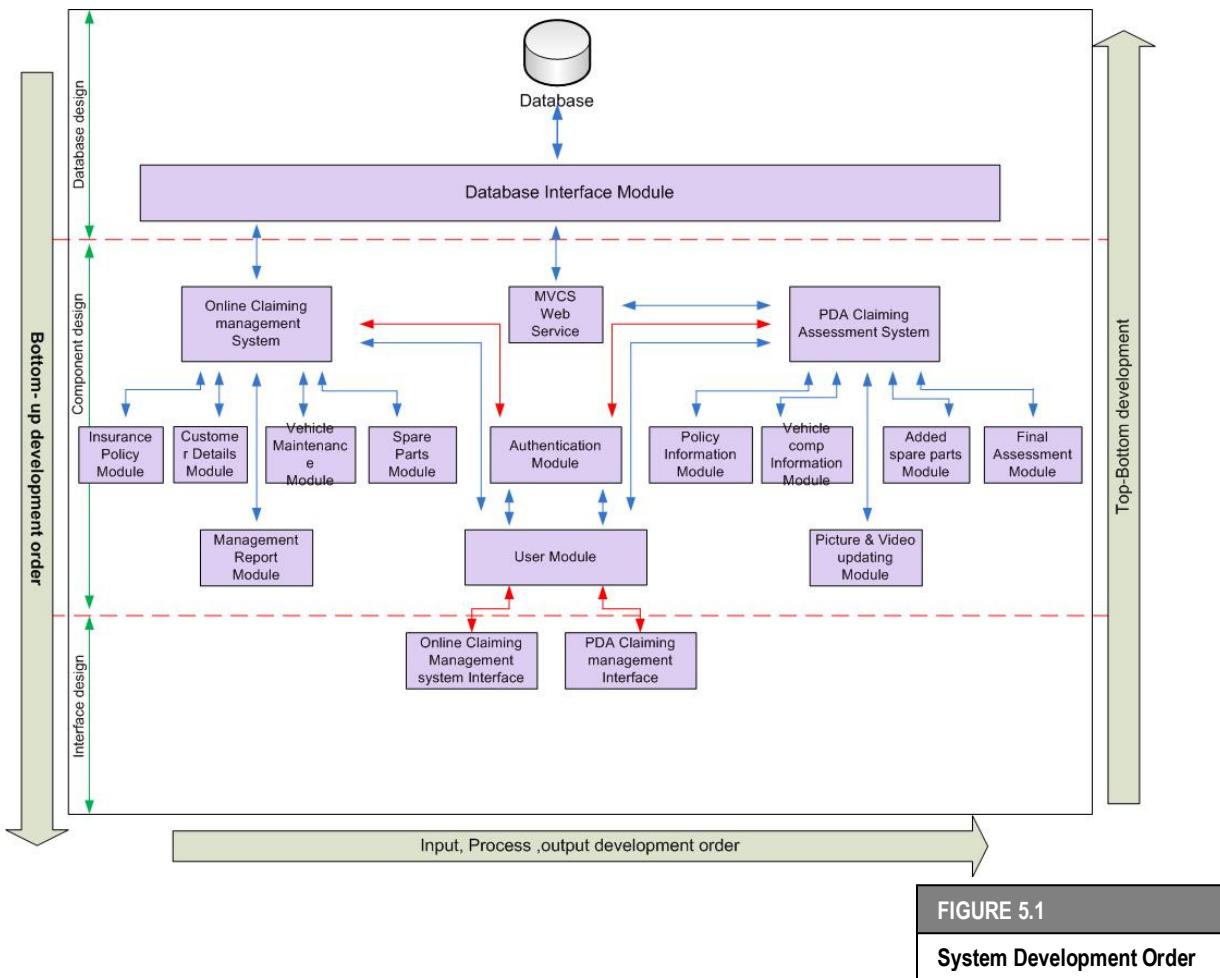


FIGURE 5.1
System Development Order

Top down approach has been selected as the development strategy in order to develop the system. This method has been selected after considering some vital factor such as complexity of the system, development time, etc. Main reason of using this top down development strategy is building the system interfaces at initially which will used to develop system prototypes and develop the core modules of the system that are very much sensitive than later parts of the system such as system database/s.

Components that has been recognized as vital and to be build at first are,

- Interfaces
- Insurance Policy module
- Customer Details Module
- Policy Information Module of the Online claiming Assessment system (PDA)
- Final Assessment Module of the Online claiming Assessment system (PDA)

Prototype of the system is developed based on the above mention components and those components helped to recognize the changes that should be done to the preliminary design of the system during the preliminary phase of the system development.

5.3 Testing

In order to achieve a successful system implementation, all features of the testing stage should be evaluated with the involvement of the system developers along with the end users of the system. The business owners or the company would give in their requirements and these should be confirmed by testing all the modules of the system are developed and integrated as a whole system.

5.3.1 System Testing Objectives

It is essential to test the components to verify the integration of the system is properly done. System testing makes sure that the functional requirements are met. The Business requirements which were agreed before and additional features the developer provides should work well. The developer would end up in a lot of embarrassment if it is not done so. As any product needs a standard, the system testing would act as an initial standard certificate for the newly implemented system.

Systems testing should be carried out the following way:

- **Performance** – Data is retrieved and updated to the database via the web service. Agent has no direct accesses to the company database from his PDA. In order to perform the required task, the system may need lot of processing and even need lot of memory. Performance of the system is tested in order to verify the capability of the system on performing the required task while operating under tide and continuation of many processes at a substantial speed at any given time.
- **Accuracy** – the instability of the system may produce inaccurate information such as wrong values in prices, interfaces and wrong vehicle details. Accuracy of the system is tested in order to validate the outputs that is produced by the system are accurate under any operational environments such as peak hours, night time, etc. The inaccurate calculation due to wrong information on the database is ignored at this stage.
- **Functionality** – Functionality of the system is tested in order to verify the capability of the system on meeting the requirements specified by the company. Functionalities of the new system should be addressed the problems of the current manual system and any process related to the current system.
- **Interfaces** –The newly developed system should provide much information to the officers as much as it can by using minimum number of system interfaces. Therefore Interfaces of the system are tested in order to verify that the system interfaces are developed according to the user specification and those interfaces are functioning properly in various operational environments.
- **Volume** – New system should allow the agent to retrieve or update many data and multiple entries at the same time via the PDA. So the Volume of the new system is tested in order to verify the capability of the new system in order to handle huge volume of data.
- **Security** – This system handles lots of customers' personal data and many sensitive information, and it is vital to take required security measures in order to protect the privacy of the customer sand those sensitive

information. So security of the system is tested to check feature of the system that ensures logins to the system, integrity and also the recovery functions works as expected.

5.3.2 Testing Strategy

A proper testing strategy is needed for the finishing of a good product. The developers intend to give the best finished product to the buyers. Testing is done in different methods and such methods are elaborated below. It is important that the testing is done in a step by step basis and that the different types of tests are related to each other.

Unit testing

Unit testing which also known as module is testing is a kind of procedure used to verify that each unit of source code is functioning correctly. In an application, the smallest testable part is the unit. Units of a system are differentiated from modules and those modules are made up of units. Unit testing will only test the components of the system and it will not help to recognize every fault in that system such as integration errors, performance errors and any system related issues. Unit testing will only be effective when it used along with other testing techniques. Typically this testing is done only by the system developers and not by the users who are going to use the system finally at the real operational environment.

Integration testing

Integration testing which is also known as Integration and Testing (abbreviated I&T) is a kind of testing in which the individual modules in the software are combined and tested those as a cluster. It comes after unit & precedes system testing. Integration testing takes as its input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing. The purpose of integration testing is to verify functional, performance and reliability requirements. The overall idea is in which verified assemblages are added to a verified base which is then used to support the integration testing of further assemblages. There can be many types of integration testing such as back bone, bottom-up, top-down and big bang. Integration tests can not include system-wide change testing.

System Testing

System testing is a type of testing performed on an integrated, completed system in order to evaluate the system's compliance with its requirements that has been specified at the beginning of the project. This testing method is falls within the scope of black box testing method, and as such, this system should need no knowledge about the code or the logic of the inner design. This testing method will not find many faults because the input to this testing method are those system and modules that are already tested under various testing method such as unit and integration testing. But the faults that recognized during the system testing are critical. Because these faults can be affected to integration of system's modules and will occur system changes and repeating of unit and integration testing.

Acceptance testing

Acceptance testing is black-box testing performed on a system prior to its delivery. In some engineering sub disciplines, it is called as black-box testing, functional testing, application testing, validation testing, QA testing, usability testing. Acceptance testing can be done by the insurance company too. Since the insurance company would buy the product, they would take the MVCS system on an acceptance testing. The developers should also go through a thorough test of acceptance before the buyer. In those environments, acceptance testing performed by the end user is called as user acceptance testing (UAT), beta testing. Acceptance phase may also act as the final quality gateway, where any quality defects not previously detected may be uncovered.

Test Procedure Followed

Many testing strategies were mentioned above and objective of each strategy is different. So when we consider the MVCS we have to use all four strategies in order to verify the success of the developed MVCS. As developers our first objective is to figure out whether software components of the system are placed and functioning properly. In order to check that, we need to do test on software components of MVCS. But this can be done only with the use of unit testing and the integration testing. Therefore we must use these two strategies in order to check the success of the system. Once the testing for the software components is done, then we have to perform the testing at the end of each development of all components which were used to develop the MVCS. This can be only tested by using the system testing. Then the MVCS would test once again through the testing period systematically with the well delineate set of test data which comprises input data and output data. Lastly the MVCS would test with the use of acceptance test.

This is a project that is going to implement at ceylinco and going to use at real time. Ceylinco will gain a strategic value to their business by using a system like MVCS. So it is important to provide an effective and efficient system to the ceylinco. Failure of this system will not only effect to the developers' company reputation and future but it's also highly effect to the client companies' strategic objectives and Vision. So as I said earlier it is important to produce a successful system. Success of this system can be measured by performing a testing session on the system, so all the above mention strategies with different objectives should be used to perform successful test session. And this will also helps to test the system more than once throughout the development of system components and core testing stages.

5.3.3 Test Plan

Test plan is a methodical approach which discusses the procedure of conducting the testing strategies that have been mentioned above. Testing for the software was to be done to the system by following a system testing plan which was developed prior to the system testing session. Test plan will be mainly categorized in two parts and they are unit testing and system testing. Under unit testing we are going to discuss about the integration and unit testing done of the software and under system testing we are going to discuss about the system testing and acceptance testing. Following are the concerns that made when designing a test plan.

- Recognize the system components and features to be tested and not tested
- Recognize the system components and features not to be tested
- Ensure all the necessary components are placed for the software testing
- Who performs the testing for particular software component or feature
- Plan for make required changes for problems arise on software testing

Test Plan – System Testing

System testing will be carried under two areas as Online claiming management system and PDA claiming assessment system in order to test the functions of the overall system.

First system test will be carried to test the functionalities of the PDA claiming assessment system. These tests consist of testing retrieving and updating data from the web service, handle new claims, user login activities.

Test plan for the PDA claiming assessment system testing is shown below.

PDA Claiming Assessment System

Test Scenario	Description
Testing and validating logon menu	Test the user login for the valid user name and password. The user login should identify the user's privileges, name and the user's department. Only the administrators and users who are registered to use the monitoring system should be allowed to login.
Testing and validating Policy information module.	Test whether the system identifies the customer's policy numbers and allows the agent to retrieve the relevant data of the relevant module from the company database through the web service.
Testing and validating Policy information module.	Test whether the system allows the agent to proceed to the next level, without filling the "Effective date" field or "Claim ID" field, once the system displayed the particular customers policy details.
Testing and validating Policy information module completion.	Test whether the system will proceed to the next level after giving the necessary information, such as claim ID, effective date etc.
Testing and validating Vehicle component information module.	Test whether the system chooses the particular parts list after the part category is selected from the pick list, and whether the right price is given, of the damaged spare part chosen.
Testing and validating Vehicle component information module.	Test whether the system can add /remove the damaged spare part/parts and weather it displays on screen. When each item is added, the value and details of the item should be shown in a table.
Testing and validating the Added spare part module.	Test whether the system is allowing the agent to proceed to next module after the spare part information is provided.
Testing and validating Added spare part module-special.	Test whether the system is allowing the agent to access, add, remove and display any modified or special spare part unique for the vehicle.
Testing and validating Final Assessment module.	Test whether the system is warning the agent whether to continue with the data updating and proceed to the next module.

TABLE 5.1

Test Scenario description

Online Claiming Management System

Test Scenario	Description
Test and validating the policy category sub module of the Insurance Policy Module	Check whether the functions of the policy category module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data,
Test and validating Motor car Policy category sub module of the Insurance Policy Module	Check whether the Motor car policy module is loading properly. Check whether all the functions in that module are working properly and also check the possibility to create an account based on the information given in that module.
Test and validating Commercial vehicle sub module of the Insurance Policy Module	Check whether the commercial vehicle module is loading properly. Check whether all the functions in that module are working properly and also check the possibility to create an account based on the information given in that module.
Test and validating Report a claim sub module of the Insurance Policy Module	To confirm that the Report a claim sub module is loaded once that button is clicked. And checked whether the functions of that claim module are working properly.
Test and validate the customer type sub module of the customer detail module.	Check whether the functions of the customer type module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data,
Test and validate the customer sub module of the customer detail module.	Check whether the customer module is loading properly. Check whether all the functions in that module are working properly and also check the possibility to create a new customer account based on the information given in that module.
Test and validate the vehicle type sub module of the vehicle detail module.	Check whether the functions of the vehicle type module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data,
Test and validate the Spare part module.	Check whether the functions of the spare part module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data,
Test and validate the preview of a claim history report.	Check whether the system allows previewing a claim history report, within any given period.
Test and validate the authentication of the claim history report module.	Check whether the system is validating the authentication, before producing an actual report.

TABLE 5.2

Test Scenario description

5.3.4 Test Results

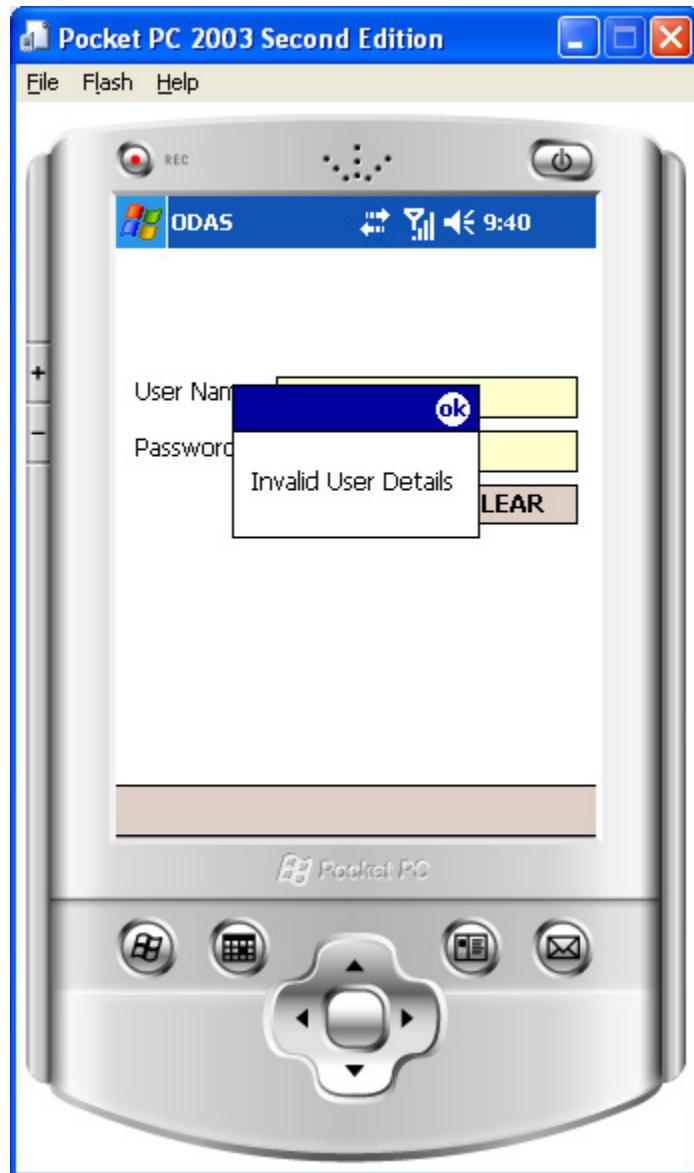
Test logs

Test Case: Testing and validating logon menu

Description: Test the user login for the valid user name and password. The user login should identify the user's privileges, name and the user's department. Only the administrators and users who are registered to use the monitoring system should be allowed to login.

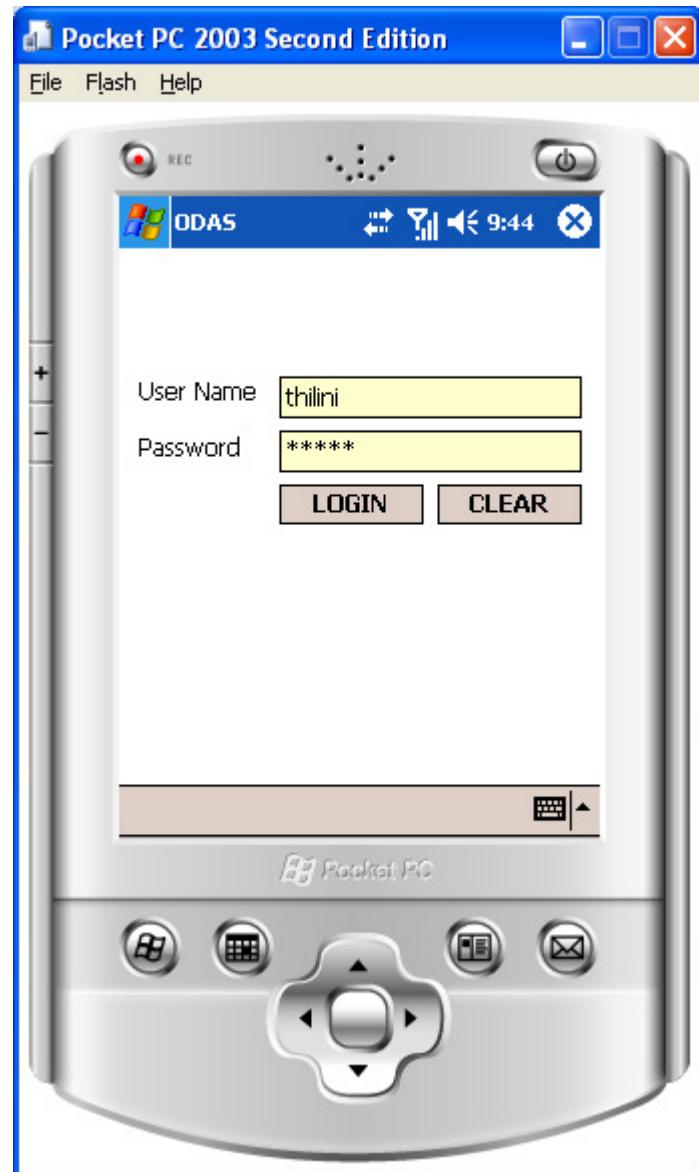
Test Data: 1. Try to operate the system without logging

Expected Output

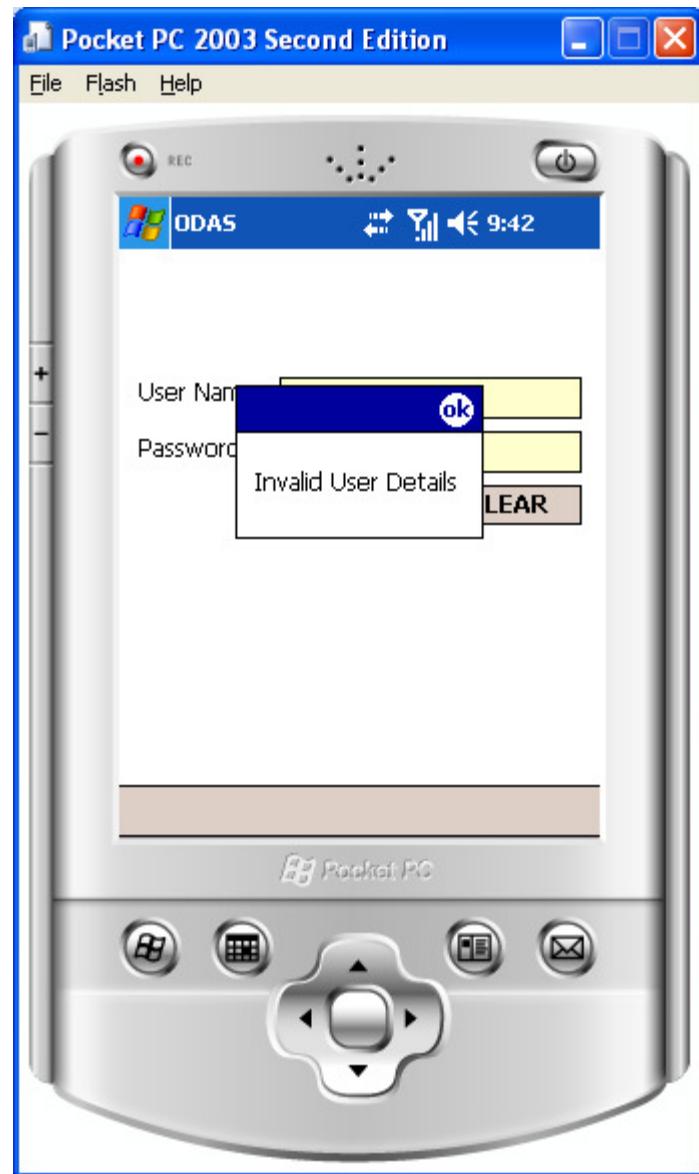


Test Result: Successfully received the expected message

2. Enter invalid user name or password



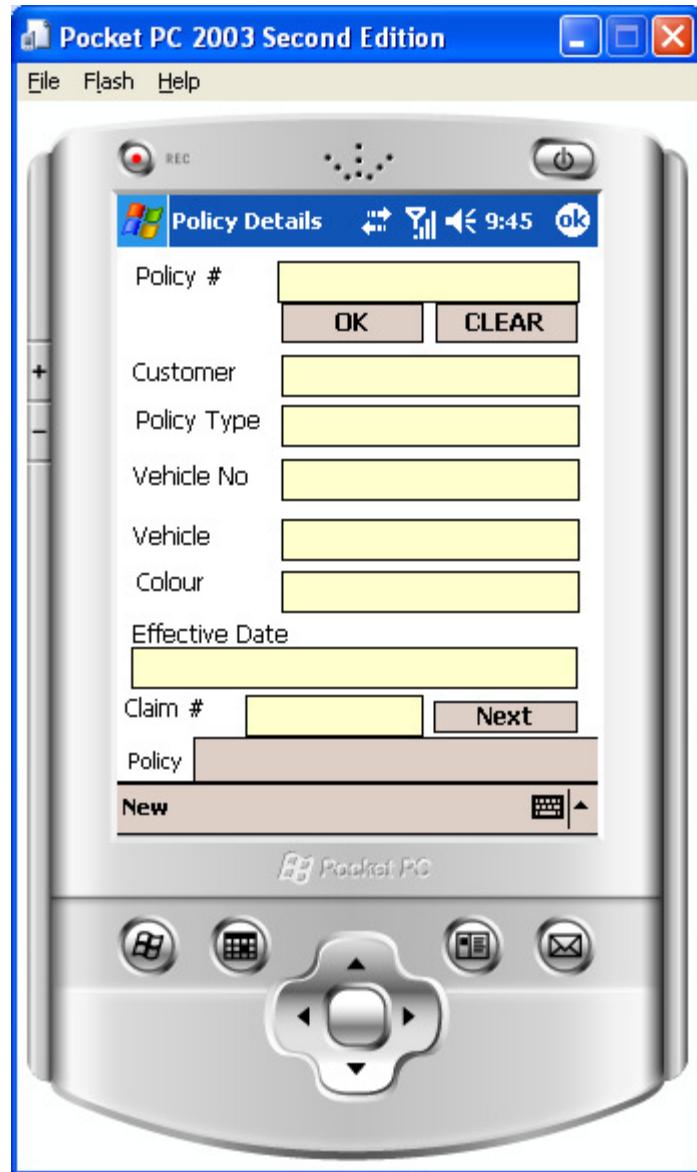
Expected Output



Test Result: Successfully received the expected message

3. Enter correct user name and password

Expected Output



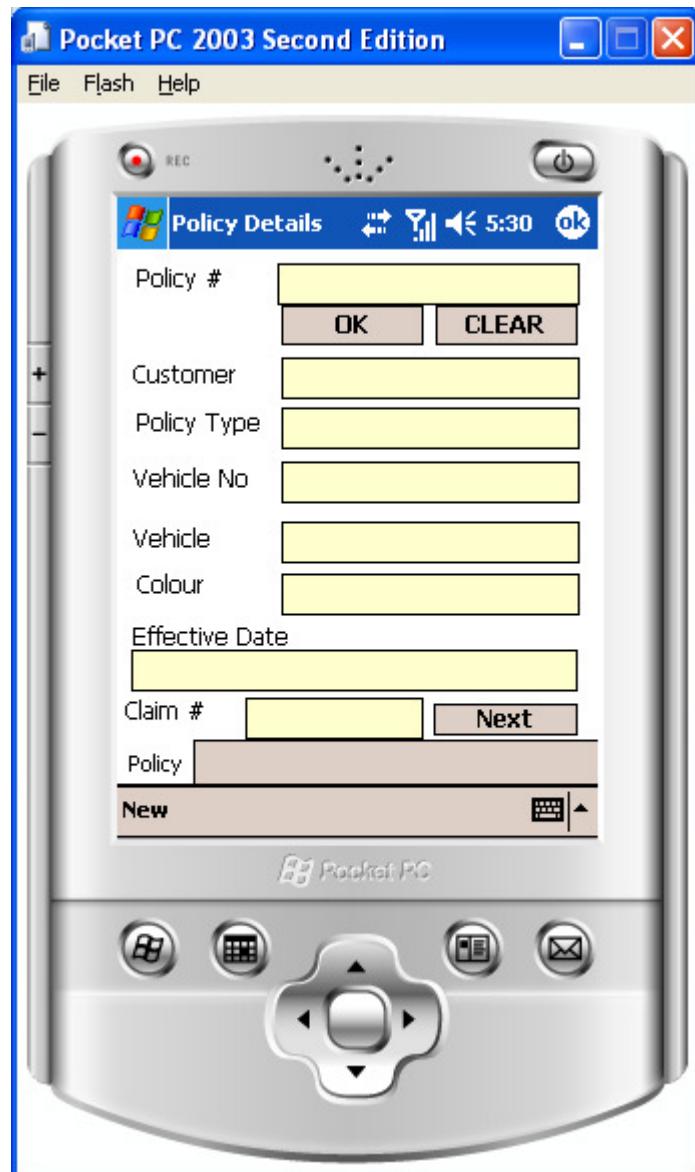
Test Result: User logged in successfully. Next screen in displayed.

Test logs

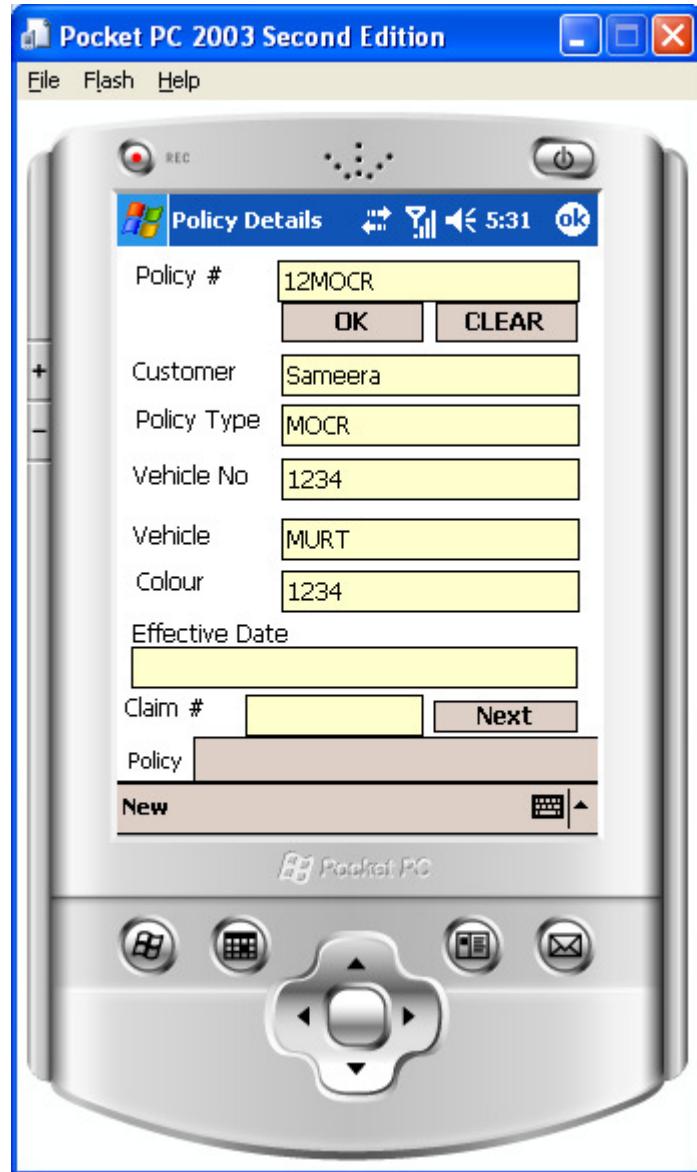
Test Case: Testing and validating **Policy information** module.

Description: Test whether the system identifies the customer's policy numbers and allows the agent to retrieve the relevant data of the relevant module from the company database through the web service.

Test Data: Enter Valid Policy number which is given by customer at the place of accident.



Expected Output



Test Results: successfully received the expected customer information of the relevant module.

Test logs

Test Case: Testing and validating **Policy information** module.

Description: Test whether the system allows the agent to proceed to the next level, without filling the "Effective date" field or "Claim ID" field, once the system displayed the particular customers policy details.

Test Data: Click on the button "NEXT" without filing the claim ID & effective date.

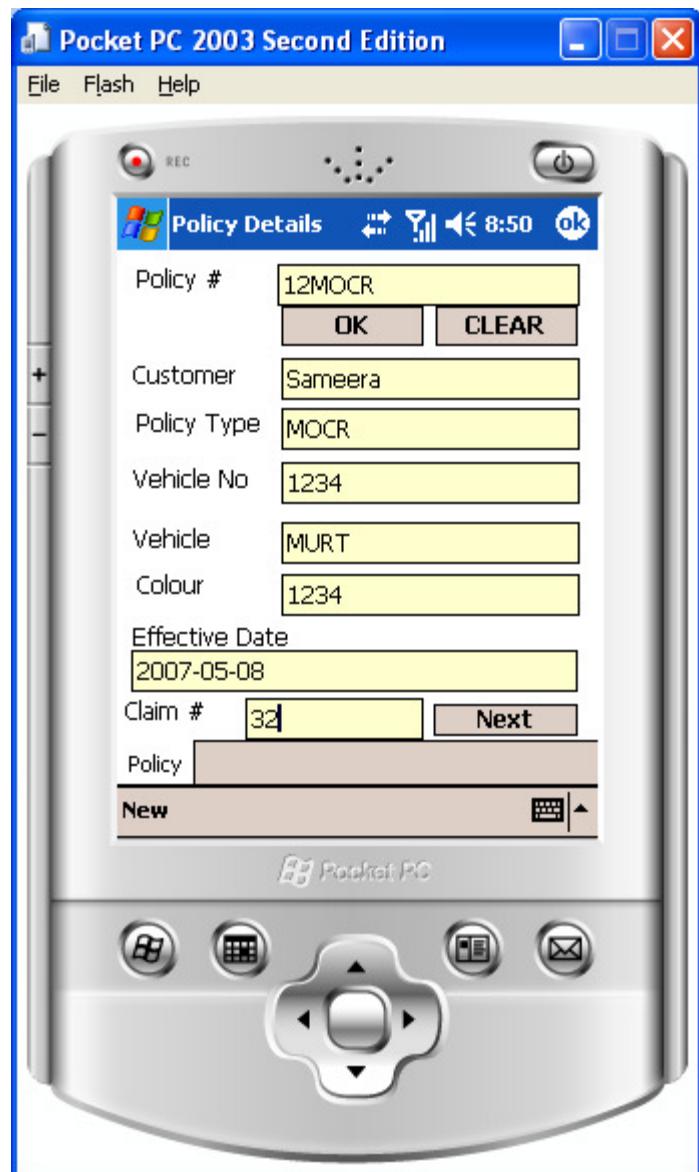
Expected Output



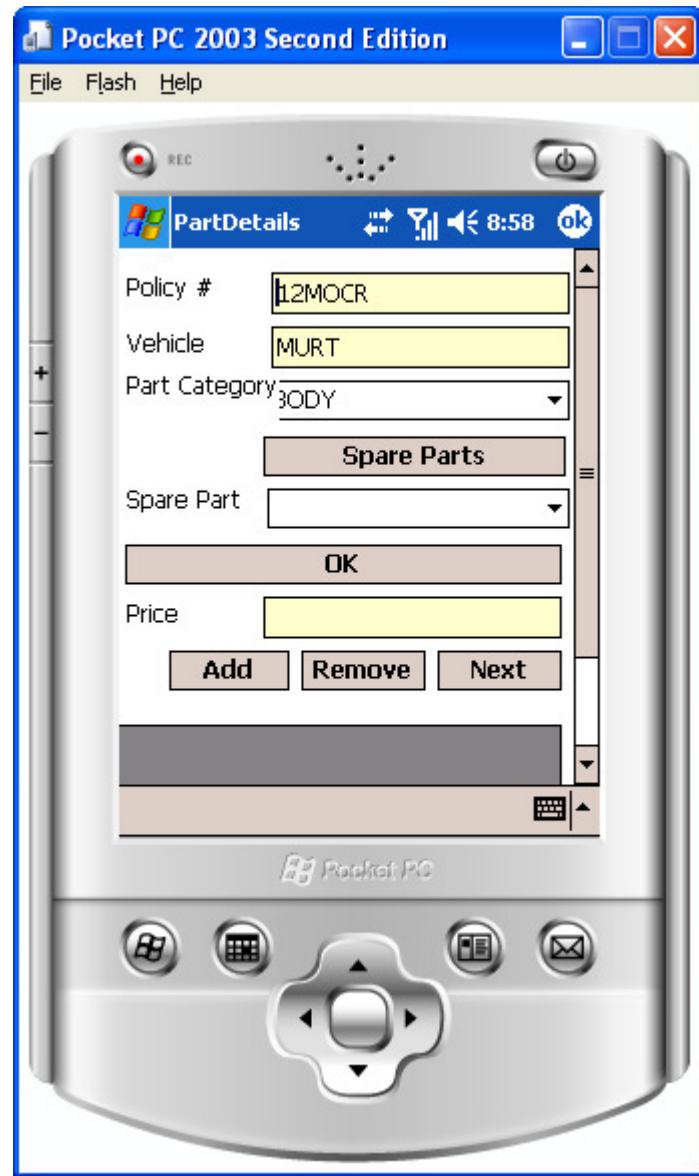
Test Results: successfully received the expected error message.

Test logs

- Test Case:** Testing and validating **Policy information** module completion.
- Description:** Test whether the system will proceed to the next level after giving the necessary information, such as claim ID, effective date etc.
- Test data** Enter Valid Claim ID and Effective date to continue the claiming process. Click on the "NEXT" button to continue.



Expected Output



Test Result: Successfully received the expected Module. (Vehicle component information module)

Test logs

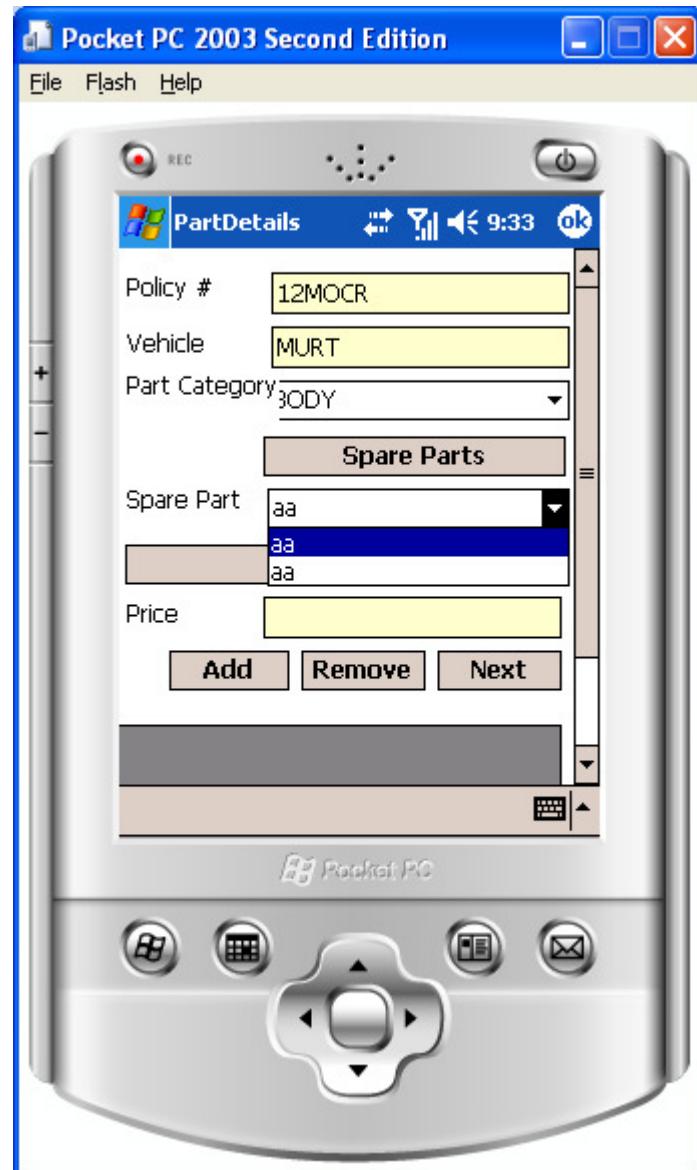
Test Case: Testing and validating **Vehicle component information** module.

Description: Test whether the system chooses the particular parts list after the part category is selected from the pick list, and whether the right price is given, of the damaged spare part chosen.

Test data: Select the **part category** from pick list.



Test data: Click on “spare part” button and select damage spare part from spare part pick list.



Expected Output



Test Result: Successfully received the current market price for a particular spare part.

Test logs

- Test Case:** Testing and validating **Vehicle component information** module.
Description: Test whether the system can add /remove the damaged spare part/parts and weather it displays on screen. When each item is added, the value and details of the item should be shown in a table.
Test data: Click on the "ADD" button and add another spare part.



Expected Output





Test Result: Successfully received the expected confirmation message and showing the added spare parts information.

Test logs

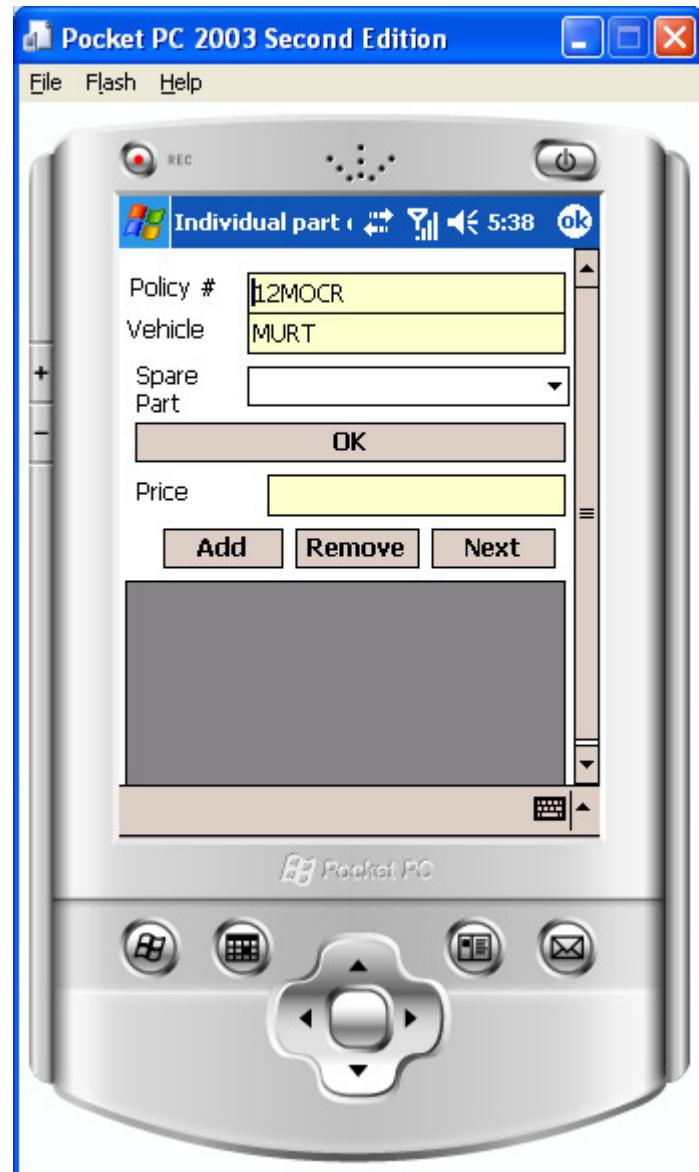
Test Case: Testing and validating the **Added spare part** module.

Description: Test whether the system is allowing the agent to proceed to next module after the spare part information is provided.

Test data: Click on “NEXT” button.



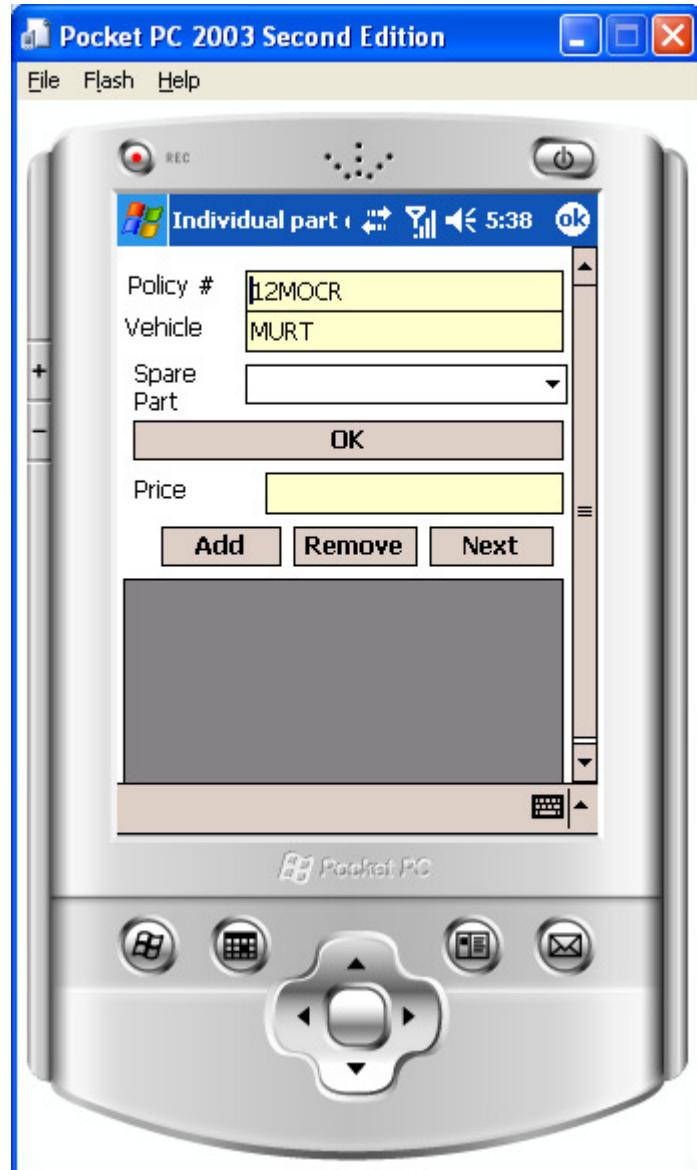
Expected Output



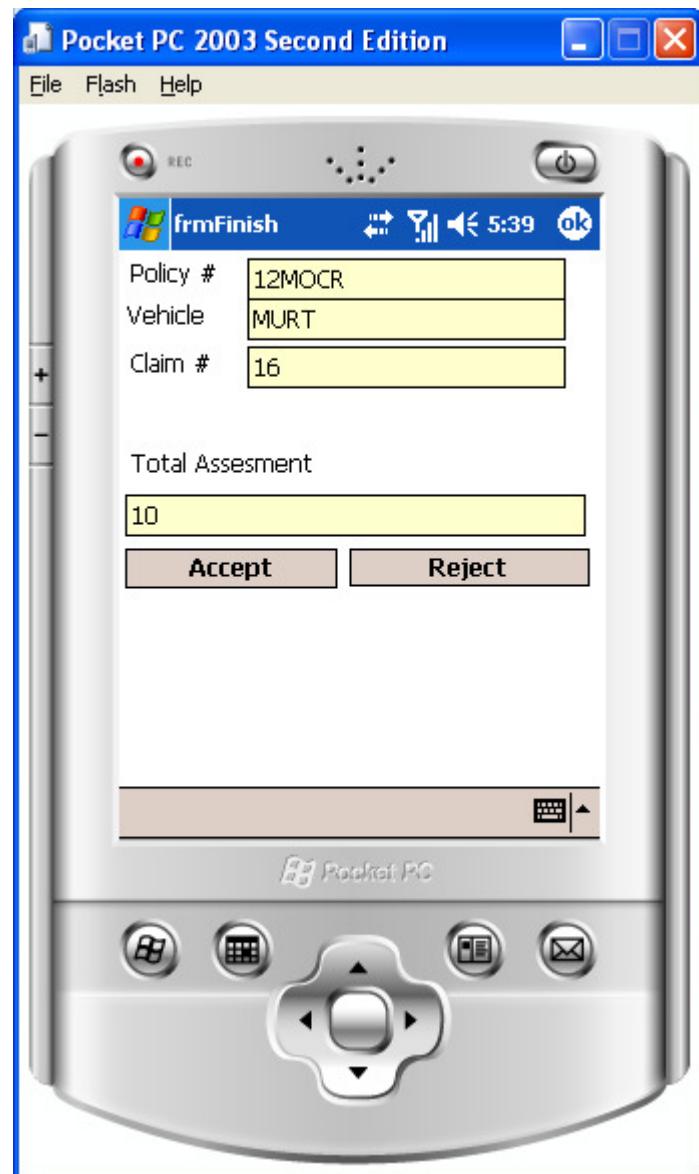
Test Result: Successfully received the expected module.

Test logs

- Test Case:** Testing and validating **Added spare part** module-special.
- Description:** Test whether the system is allowing the agent to access, add, remove and display any modified or special spare part unique for the vehicle.
- Test Data:** Select unique spare part and click on the "OK" button.



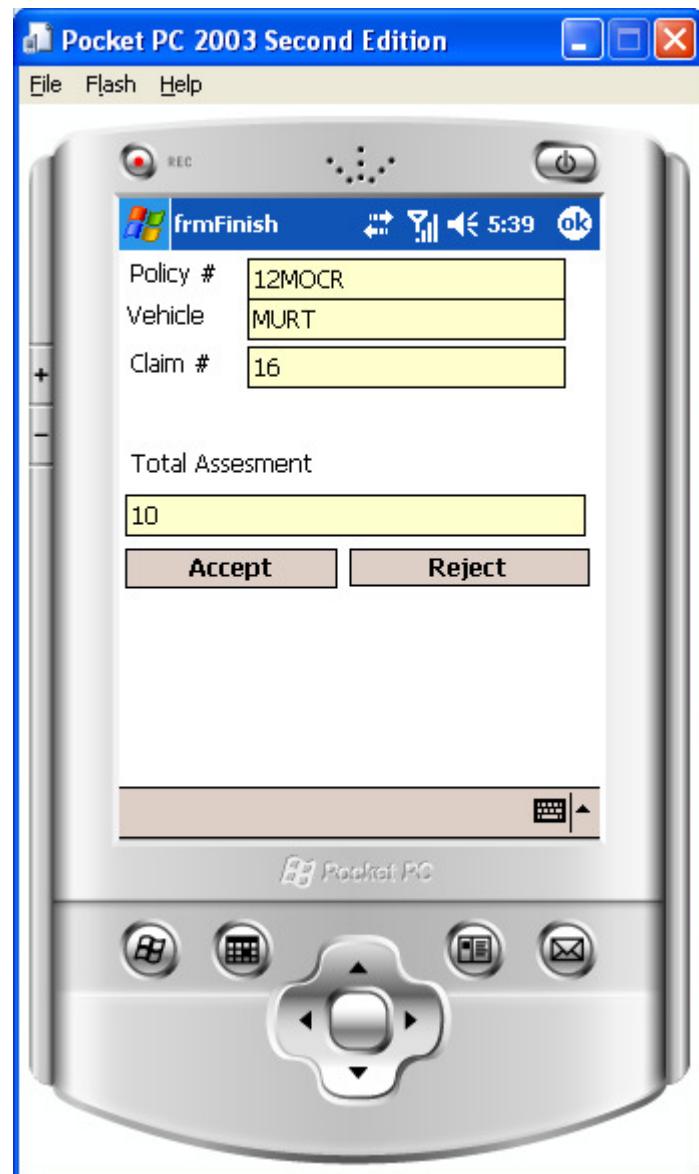
Expected Output

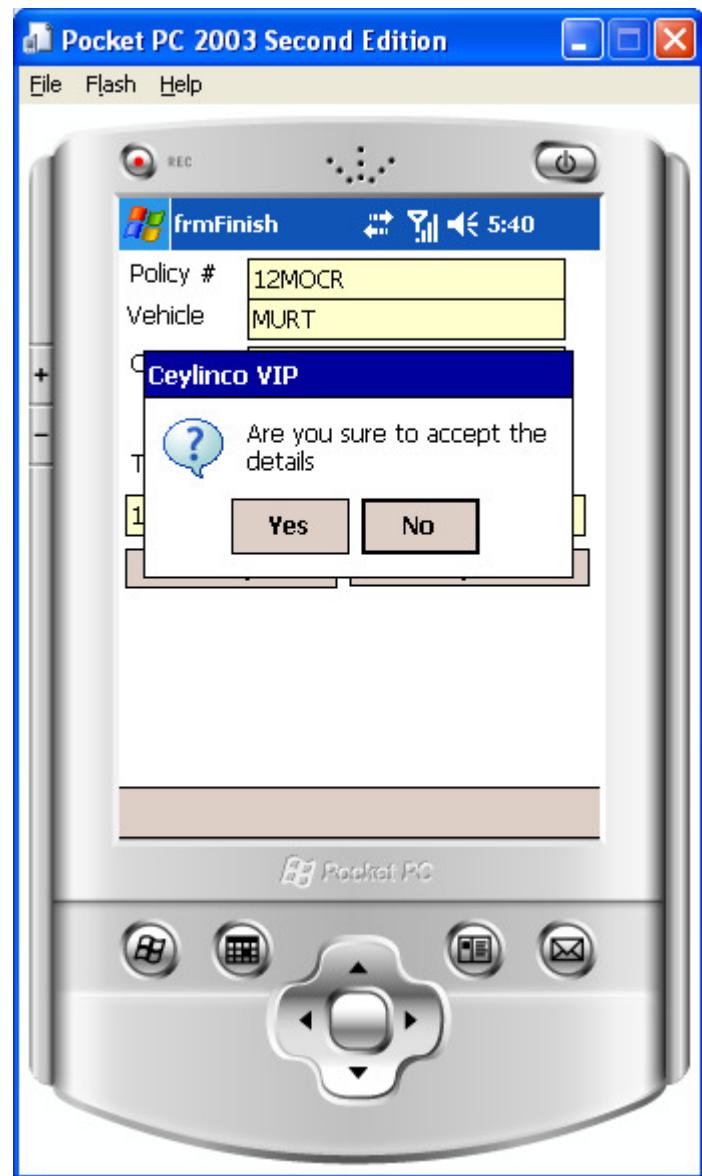


Test Result: Successfully received the expected result

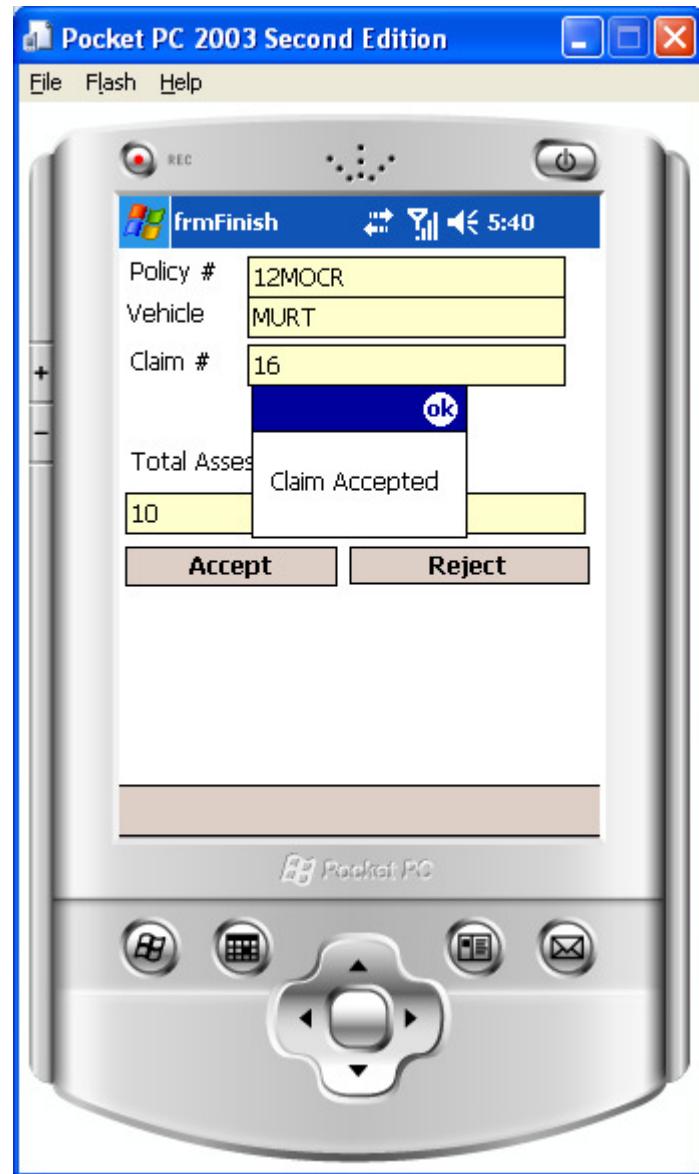
Test logs

- Test Case:** Testing and validating **Final Assessment** module.
Description: Test whether the system is warning the agent whether to continue with the data updating and proceed to the next module.
Test Data: Click on “ACCEPT” button.





Expected Output



Test Result: successfully received the confirmation error messages.

Test Results of Online Claiming Management System will be attached in APPENDIX H

5.4 Implementation Plan

The importance of having a good implementation plan is that the prepared system can be introduced to the client step by step. It would minimize the wastage of time and also money. A proper plan should be adhered by both the developers and the insurance company. The main activities of the implementation plan is to give a system overview, key activities on system implementation and any other vital requirements that helps to the process of implementation.

5.4.1 System overview

Implementation of the MVCS would idyllically observe the departure of the old procedure of performing the claiming process manually. Therefore it is necessary to provide a smooth transition, when changing from manual to the computerized system. And as a result of this transition, users may find difficult to cope up with the new functions of the new system. So it is very essential to provide support for the user in order to handle the new functionalities of the new system.

The MVCS would make the Motor vehicle insurance claiming more transparent and efficient both for the employers of the company the clients who pay monthly insurance premiums. Not only this but the claiming agents would be motivated a lot since their work is cut down in half and they are able to cover more vehicle claims during a day. This would result in better payment and more concern for customer satisfaction. The basis is to switch to PDA technology from the use of manual handwritten filing methods.

5.4.2 Major tasks on system implementation

- Planning overall implementation
- Co-ordination of the system implementation with the management of the company
- Testing the PDA's and its GPRS connections
- Identifying resource requirements for the implementation
- Finding a source to get market prices for vehicle spare parts
- Providing training for the claiming agents
- Planning data conversion methods before implementing the system
- Planning a risk management system
- Ensure all the required hardware and software is available

5.4.3 Installation

According to the implementation plan the first activity that should be done by us is to install the system at the real operational environment. Implementation of the MVCS should be done with the help and the guidance of the management of the Ceylinco Insurance Company. Successfully developed and tested MVCS should be set up in order to reduce the perils and contingency which expressed in the above section. Procedure of the system installation is given below.

- The operating system on server (Microsoft Windows 2003 or XP is suggested) should be installed first.
- Microsoft SQL should be installed in order to support the database connectivity
- Then install the Mobile Vehicle Claiming System
- After that we have to restore the database
- Make essential configurations for the MVCS
- Then MVCS data should be loaded into the database over the MVCS.

Detailed installation, Hardware and software configuration and user manual procedure is attached in APPENDIX I

5.4.4 System Changeover

The direct changeover method will not be followed but parallel changeover will be carried on MVCS system because the company would not be able to take the change so soon. The reason is that there are so many existing customers and claiming staff members who are used to the old system. Also since the management would want to find the bugs in the process of the implementation, the parallel changeover would be the better deal. This will reduce the risk of business and give the new users time to adjust to the new system. Since one part of the system, namely the online claiming management module is a totally new system it will not be discussed in the changeover. It is not a change but a new addition.

5.4.5 Data Conversion

The practical solution is to start the data conversion after the implementation of the system. The current claim data can be taken from the Insurance Company's database. Some of the data has to be entered fresh since the MVCS system intends the new features. Also the parallel method used can take the data entering from fresh new customers of the insurance company. Data conversion for the online assessment system should be entered manually and will take some time since it has to find the prices of the vehicle spare parts. It is appropriate to mention that some of the data would be fed on a time ticking basis since the prices of vehicle spare parts could appreciate and depreciate in the market.

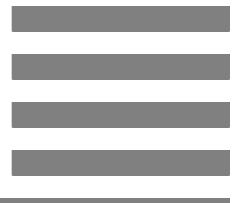
5.4.6 User Training

The present claiming staff members are trained on computers and they are quite proficient enough in computer literacy to use the PDA. Since the MVCS system on the PDA has a very user friendly interface they need not be trained much on this. Since there is no big difference in the functionality of the system and the difference is more of a convenience the motivation of the staff members would be at a high. It is necessary to inform the entire user about the functionality of the system during this implementation. There would be no need for new rules and regulations except for the safety of the PDA. The data operators at the Head Office would have to be a very minimal staff and could also act as the monitors of the insurance claims being done around the island. This staff would need a better training on the management aspect and a new staff would be needed to fill this section. It could be recruits or most preferably experienced claiming staff members whose time are right for promotion.

5.5 Summary

The chapter started by introducing the programming language and the development strategy and then moving on to the testing part of the system. Different testing parts strategies were elaborated and a plan was set out to do the testing. The implementation was to be done without harming the present claiming process of the company. The installation, changeover, data conversion and the training of the users were spoken of in the last part of the chapter.

CHAPTER 6



System Evaluation

6.1 Introduction

6.2 Types of Evaluation

6.3 Evaluation of Project Outcome

6.4 Significance of the Solution

6.5 Evaluation of Project Practices

6.6 Summary

System Evaluation

6.1 Introduction

Evaluation is mainly done to recognize on how a system fulfills the requirements of the real users. This chapter is presented progressively by mentioning the overall evaluation process of the MVCS. This also tries to express the kind of evaluation process that is going to be carried out in order to assess the success of the MVCS. Usability of the new system and the degree of meeting the user requirements is only can be evaluated by performing a successful evaluation process. Therefore the chapter has attempted to emphasize on key areas of the system evaluation and also the evaluation of system practices.

6.2 Types of Evaluation

Evaluation is a systematic process of acquiring and assessing the system related information in order to provide useful feedback about system. System evaluation is done at different stages of the system development in order to answer some vital questions like “whether the current system process is in the right track and meeting the users’ requirement?” or “whether the developed system has met the user requirements?”. Formative Evaluation and Summative Evaluation are two types of evaluations performed during the system development. Formative Evaluation is performed during the system design stage in order to make sure that the system is continuously meeting its specified requirements. This evaluation is performed with the user requirements and functional requirements. Once the system is completely developed, then developers performed another evaluation which is called Summative Evaluation. Summative evaluation is done on finished system in order to assess the success of it. High-fidelity prototype method which uses the materials that are similar to the finished product, is used to perform the summative evaluation in order to measure the success of the system.

6.3 Evaluation of Project Outcome

The key purpose of the functional evaluation is to check whether the system is operating as expected. Outcomes of the functional evaluation helps to determine whether the functional requirements or the user requirements of the new system had been executed during the stage of development. The functional evaluation is used to evaluate the outcomes of the project. Functionality tests are carried out by using several groups such as user group and evaluators in order to make sure whether the system had continuously attempted to meet the functionalities and to find out any faults that could be occurred during the functionality of the new system. Results of the evaluation are represented in two different tables and they are presented in below.

Participant Number	1	2	3	4	5	6	7	8	9	10
Background Information										
User Type	Motor Vehicle claiming Agents									
Sex	M	M	M	M	M	M	M	M	M	M
Age	28	34	22	30	26	29	24	30	26	22
IT knowledge and experience	ML	LL	HL	ML	HL	ML	HL	HL	HL	ML
Hours of mobile use in the past	875	800	925	820	1050	890	990	900	980	925
Structured Tasks - PDA										
1. Install the software to the PDA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Synchronization of the PDA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Create new user accounts for all agents.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4. Enables the Agent to make claim	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. Enables the agent to retrieve information, which is related to that particular customer and vehicle.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Enables the agent to identify the part category, generate the spare parts of each damaged part category and retrieve the price of a particular spare part.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7. Enable the agent to add or remove more spare part details.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. Enables the agent to identify the individual spare part which are unique to particular damage vehicle and retrieve the price of a particular spare part.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Enable the agent to calculate the total assessment and Accept or Rejection of claim.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Methods used to evaluate										
Number of steps involved	9	9	9	9	9	9	9	9	9	9
Time taken to accomplish the given task	15m	20m	12m	18m	14m	20m	11m	14m	12m	16m
Number of faults made	1	3	0	2	0	2	0	0	0	1
Number of times user expressed satisfaction	8	6	9	7	9	7	9	9	9	8
Number of times where the user got frustrated	1	3	0	2	0	2	0	0	0	1
Number of times users were confused about what to and needed help	0	2	0	1	0	2	0	1	0	1
F – Female	M – Male									
HL – High level	ML – Medium Level									
N/A – Not Applicable										

TABLE 6.1

Functional Evaluations - PDA

Note - : PDA will be used by motor claiming insurance agents and companies are not interest on taking females as agents due to lot of traveling. Therefore there will be only male agents as PDA users.

Participant Number	1	2	3	4	5	6	7	8	9	10
Background Information										
User Type	Operational & Admin Staff									
Sex	F	M	M	M	M	F	F	F	F	M
Age	25	28	22	40	55	40	28	32	30	36
IT knowledge and experience	HL	ML	HL	HL	LL	ML	HL	ML	HL	HL
Structured Tasks – Online claiming management system.										
1. Create new user accounts for all operation staff.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Enable the user to create new insurance policy, update and view.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Enable the user to register new customers and maintain customer profiles. (Update, edit, cancel, view).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4. Enable the user to maintain the vehicle details.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. Enable the user to update the vehicle spare part details.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Allow the managers to generate reports on the particular periods.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7. Allow the administrator and management to view, monitor staff activities.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methods used to evaluate										
Number of steps involved	6	6	6	6	6	6	6	6	6	6
Time taken to accomplish the given task	22m	15m	16m	19m	28m	20m	18m	24m	17m	20m
Number of faults made	0	0	0	0	3	1	0	2	0	1
Number of times user expressed satisfaction	6	6	6	6	3	5	6	4	6	5
Number of times where the user got frustrated	0	0	0	0	3	1	0	2	0	1
Number of times users were confused about what to do and needed help	1	0	0	0	3	1	0	1	0	2
F – Female M – Male										
HL – High level ML – Medium Level LL – Low Level										
N/A – Not Applicable										

TABLE 6.2

Functional Evaluations –
Online Claiming Management
System

After analyzing the gathered raw data and taking into consideration the variety of observations made, we were able to come up with a list of interesting findings, in the previous section. In order to make the evaluation process fruitful, it is vital to find the overall aspects of the system which could be improved further. Analyzing the design findings against the usability principle will be a very good approach to this (Refer table given below).

From evaluating the screen designs of the MVCS according to data obtained by interviewing and observing

Screens Usability Principles	Online Interface	PDA Interface
System Visibility	✓	✓
Match between system and the real world	✓	✓
User control and freedom	X	✓
Consistency and standards	✓	X
Help users recognize, diagnose and recover from errors	✓	✓
Error prevention	✓	X
Recognition	✓	✓
Flexibility and efficiency	✓	X
Aesthetic and minimalist design	X	✓
Help and documentation	✓	✓
✓ - Satisfied X - Not satisfied		

TABLE 6.3

Usability Evaluations

6.4 Significance of the Solutions

Solutions to the Problem Domain.	
Problem to Address	Solution Provided
Agent needs to contact the head office in order to verify the particular customers' policy number and to get the relevant details under that policy number. This requires various resources like communication tools and time.	Agent can do this by entering the policy number to the PDA. Solution to the mentioned problem was provided.
Agent will only name the current market value for the damaged vehicle part by his market experience and that value may not be the real updated value for that particular vehicle spare part.	Agent can gain the exact market price by accessing to the companies database via the web service.
Special components (such as high tech car setups, defending buffers) added to the vehicle can not be easily assessed due to the lack of information (since the agent has no information regarding the insurance of those components and verification provided by the insurance company).	Agent can be easily accessed to the database and get the details of added vehicle component of a particular vehicle.
An agent needs to carry out and review lots of documents in order to perform an accurate claiming process.	All the documents can be replaced by a small portable PDA which includes the MVCS.
Agent needs several instruments such as cameras in order to perform an accurate claiming process. And also take considerable amount of time to approve the claiming amount by the claiming officer at the head office.	Photos which are used to perform the claim process accurately can take instantly via that PDA and can be uploaded to the companies' database at that instance.

TABLE 6.4

**Significant of Solutions
Provided**

6.5 Evaluation of Project Practice

Evaluation of project practices is mainly performed to assess the process and actions in order to evaluate how it was done, to assess the level of success, find out any alternative ways of doing process & actions and to figure out any limitations that arise at each stage of the software development.

There are four stages that need to be discussed under software development and they are;

- Analysis stage
- Design stage
- Development and Testing
- Implementation stage

Analysis stage

This is one of the most critical stage in the software development project and need to be done carefully in order to produce a successful system which fulfills the requirements of the end users. Success of the design stage and the implementation stage is highly based on the success of the analysis stage. Key purpose of this stage is to get a thorough understanding about the user requirements and any other related background information. User requirements and other related background information was found out by carrying out a user requirement gathering process. Requirement collection plan is a method that guides to perform the activities of the user requirement gathering process very effectively and efficiently. Observations, interviews, questionnaires, and document review are some of the requirement gathering techniques that were used to conduct the activities of the user requirement gathering process. In general, the user requirement gathering process was successfully accomplished though smaller amount of shortcomings were reported. The shortcomings that were found out were mainly due to the short of knowledge on insurance industry, motor vehicle market and also for not having a similar system in the industry or any other industry at the present in Sri Lanka.

Design stage

In this stage, the developers were attempted to perform the design activities which express the architecture of the system and the system structure that fulfills the requirements of the users. In design stage the system also defined in broader manner with the use of system architecture design, system design, data, component and interaction. Different techniques of UML such as class diagrams, use case diagram and interaction diagram are used throughout the design stage in order to design the system efficiently. Smaller amount of shortcomings were arise while designing the system aspects according to system specification. In general, all the design activities were successfully accomplished with the effective design platform.

Development and Testing

Development and testing is another area that should be given more attention. All the analysis facts that we gathered at the stage of analysis and all the useful diagrams or blue prints that we drawn at the stage of the design stage are used here to develop a successful MVCS. Key purpose of development is to build an efficient, highly performed, re-usable and flexible system. Different developmental techniques such as Visual Basic .NET (Microsoft) were used in order to develop a system efficiently. Once the MVCS is developed, then system was tested with the use of different types of system strategies such as unit testing, integration testing, system testing and acceptance testing. Testing for the software was to done to the system by following a system testing plan which was developed prior to the system testing session. Many development techniques and system techniques that were used at this stage to build up a successful system and to test the success of the develop system, were highly consuming the time of developers. Smaller amount of shortcomings were arise due to the lack of technological used at some parts of the system. But the overall success of the Development and Testing was at an acceptable level.

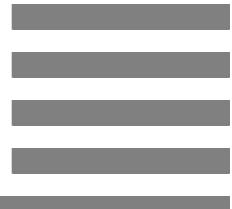
Implementation stage

Implementation is the last stage of the software development. It is the stage that performs the activities related to the actual system constructions, activities related to the system testing and system installation activities that took place at the real operational environment. The activities performed in the implementation stage make sure the finished system is usable and effective according to the requirements. Smaller amount of shortcomings were arise due to the lack of technological expertise and reference materials. Though there were few short comings, the overall achievement of the implementation stage was at a satisfactory level.

6.6 Summary

This chapter was attempted to present the systems evaluation process with the support of functional evaluation, usability evaluation and the project practices that were evaluated in project development stages.

CHAPTER 7



Conclusion

7.1 Introduction

7.2 System Summary

7.3 Future Enhancement

7.4 Authors Conclusion

7.5 Critical Appraisal

7.6 Summary

Conclusion

7.1 Introduction

This is the final chapter of the project and the learning gathered by the experience of completing of this project is established here. That aspect is covered by the author's note. In the rest of the chapter a total summary of the development of the system is given. We also have suggested future enhancements of the system. That is to find out ways to give in addition features to the system and using it outside the business subject in use.

7.2 System Summary

Mobile Vehicle Claiming System (MVCS) is a solution of semi automating the insurance claiming process through a PDA. We chose Ceylinco Insurance Company for this and targeted the 'On the Spot' vehicle insurance claiming system. The present system is done manually by writing the claim information on a document. Later it is entered on the database at the Head Office. The old system had a few drawbacks. The claiming officers had to take guesses of the prices of the vehicle components most of the time and the system was open to foul play. A complete automation of the system and instant communication online was the solution provided by the MVCS system.

The insurance claiming agent visits the accident or site of claim and logs on the MVCS system and enters the necessary information. This is transferred to the database at the Head Office and sent back after clarification and automated evaluation of the claim amount. The insurance claiming agent need not have to do guessing work or calculations behind the customer. The system is done so that the customer would not get a low evaluation for the insurance claim and the company wouldn't loose much due to over evaluation.

The MVCS definitely profits the company because it reduces time and the cost involved in over evaluating claiming amounts. It also gives then an advantage in monitoring the activities and whereabouts of their agents who are scattered across the country. This relieves the burden on the management and the management could be centralized in the head office. There will not be a need for managers and area offices and living quarters if the system runs smoothly.

The agent is allowed to work more independently and without the hassle of carrying documents when traveling in motor bikes.

7.3 Future Enhancement

It is a moment that is remarkable, because as a developer I was successful enough to meet the requirements of the users and I was also able to develop a successful MVCS prototype which was accepted by majority of users. Though it was able to fulfill the current requirements, it doesn't mean that we are not in a position to improve the MVCS further. We also can improve the MVCS further in order to give better facilities to the users and also those improvements will also increase the level of user satisfactory. Currently as a developer I didn't think of introducing the following improvements to my MVCS system mainly because those improvements were beyond the specified project boundaries and specifications. And also it was difficult to introduce those improvements to the MVCS due to other various reasons such as financial constraints and time constraints. But I would suggest these ideas now, so Ceylinco Company can use them in order to improve the MVCS and provide a better service to the users in future.

Introducing the Customer Registration process to the MVCS –

Ceylinco Insurance Company does two main key tasks under the non insurance scheme. Mainly they “register new customer to various non insurance policy categories” and other key task is that they “claim the vehicles that are damaged by an accident”. The newly developed MVCS can only handle the vehicle damaged claiming process. But it would be more effective and value added if we can improve the system by introducing the customer registration process handles through PDA. Because major part of the customer registration is done via the agents. Agents are the people who bring the customers and register them under various categories. Agents are willing to register more customers because they are so much aware about the benefits such as commissions that they get from the company and they all want to get the maximum amount of benefits. So when we introduce the registration process, via PDA, the agent can register any customer at any time from any where without wasting any resources like customers' time, agents' time. So the process is instantaneous and cost effective. Agents can register more customers by this method and the company also can increase their customer database with less effort. By introducing this we can attractive more customers towards the company, can easily track the customers, cut down unnecessary paper work done by the agent and also cut down the additional work of operation staff.

Introduce navigational facilities –

One of the key duty of an agent is to visit the place of an accident, in order to perform the assessment of claiming process. But the hard part of it is that, it is not easy to find the exact place of accident at all the time. Sometimes agents have to spend considerable amount of time to search the place of accident. But if we introduce the navigational facility through PDA, then it is very much easier to find the accurate location. Because once the message regarding the accident is received by the company then the agent can get the map location of the accident and the map location of agents' current position. This facility will support the system to calculate and display the shortest path to the destination, alternative paths, time taken to reach the destination, directions and will also help to provide other vital navigational details until the agent reaches the destination. By this the agent can cut down the unnecessary time that he uses to search a destination and this will also leads to perform more assessments per day. Customers will also be satisfied because of lesser time that they have spent on this process.

Introduce easy pay system –

Currently our online claiming management system is only offering the two modes of payments for the monthly premium and the annual fee. Customer can either use the cash payment mode or the credit card payment mode. But by introducing this method, the customers can pay their monthly premium and the annual fee via their mobile phone. This technology is not very new to the Sri Lanka because many banks and other companies are already using this method to perform money transfers. This technology can easily adopt to the MVCS because the level of mobile usage is very high in Sri Lanka compare to other countries in the region. When this is introduced, the customers have no need to visit the head office, branches in order to make payment. And company does not need to send agents to collect the payments from the customers.

7.4 Authors Conclusion

I knew that the system was going to be very complicated due to the volume of data that would be involved in the process of developing the software. This was the only area where I found the project to be stagnating and less motivating. But the rest of the project was highly interesting and I believe I ended up having a better product than I intended to have. There software development had a very precise concentration.

The system was very successful at the implementation and a lot of encouragement was given to me by the Insurance Company. This application can be used in sales and delivery and also on field research activities with a customization. The MVCS prototype will be generally useful for anyone who has a dispersed team working at different parts of the country.

Experience that I got by doing this project was very useful in various ways. Since this my last project of my degree I wanted to use all my knowledge that I gained from different subject areas. This project helped me to put all the theoretical knowledge in to practice. Especially the subject areas like Human computer interaction and Database management system was very much useful to develop a successful system like this. By doing this I was really exposed to many technologies like GPRS and PDA technology. This project helped me to get in depth idea about those technologies.

Not only the above mention benefits, by doing this project I was able to improve my research skills and analytical skills. I would happy to say that I got a opportunity to conduct real time interviews , questionnaire sessions and as a student I was able to experience real time difficulties of conducting those sessions with real staff members and customers. It also helped me to prepare an effective questionnaires and interview questions. This project also helped me to learn the real meaning of punctuality, time management and patience.

The most important lesson I learnt in the development of the project is that serious discipline and methodical work planning is needed to finish a project. The beginning of the project was a clueless time period in which I did not know where to start and whom to talk to. Another factor is that we could get help if we tact the right places. The information hunt was a little bit confusing at the start because I did not approach the most suitable people. Finding the right person at the right time is an art and part of luck as well.

I would also happy to say that I was fortunate enough to gain in depth knowledge about the insurance industry too.

7.5 Critical Appraisal

Insurance industry in Sri Lanka is highly competitive and all the companies are playing aggressively in order to be the first in the insurance industry by grabbing the large amount of market share. Since the MVCS is developed by focusing the general insurance (non life insurance), I would like to take your attention towards the industry of general insurance. Ceylinco insurance has been able to be the number one in the category of general insurance by grabbing 36.87% market share. Overall insurance industry in Sri Lanka had been increased by 15.61%. Further the insurance industry of Sri Lanka were able record the gross turnover of Rs.43 billion for the year 2006 which non- life reported the major share (60%), with Rs.25, 931 million.

Above mentioned facts would have helped to understand the competition in the insurance industry. So like other companies, the Ceylinco Insurance Company also wants grab the larger market share, retain the number one position in non-life insurance industry, provide the best service to the customer, have the most talented and happy staff member and also to have key competitive advantage. Ceylinco was playing very well in the insurance industry.

But the lacking part of them was the use of latest technologies in order to provide the best service to the customers. This was very common in other insurance companies too. Key reason of carrying out this project was to find a suitable solution in order to provide a better service to the customers who are holding the non-life insurance schemes.

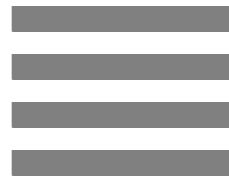
Idea of the project was conveyed to my supervisor and discussed and revised the idea with help of them for many times until the appropriate solution for the problem domain was built up by using the appropriate technologies. Initially the project plan was developed and then from the project initiation to the implementation was done according to the project plan. Chapters related to the documentation were done by using the information gathered from different sources like analyzed information from the questionnaire and etc. These chapters were discussed and revised with supervisors until it meets the standards of the University of Portsmouth .

After the completion of this project, I can be very much satisfied about the success of this project, documentation and specially the experience that I achieved by performing this MVCS.

7.6 Summary

The final chapter is the conclusion on the whole of the project. The conclusion is that this was successful in attaining its objectives and ready to use with a few more modifications and enhancements. I have given my own experience in the authors note and what I have learnt by this project.

REFERENCE



System analysis and design methods 5th edition- *Jeffrey L. Whitten, Lonnie D. Bentley, Kevin C. Dittmen*

Modern system analysis and design methods 2nd edition *Jeffrey A. Hoofer, Joey F. George, Joseph S. Valacich*

System analysis and design in a changing world *John W. Satzinger, Robert B. Jackson, Stephan D. Burt*

System Analysis & Design Methods, Sixth edition: McGraw Hill, Whitten, Bentley, Dittman. (2003).

Dynamic Systems Development Method http://en.wikipedia.org/wiki/Dynamic_Systems_Development_Method

http://en.wikipedia.org/wiki/Unified_Modeling_Language from Wikipedia, the free encyclopedia

http://atlas.kennesaw.edu/~dbraun/csis4650/A&D/UML_tutorial/index.htm Kennesaw State University CSIS 4650 - spring 2001, David Braun, Jeff Sivils, Alex Shapiro, and Jerry Versteegh

http://en.wikipedia.org/wiki/Black_box_testing from Wikipedia, the free encyclopedia

<http://www.issco.unige.ch/ewg95/node82.html> Evaluation of Natural Language Processing Systems, FINAL REPORT, EAGLES DOCUMENT EAG-EWG-PR.2, Version of September 1995

http://en.wikipedia.org/wiki/White_box_testing from Wikipedia, the free encyclopedia

<http://doit.missouri.edu/pda/>, University of Missouri-Columbia, Division of Information Technology

http://www.factsandcomparisons.com/assets/hospitalpharm/apr2002_pda.pdf

http://www.apu.edu/imt/policies/pda_policy.php

<http://www.utoronto.ca/atrc/reference/tech/portnote.html>

<http://en.wikipedia.org/wiki/PepsiCo>

http://www.pepsi.com/corporate/company_info/index.php

Code Listing

```

Imports System.Data.SqlClient

Namespace CeylincoVIPData

Public Class Claim

    Private strClaimID As String
    Private strPolicyId As String
    Private strDriversFName As String
    Private strDriversLName As String
    Private strDriversAddress As String
    Private intDriversAge As Integer
    Private strDriversLicense As String
    Private dtmDateOfIssue As DateTime
    Private strVehicleRegNo As String
    Private strManufacture As String
    Private strMode As String
    Private dtmYear As DateTime
    Private strEngineNo As String
    Private strChassieNo As String
    Private strNameOfTheRoadAccident As String
    Private strVehicleWasTravelingFrom As String
    Private strVehicleWasTravelingTo As String
    Private strNameOfThePoliceStation As String
    Private intIsPoliceVisited As Integer
    Private strPassengers As String
    Private dblQtyCarried As Double
    Private strNatureOfGoods As String
    Private strWeightOfGoods As String
    Private strInjury As String
    Private strInjuredPerson As String
    Private intAge As Integer

    ' Conenction properties
    Private dbConnection As SqlConnection
    Private dbCommand As SqlCommand
    Private dtReader As SqlDataReader
    Private dtAdapter As SqlDataAdapter
    Private dtSet As DataSet
    Private dtTable As DataTable

    Private sqlString As String = String.Empty

#Region "Properties"

    Public Property ClaimID() As String
        Get
            ClaimID = strClaimID
        End Get
        Set(ByVal value As String)

```

```

        strClaimID = value
    End Set
End Property

Public Property PolicyID() As String
Get
    PolicyID = strPolicyId
End Get
Set(ByVal value As String)
    strPolicyId = value
End Set
End Property

Public Property DriverFName() As String
Get
    DriverFName = strDriversFName
End Get
Set(ByVal value As String)
    strDriversFName = value
End Set
End Property

Public Property DriverLName() As String
Get
    DriverLName = strDriversLName
End Get
Set(ByVal value As String)
    strDriversLName = value
End Set
End Property

Public Property DriverAddress() As String
Get
    DriverAddress = strDriversAddress
End Get
Set(ByVal value As String)
    strDriversAddress = value
End Set
End Property

Public Property DriverAge() As Integer
Get
    DriverAge = intDriversAge
End Get
Set(ByVal value As Integer)
    intDriversAge = value
End Set
End Property

Public Property DriverLicense() As String
Get
    DriverLicense = strDriversLicense
End Get
Set(ByVal value As String)
    strDriversLicense = value

```

```

        End Set
    End Property

    Public Property DateOfIssue() As DateTime
        Get
            DateOfIssue = dtmDateOfIssue
        End Get
        Set(ByVal value As DateTime)
            dtmDateOfIssue = value
        End Set
    End Property

    Public Property VehicleRegNo() As String
        Get
            VehicleRegNo = strVehicleRegNo
        End Get
        Set(ByVal value As String)
            strVehicleRegNo = value
        End Set
    End Property

    Public Property Manufacture() As String
        Get
            Manufacture = strManufacture
        End Get
        Set(ByVal value As String)
            strManufacture = value
        End Set
    End Property

    Public Property Model() As String
        Get
            Model = strMode
        End Get
        Set(ByVal value As String)
            strMode = value
        End Set
    End Property

    Public Property Year() As DateTime
        Get
            Year = dtmYear
        End Get
        Set(ByVal value As DateTime)
            dtmYear = value
        End Set
    End Property

    Public Property EngineNo() As String
        Get
            EngineNo = strEngineNo

```

```

        End Get
        Set(ByVal value As String)
            strEngineNo = value
        End Set
    End Property

    Public Property ChassieNo() As String
        Get
            ChassieNo = strChassieNo
        End Get
        Set(ByVal value As String)
            strChassieNo = value
        End Set
    End Property

    Public Property NameOfTheAcciedent() As String
        Get
            NameOfTheAcciedent = strNameOfTheRoadAccident
        End Get
        Set(ByVal value As String)
            strNameOfTheRoadAccident = value
        End Set
    End Property

    Public Property VehicleTravelingFrom() As String
        Get
            VehicleTravelingFrom = strVehicleWasTravelingFrom
        End Get
        Set(ByVal value As String)
            strVehicleWasTravelingFrom = value
        End Set
    End Property

    Public Property VehicleTravelingTo() As String
        Get
            VehicleTravelingTo = strVehicleWasTravelingTo
        End Get
        Set(ByVal value As String)
            strVehicleWasTravelingTo = value
        End Set
    End Property

    Public Property NameOfThePoliceStation() As String
        Get
            NameOfThePoliceStation = strNameOfThePoliceStation
        End Get
        Set(ByVal value As String)
            strNameOfThePoliceStation = value
        End Set
    End Property

```

```

Public Property IsPoliceVesited() As Integer
    Get
        IsPoliceVesited = intIsPoliceVisisted
    End Get
    Set(ByVal value As Integer)
        intIsPoliceVisisted = value
    End Set
End Property

Public Property Passengers() As String
    Get
        Passengers = strPassengers
    End Get
    Set(ByVal value As String)
        strPassengers = value
    End Set
End Property

Public Property QtyCarried() As Double
    Get
        QtyCarried = dblQtyCarried
    End Get
    Set(ByVal value As Double)
        dblQtyCarried = value
    End Set
End Property

Public Property NatureOfGoods() As String
    Get
        NatureOfGoods = strNatureOFGoods
    End Get
    Set(ByVal value As String)
        strNatureOFGoods = value
    End Set
End Property

Public Property WeightOfGoods() As String
    Get
        WeightOfGoods = strWeightOfGoods
    End Get
    Set(ByVal value As String)
        strWeightOfGoods = value
    End Set
End Property

Public Property Injury() As String
    Get
        Injury = strInjury
    End Get
    Set(ByVal value As String)
        strInjury = value
    End Set
End Property

Public Property InjuredPerson() As String
    Get
        InjuredPerson = strInjuredPerson

```

```

        End Get
        Set(ByVal value As String)
            strInjuredPerson = value
        End Set
    End Property

    Public Property Age() As Integer
        Get
            Age = intAge
        End Get
        Set(ByVal value As Integer)
            intAge = value
        End Set
    End Property
End Region

#Region "Methods of the class"

    Public Function setClaim(ByVal constring As String) As Boolean

        Dim status As Boolean = False
        sqlString = String.Empty

        sqlString = "INSERT INTO
Claim(strClaimID,strPolicyId,strDriversFName,strDriversLName,strDrivers
Address,strDriversAge,strDriversLicense,dtmDateOfIssue,strVehicleRegNo,
strManufacture,strModel,dtmYear,strEngineNo,strChassieNo,strNameOfTheRo
adAccident,VehicleWasTravelingFrom,VehicleWasTravelingTo,strNameOfThePo
liceStation,intIsPoliceVisited,strPassengers,intWereGoodsCarried,dblQty
Carried,strNatureOfGoods,strWeightOfGoods,strIngury,strInjuredPerson,dt
mClaimDate)
VALUES(@strClaimID,@strPolicyId,@strDriversFName,@strDriversLName,@strD
riversAddress,@strDriversAge,@strDriversLicense,@dtmDateOfIssue,@strVeh
icleRegNo,@strManufacture,@strModel,@dtmYear,@strEngineNo,@strChassieNo
,@strNameOfTheRoadAccident,@VehicleWasTravelingFrom,@VehicleWasTravelin
gTo,@strNameOfThePoliceStation,@intIsPoliceVisited,@strPassengers,@intW
ereGoodsCarried,@dblQtyCarried,@strNatureOfGoods,@strWeightOfGoods,@str
Ingury,@strInjuredPerson,@dtmClaimDate)"

        'Try
        dbConnection = New SqlConnection(constring)
        dbConnection.Open()
        dbCommand = New SqlCommand(sqlString, dbConnection)
        dbCommand.Parameters.AddWithValue("@strClaimID",
strClaimID)
        dbCommand.Parameters.AddWithValue("@strPolicyId",
strPolicyId)
        dbCommand.Parameters.AddWithValue("@strDriversFName",
strDriversFName)
        dbCommand.Parameters.AddWithValue("@strDriversLName",
strDriversLName)
        dbCommand.Parameters.AddWithValue("@strDriversAddress",
strDriversAddress)
        dbCommand.Parameters.AddWithValue("@strDriversAge",
intDriversAge)
    End Function

```

```

        dbCommand.Parameters.AddWithValue("@strDriversLicense",
strDriversLicense)
        dbCommand.Parameters.AddWithValue("@dtmDateOfIssue",
dtmDateOfIssue)
        dbCommand.Parameters.AddWithValue("@strVehicleRegNo",
strVehicleRegNo)
        dbCommand.Parameters.AddWithValue("@strManufacture",
strManufacture)
        dbCommand.Parameters.AddWithValue("@strModel", strMode)
        dbCommand.Parameters.AddWithValue("@dtmYear", dtmYear)
        dbCommand.Parameters.AddWithValue("@strEngineNo",
strEngineNo)
        dbCommand.Parameters.AddWithValue("@strChassieNo",
strChassieNo)

dbCommand.Parameters.AddWithValue("@strNameOfTheRoadAccident",
strNameOfTheRoadAccident)

dbCommand.Parameters.AddWithValue("@VehicleWasTravelingFrom",
strVehicleWasTravelingFrom)
        dbCommand.Parameters.AddWithValue("@VehicleWasTravelingTo",
strVehicleWasTravelingTo)

dbCommand.Parameters.AddWithValue("@strNameOfThePoliceStation",
strNameOfThePoliceStation)
        dbCommand.Parameters.AddWithValue("@intIsPoliceVisited",
intIsPoliceVisited)
        dbCommand.Parameters.AddWithValue("@strPassengers",
strPassengers)
        dbCommand.Parameters.AddWithValue("@intWereGoodsCarried",
1)
        dbCommand.Parameters.AddWithValue("@dblQtyCarried",
dblQtyCarried)
        dbCommand.Parameters.AddWithValue("@strNatureOFGoods",
strNatureOFGoods)
        dbCommand.Parameters.AddWithValue("@strWeightOfGoods",
strWeightOfGoods)
        dbCommand.Parameters.AddWithValue("@strIngury", strIngury)
        dbCommand.Parameters.AddWithValue("@strInjuredPerson",
strInjuredPerson)
        dbCommand.Parameters.AddWithValue("@dtmClaimDate", Today)
        dbCommand.ExecuteNonQuery()
        status = True
        'Catch ex As Exception

        'End Try

        Return status
    End Function
#End Region
End Class

End Namespace

```

Project Specification

Student ID	- 100191060294
Date	- 15/04/07
Email Address	- rayan_deamon@yahoo.com

Project Title

Mobile Vehicle Claming System (MVCS)

Situation Overview

Today many of the insurance companies provides on the spot vehicle claiming concept to its customers. By following this concept, insurance companies claims the vehicle accidents then and there. Insurance companies provide this facility to their register customers and those registered customers have been categorized by the insurance company depending on the vehicle type. They are mainly three categories, and they are

Private Car claiming system method - Only owners of private vehicles can obtain insurance company service

Commercial Vehicle claiming system method - Only owners of commercial vehicles can obtain insurance company service

Motorcycle claiming system method - Only motorcyclists can obtain insurance company service

Insurance companies provide 24/7 island-wide service, at no extra premium for all the registered customers other than the special different services provided to each category.

What actually does by the company is, when there is a motor accident , one of the claiming staff member will visit the site where the accident has taken place and then based on the level of accident and damages , he decide an amount and pay it to the customer as the vehicle insurance claiming charge.

Presenting Problem

Many activities of the vehicle claiming process are currently done by manually and due to this reason many failures can occur (e.g. giving wrong claimant amount to the customer, paying an amount that is more than real damage cost). Normally what happens is, when there's accident, the respective vehicle claiming staff member will visit the place where the accident was happened and claim the accident based on different factors such as", is there is any damage to the buffer of the vehicle if its yes", then claim on that factor . Staff member will just claim the damage by adding an average price (he will just add the normal price of the vehicle part but may not be the actual market price). Another point that has to consider is that different vehicle types have different types of vehicle parts. And the staff member may just put general particular part price but not the vehicle part price that is appropriate to that particular vehicle. So this will effect to customer and the company in different ways. One way is that the customer may paid less than the actual price and then the customer will fall in to a trouble by not able to purchase the damaged vehicle part for the claimed amount. And it will also create a bad reputation towards the insurance company. And from the company side, if the staff member pays more to the customer then it will be a loss to the company.

Another major problem faced by the company is that it has to wait until the staff member to be supplied the clients claiming details in order to update (because claiming staff member has no real time access and real time update facility with the current claiming system, like how Pepsi company does with PDA) the company database. And this will take considerable amount of time and effort. This also tends to develop human errors on the data that has been updated (because claiming data is updated after a considerable amount of time and by different data operator). This will leads to produce a fake report by the database, at the end of the year.

Application Proposal

Mobile Vehicle Claming System is the proposed system to defeat the above mention issues. This system will mainly help to boost the efficiency of the vehicle claiming and increase the productivity of the insurance company. And indirectly this system will also help to improve a better relationship between the customer and the company (by providing the most effective and efficient service to the customer)

So MVCS is built to address the above mentioned problems.

By MVCS, the staff member can directly connect to the web service of the insurance company and acquire the related information only. By this he can get details of each damaged vehicle part price (like what is the buffer price of maruti). And this information will be updated in the company database according to the market condition. And the claiming staff member will have the most updated information and he can claim the damages and pay the most reasonable amount to the customer.

To do this there should be a PDA Mobile device that is given to the claiming staff member and through that he can get connected to the insurance company database (web service). Staff member can enter all the details regarding the vehicle accident to the PDA device which will connect to the web service. By this system, staff member can get the exact price that should be claimed via PDA Mobile device.

Functional requirements

1. one of the biggest challenge in this project is to do more research on the system that is going to developed(since this system has not available in Sri Lanka)
 - a. Research on current way of handling things in the claiming process (to get good idea I have to get details from other insurance companies as well, like Janashakthi, Sri Lanka Insurance)
 - i. Identify the claiming staff members activities
 - ii. Identify the errors happening during the vehicle claim process
 - b. Research on different technologies and methods used in the system
 - i. Research on PDA, how its work and how to apply PDA to the system
2. personalized the claiming staff members access to the web service via PDA mobile device
3. developing a web services technology is another challenge
4. Should apply one of the most suitable encoding algorithms to the system to make it more secure.
5. should apply an appropriate technique to connect the PDA device and the web service
6. secured technology must be used to transmit data within the client and the server
7. Since PDA mobile device is very new to this concept, the design that is used to this device should be extremely user friendly.

Non-Functional and Performance Requirements

1. Quick and easy access to the web server in order to store and retrieve data. And this will make sure the maximum usability of MVCS
2. Can access to the data at any time from any where.
3. MVCS will ensure the performance of the vehicle claiming process.

Technical Requirements

1. Application will be developed using ASP.NET
2. SQL will be used to store and retrieve data.
3. Wireless communication technology
4. Web service development technologies.
5. PDA mobile technology.

Usability Requirements

1. Display area of the PDA is very much limited so front end will be designed and developed by making use of the maximum display area. Data and entities will be displayed either by using the text format or image format.
2. As the data rate, latency of wireless network can be bulky at times the volume of data to be send/receive will keep at minimum.

Ethical Overview

It is very difficult to claim a damage of a vehicle with the current system, because the staff member is not up to date information. This could effect to the company in either way. May be customer get less amount than the actual amount that he deserved, which will leads to create a bad reputation on the company or company pay more to customer than what he deserved, this will be a lost to the company. Either way could make a bad effect to the insurance company and MVCS could help to resolve these management problems, by effectively and efficiently handling the claiming process.

System Architecture

The proposed MVCS will use a web server to store the updated vehicle part details. PDA device is used to connect to the web server. Any authorized staff member can be logged to the MVCS system at any time from any where, because the MVC system uses the user interface. ASP.NET and HTML techniques are used to create the user interfaces and these interfaces will allow the authorized staff member to access to the SQL database which is located in the VIP insurance company.

Strategic IT Value

1. There will be no complains from customers and the mistakes that can be occurs during the claiming process can be avoided by using the Mobile Vehicle Claming System. And this system will boost the productivity of the insurance company greatly and it will also help to improve the customer service and relationships.

2. Efficiency of the claim process is improved by using the PDA device. By using this device the claiming staff member can gain an easy access to the insurance company database to retrieve the accurate data and this device can be easily used by the claiming staff member, because of the user friendly interface it has.

Aim

Aim of this project is to develop an accurate and efficient Mobile Vehicle Claming System to boost the insurance company's business aspects by providing a successful, quick and easy way of doing the mobile vehicle claiming process by using a PDA mobile device at any place and to develop a better customer relationship as well as to provide improved customer service by enhancing the claiming process.

Objectives

1. To develop the Mobile Vehicle Claming System that uses the PDA device to help to do the claim process effectively.
2. Investigate and study about the newest developments in PDA technologies.
3. Recognize ways to combine PDA technology with MVCS to make possible a Claiming staff member to access to the insurance company database.
4. Investigate and choose the most appropriate methodologies to work on each stage of the project (E.g. UML could be use in analysis and design stage of the system).
5. Choose the most appropriate and most effective requirement gathering techniques and carry out it to collect the requirements and analyze those collected information's.
6. Investigate the most suitable tools (e.g. Use case diagrams, Class diagrams) to design the MVCS system.
7. Investigate methodologies like prototyping, 4GT to develop the MVCS system.
8. Create a test plan, test and evaluate the test results of the MVCS system. White and Black box testing methods are used to test the MVCS system. Test results, comments of the users regarding the MVCS are used to critically evaluate the MVC system.

Research Design

Research design is mainly connected to accomplish the above mentioned objectives of the MVCS

Research Method

Requirement gathering is the selected research method because the proposed solution is about designing an application that is based on computer.

Phase 1 – Requirements Collection Process

Phase 1 is highly focused on collecting the primary data. These collected primary data will leads to achieve the objectives of MVCS.

Location

Ceylinco Insurance Company Limited is the location that I have used to collect essential information to build up the system.

Functional Requirements

The most appropriate target group is the VIP claiming staff members because they are the main victims of the MVCS system that is going to be developed. Management of the ceylinco insurance company also a target group, because their opinions and information would help to ensure the productivity of the claiming service and also will help to clarify the ethical issues that can be arise. Customers all so can take as an external entity in order to understand the customer requirements (which will help to develop a successful MVCS).

Inputs for the system would be all the claiming activities like customer details and damages details. Based on the given information, the system will produce required details like the amount that has to be paid to the customer.

Technical Requirements

IT manager and system administrator should be involved on recognizing the hardware specifications that is required to operate the MVCS.

Usability Requirements

It is very much important to gather information about user interfaces of the MVCS by the VIP claiming staff member and administration personals. And these information will help to boost the efficiency of the MVCS. Ceylinco VIP department heads, IT manager, VIP claiming staff members and other related departmental heads should be interviewed, in order to recognize the required collection of data that is expected from the MVCS.

Collection Protocols

Functional Requirements

Faults of the current system of the VIP insurance company and features that has to be added to the new system could be recognized by interviewing VIP claiming staff members. Observation (like observing how claiming staff member handles the claiming process) and analysis (like analyzing the company documents) are two methods that will help to make this process success.

Non-Functional or Performance Requirements

Required performance of the equipments will be identified by using the interviews and observation methods. Workload of the VIP claiming center will be identified by analyzing the reports and documents.

Technical Requirements

Interviews will carried out with the vehicle claiming staff members and the head of the vehicles claiming department and will observe the how they handle the process.

Usability Requirements

Observations, documentations analysis and user interviews are used to recognize the user requirements and appropriate user interface.

Requirements Presentation

Gatherings of requirement analysis will be documented as Interview transcripts and other notes, Graphical charts and those documents will be included to the appendix of the Mobile Vehicle Claming System's project documentation. Tabular format will be used to present the gathered information.

Phase 2 - Design Presentation

Main task of this phase is to manipulate all the gathered information's in order to prepare the design of the MVCS proposed system. Mainly there are two sections that are included to this phase.

Overview

UML will be used to present the collected information. Collected information will present by using methods like use cases, rich pictures, class diagrams, sequence and collaboration diagrams.

Specific

Any Information that is unable to present as diagrams or in other related sections of the project documentation, will present separately. These could be showed as lists or notes. All possible information will present by using diagrams.

Logistics and Tools

Mobile Vehicle Claming System can be implemented on the current environment at insurance company premises. Analysis and requirements gatherings also could be carried out at the client premises.

Outline of the Content List	
Chapter 1 Introduction to System	System Overview
	System background and context
	Proposed system overview
	Project aim and objectives
Chapter 2 Literature Review	Outline of current system
	Analysis of application scenario
Chapter 3 Requirements Specification	Outline of the requirements
	Plan for requirement gathering
	Requirements specification
Chapter 4 System or Application Design	Principles used for design
	Component design
	Interface design
	Database design
	Overall system design
Chapter 5 System Implementation and Testing	Testing strategy
	Testing plans
	Test results
	Implementation methods
Chapter 6 Evaluation	Evaluation of the system
	Evaluation of practice
Chapter 7 Conclusions	Research results
	Future enhancements
	Reflections of achievements
Appendices	Appendices & References

Project Plan

2007	April	May	June	July	August	September	October	November
Days are Mondays	30	07 14 21 28	04 11 18 25	02 09 16 23 30	06 13 20 27	03 10 17 24	01 08 15 22	05 12
Events								
01.Prosposal refinement								
02.Research on Literature								
03.WAP study & research								
04.Draft Literature								
05.Conduct requirements gathering								
06.Draft requirements gathered								
07.UML design								
08.Draft system design								
09.WEB development								
10.Database development								
11.Testing and Refinement								
12.Finalize the working prototype								
13.System evaluation								
14.Final draft compilation								
15.Review, refine, prepare submission								

Interview Summary

Interview topic	- Obtaining the background information about ceylinco and its insurance claiming procedure.		
Resource person	- Mr. K. Wanigasooriya, Head of claiming insurance department		
Venue	- Ceylinco Insurance VIP building		
Date of interview	- 19th June 2007	Time of interview	- 11.30 A.M
Conclusion	<p>- Primary objective of this session is to obtain information regarding the ceylinco insurance company and its claiming procedure. First of all my focus turned on the company, its competitors, missions, strategic objectives and goals. Whatever the system we developed should be in lined with the companies' strategic objective. So I put more weight at this session to know about the company and other vital information. This session also helped me to understand the types of employees, agents and their current performance as average, power of human resource, level of technological skills of employees and their general attitude and capability of being flexible for any type of techno sophisticated environment. Further the resource person also highlight on some other key factors too and they are such as their future market position, how they want to improve their service, how they want to improve their productivity level of employees, specially the agents and operating staff, and need of cutting down the unnecessary paper work related to insurance claiming.</p>		

He also made effort to give a basic idea about the insurance service provided to the customers, how their service is differs from the competitors and also the general idea about the claiming process.

Interview topic	- Obtaining the in depth details about the existing insurance claiming procedure.		
Resource person	<ul style="list-style-type: none"> - Mr. Devaka Rodrigo, manager – Administration Mr. Kalana Sathsara, Customer Service Executive Mr. Jewaka Edirisooriya, Manager insurance-non life Ms. Malika Ranawana, Operation staff Mr. Sasanaka Diddeniya, Regional Manager Mr. Thanuja Lakruwan, Claiming Agent 		
Venue	<ul style="list-style-type: none"> - Ceylinco Insurance VIP building 		
Date of interview	<ul style="list-style-type: none"> - From 29th of June to 3rd of July 2007 	Time of interview	<ul style="list-style-type: none"> - Varied
Conclusion	<p>- This was the next important session we had with the employees of Ceylinco Insurance. This was highly targeted on the claiming process because the companies' objective is to improve the efficiency of this process with the help of a technologically sophisticated system. By interviewing the above mentioned people, we were able to get a detailed idea on the procedure followed in order to accomplish the claiming process successfully. This session was very helpful to identify even the minor detail of the process. Resource persons also mentioned the activities of this process and the effect of those in order to complete the process effectively and efficiently.</p> <p>Further they discussed about the steps of creating vehicle insurance policy, customer registration, detail description about the agreements, legal situation, especially how they give approval to the claim currently and existing verification methods and current annual and premium payment methods.</p>		

Sample Questionnaires

Assessment of customer registration and vehicle insurance account creation procedure

Name (optional) - _____

Position(optional) - *Operation staff*

Please select your department: (Operation/ Claiming/ admin- insurance non life)

How long have you worked for (Company)? *More than 3 years*

No of new accounts created per a day? *10-20*

No of policies available for vehicle insurance? *Averagely 16 policies but it also depends on the vehicle or VIP customers*

How long it takes to create a new account (maximum time)? *most probably 1 and half our , With including all the vehicle details and customer details as well as including agreement creation time*

	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	N/A
Manual Customer registration		✓				
Maintain the customer profiles				✓		
Categorization of vehicle insurance policies		✓				
Maintain the vehicle details				✓		
efficiency of retrieving the spare part details					✓	
generate reports on the particular periods					✓	
Overall					✓	

Comments – *current process will take more time to create a new policy because we have to connect with lot of internal parties manually and dealing with document is very risky. Sometimes customers are also getting frustrated due to the time they have wasted unnecessarily and long process of registrations .expecting efficient and effective new system.*

Would you support the Mobile Vehicle Claiming System? Yes/No

Thank you very much for your corporation

Assessment of the claiming procedure

Name(optional) - **Senarath perera**

How long have you worked for (Company)? **Somewhere around 4 years**

Area you cover? **Kandy**

Time taken to verify the customer details (maximum)? **15-30 minutes**

No of assessments you handle per day (maximum)? **3- 4**

Time taken to asses a particular claim (maximum)? **Most probably 10-25 minutes but again it depends on the type of accident and damage.**

Time required approving a particular claim (maximum)? **15-25 minutes**

	Very satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied	N/A
Easiness of verifying the customer details				✓		
Easiness of identifying the damage spare part category				✓		
Easiness of identifying the current market Price Of a particular spare part					✓	
Easiness of calculating the total claiming Amount				✓		
Usage of provided facilities (like camaras)	✓					
Getting approval from the branch manager		✓				
Overall				✓		
Comments - it takes lot of time to verify the details and in order to do that we have to talk via the mobile. But it is very difficult if there are no mobile signals. Then we have to search for another communication method. Sometimes customers argue about the current market price then we face in to a difficulty, since we have no proofs to show the real price. Also calculating the claiming amount and collecting the evidence are also very much difficult. All the best.						
	Very high	high	medium	low	Very low	
Usage level of mobile	✓					
familiarity of accessing GPRS			✓			
IT Knowledge			✓			

Would you support the Mobile Vehicle Claiming System? Yes/No

Thank you very much for your coorporation

Summary of the Fact findings

Method – Interview

Summary - Several interviews were performed in order to get the background information of the current insurance claiming procedure and also to collect the user requirements for the proposed system. This method helps to gather true facts which really support to build up a successful and efficient system. In order to collect facts by using this method, we need to spend some quality time with the targeted interest groups such as claiming agents, customer, operational staff, regional managers, head office administrators. By using interviews, we were able to get so many positive out puts which are really help to build a successful system and they are mentioned below.

- By interviewing, I was enable to get a thorough understand about the existing claiming procedure and how it performed.
 - As an example I was able to get clear idea on how they register new customers and vehicles, what are the available policies for the customers specified requirements, how those policies works, and agreements & conditions of each policy, by interviewing head office manager, Insurance claiming executives, administrators and operational staff.
 - By interviewing the regional staff and agents, I was able to collect some vital facts such as how the claiming procedure is actually works when an accident occurs, how the claiming agents are visiting the place where the accident was taken place, the procedure of releasing the claiming amount once the approval is given by the head office, how long it takes to complete the whole claiming procedure.
- Requirement of the mobile claiming system was clearly understood and clarified by performing interviews with the relevant interest groups.
- Drawbacks of the current procedure were found out by interviewing customers and internals stakeholders.
 - As an example customer have to spend lot of time in order to collect their claiming amount, and some times customers are receiving lesser amount than what they deserve due to inaccurate assessment performed by the claiming insurance agent.
 - Company also face so many problems by using the current procedure, like, when the assessed claiming amount is more than the actual claiming amount due to the manual calculation performed by the agent.
- Ideas of different interested parties were able to collect, in order to over come from the drawbacks of the existing claiming procedure.
- Opinions of the interested parties were able to collect regarding the new mobile vehicle claiming system.

Method – Questionnaires

Summary - This is a very important tool to gather many hidden information from the internal and external stakeholders which are very essential in order to develop a system that matches with the users new requirements. And these information enabled to develop a system which address the drawbacks of the existing procedure.

Some internal stakeholders did not respond their true ideas during the interview sessions due to the reason of internal politics. And these vital information were able to trace out by using the questionnaires. It is also very much difficult to interview large number of people in order to get the responds of internal and external stakeholders due to large amount of time consumption and high cost. So questionnaire was a good solution in order to cover up the areas which are uncovered by interviews. This method also helps to gather information from large number of stakeholders within a short period of time by lesser amount.

A questionnaire helps to gather personnel information, personnel opinion about the existing procedure, difficulties of performing the claiming procedure with the current system, difficulties of handling the current market values in order to estimate the claiming amounts, difficulties of making and handling reports related to the claiming, personal opinion about a new system and the kind of new system they required.

Method – Observation

Summary - this was done by my self within the Ceylinco insurance premises and also by travelling with a claiming insurance agent. This was enabled to give the practical view of the claiming procedure. It was really helpful in order to understand things such as what I learnt and got during the interview sessions and questionnaires, clearly. Furthermore this technique helps me to understand the practical issues of the current procedure.

Steps of Normalization

The top down approach was used as a strategy to the data design. The data of the system would be normalized with the 1st, 2nd and 3rd normalization forms. After the normalization the final database design is given for MVCS.

Steps on mapping entities to the database and normalization

Un Normalized form

(Vehicle_ID, Manufacturer, Vehicle_TypeID, Model, Fuel_Type, ImportStatus, Options, StrAC, StrRemarks, Vehicle_TemplateID, Price, status, Customer_ID, Customer_Name, Customer_Address, Tel_No, Date Of Birth, Gender, Occupation, DrivingLicenseNo, DrivingLicenseNo, VAT_RegNo, ActiveStatus, ContactPerson, Customer_TypeID, Customer_Type, Customer_TypeDesc,Cus_Status, Spare_PartID, Spare_Part, Spare_PartDesc, Spare_PartCategoryID, Spare_Part_Status, Spare_PartCategory, StrPolicyID, VehicleNumber, VehicleStatus, EngineNumber, ChassieNumber, Color, EngineCapacity, FuelType, Seating, BaseHorsePower, ManufactureYear, CurrentMarketValue,Spare_Part_Price, PolicyID, PolicyType, Date From, Date To, Driver_Status, Insured_Person, InsuredAndSpouse, Named_Person, Workmen_Compensation, winscreenCover,Natural_Disaster, Vandalism, TerrCover, AgreadToBear, Bear_Amount, Driver_Compensation,Conductor_Compensaion, PolicyTypeID, PolicyDesc, Policy_State, ClaimID, DriversFName, DriversLName, DriversAddress, DriversAge, Drivers_License, DateOfIssue, VehicleRegNo,NameOfTheRoadAccident, VehicleWasTravellingFrom, VehicleWasTravellingTo , NameOfThePoliceStation, Injured_Person, Claim Date)

1st Normal Form – Removing Repeating groups

Vehicle (Vehicle_ID, Manufacturer, Vehicle_TypeID, Model, Fuel_Type, ImportStatus, Options, StrAC, StrRemarks, Vehicle_TemplateID, Price, status, VehicleNumber, VehicleStatus, EngineNumber, ChassieNumber, Color, EngineCapacity, FuelType, Seating, BaseHorsePower, ManufactureYear, CurrentMarketValue)

Customer (Customer_ID, Customer_Name, Customer_Address, Tel_No, Date Of Birth, Gender, Occupation, DrivingLicenseNo, DrivingLicenseNo, VAT_RegNo, ActiveStatus, ContactPerson, Customer_TypeID, Customer_Type, Customer_TypeDesc,Cus_Status)

Spare Part (Spare_PartID, Spare_Part, Spare_PartDesc, Spare_PartCategoryID, Spare_Part_Status, Spare_PartCategory, Spare_Part_Price)

Policy (PolicyID, PolicyType, Date From, Date To, Driver_Status, Insured_Person, InsuredAndSpouse, Named_Person, Workmen_Compensation, winscreenCover,Natural_Disaster, Vandalism, TerrCover, AgreadToBear, Bear_Amount, Driver_Compensation,Conductor_Compensaion, PolicyTypeID, PolicyDesc, Policy_State)

Claim (ClaimID, DriversFName, DriversLName, DriversAddress, DriversAge, Drivers_License, DateOfIssue, VehicleRegNo, NameOfTheRoadAccident, VehicleWasTravellingFrom, VehicleWasTravellingTo, NameOfThePoliceStation, Injured_Person, Claim Date)

2nd Normal Form – Removing Functional dependencies

Vehicle (Vehicle_ID, Manufacturer, Vehicle_TypeID, Model, Fuel Type, ImportStatus, Options, StrAC, StrRemarks)

Vehicle Template Details (Vehicle_TemplateID, Spare_PartID, Price, status)

Customer Vehicle Policy (CustomerID, VehicleID, VehicleNumber, VehicleStatus, EngineNumber, ChassieNumber, Color, EngineCapacity, FuelType, Seating, BaseHorsePower, ManufactureYear, CurrentMarketValue)

Customer (Customer_ID, Customer_Name, Customer_Address, Tel_No, Date Of Birth, Gender, Occupation, DrivingLicenseNo, DrivingLicenseNo, VAT RegNo, ActiveStatus, ContactPerson)

Customer Type (Customer_TypeID, Customer_Type, Customer_TypeDesc, Cus Status)

Spare Part (Spare_PartID, Spare_Part, Spare_PartDesc, Spare_Part_Status)

Spare_PartCategory (Spare_PartCategoryID, Spare_PartCategory, Spare_Part_Price)

Policy (PolicyID, PolicyType, Date From, Date To, Driver Status, Insured Person, InsuredAndSpouse, Named Person, Workmen Compensation, winscreenCover, Natural_Disaster, Vandalism, TerrCover, AgreadToBear, Bear Amount, Driver Compensation, Conductor_Compensaion)

Policy Type (PolicyTypeID, PolicyDesc, Policy State)

Claim (ClaimID, DriversFName, DriversLName, DriversAddress, DriversAge, Drivers License, DateOfIssue, VehicleRegNo, NameOfTheRoadAccident, VehicleWasTravellingFrom, VehicleWasTravellingTo, NameOfThePoliceStation, Injured Person, Claim Date)

3 rd Normal Form – Removing Transitive dependencies

Vehicle (Vehicle_ID, Manufacturer, Vehicle_TypeID, Model, Fuel Type, ImportStatus, Options, StrAC, StrRemarks)

Vehicle Template Details (Vehicle_TemplateID, Spare_PartID, Price, status)

Vehicle Template Master (Vehicle_TemplateID, Vehicle, V status)

Customer Vehicle Policy (CustomerID, VehicleID, VehicleNumber, VehicleStatus, EngineNumber, ChassieNumber, Color, EngineCapacity, FuelType, Seating, BaseHorsePower, ManufactureYear, CurrentMarketValue)

Customer (Customer_ID, Customer_Name, Customer_Address, Tel_No, Date Of Birth, Gender, Occupation, DrivingLicenseNo, DrivingLicenseNo, VAT RegNo, ActiveStatus, ContactPerson)

Customer Type (Customer_TypeID, Customer_Type, Customer_TypeDesc, Cus Status)

Customer Vehicle Policy Details (PolicyID, Spare_PartID, Spare_Part_Price)

Spare Part (Spare_PartID, Spare_Part, Spare_PartDesc, Spare_Part_Status)

Spare_PartCategory (Spare_PartCategoryID, Spare_PartCategory)

Policy (PolicyID, PolicyType, Date From, Date To, Driver Status, Insured Person, InsuredAndSpouse, Named Person, Workmen Compensation, winscreenCover,Natural_Disaster, Vandalism, TerrCover, AgreadToBear, Bear Amount, Driver Compensation, Conductor_Compensaion)

Policy Type (PolicyTypeID, PolicyDesc, Policy State)

Claim (ClaimID, DriversFName, DriversLName, DriversAddress, DriversAge, Drivers License, DateOfIssue, VehicleRegNo, NameOfTheRoadAccident, VehicleWasTravellingFrom, VehicleWasTravellingTo, NameOfThePoliceStation, Injured Person, Claim Date)

Database Designs

Attribute	Data Type	Length
Vehicle_TemplateID	Integer	10
Spare_PartID	Integer	10
Price	Integer	10
Status	Text	20

The vehicle template details are also in combination with the spare parts and the vehicle template ID with the spare part ID its price and the current status is also updated in this relation of the database. As an example if we take the windscreen of the Maruti vehicle, we could make the template according to the present market price and offer the template at the vehicle claim. If the customer wants a special amount for the windscreen it will be verified at the time of the insurance policy and the decided amount would be fed into the template. If the windscreen was a Nissan, then the template would be a Nissan template used by the database. The agent would get the price according to the template when he would add the spare part for the claim.

Attribute	Data Type	Length
PolicyID	Integer	10
Policy Type	Text	20
Date From	Date	
Date To	Date	
Driver Status	Text	20
Insured Person	Text	20
InsuredAndSpouse	Text	20
Named Person	Text	20
Workmen Compensation	Text	30
winscreenCover	Text	30
Natural Disaster	Text	30
Vandalism	Text	30
TerrCover	Text	30
AgreadToBear	Text	20
Bear Amount	Integer	20
Driver Compensation	Text	30
Conductor_Compensaion	Text	30

Since this is the main item of this database, all the items of the insurance policy are covered in this. The insurance policy as we know can be customized according to the customer. Every one of such customization could be included in this. In the policy relation more in depth search is carried out to the policy items covered by the relevant policy. The details of the present driver at the time of the accident, the nature of the accident, the people insured by the policy, whether it was due to natural disaster or accident of vandalism is also updated in this table.

Attribute	Data Type	Length
PolicyTypeID	Integer	10
Policy Type	Text	20
PolicyDesc	Text	40
Policy State	Text	20

Attribute	Data Type	Length
Customer_TypeID	Integer	10
Customer_Type	Text	20
Customer_TypeDesc	Text	40
Status	Text	20

Attribute	Data Type	Length
PolicyID	Integer	10
Spare_PartID	Integer	10
Spare_Part_Price	Integer	20

Attribute	Data Type	Length
ClaimID	Integer	10
PolicyID	Integer	10
DriversFName	Text	10
DriversLName	Text	20
Drivers Address	Text	30
Drivers Age	Integer	10
Drivers License	Integer	10
DateOfIssue	Date	
VehicleRegNo	Integer	10
Manufacturer	Text	20
Model	Text	10
NameOfTheRoadAccident	Text	40
VehicleWasTravellingFrom	Text	40
VehicleWasTravellingTo	Text	20
NameOfThePoliceStation	Text	20

When the insurance claiming agent would access the customers account after the vehicle accident. The insurance claiming agent would update some of the data from the PDA at the scene of the claim. The details of the customer at the time of the incident and the insured amount and the damaged parts all need to be updated in the database for future reference. At the end of the claim, the agent would issue a claim ID for future reference.

Attribute	Data Type	Length
Vehicle_TemplateID	Integer	10
Vehicel	Text	20
Status	Text	20

Test Results of Online Claiming Management System

Test logs

- Test Case:** Test and validating the policy category sub module of the Insurance Policy Module.
- Description:** Check whether the functions of the policy category module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data.
- Test Data:** fill the required fields and click on the save button.

Expected output

The screenshot shows a Microsoft Internet Explorer window displaying the 'Policy Type Maintenance' page of the 'Online Damage Assessment System'. The URL in the address bar is <http://localhost:1401/CeylincoVIP/policyType.aspx>. The page has a left sidebar with navigation links like Home, logout, profile, gallery, portfolio, contact, and a 'Links' section. The main content area has two sections: 'Policy Type Maintenance' and 'Policy Type ID'. The 'Policy Type ID' section contains input fields for 'Policy type' (set to '8policy') and 'Description' (set to 'motor car'). A dropdown 'Status' field is set to 'Active (A)'. Below these are 'Save' and 'Cancel' buttons. To the right of this is a table titled 'Policy Type Maintenance' showing a list of policy types:

policyTypeID	policyType	policyDesc	policyState
3POLICYCAT	commercial vehicle	policy for motor vehicle	A Edit Delete
4POLICYCAT	as	as	A Edit Delete
5POLICYCAT	q	q	A Edit Delete
6POLICYCAT	motor bicycle	special policy	A Edit Delete
8POLICYCAT	Motor Car	Special motor car policy for vip cust	A Edit Delete
9POLICYCAT			A Edit Delete

Test Result: Successful

Test logs

Test Case: Test and validate the customer type sub module of the customer detail module.

Description: Check whether the functions of the customer type module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data.

Test Data: fill the required fields and click on the save/Edit/Delete button.

Expected output

The screenshot shows a Microsoft Internet Explorer window with the title bar 'Untitled Page'. The address bar contains 'http://localhost:1401/CeylincoVIP/CustomerTypePage.aspx'. The page itself is titled 'Customer Type Maintenance' and displays a form for editing customer type information. The form fields include 'Customer Type ID' (set to '8custype'), 'Customer type' (set to 'vip customer'), 'Description' (empty), and 'Status' (set to 'Active (A)'). Below the form is a table with the following data:

Customer_TypeID	Customer_Type	CustomerType_Desc	strStatus
4CUSTYP	x	x	A

At the bottom of the table are 'Edit' and 'Delete' buttons. To the right of the table is a sidebar titled 'Customer Type Maintenance' containing a navigation menu with items like 'Online Damage System', 'Insurance Policy', 'Policy Category', etc. The bottom right corner of the browser window shows 'Local intranet'.

Test Result: Successful

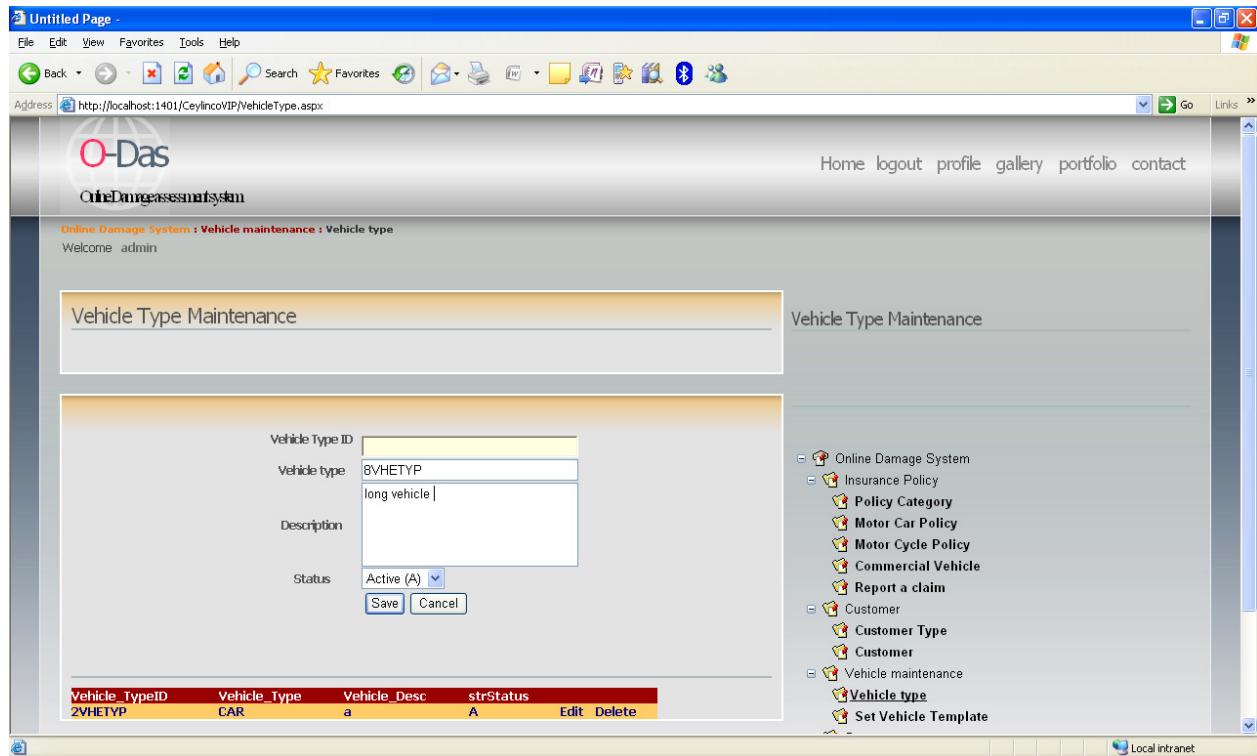
Test logs

Test Case: Test and validate the vehicle type sub module of the vehicle detail module.

Description: Check whether the functions of the vehicle type module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data.

Test Data: Click on the save button, once the required fields are filled.

Expected output



Test Result: Successful

Test logs

Test Case: Test and validate the Spare part module.

Description: Check whether the functions of the spare part module are properly working and the entered information are displayed in the given table at the bottom of the screen. Also to check the possibility to EDIT and DELETE the previously saved data.

Test Data: Click on the save button, once the required fields are filled.

Expected output

The screenshot shows a Windows application window titled "Spare part Maintenance". On the left, there is a form with fields for "Spare part ID" (text box), "Spare Part" (text box), "Description" (text area), "Spare part category" (dropdown menu with "BODY" selected), and "status" (dropdown menu with "Active (A)" selected). Below the form are two buttons: "Save" and "Cancel". On the right side of the window, there is a sidebar titled "Spare Part Maintenance" containing a tree view of system modules. The "Spare parts" node is expanded, showing "Spare parts" and "Management Reports". At the bottom of the sidebar is a "Claim History" link. The main area of the window displays a table with the following data:

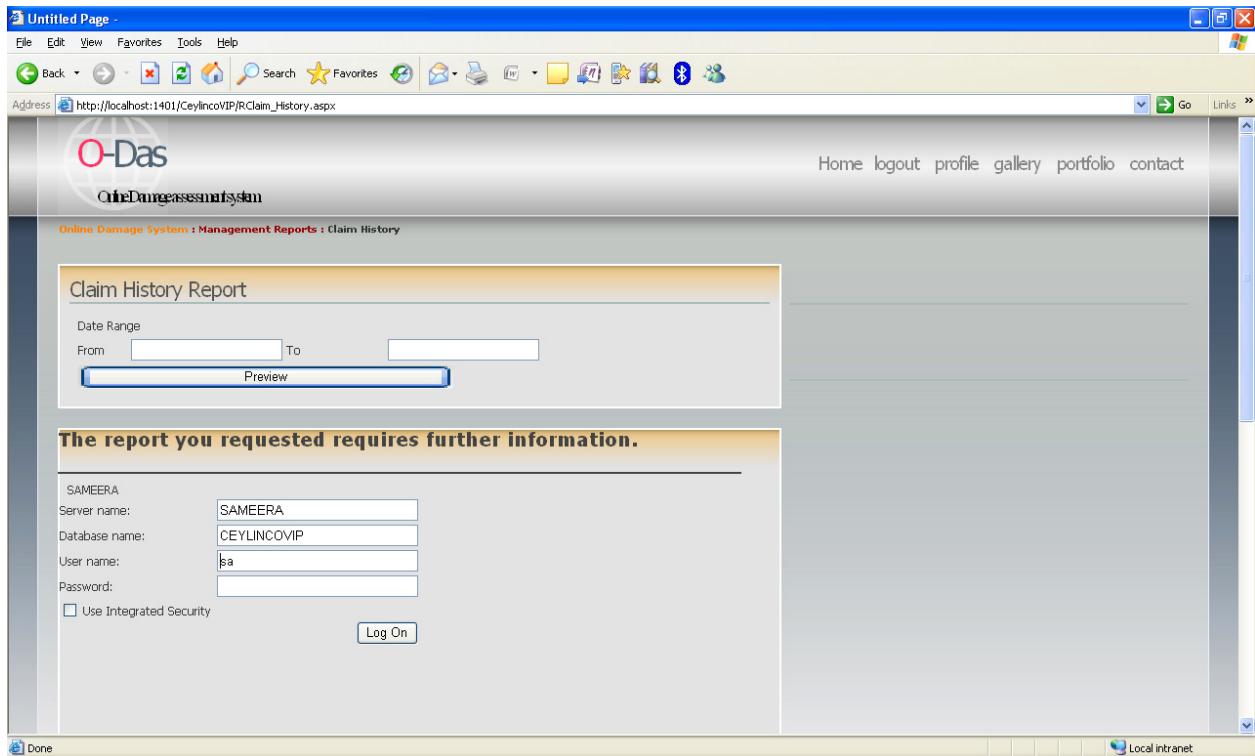
	strSpare_PartID	strSparePart	strSparePart_Desc	SparePartCategoryID	strSpare_Part_Status
Edit	4PART	aa	aa	BODY	A
Delete	SPART	aa	aa	BODY	A

Test Result: Successful

Test logs

- Test Case:** Test and validate the preview of a claim history report & authentication of the claim history report module.
- Description:** Check whether the system allows previewing a claim history report, within any given period and Check whether the system is validating the authentication, before producing an actual report.
- Test Data:** Enter the password "admin" and click on the logon button.

Expected output



Test Result: Successful

Installation and Configuration

Standard desktop computer hardware configuration

Processor Type	Intel Pentium IV
Processor Speed	2.4 GHz
Motherboard	SIS Chipset
Ram	512 MB (DDRRAM)
Hard Drive	40 GB [(Maxtor)]
DVD ROM Drive	16X (Sony)
Floppy Drive	Standard 1.44mb
VGA Card	128mb
Monitor	"17" ViewSonic (LCD)
Modem	ADSL Modem

Installations of the system -

Software required run the MVCS

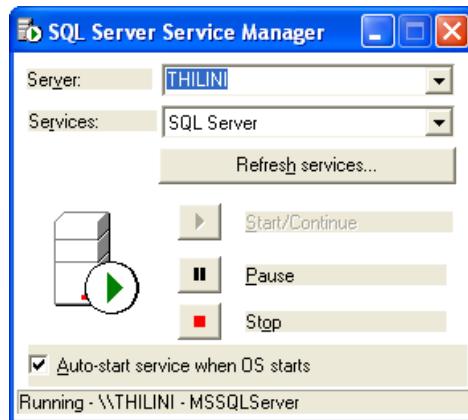
- Microsoft SQL Server 2000
- The Dot Net Framework Version 2.0
- IIS Server
- Active Synchronizer (Will attached with the Software CD)

This section will express the followings

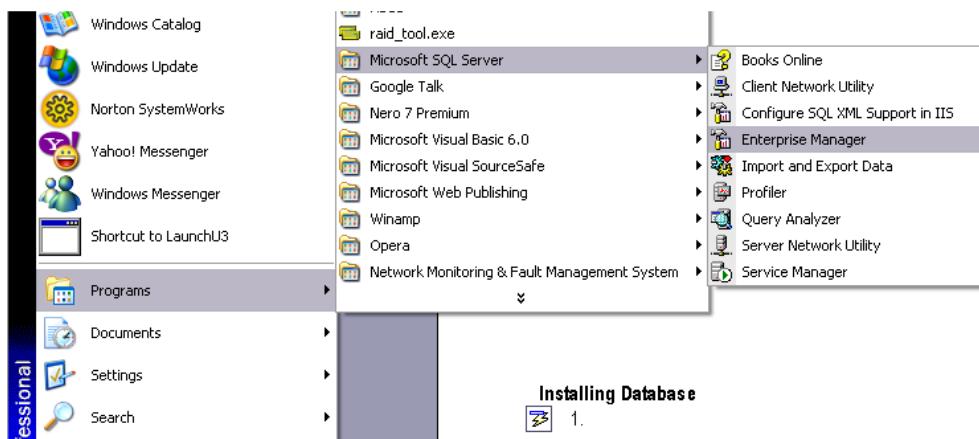
- SQL Database installation and configuration
- MVCS online system configuration
- MVCS PDA mobile system installation and configuration

SQL Database installation and configuration

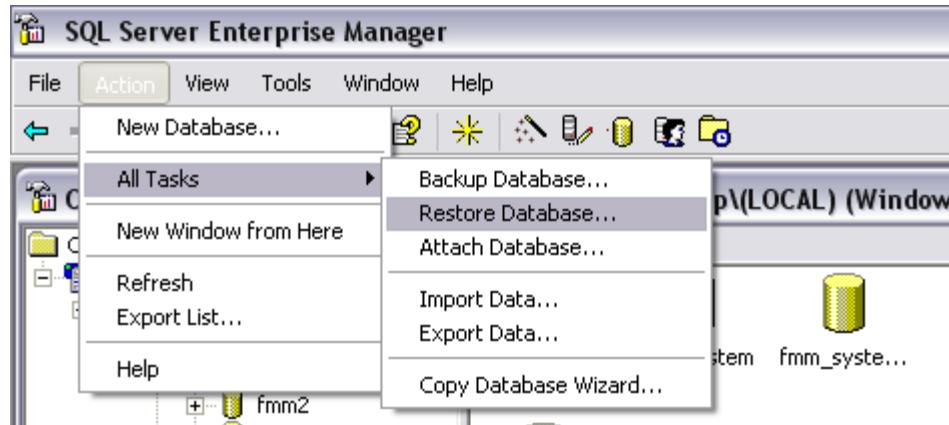
1. Verify that the SQL Server Service Manager is used to run the SQL Server



2. Then open the SQL Enterprise manager

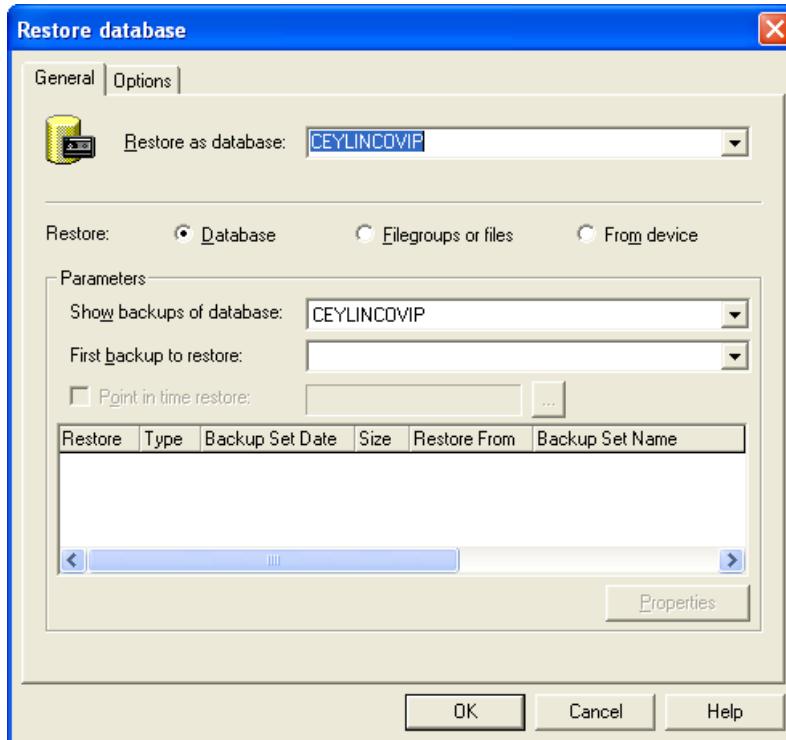


3. View the existing database by SELECTING the database tab
4. establish the restore database option on
Action>>All Tasks>> Restore Database...

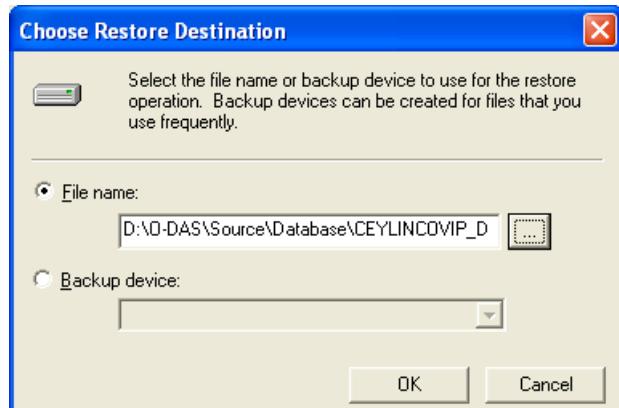


Then the Database restoring interface will become visible

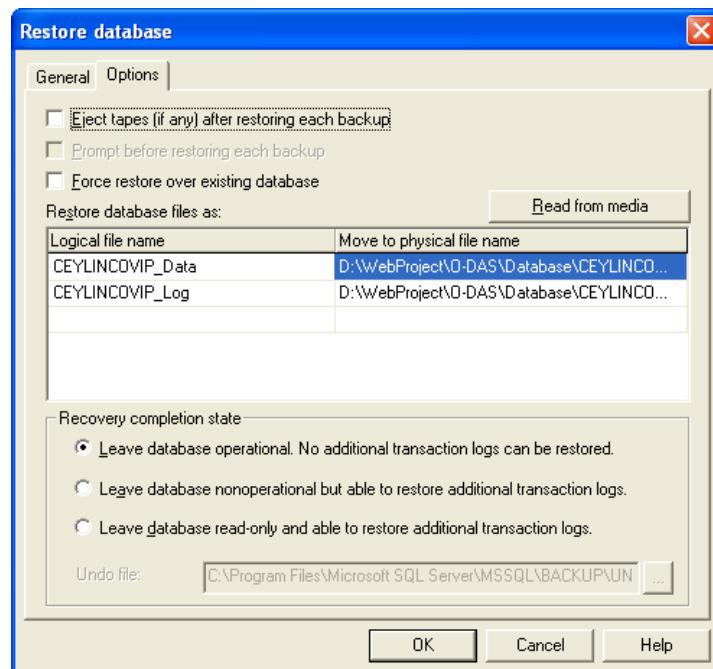
5. “CEYLINCOVIP” should be typed as the database name in the field of “Restore as database”
6. Select the restore source “From Device”



7. Click “Select Devices” button. Device adding screen will appear
8. Click “ADD” button. Screen will appear to choose the database file wanted to restore.
9. Browse and locate the database backup file “CEYLINCOVIP.bak” located in installation directory.



10. Click ok button to return to the **choose restore devices** screen
11. Click ok to return to the database restoring main menu
12. Go to "**Options**" tab. Type the destination path you want to store the database and log files.



13. Click **OK** to restore the database.

Setting SQL to connect with the application

1. Open **SQL Server properties** windows and select the **Security** tab.
2. You can locate this by selecting the server name and going to the **Action>Properties**
3. Set the authentication to “**SQL Server and Windows**”



4. Go to **Registered SQL Server Properties** window.
5. You can locate this by selecting the server name and going to the **Action>Edit SQL Server Registration Properties...** in menu bar.
6. Make sure the Connection is set to use SQL server authentication
7. Make the login name as “sa”. Leave the password field blank.



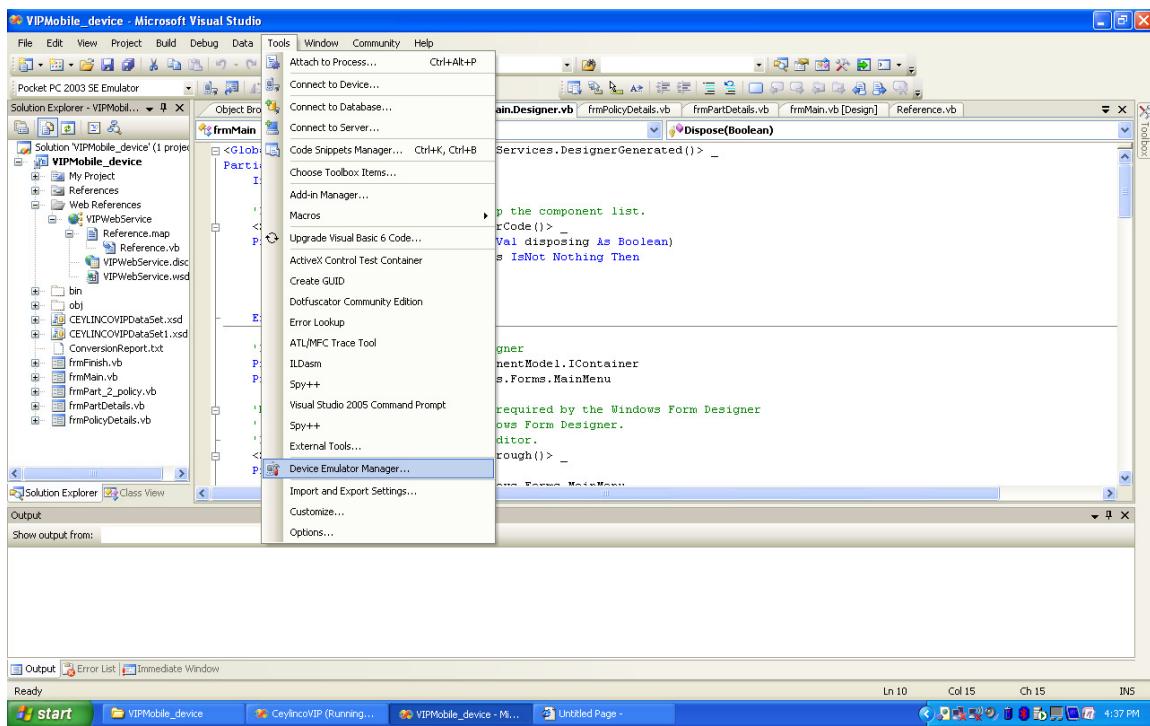
Installation and user manual to the PDA Mobile Application

Note – The system will take the PDA as an external device. So when the firewall and virus guard is “on” then the system will not allowing the PDA to connect with the system. Therefore any firewall or virus guard applications of your computer should be deactivated during the runtime of the MVCS.

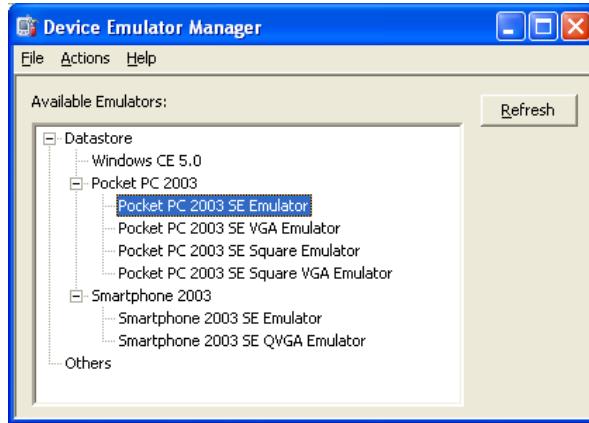
1. Follow the given path and click the on the application solution in order to run the project.

Folder–Source → Folder-MobileProject → Folder-VIPMobile_device → Application- VIPMobile_Device (solution)

2. After clicking on the solution, then the following screen will be appeared. Then go to “Tools” and select the “Device Emulator Manager” as shown in the diagram.



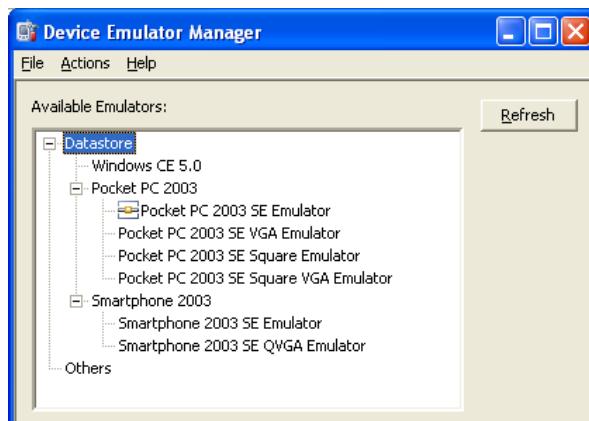
3. There after the “Device Emulator Manger” interface will appear .After that select the “Pocket PC 2003 SE Emulator” and right click on that and select “connect” option.



4. Following screen will be appeared, after selecting the “connect” option. Again right click on “Pocket PC 2003 SE Emulator” and select “Cradle” option.



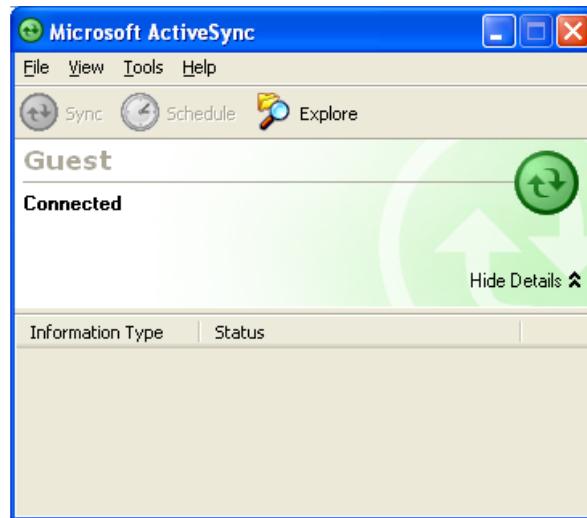
5. After that the following screen will appear along with “Set up Wizard” of new partnership



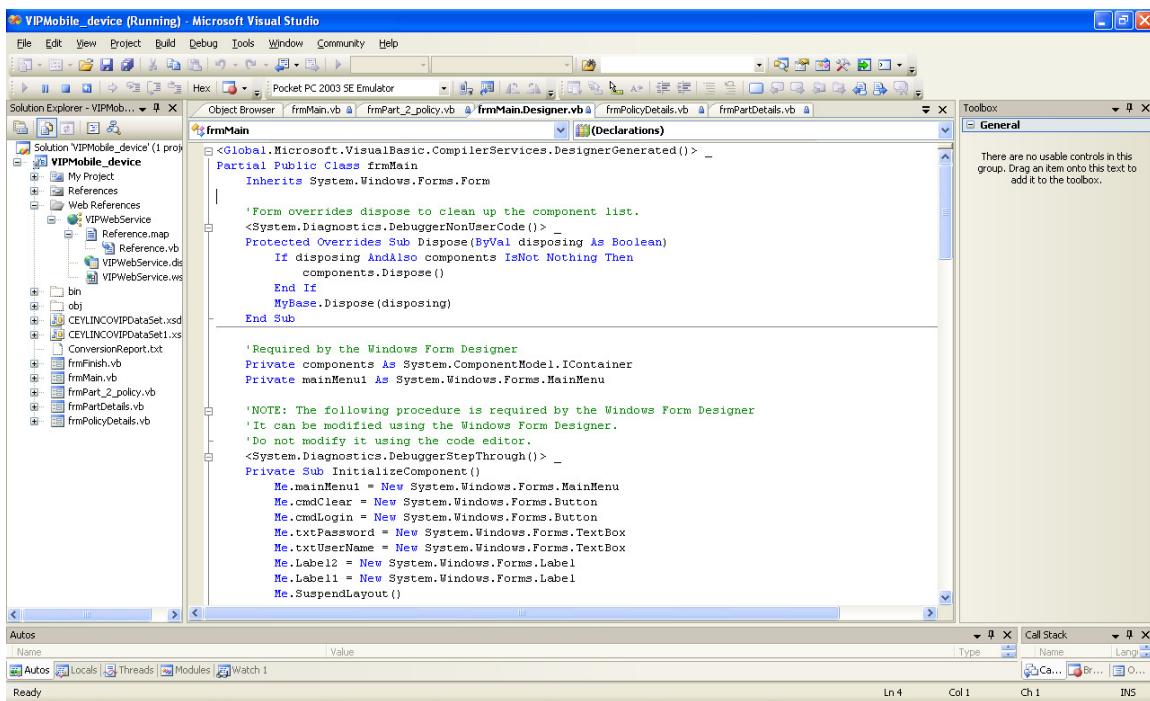
6. Then select the “ guest partnership” option and click on “Next” button



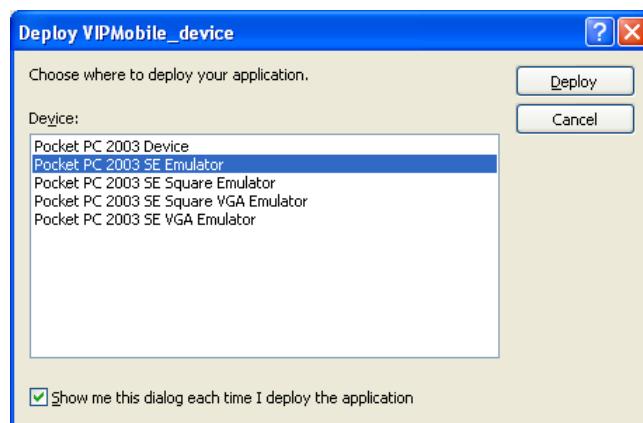
7. Once the process is successfully accomplished, the message given if below will appear.



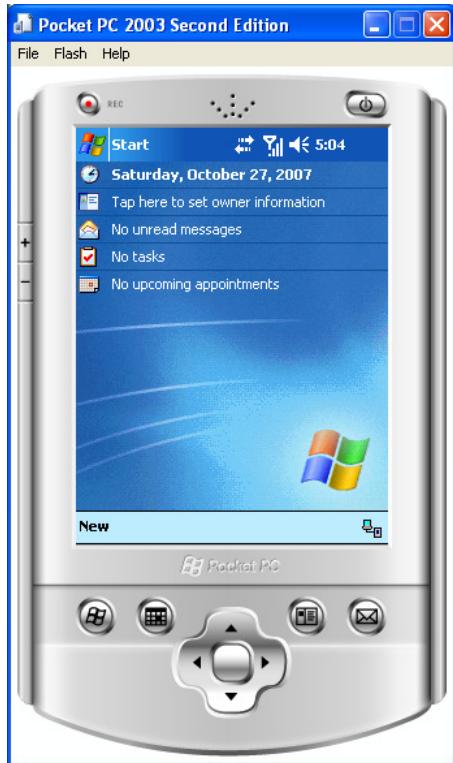
8. Again go to the solution application and click on the “run” button, without closing the above connected screens”



9. Once you run the program the following screen will appear with the selected device then you have to click on the “Deploy” button.

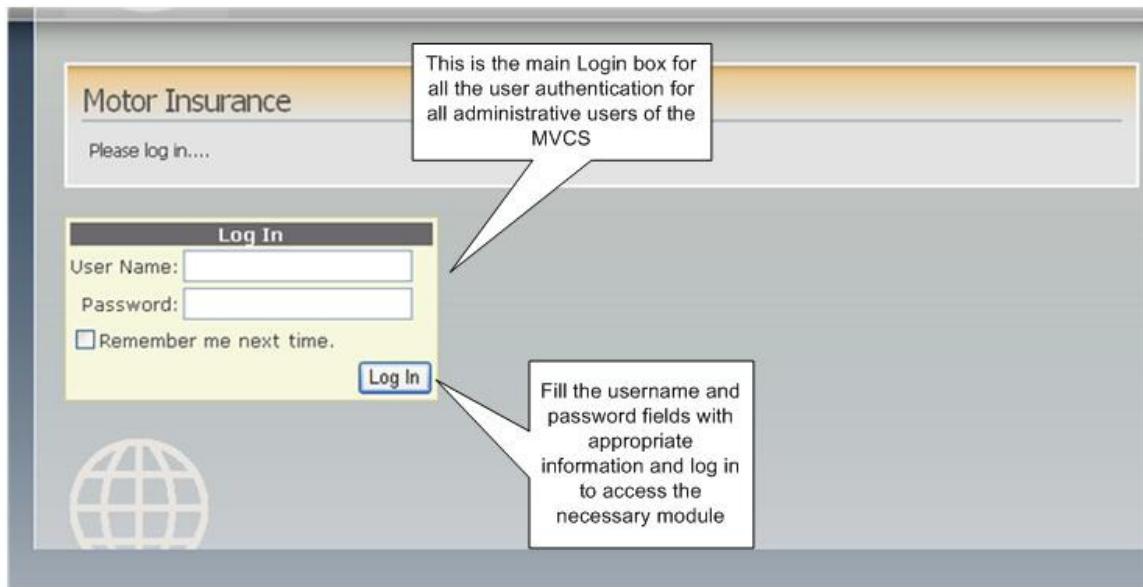


10. After that the system will be connected to the PDA within few minutes time.



User Manual for the System

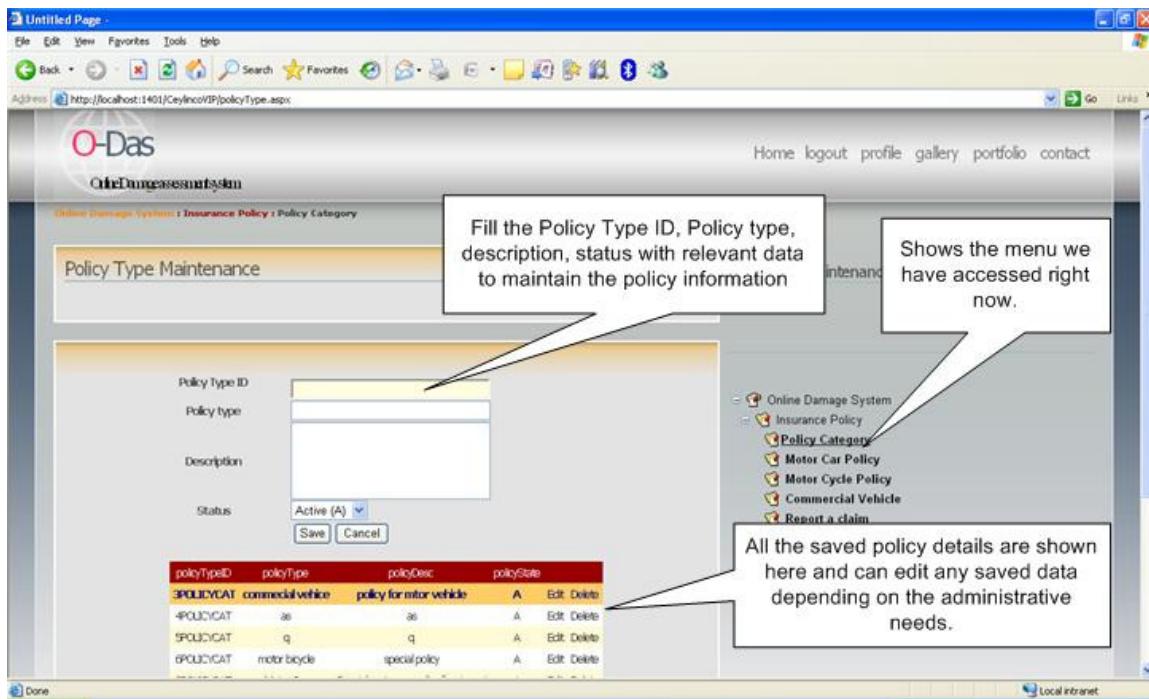
First Interface of the Online System-Login Page



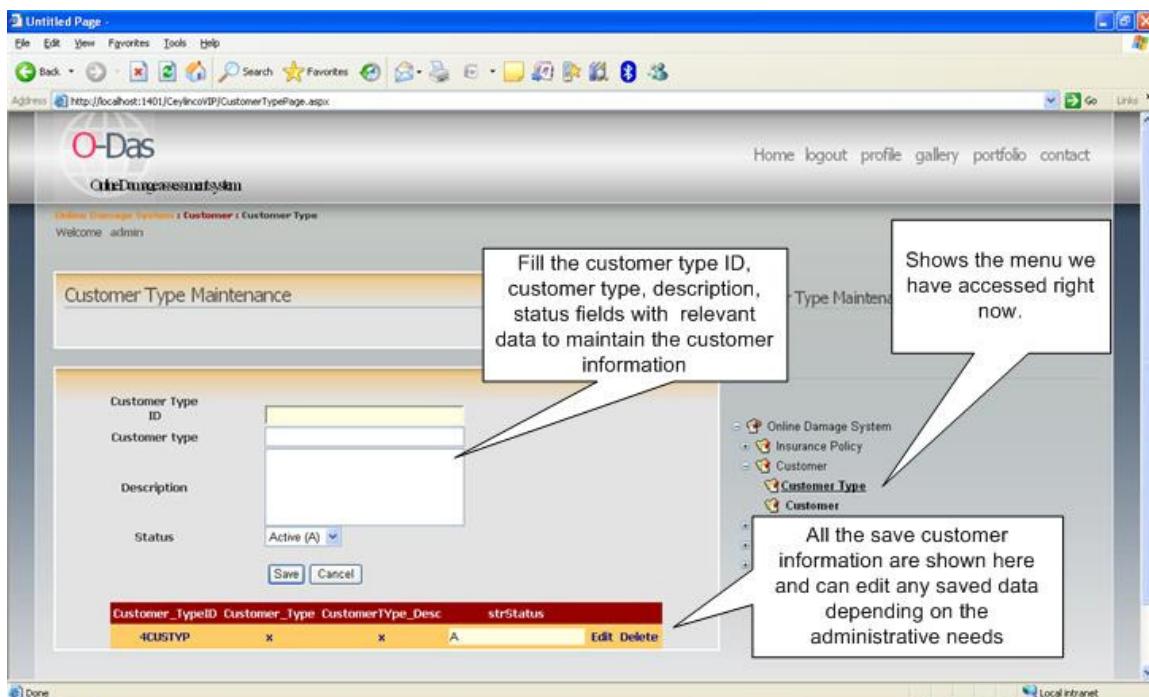
The Main page of the System

This screenshot shows the homepage of the Ceylinco VIP Motor Insurance website. At the top, there's a navigation bar with links like 'Home', 'logout', 'profile', 'gallery', 'portfolio', and 'contact'. Below the navigation is a sidebar with sections for 'About the site..', 'Mission', and 'History'. The main content area features a logo for 'CEYLINCO VIP ON THE SPOT' and a mission statement: "'Big or Small Ceylinco Protects Them All'". A callout box points to the sidebar with the text: 'This is the home page of the online system and it describes about the Ceylinco Company background.' In the bottom right corner, there's a menu titled 'About the site..'. This menu includes links for 'Insurance policies' and 'Customers'. A callout box points to this menu with the text: 'Here we find all the general menu options of the Online system'. Another callout box points to the 'Management Reports' link in the menu with the text: 'All the menu options which are highly related to the system are given here'.

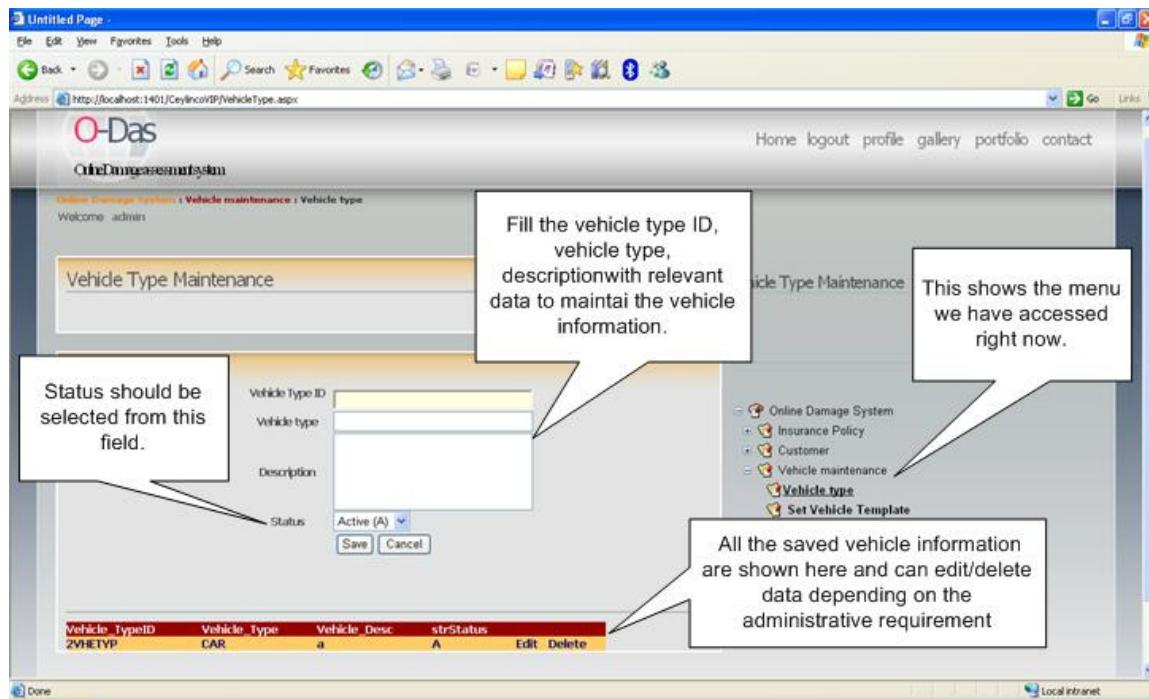
Insurance Policy Module of the System



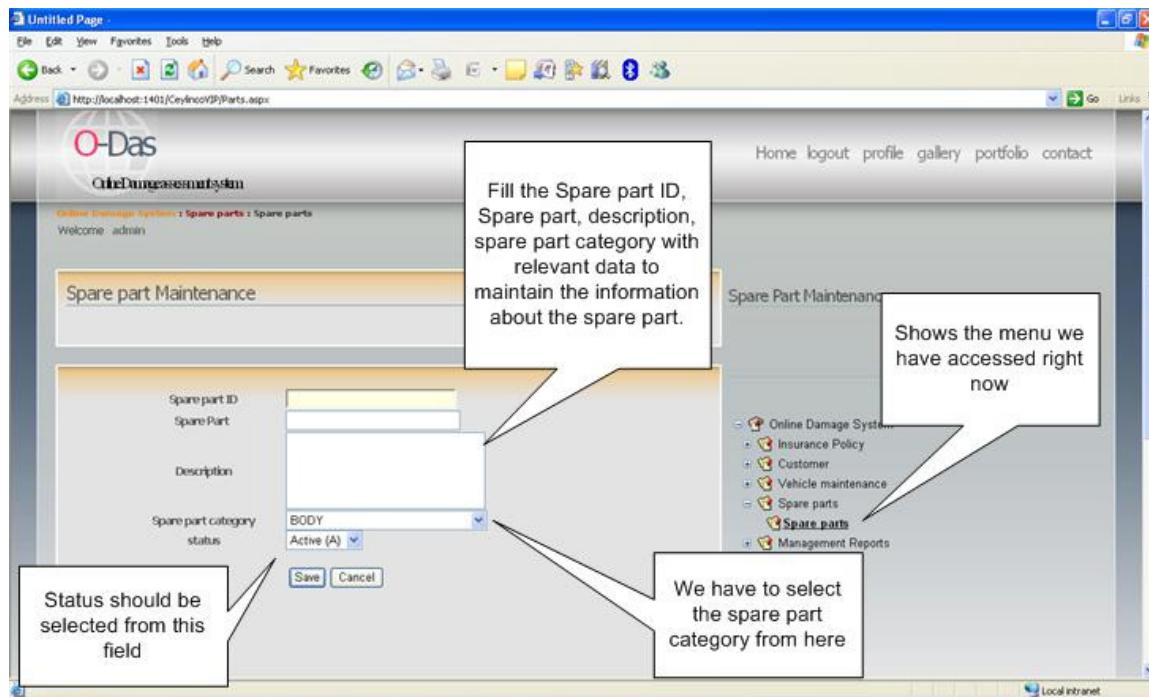
Customer registration module of the System



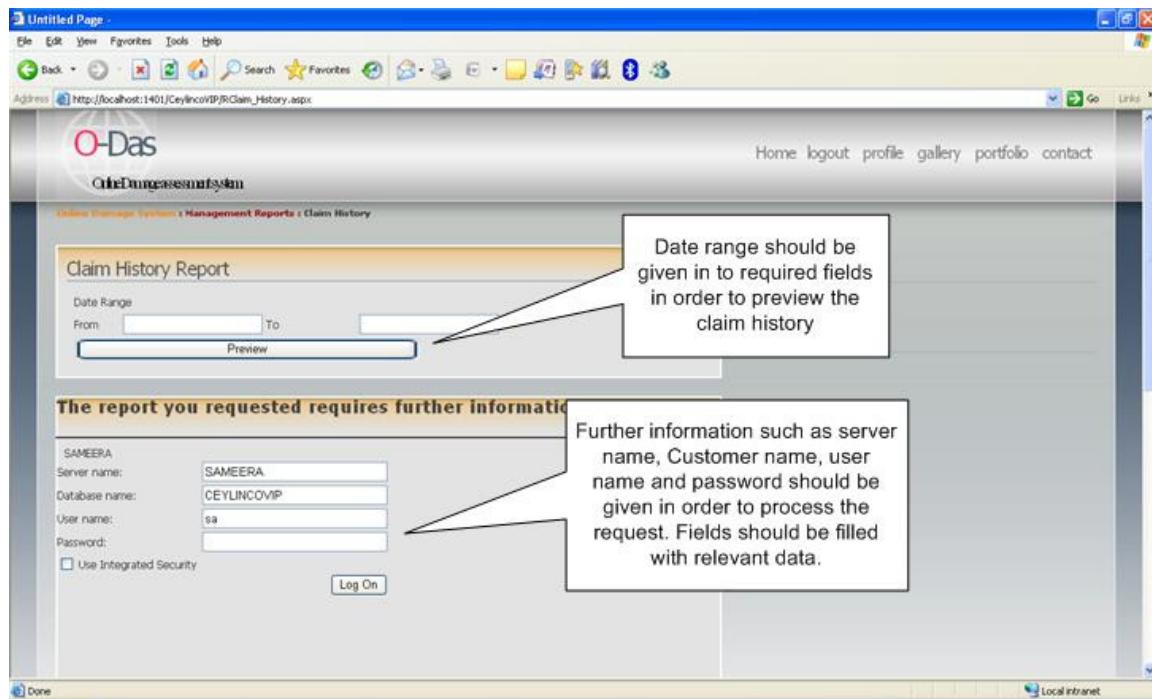
Vehicle maintenance module of the System



Spare part maintenance Module of the System



Management report Module



Approval Letter



Ceylinco Insurance Company Limited

"Ceylinco House", 69, Janadipathi Mawatha, Colombo 1.
Tel: 94 11 2485757-59, 94 11 4702702, Fax: 94 11 4702730
Website: www.ceylinco-insurance.com
E-mail: ceylincoinsurance@ceyins.lk

The Course Coordinator,
Bachelor of Science (Honours) in Computing,
Singapore Informatics.

25th May, 2007

Dear Sir,

IT Project

This is to confirm that Miss. Thilini Padmasekara has requested to do a study to develop A Mobile Vehicle Claiming System at Ceylinco VIP Center and we have no hesitation in granting permission to her, to carry out the necessary interview sessions.

Yours Faithfully,

A handwritten signature in black ink.

P.M.B Fernando

DGM Information Technology
Ceylinco Insurance Company Limited - General
69, Janadipathi Mawatha
Colombo 01
Sri Lanka

DIRECTORS:
• Deshamanya J.L.B. Kotelawala A.M.Ex.A. (Lond.) - Chairman/Managing Director * Mrs. S.P.C. Kotelawala * S. Ratnadas A.C.I.I. (Lond.), - Deputy Chairman
• A.R. Gunawardena - Chief Executive Director (General) * R. Renganathan F.C.A., - Chief Executive Director (Life) * H.D.K.P. Alwis * W.C.J. Alwis B.Sc., F.C.I.I. (Lond.) - (Technical)
• P. D. M. Cooray LUTCF (USA) * H. M. Gunaralne Banda * P. A. Jayawardena F.C.A., F.S.C.M.A., (S.L.), * A. D. Jegathothy Attorney-at-Law * N.D. Nugawela
• T.N.M. Peiris B.A. (Econ.) (Hons.) F.C.A., - (Finance), * E.T.L. Ranasinghe M.C.I.M. (U.K.), M.B.A, * A. K. Seneviratne B.Sc., A.S.A. (USA) * D. W. P. Upali A.C.A., M.B.A.

Big or small - Ceylinco protects them all

WORKBOOK 9 – FORM: PROJECT SUBMISSION

This form must accompany your project submission.

You MUST include this form and check list as a covering note with your project/dissertation submission	
HEMIS Number	381707
Student Full Name	Thilini Shashikala Padmasekera
Student eMail Address	thilini_padmasekera@yahoo.com
Supervisor Name	Ms. Tharangani Perera
<input checked="" type="checkbox"/>	Comment
<input checked="" type="checkbox"/>	I understand that failure to follow the project instructions and confirm it by placing a tick against ALL the entries below may result in my work being returned unmarked.
<input checked="" type="checkbox"/>	I have used good quality A4 paper, normally in portrait orientation with a weight between of 80 and 100gsm.
<input checked="" type="checkbox"/>	I have prepared two bound copies of all my project work
<input checked="" type="checkbox"/>	I have made sure that the pages are in the right order and none are missing
<input checked="" type="checkbox"/>	I have formatted the front cover as required
<input checked="" type="checkbox"/>	I have formatted the title page as required
<input checked="" type="checkbox"/>	I have made the necessary plagiarism declaration and added my signature
<input checked="" type="checkbox"/>	I have used MS word .doc format
<input checked="" type="checkbox"/>	I have Included a soft copy in .doc format of the project and any appendices on floppy/CD/DVD
<input checked="" type="checkbox"/>	All my text is single line spaced at 6 lines per inch/25.4 mm.
<input checked="" type="checkbox"/>	All my main text, including headings is in 12-point font (Arial Narrow is recommended)
<input checked="" type="checkbox"/>	All my text in tables and diagrams is 10-point font (Arial Narrow is recommended)
<input checked="" type="checkbox"/>	All my text in tables and diagrams at least 9-point font (Arial Narrow is recommended)
<input checked="" type="checkbox"/>	All main text is right and left justified
<input checked="" type="checkbox"/>	No headings at whatever level are indented
<input checked="" type="checkbox"/>	I have used a blank line to separate paragraphs
<input checked="" type="checkbox"/>	All chapters and appendices are numbered (1, 2, 3,...)
<input checked="" type="checkbox"/>	All appendices headings are to start with a letter (A, B, C,...)
<input checked="" type="checkbox"/>	All subsections are numbered (2.1, 2.2,...)
<input checked="" type="checkbox"/>	None of my sections numbers exceed three levels (1.2.1, 1.2.3 ...)
<input checked="" type="checkbox"/>	All my margins: (top, bottom, left and right) are 20mm
<input checked="" type="checkbox"/>	I have included a full contents list, table list and diagram list all numbered consistently
<input checked="" type="checkbox"/>	All pages have centered footers in 10-point font (Arial Narrow is recommended): Page 12 of 97 - J.J. Letto HEMIS No. 567543 Submission Date: 2004/05
<input checked="" type="checkbox"/>	The length of report is within the stated guidelines – approximately 15,000 words maximum excluding appendices
<input checked="" type="checkbox"/>	I have cited other people's work properly using the Harvard APA format
<input checked="" type="checkbox"/>	I have included all citations in my list of references
<input checked="" type="checkbox"/>	My abstract accurately summarizes all of the report, not just parts of it
<input checked="" type="checkbox"/>	All my chapters and appendices start on a new page
<input checked="" type="checkbox"/>	I have included appendices, where appropriate, covering: Requirements document(s), design document, screen shots, source code, internal documentation, user documentation, test results, evaluation results, questionnaires, survey results, glossary of terms, etc.
<input checked="" type="checkbox"/>	My supervisor has read my report

✓	I understand that I may use one or both sides of the paper.
✓	I understand that indented sentences are used where appropriate but bullets are not recommended
✓	I understand that pages headers are not recommended
✓	I understand that each of my chapters should start with an introductory section that explains what the chapter is about
✓	I understand that each of my chapters should end with a summary identifying what has been achieved and a helpful link to the next chapter

End of the Project
