E-SERVICE PROVIDER FOR HOUSEHOLD APPLIANCES USING MOBILE APP

VANDHANA.T

11PCA21

A Project Report submitted to

Avinashilingam Institute for Home Science and Higher Education for Women,

Coimbatore-641043

In Partial Fulfillment of the Requirements for the Master's Degree in

Computer Applications

March, 2014

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Signature of the Supervisor **Signature of the Head of the Department**

Signature of the External Examiner

ACKNOWLEDGEMENT

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Finally, I take pride to thank my beloved parents, my family members and my friends without whose support, encouragement and kind blessings I would not have succeeded in my endeavour.

CERTIFICATE

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Expectations Assured

TECHNOLOGY | OUTSOURCING

Dated on: 27.03.2014

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. VANDHANA T (11PCA21)** pursuing final year MCA in **Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore** has successfully completed the Internship Project work entitled as "**E-SERVICE PROVIDER FOR HOUSEHOLD APPLIANCES USING MOBILE APPS**" under the guidance of **Mr.Navin (Project Manager)** in our concern during the period from **20th December 2013 to 27th March 2014**.

During the Internship Period, we found her hard working and intelligent.

For Acceler Services,

ACCELER SERVICES * COIMBATORE - 11 *

Authorized Signatory

acceler services

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SYNOPSIS

SYNOPSIS

The aim of our project is to develop e-service for household appliances on JSP and Android which can be used in real world. This project has two types of interfaces: Web and Mobile interfaces. The web interface is used by service seeker who has household problems and they post their problems through their respective accounts. The service providers must belong to a company or they themselves can be a company for getting registered to the web application.

The mobile application is supposed to be installed on the mobile phone and this assumed to be with every service provider. This project focuses on developing a web application where the service seeker and service providers can have their profiles to know about each other. Both service providers and seekers will have an option to choose a person according to the ratings and reviews that are posted previously. The main part of the project resides on the mobile phone. The service engineer uses the application for tracking the service seeker within a given Zip code that shown on a Google map for displaying a set of service seekers and their problems.

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INTRODUCTION

1. INTRODUCTION

The project entitled "**E-SERVICE FOR HOUSEHOLD APPLIANCES USING MOBILE APP**". The project is to develop an integrated web and mobile phone application prototype for connecting household service seekers and providers using Android. The web interface is used by the service seeker who has household problems and they use the web interface to post their problems through their respective accounts. The service providers must belong to a company or they themselves can be a company for getting registered to the web application. The mobile application is to be installed on the mobile phone.

This project focuses on developing a web application that is developed using JSP and JAVA where the service seeker and service providers can have their profiles to know about each other. Both services seeker will have an option to choose the person according to the ratings and reviews that are posted previously.

The main part of the project resides on the mobile phone which has application that is developed using JAVA and XML. The service engineer uses the application for tracking the service seeker within a given Zip-code that is shown on a Google Map. For displaying the set of service seekers and their problems this project uses a Google Map API and XML for displaying the content on the map.

The service engineer is allowed to see the problems posted and allowed to click on the information for more benefits such as calling a service seeker, route to the destination, route from the source and view profile.

1.1 PROBLEM DEFINITION:

The project provides e-service for household appliances like mechanical and civil works which can be used in the real world environment. The project is to increase performance and provide quality service to the customers at low cost. It allows the customer to track their complaints status. It also helps the customer to view their warranty status.

This software increases the performance of the service support by eliminating the out dated methods that more expensive and time consuming. This software also helps the management to have more control over the employees and their performance.

The major concern in this project is to avoid delay time for service seekers to solve the problems. The service seekers are able to communicate with the service provider through single domain. The dealers hold information about the availability of service engineers and hence further delay to the process is avoided.

1.2 OVERVIEW OF THE PROJECT

Android is the first complete, open and free mobile platform. It is developed and supported by Google and this project uses a Google Android Mobile SDK 1.0 for testing an application. The software development kit contains the emulator and advanced debugging tools to run and test the applications.

E-service is an internet-based application constitutes the online services available on the Internet. The concept of e-service represents one prominent application of utilizing the use of information and communication technologies in different areas. E-services typically involves a series of parallel execution transaction performed by e-service provider as they located and handle requests from each other

The aim of our project is to develop a household application on the android which can be used in the real world. The project has two types of interfaces: Web and Mobile phone. The Web interface is used by the service seekers who has household problems and use the web interface to post their problems through their respective accounts. The service providers must belong to a company or they themselves can be a company for getting registered to the web application. The mobile application is supposed to be installed on the mobile phone and this assumed to be with every service provider.

This project focuses on developing a web application that is developed using JSP and JAVA where the service seeker and service providers can have their profiles to know about each other. The service seeker will have an option to choose the person according to the ratings and reviews that are posted previously.

The web interface is used by service seeker who has household problems and they post their problems, view billing details, gives feedback about the service through their respective accounts. The service seeker will have an option to choose service provider according to the ratings and reviews that are posted previously.

The admin maintains the overall process and maintain service provider profile details. The service provider must belong to a company or they themselves can be a company for getting registered to the web interface. The service provider is allowed to see the posted problems are also allowed to view on the information for more benefits such as calling a service seeker, route to the destination, route from the source and view profiles.

The Mobile Application is dependent on the Web Application because the mobile application cannot work without the data from the web application and vice versa. The default settings on the mobile application will reflect on the Google maps.

The main part of the project resides on the mobile phone which has application that is developed using JAVA and XML. The service engineer uses the application for tracking the service seeker within a given Zip-code that is shown on a Google Map. For displaying the set of service seekers and their problems this project uses a Google Map API and XML for displaying the content on the map.

The service engineers enter their details into the service provider’s profile and also view the request from the service seekers. The service engineer uses the application for tracking the service seeker within zip code that shown on a Google map for displaying a set of service seekers and their problems. The service engineers generate the reports about the complaint status.

The two main domains are the Web application and the Mobile application. The service engineer shall use the Android mobile in order to learn the problems, which were faced by the customers. This application benefits both the service providers and seekers so that the problems can be addressed quickly and accounts for a friendly relationship between both the groups.

1.3 ORGANIZATION PROFILE

ACCELER BUSINESS SOLUTION is an integrated software production company founded in the year 2011 by Mr. Navin to cater the growing IT demands.

Acceler is a consulting, technology and outsourcing service provider, serving clients in more than 10 countries. Integrating unparallel experience comprehensive capabilities across all industries and business functions on different technologies.

Acceler collaborate with clients to help them finding a way for current and future. Acceler has a proven track record in implementing effective business solutions with at most customer satisfaction. With this offering, provide a rich mix of offshore resources as desired, thereby minimizing cost and maximizing flexibility

Unique features:

- Solid industry fundamentals
- Comprehensive end-to-end solutions
- Track record of superior execution
- Process transparency
- Resilient and secure infrastructure
- Diverse customer base

SYSTEM CONFIGURATION

2. SYSTEM CONFIGURATION

This section describes the hardware and software specification needed for both development and implementation phases of the project.

2.1 HARDWARE CONFIGURATION

Processor	: Pentium IV
Memory (RAM)	: 1 GB
Hard disk	: 2 GB

2.2 SOFTWARE CONFIGURATION

Front End	: JSP
Back End	: MySQL / SQLite
IDE	: Net Beans IDE 7.3.1
Web server	: start WampServer
Software	: Android SDK, Java JDK, Eclipse IDE
Operating System	: Microsoft Windows 7

2.3 ABOUT THE SOFTWARE

FRONT END

JSP

Java Server Pages (JSP) is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types. The JSP programming model allows web content to be generated dynamically during program execution through Java scriptlets, declarations and expressions interleaved with the static content in a HTML page. A scriptlet is a block of Java code that is run as part of the servlet that is generated from JSP translation. JSPs run in two phases translation phase and execution phase. In translation phase JSP page is compiled into a servlet called JSP page implementation class. In execution phase the compiled JSP is processed. It is often the case that a dynamic page needs to use a parameter that is entered interactively by the user on the screen. The web server needs a JSP engine i.e., container to process JSP pages

Advantages:

- User friendly and easy to implement.
- More secure.
- JSP, by using java as scripting language, is not limited to a specific vendor platform.
- JSP, as an integral part of the j2ee architecture, has full access to server-side resources.

JAVA

Java is an object-oriented programming language developed by Sun Microsystems, Inc. It is modeled after C++, and was designed to be small, simple, and portable across platforms and operating systems at the source level and at the binary level. Java programs, which include applets and applications, can therefore run on any machine that has the Java Virtual Machine (JVM), installed.

Java source code files (files with a *.java* extension) are compiled into a format called byte code (files with a *.class* extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because Java interpreters and runtime environments, known as Java Virtual Machines (JVMs), exist for most operating systems, including UNIX, the

Macintosh OS, and Windows. Byte code can also be converted directly into machine language instructions by a just-in-time compiler (JIT).

ADVANTAGES OF JAVA

Java has significant advantages over other languages and environments that make it suitable for just about any programming task.

The advantages of Java are as follows:

1. Java is easy to learn.
2. Java was designed to be easy to use and is therefore easy to write, compile, debug and learn than other programming languages.
3. Java is object-oriented.

Java compiler generates byte code instructions that can be implemented on any machine. Secondly, the sizes of the primitive data types are machine independent. Object oriented Java is a true objected oriented language. Almost everything in java is an object.

This project focuses on developing a web application that is developed using JSP and JAVA where the service seeker and providers can have a distinct configuration file and extend the configuration scheme to suit our requirements.

JAVA FEATURES

- Simple
- Object-Oriented
- Distributed
- Robust & Secure
- High-Performance
- Architecture-Neutral
- Portable

ANDROID SDK

The Android software development kit (SDK) includes a comprehensive set of development tools. The officially supported integrated development environment (IDE) is Eclipse using the Android Development Tools (ADT) Plugin, though IntelliJ IDEA IDE fully supports Android development out of the box, and NetBeans IDE also supports Android development via a plugin. Additionally, developers may use any text editor to edit Java and XML files, then use command line tools (Java Development Kit and Apache Ant are required) to create, build and debug Android applications as well as control attached Android devices.

Enhancements to Android's SDK go hand in hand with the overall Android platform development. The SDK also supports older versions of the Android platform in case developers wish to target their applications at older devices. Development tools are downloadable components, so after one has downloaded the latest version and platform, older platforms and tools can also be downloaded for compatibility testing.

ECLIPSE IDE

Eclipse as an integrated development environment (IDE) for Java. Today it is the leading development environment for Java with a market share of approximately 65%. Eclipse is created by an Open Source community and is used in several different areas.

The Eclipse projects are governed by the Eclipse Foundation. The Eclipse Foundation is a non-profit, member supported corporation that hosts the Eclipse Open Source projects and helps to cultivate both an Open Source community and an ecosystem of complementary products and services. The Eclipse IDE can be extended with additional software components. Eclipse calls this software components plug-ins. Several Open Source projects and companies have extended the Eclipse IDE.

The project resides on the mobile phone which has application that is developed using JAVA and XML. For displaying the set of service seekers and their problems this project uses a Google Map API and XML for displaying the content on the map.

BACK END

MYSQL

Microsoft SQL Server is a relational database management system developed by Microsoft. The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements.

As a database, it is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on the same computer or those running on another computer across a network (including the Internet). In our application, to store and to retrieve the data from the database use this technology. It is used for both Web and mobile application.

FEATURES OF SQL SERVER

Internet Integration

The SQL Server database engine includes integrated XML support. It also has the scalability, availability, and security features required to operate as the data storage component of the largest Web sites.

Scalability and Availability

SQL Server Enterprise Edition supports features such as federated servers, indexed views, and large memory support that allow it to scale to the performance levels required by the largest Web sites.

Ease of installation, deployment, and use

SQL Server includes a set of administrative and development tools that improve upon the process of installing, deploying, managing, and using SQL Server across several sites.

Backup and recovery

DBMS must have a subsystem that is responsible for recovery from hardware or software errors.

SYSTEM STUDY

3. SYSTEM STUDY

3.1. EXISTING SYSTEM

In the existing system, the household appliances problems can be report through the phone calls to the dealers and in co-operation of multiple domains are able to report our problem to the service engineers without knowing their performance lack of security problems also arise. Time delays on reaching the correct destination for their services. These issues can be overcome on our proposed system.

DISADVANTAGE

- The problems through phone or web.
- More man power is required.
- It is not computerized and hence it is not systematic.
- Lack of database security.
- Access speed is less for searching and modifying data.

3.2 PROPOSED SYSTEM

Developing a web application where the service seeker and service providers can have their profiles to know about each other. The seekers will have an option to choose a person according to the ratings and reviews that are posted previously. The main part of the project resides on the mobile phone. The service provider uses the application for tracking the service seeker within a given Zip code that shown on a Google map for displaying a set of service seekers and their problems.

ADVANTAGE:

- Reduce cost of operation.
- Increase the customer satisfaction by avoiding complexity.
- With the help of mobile apps find the shortest path to reach the customers location using Google maps.

3.3 FEASIBILTY STUDY

A feasibility analysis usually involves a thorough assessment of the operational, financial and technical aspects of a proposal. Feasibility study is the test of the system proposal made to identify whether the user needs may be satisfied using the current software and hardware technologies, whether the system will be cost effective from a business point of view and whether it can be developed with the given budgetary constraints. A feasibility study should be relatively cheap and done at the earliest possible time. Depending on the study, the decision is made whether to go ahead with a more detailed analysis.

When a new project is proposed, it normally goes through feasibility assessment. Feasibility study is carried out to determine whether the proposed system is possible to develop with available resources and what should be the cost consideration. Facts considered in the feasibility analysis were

- Technical Feasibility
- Economic Feasibility
- Operational Feasibility

3.3.1 TECHNICAL FEASIBILITY

Technical feasibility includes whether the technology is available in the market for development and its availability. The assessment of technical feasibility must be based on an outline design of system requirements in terms of input, output, files, programs and procedures. This can be qualified in terms of volumes of data, trends, frequency of updating, cycles of activity etc, in order to give an introduction of technical system.

Considering our project it is technical feasible. E-service for household appliances using mobile app, with its emphasis on a more strategic decision making process is fast gaining ground as a popular outsourced function.

3.3.2 ECONOMIC FEASIBILITY

Economic feasibility study present tangible and intangible benefits from the project by comparing the development and operational cost. The technique of cost benefit analysis is often used as a basis for assessing economic feasibility. This system needs some more initial investment than the existing system, but it can be justifiable that it will improve quality of service.

Thus feasibility study should centre along the following points:

- Improvement resulting over the existing method in terms of accuracy, timeliness.
- Cost comparison
- Estimate on the life expectancy of the hardware.
- Overall objective.

Our project is economically feasible. It does not require much cost to be involved in the overall process. The overall objective is in easing out the online processes**.**

3.3.3 OPERATIONAL FEASIBILITY

This analysis involves how it will work when it is installed and the assessment of political and managerial environment in which it is implemented. People are inherently resistant to change and computers have been known to facilitate change.

The new proposed system is very much useful to the users and therefore it will accept broad audience from around the world.

SYSTEM DESIGN

4. SYSTEM DESIGN

Once the software requirements have been analyzed and specified, tests that are required in the building and verifying the software is done. Each activity transforms information in a number that ultimately result in validated computer software. These are some main characteristics that serve as guide for evaluation of good design.

- The design must implement all of explicit requirements contained in the analysis model, and it must accommodate all the implicit requirements desired by the customer.
- The design must be readable, understandable guide for those who generate code and for those who test and subsequently support the software.

System design is thus process of planning a new system or replace or the complement of the existing system. The design based on the limitations of the existing system and the requirements specification gathered in the phase of system analysis.

4.1. INPUT DESIGN

The quality of the project is mainly determined form the errorless input given to the software rather than the processing of input. There should be proper data validation so that even if the user enters wrong information it should prompt them to enter the correct information. The software must have the capability of handling the incorrect data format given to it and correct it to the expected format. The correct input will alone produce an output that will satisfy the user.

- **Registration form** is used for user registration. The registration is checked and gives a confirmation id to user. The confirmed user only has all privileges to access the WebPages.
- **Login Form** used for user login using the user id and password. Login form consist of the validation keys to check the username is valid or not and another validation is used to check whether the password contain more than four characters.
- **Complaint Details** form is used to register complaints about the appliances in the web sites.

- **Product Details** form is used to update new products released and removes support for old products.
- **Parts Details** form is used to keep track of replacement parts, order parts and old/damaged parts.
- **Report Details** form is used to generate report of various tasks done.

4.2. OUTPUT DESIGN

The output is a very important part in a software design. The output produced must be useful to the user. Users generally merit the system analyst works closely with the user through an interactive process, until the result is considered to be satisfactory. Therefore, an effective output design is an important feature of design specification. In any system results of processing are communicated to the users and to other systems through outputs.

In the output design it is determined how the information is to be displayed for immediate need. It is the most important and direct source information to the user. Output is information delivered to users through the information system.

- **User details** contain the details about the different types of user like admin, service seeker, service provider and service engineer
- **Complaint details** contain all the details of the service seekers who have household problems.
- **Allocate complaints details** contains the information about the complaints and the service engineer details.
- **Bill details** contains the information about the serviced product and cost details

SYSTEM DEVELOPMENT

5. SYSTEM DEVELOPMENT

This section explains about the individual functionality and requirements of two major sections of this project.

- Web Application
- Mobile Application

5.1 WEB APPLICATION

This application starts with introduction and it later redirects the user into the web page where user can register, login and use the services according to his account type. It concentrates on the functionality and requirements for different type of users. This application has three types of users.

1. Company Admin
2. Service Seekers
3. Service Providers

5.1.1. Company Admin:

Every page of the user profile shall have the links to every other page to which that particular user is permitted to use. User who created the company profile will have the admin rights. The home page of the admin shall have links.

1. Home – Redirects to the Profile page
2. Add service provider – Employees added by the company admin
3. View service provider details – Employees shall be managed by the company admin
4. View rating and reviews of service provider
5. Logout

5.1.2. Service Provider:

Service provider may be an employee of a company that has been previously registered by its admin or might be a single individual who is the owner as well as the employee of the company. These types of users are called service providers. The following links shall be displayed in the home page of the service provider

1. Home
2. Edit Profile
3. Product details
4. Part details
5. Rating – Service provider shall rate the service seeker for whom he has worked for
6. Reviews – Service provider may write reviews for whom he has worked for
7. History – Work done till date is displayed
8. Logoff

5.1.3 Service Seeker:

This type of user can have problems and can post through the web application where receives a response from the service provider. After the service seeker logs in seeker should be able to see the following links

1. Home
2. Post a problem – Service seeker is allowed to post a problem
3. Edit profile
4. Reviews – Shall write a review on a service provider
5. Rating – Shall rate a service provider
6. History – Problems posted till date and information related to it shall be seen
7. Logout

5.2 MOBILE APPLICATION

Application requires service engineer user name and password. When a service engineer starts our application a menu showing last saved page or start new search will be displayed. If selects the last saved then the application takes to the recent saved page. If service engineer clicks on the start new then the map with the plotting (service seekers with a problem) will be displayed. When clicks on the menu on the phone then a window consists of two text fields where type the zip code and radius will be displayed. When service engineer clicks on submit then the application query the database and gets the information of the service seekers in the area provided. Then a map with the plotting of the service seekers in need of service in that area will be displayed. When service engineer clicks on the plotting then the description should be displayed, description includes the name of the service seeker, address, save page and more options link. When save page is clicked the particular pages showing the plotting will be saved. When the user clicks on the more options menu, the following details will be displayed

1. Zoom into address (closer view of the location)
2. Address –address of the service seeker (the physical address)
3. Dial option to contact the service seeker. (To make a phone call)
4. Directions to the service seeker location
5. Directions from the service seeker location
6. Log off

5.3 MODULE DESCRIPTION

E-Services uses Android based mobile device as mobile client for service engineer and enables to receive information about the complaint allocated to him, reducing the cost involved in calling and informing manually. Administrator, service provider and service seeker are provided with JSP based website in order to perform their operation.

Modules:

- Account Management Module
- Login Management Module
- Product Management Module
- Parts Management Module
- Customer Information Management Module
- Complaints Manager Module
- Location Finder Module
- Report Manager Module

Account Management Module

Account Management Module is used to create new accounts for service engineers and to modify existing account. It contains personal details about the service engineer. It helps to keep track of the performance of the service engineer and provide additional training if necessary.

Login Management Module

Login module is used to allow admin, service provider, and service seeker to access their account. It allows admin to create new service provider accounts, create report etc. It also allows customer to track their complaints etc. It also allows service engineer to address various complaints filed etc. This design provides more secure access by controlling the access based on the type of account.

Product Management Module

Product Management module allows the admin to add service support to new products released and remove support for old products. This feature helps to manage the support provided for the product.

Parts Management Module

Parts Management module help the keep track of replacement parts sent to the engineer and it also allows the service engineers to order parts if needed. It also helps to keep track of the old / damaged parts returned by the service engineer.

Customer Information Management Module

This enables the customer to create new account and add the products purchased to customer account. It also displays information about the warranty status of the products and also allows the customer to file a complaint if there is an issue.

Complaints Manager Module

This enables the seeker to enter complaints about the appliances and sends it to service provider.

Location Finder Module

Location Finder module gets the location of all the service engineer every half an hour, this enables the service provider to locate the nearest service engineer to a particular customer. Thus reducing the cost involved in travelling.

Report Manager Module

Report Manager Module is used to generate reports of various tasks done. This module allows us to create reports based on Customer ID, Service Engineer ID, Complaint ID, Complaint Status, Report, and Product Category. With the help of this module monitor all transactions made by each user and also helps to identify whether there are any failure in transaction.

SYSTEM TESTING AND IMPLEMENTATION

6. SYSTEM TESTING AND IMPLEMENTATION

6.1 System Testing:

Software testing is the process done to uncover the errors and represents the ultimate review of specification, design and code generation. Once the source code has been generated, software must test to uncover as many errors as possible before delivering to the customer. In order to find the highest possible number of errors, tests must be conducted systematically and test cases must be designed using disciplined techniques.

Testing Methodologies:

- **Black Box Testing:**

Black box testing also knows as behavioral testing is a software testing technique in which the internal workings of the item being tested are not known to tester. For example, when black box testing is applied to software engineering, the tester would only know the legal inputs and what the expected outputs should be, but not how the program actually arrives at those outputs. It is because of this, black box testing can be considered as the testing with respects to the specifications, and no other knowledge of program is necessary.

Black Box testing attempts to find errors in the following categories:-

  - Incorrect or missing functions.
  - Errors in data structures or external database access.
  - Interface, Initialization and termination errors.

- **White Box Testing:**

White box tester will know the functionality and internal the project logic. This type of testing ensures that

  - All independent paths have been exercised at least once.
  - All logical decisions have been exercised on their true and false sides.
  - All loops are executed at their boundaries and within their operational bounds.
  - All internal data structures have been exercised to assure their validity.

To follow the concept of white box testing have tested in each form All conditions are exercised to check their validity. All loops are executed on their boundaries.

- **Unit Testing:**

Unit testing is a procedure used to verify that a particular segment of source code is working properly. The idea about unit tests is to write test cases for all functions or methods. Ideally, each test case is separate from the others. Unit testing focuses verification efforts on the smallest unit of software design, the software component or module. The unit test is white box oriented, and the step can be conducted in parallel for multiple components. In this project many aspects are covered under unit testing.

LOGIN:

Every user will have a customized home page with his/her profile management facilities. The user can login by using their user id and password.

Test case id **:** ID01

Input for test case : Login

Test case description: It maintain authentication by providing user id and passwords of all the users access in the system.

S. No	Field name	Field Description	Expected Output	Actual Output
1	User ID	It provides User ID for user	VARCHAR	VARCHAR
2	Password	It provides Password for user	VARCHAR	VARCHAR

REGISTRATION:

It contains the entire seeker details like their personal details. Below table contains the registration details of seeker.

Test case id **:** ID02

Input for test case : Registration

Test case description: It maintains the seeker details like name, address, contact and email etc

S. No	Field name	Field Description	Expected Output	Actual Output
1	Reg. No	It provides register number for seeker.	VARCHAR	VARCHAR
2	First Name	It provides first name of the seeker	TEXT	TEXT
3	Last Name	It provides last name of the seeker	TEXT	TEXT
4	Address	It provides the full address of the seeker.	VARCHAR	VARCHAR
5	Phone number	It gives contact no of the service seeker	NUMBER	NUMBER
6	Email	It provides e-mail address of the seeker	VARCHAR	VARCHAR
7	Country	It indicates the country of the seeker	TEXT	TEXT
8	State	It indicates the state of the seeker	TEXT	TEXT
9	Pin code	It provides pin code number of the seeker	NUMBER	NUMBER

FILE A COMPLAINT:

It contains the entire seeker complaint details. Below table contains the complaint details of seeker.

Test case id : ID03

Input for test case : Complaint registration

Test case description: It maintain the complaint details of the service seeker

S. No	Field name	Field Description	Expected Output	Actual Output
1	Complaint id	It provides identification number for complaint	VARCHAR	VARCHAR
2	Complaint status	It provides status of the complaint	TEXT	TEXT
3	Customer id	It provides id number of the seeker	VARCHAR	VARCHAR
4	Customer name	It provides the name of the seeker.	TEXT	TEXT
5	Customer address	It provides the address of the seeker.	VARCHAR	VARCHAR
6	Complaint brief	It provides full complaint details	VARCHAR	VARCHAR
7	Service engineer id	It provide service engineer id number	VARCHAR	VARCHAR
8	Arrival time	It indicates the arrival time of the engineer to seeker location	TIME	TIME
9	Service engineer report	It provide report of the complaint	TEXT	TEXT

10	Solved/not solved	It provides status of the problem	TEXT	TEXT
11	Review	It provides the suggestion of the seeker	TEXT	TEXT

SERVICE ENGINEER DETAILS:

It contains the entire service engineer details. Below table contains the details of service engineer.

Test case id : ID04

Input for test case : Add Service engineer

Test case description: It maintains the service engineer details like address, contact number specialization, experiences etc.

S. No	Field name	Field Description	Expected Output	Actual Output
1	First name	It provides name of the service engineer.	TEXT	TEXT
2	Address	It gives address of the engineer.	VARCHAR	VARCHAR
3	Mobile	It gives the contact number of the service engineer	NUMBER	NUMBER
4	Email	It provides the e-mail address of the engineer.	VARCHAR	VARCHAR
5	Company	It provides the company name engineer.	VARCHAR	VARCHAR
6	Address	It provides address of the engineer	VARCHAR	VARCHAR

7	License number	It provide the license number of engineer	NUMERIC	NUMERIC
8	Specialization	It indicate in which field the engineer in specialized	VARCHAR	VARCHAR
9	Experience	It indicate experience of the engineer	NUMERIC	NUMERIC
10	Service attended count	It indicate no of service attended by the engineer	NUMERIC	NUMERIC

PART SENT:

It contains the entire part details. Below table contains the part details of product.

Test case id **:** ID05

Input for test case : Part sent details module

Test case description: It maintains part sent details of the company.

S. No	Field name	Field Description	Expected Output	Actual Output
1	Complaint id	It provide complaint id of the seeker	VARCHAR	VARCHAR
2	Employee id	It provide employee id of the engineer	VARCHAR	VARCHAR
3	Part id	It provide part id of the product	VARCHAR	VARCHAR
4	Part name	It provides the name of the part	TEXT	TEXT

PART ORDERED:

It contains the entire part ordered details. Below table contains the part ordered by seeker.

Test case id : ID06

Input for test case : Part ordered details module

Test case description : It maintains part order details of the company.

S. No	Field name	Field Description	Expected Output	Actual Output
1	Complaint id	It provide complaint id of the seeker	VARCHAR	NUMERIC
2	Employee id	It provide employee id of the engineer	VARCHAR	VARCHAR
3	Part name	It provide part name of the product	TEXT	TEXT
4	Reason	It indicate reason of the part order	TEXT	TEXT

PART RETURNED:

It contains the entire part returned details. Below table contains the part returned by seeker.

Test case id : ID07

Input for test case : Part returned details module

Test case description: It maintains part returned details

S .No	Field name	Field Description	Expected Output	Actual Output
1	Complaint id	It provide complaint id of the seeker	VARCHAR	NUMERIC

2	Employee id	It provide employee id of the engineer	VARCHAR	VARCHAR
3	Part id	It provide part id of the product	VARCHAR	VARCHAR
4	Part name	It provides the name of the part	TEXT	TEXT
5	Reason	It provide the details of the part	VARCHAR	VARCHAR
6	Old_new	It indicate details of old parts	VARCHAR	VARCHAR

PRODUCT DETAILS:

It contains the entire product details. Below table contains the product details.

Test case id **:** ID08

Input for test case : Product details module

Test case description: It maintains product details for the provider

S. No	**Field name**	**Field Description**	**Expected Output**	**Actual Output**
1	Complaint id	It provides the complaint id of the seeker	VARCHAR	VARCHAR
2	Product id	It provides the product id	VARCHAR	VARCHAR
3	Product name	It indicate the name of the product	TEXT	TEXT
4	Service tag	It indicate the service tag of the product	VARCHAR	VARCHAR

5	Order number	It indicate the order number of the product	VARCHAR	VARCHAR
6	Date of manufacture	In indicate manufacture date of the product	DATE	DATE
7	Date of purchase	In indicate purchase date of the product	DATE	DATE
8	Warranty expire date	In indicate warranty date of the product	DATE	DATE

ADD SERVICE PROVIDER:

It contains the entire service provider details. Below table contains the service provider details.

Test case id **:** ID09

Input for test case **:** Add Service provider

Test case description: It maintains the service provider details.

S. No	Field name	Field Description	Expected Output	Actual Output
1	Provider id	It provides id number for provider	NUMERIC	NUMERIC
2	Company name	It provides name of the company	TEXT	TEXT
3	Incharge person	It provides the name of the incharge person	VARCHAR	VARCHAR
4	Year	It provides the year company started	DATE	DATE

6	License number	It provides the license number of the provider	NUMERIC	NUMERIC
7	Address	It provides the address of the provider	VARCHAR	VARCHAR
8	Mobile number	It provides the contact number of the provider	NUMERIC	NUMERIC
9	Bank	It provides the details of the bank.	TEXT	TEXT
10	Email	It provides e-mail address of the provider	VARCHAR	VARCHAR

BILL GENERATION:

It contains the entire bill generation details. Below table contains the bill generation details.

Test case id : ID10

Input for test case : Bill generation module

Test case description : It maintains the bill details of serviced product.

S. No	Field name	Field Description	Expected Output	Actual Output
1	Bill id	It provides bill id number	NUMERIC	NUMERIC
2	Service id	It provides service bill	VARCHAR	VARCHAR

3	Customer id	It provides customer id	VARCHAR	VARCHAR
4	Customer name	It provides customer name	TEXT	TEXT
6	Engineer id	It provides engineer id	VARCHAR	VARCHAR
7	Engineer name	It provides engineer name	VARCHAR	VARCHAR
8	Product type	It provides product type	VARCHAR	VARCHAR
9	Problem	It provides problem details	TEXT	TEXT
10	Amount	It provides amount details	VARCHAR	VARCHAR
11	Date	It provide the zip code of the provider	DATE	DATE
12	Time	It provide time details	TIME	TIME
13	State payment	It provide statue of payment	TEXT	TEXT

- **Integration Testing:**

Integrated testing is a systematic technique for construction of the whole program structure at the same time conduction tests to uncover errors associated with interfacing. The objective is to take unit tested components and build a program structure that has been dictated by design. Integrated testing follows unit testing and precedes system testing. Integration testing takes as its input, modules that have been checked out by unit testing, 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 placed on major design items.

- **Acceptance Testing:**

It involves planning and execution of functional tests, performance test and stress. Test in order to demonstrate that the implemented system satisfies the requirements. The software is installed and tested with the real time date. It is known that the user finds it easy to interact with the software and no stress identified.

- **Validation Testing:**

The final step involves validation testing, which determines whether the software function as the user expected. The end-user rather than the system developer conduct this test most software developers as a process called ‘'Alpha and Beta testing” to uncover that only the end-user seems able to find. In this project, validation testing is made in various forms; the correct answer only will be accepted in the answer box. The compilation of the entire project is based on the full satisfaction of the end users.

6.2. System Implementation:

A software application in general is implemented after navigating the complete life cycle method of a project. Various life cycle processes such as requirement analysis, design phase, verification, testing and finally followed by the implementation phase result in a successful project management. System implementation is an important stage of theoretical design is turned into practical system.

Implementation Procedure:

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective.

The implementation stage involves careful planning, investigation of the existing system and it’s constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

CONCLUSION

7. CONCLUSION

This application provides extremely good solution to solve the current issues in service management system. It provides more control and over the existing system. It helps to save time and effort to manage the system.

It enables the customer to file complaints via website instead of calling a toll free number. It helps to reduce the cost involved in maintaining a BPO. It also allows the management to track the complaints filed and it helps to improve the quality of the product.

This software benefits both the organization and the customers. It enables the service engineer to inform the time of arrival at the customer’s location and also the service engineer can know the exact location of the customer and find the short possible route to the customer location, thus reducing the cost involved in travelling.

SCOPE FOR FUTURE ENHANCEMENT

8. SCOPE OF FUTURE ENHANCEMENT

The project “E-Services for household appliances using mobile app” has been developed with giving due care of the drawback of existing system. It is designed in such a way to remove all problems in the existing system.

The main part of the project resides on the mobile phone. The service provider uses the application for tracking the service seeker within a given Zip code that shown on a Google map for displaying a set of service seekers and their problems.

Further this application will can be modified to allow customers to track their complaints via Android based mobile phones, allowing users to access their accounts via mobile and perform various tasks. Support can be added to other mobile platforms also.

The scope of the project is still extendable. The software has tested successfully and it is also easily upgradable.

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9. BIBLIOGRAPHY

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[6] “Android Application Development All in one for Dummies”, Donn Felker, 2nd Edition, Wiley

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[2] http://www.w3schools.com/jsp/default.asp

[3] http://dev.mysql.com/doc/refman/5.0/en/tutorial.html

[4] http://developer.android.com/training/basics/firstapp/index.html

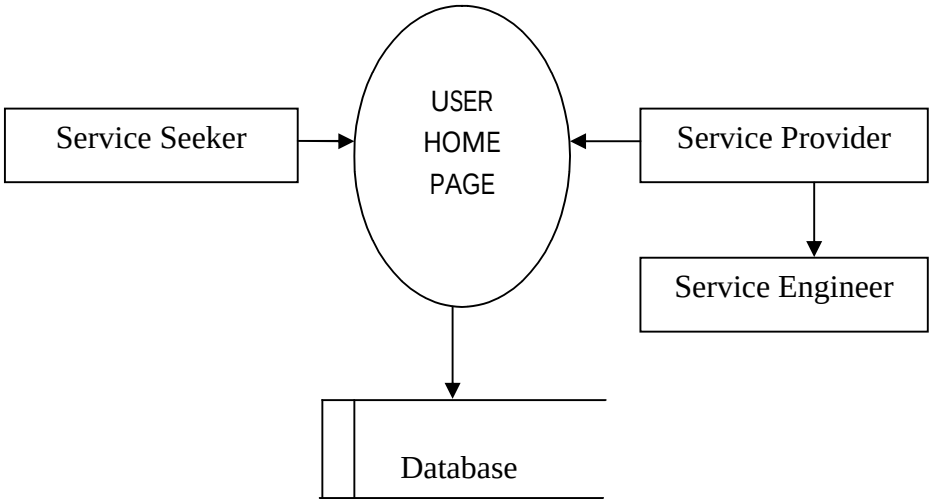
[5] http://www.coreservlets.com/android-tutorial/

APPENDIX

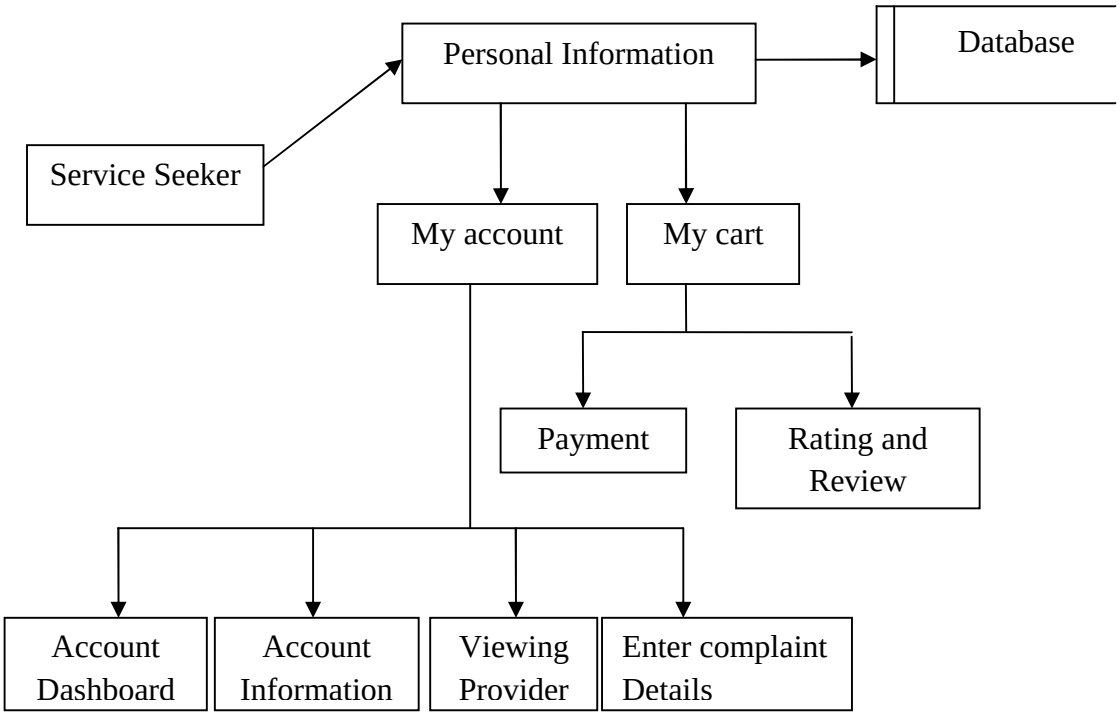
10. APPENDIX

DATA FLOW DIAGRAM:

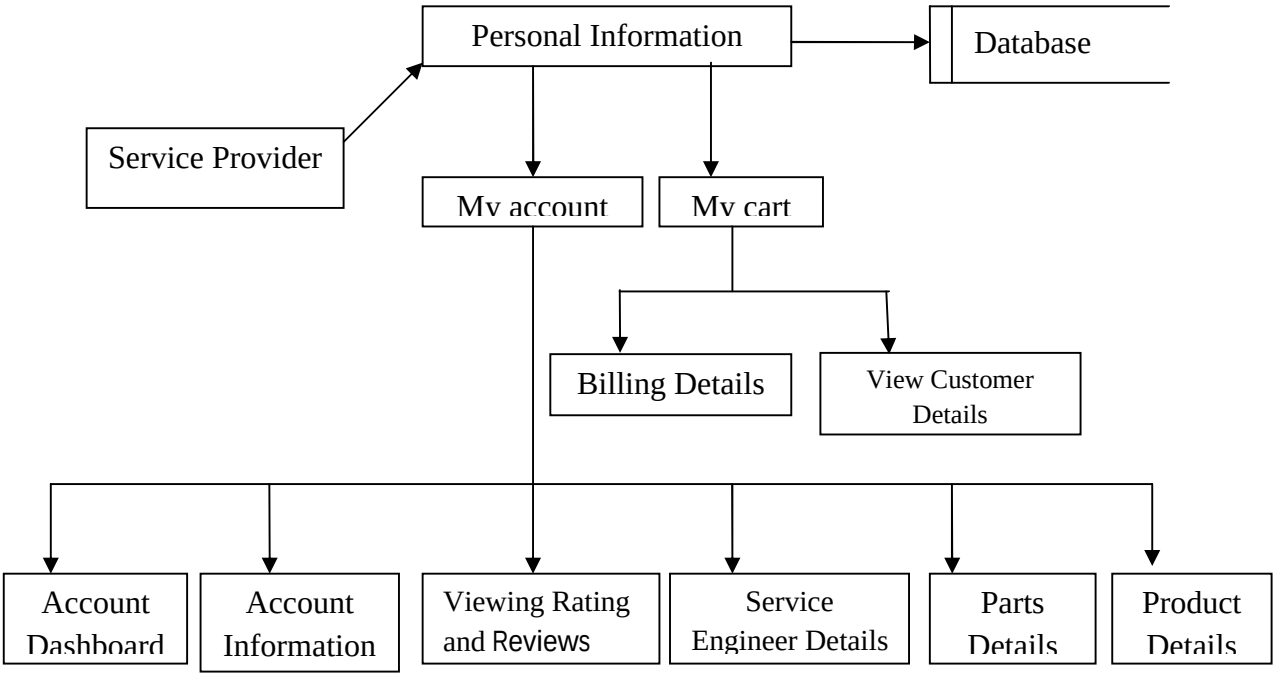
LEVEL 0:



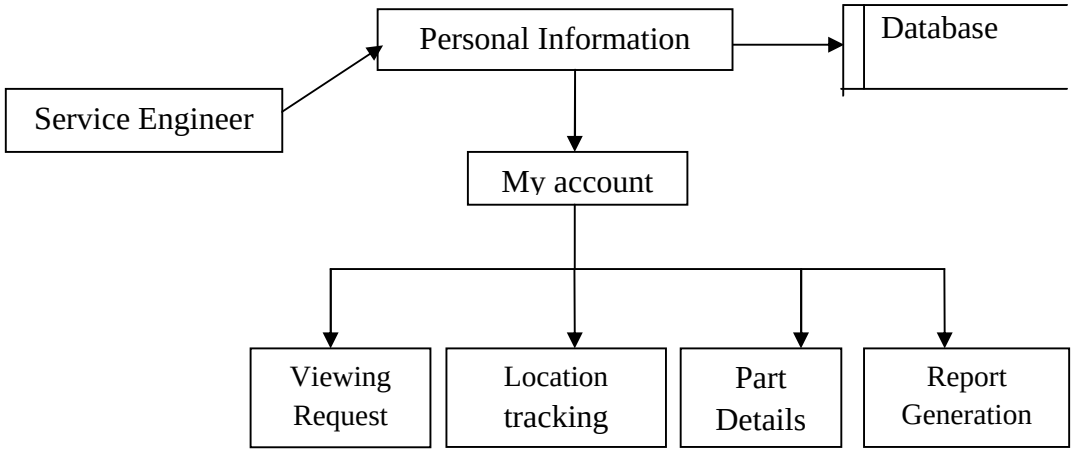
LEVEL 1:



LEVEL 2



LEVEL 3:



USE CASE DIAGRAM:

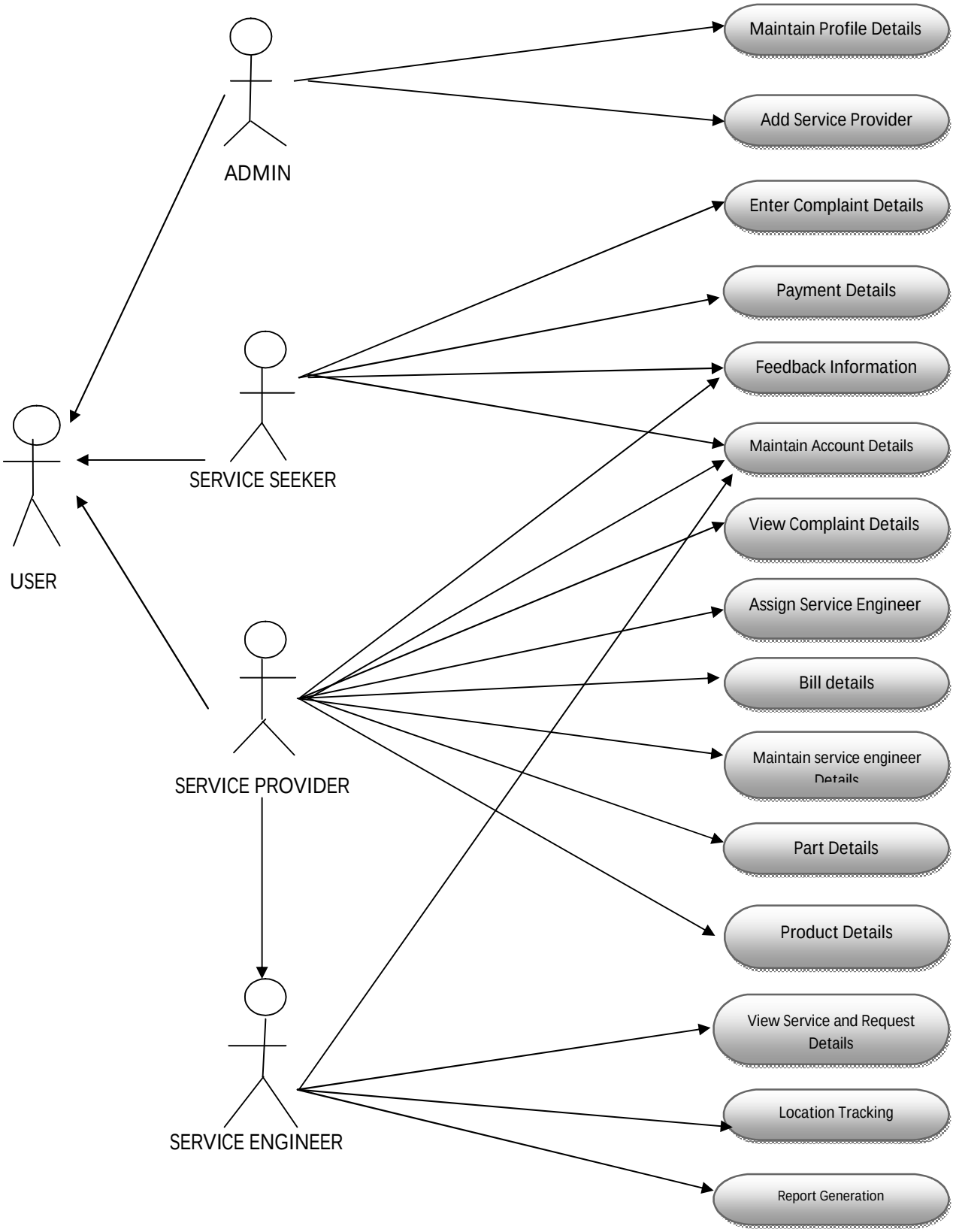


TABLE DESIGN:

Table 1.1

TABLE NAME: LOGIN

This table contains information about the login details.

Primary key: id

FIELD NAME	FIELD TYPE	DESCRIPTION
id	Varchar(40)	Identification
password	Varchar(15)	Password

Table 1.2

TABLE NAME: FEEDBACK

This table contains information about the seeker feedback.

Primary Key: email

FIELD NAME	FIELD TYPE	DESCRIPTION
Name	Varchar(20)	Name
Email	Varchar(20)	Email
feedback	Varchar(200)	Feedback
Rating	Varchar(20)	Rating

Table 1.3

TABLE NAME: CUSTOMER DETAILS

This table contains information about the customer details.

Primary Key: e_mail

FIELD NAME	**FIELD TYPE**	**DESCRIPTION**
First_name	Varchar(20)	First Name
Last_name	Varchar(20)	Last name
address	Varchar(200)	Address
e_mail	Varchar(40)	Email Identification
Phone number	Number(15)	Contact number
Country	Text(30)	Country
State	Text(30)	State
City	Text(30)	City
Pin code	Number(10)	Pin code
User id	Varchar(30)	User id
password	Varchar(30)	Security password

Table 1.4

TABLE NAME: EMPLOYEE DETAILS

This table contains information about the employee details.

Primary Key: email_id

FIELD NAME	**FIELD TYPE**	**DESCRIPTION**
Engineer_ID	Varchar(40)	Engineer identification
Provider_ID	Varchar(40)	Provider identification
Engineer_Name	Text (10)	Engineer name
Mobile_Number	Number(200)	Mobile number
Email_id	Varchar(40)	Email identification
Address	Varchar(200)	Address
Company	Varchar(20)	Company name
Specialization	Text (20)	Specialization
Experience	Number(4)	Experiences
Service_Attended_Count	Number(20)	Service attended count
User id	Varchar(20)	User identification
Password	Varchar(20)	Password

Table 1.5

TABLE NAME: PRODUCT DETAILS

This table contains information about the products purchased by the customer.

Primary Key: service_tag

FIELD NAME	FIELD TYPE	DESCRIPTION
Customer_id	Varchar(40)	Customer identification
Product_id	Varchar(20)	Product Identification
Product_name	Varchar(20)	Product name
Service_ tag	Varchar(20)	Service tag
Order_number	Varchar(40)	Order number
Year_mf	Date	Date of manufacture
Date_pur	Date	Date of purchase
Warranty_date	Date	Date of warranty expire

Table 1.6

TABLE NAME: COMPLAINT DETAILS

This table contains information about the complaints filed by the customer.

Primary Key: complaint_id

FIELD NAME	FIELD TYPE	DESCRIPTION
Complaint_id	Varchar(40)	Complaint identification
Customer_id	Varchar(40)	Customer identification
Customer_name	Varchar(40)	Customer name
Customer_address	Varchar(200)	Customer address
Complaint_brief	Varchar(20)	Complaint brief
Complaint_detail	Varchar(200)	Complaint detail
Complaint_status	Int(2)	Complaint status
Service_engineer_id	Varchar(20)	Engineer identification
Arrival_time	Time	Arrival time
Service_engineer_report	Varchar(200)	Engineer report
Solved/notsolved	Varchar(3)	Solved or not solved
Review	Varchar(100)	Review

Table 1.7

TABLE NAME: PART DETAILS

This table contains information about the parts.

Primary Key: Part_id

FIELD NAME	FIELD TYPE	DESCRIPTION
Part_ID	Varchar(20)	Part identification
Part_Name	Varchar(20)	Part name
Model_Number	Varchar(40)	Model Number
Cost	Varchar(10)	Cost

Table 1.8

TABLE NAME: PARTS SENT

This table contains information about the replacement parts sent to the service engineer.

Primary Key: part_id

FIELD NAME	FIELD TYPE	DESCRIPTION
Complaint_id	Varchar(20)	Complaint identification
Employee_id	Varchar(20)	Employee identification
Part_id	Varchar(20)	Part Id
Part_name	Varchar(40)	Part name
Status	Varchar(7)	Status

Table 1.9

TABLE NAME: PARTS RETURNED

This table contains information about the old / damaged parts.

Primary Key: part_id

FIELD NAME	FIELD TYPE	DESCRIPTION
Complaint_id	Varchar(20)	Complaint identification
Employee_id	Varchar(20)	Employee identification
Part_id	Varchar(20)	Part Id
Part_name	Varchar(40)	Part name
Reason	Varchar(100)	Reason
Old_new	Varchar(7)	Old parts

Table: 1.10

TABLE NAME: PARTS ORDER

This table contains information about the replacement parts ordered by the service engineer.

Primary Key: complaint_id

FIELD NAME	FIELD TYPE	DESCRIPTION
Complaint_id	Varchar(20)	Complaint identification
Employee_id	Varchar(20)	Employee identification
Part_name	Varchar(40)	Part name
Reason	Varchar(100)	Reason

Table 1.11

TABLE NAME: PRODUCT DETAILS

This table contains information about the products.

Primary Key: product_id

FIELD NAME	FIELD TYPE	DESCRIPTION
Customer_ID	Varchar(20)	Customer identification
Product_ID	Varchar(20)	Product identification
Product name	Varchar(20)	Product name
Servirce tag	Varchar(40)	Service tag
Order_number	Varchar(10)	Order number
Year_mf	Varchar(7)	Year of manufacture
Date_purchase	Varchar(15)	Date of purchase
Warranty date	Varchar(15)	Warranty date

Table 1.12

TABLE NAME: BILL DETAILS

This table contains information about the bill details.

Primary Key: Bill_id

FIELD NAME	**FIELD TYPE**	**DESCRIPTION**
Bill_ID	Varchar(20)	Bill identification
Service_ID	Varchar(20)	Service identification
Customer_ID	Varchar(20)	Customer identification
Customer_name	Varchar(20)	Customer name
Engineer_ID	Varchar(20)	Engineer identification
Engineer_name	Varchar(10)	Engineer name
Product_Type	Varchar(7)	Product type
Problem	Varchar(100)	Problem
Amount	Number(15)	Amount
Date	Date	Date
Time	Timestamp	Time
Payment	Varchar(20)	Status_payment

SCREENSHOTS:

Figure 1.1

Common Front Page:

Figure 1.2

Service Provider Details:

COMPANY ADMINISTATOR:

Figure 1.3

Login:

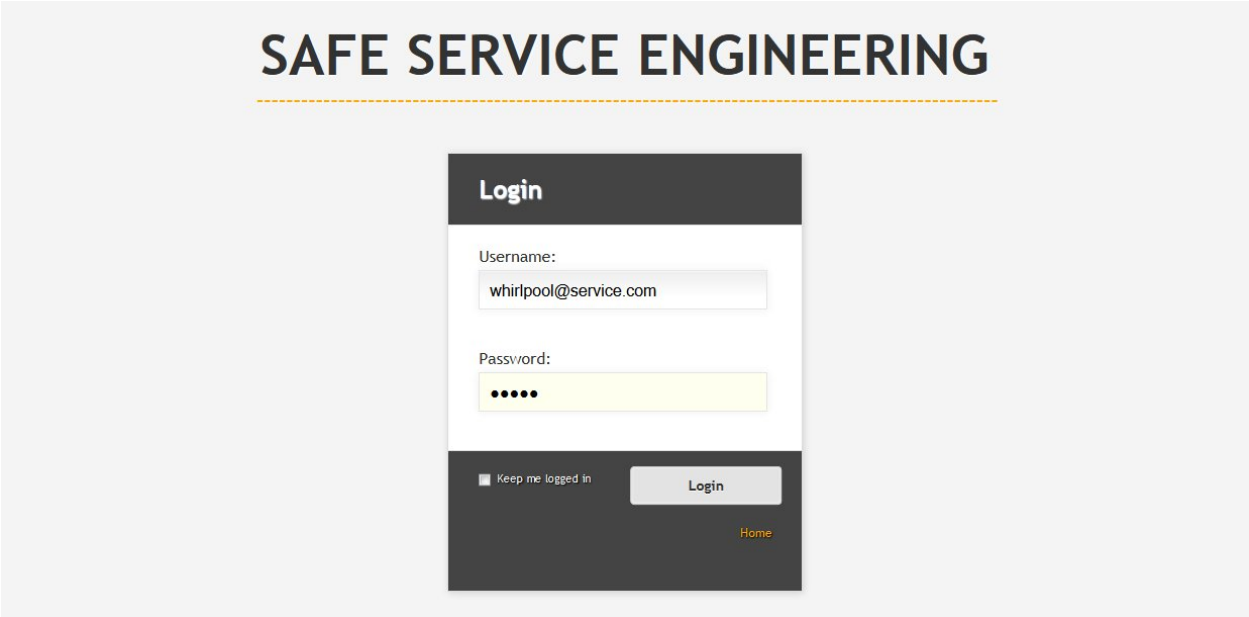


Figure 1.4

Admin Dashboard:

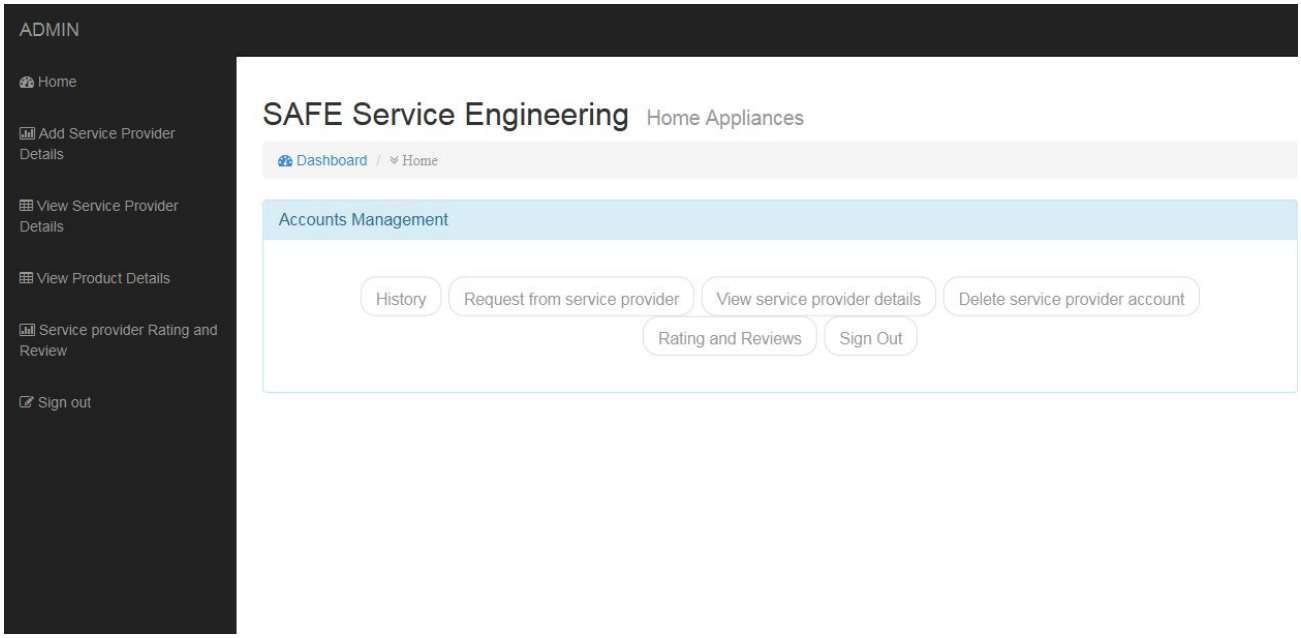


Figure 1.5

Add Service Provider:

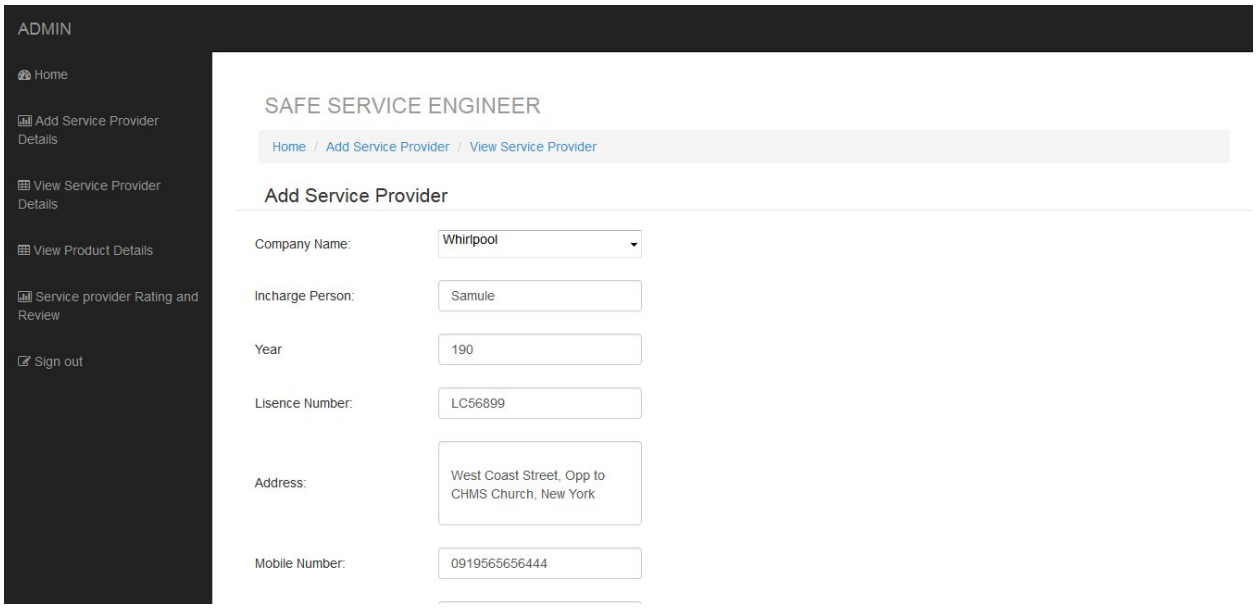
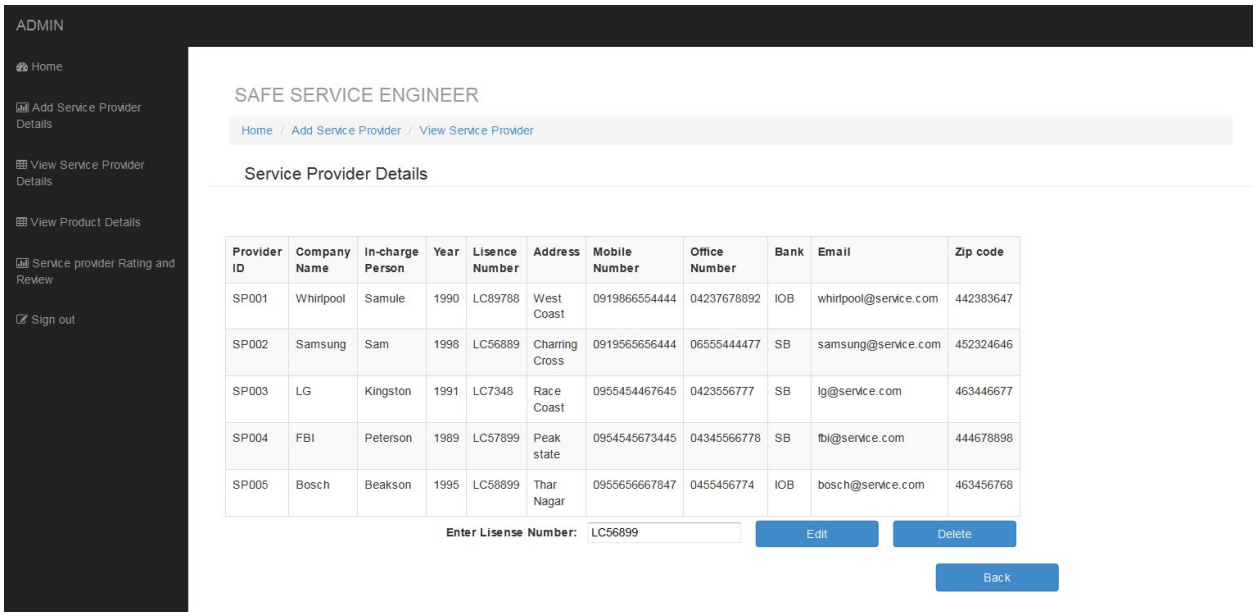


Figure 1.6

View Service Provider Details:



SERVICE SEEKER:

Figure 1.7

Service Seeker Registration form:

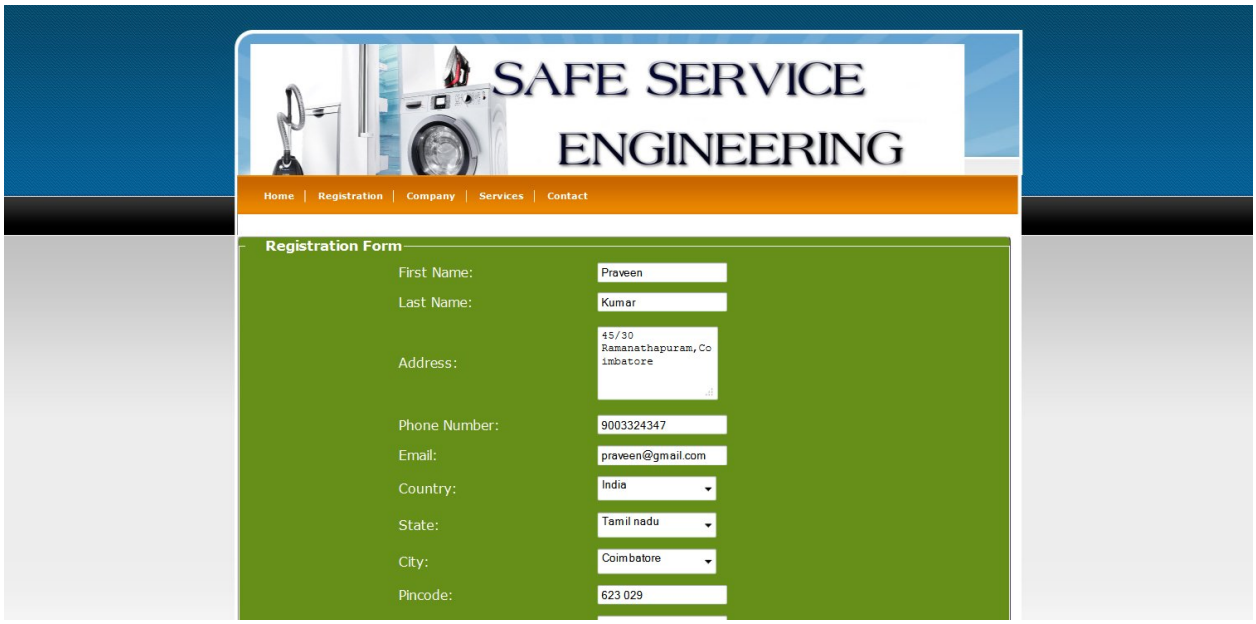


Figure 1.8

Service Seeker Login:

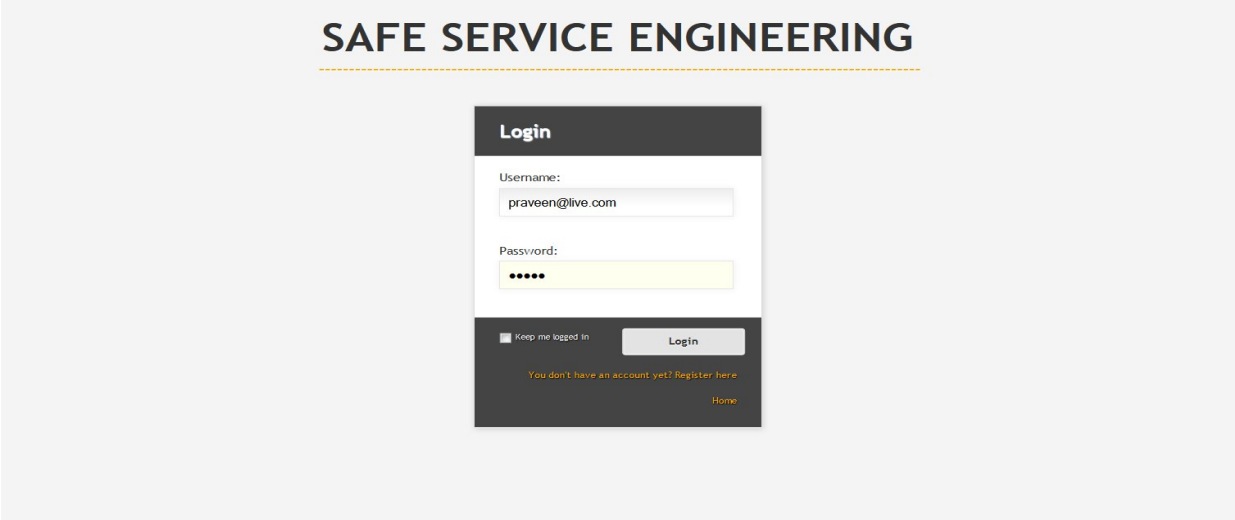


Figure 1.9

Seeker Dashboard:

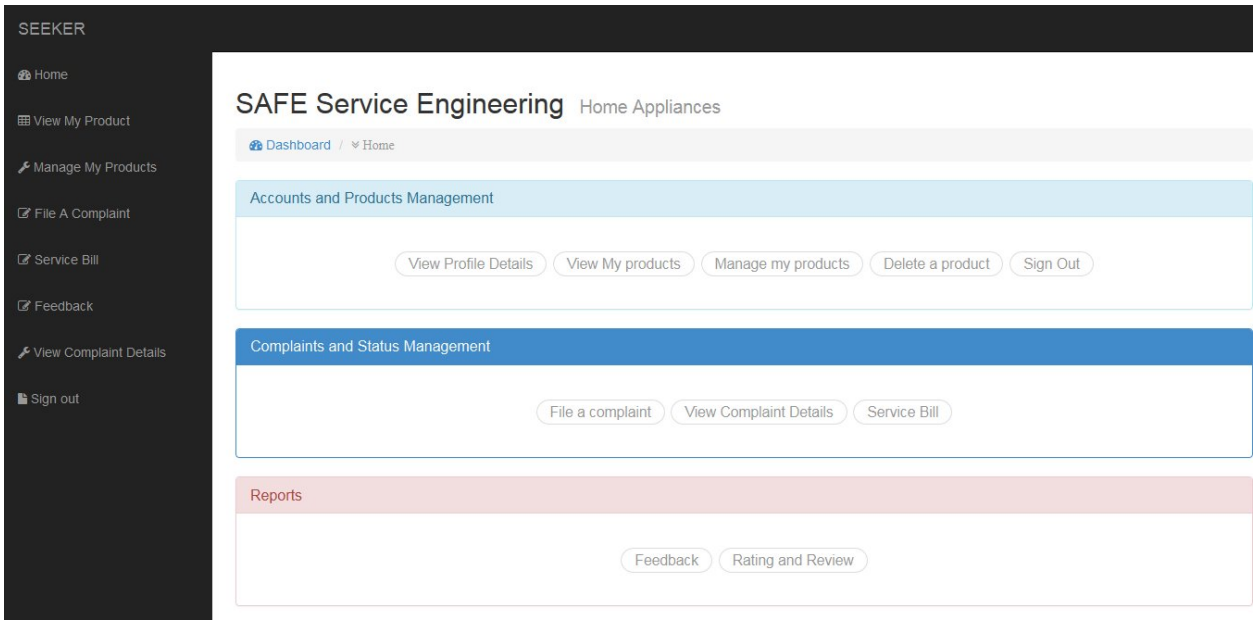


Figure 1.10

Seeker Product details:

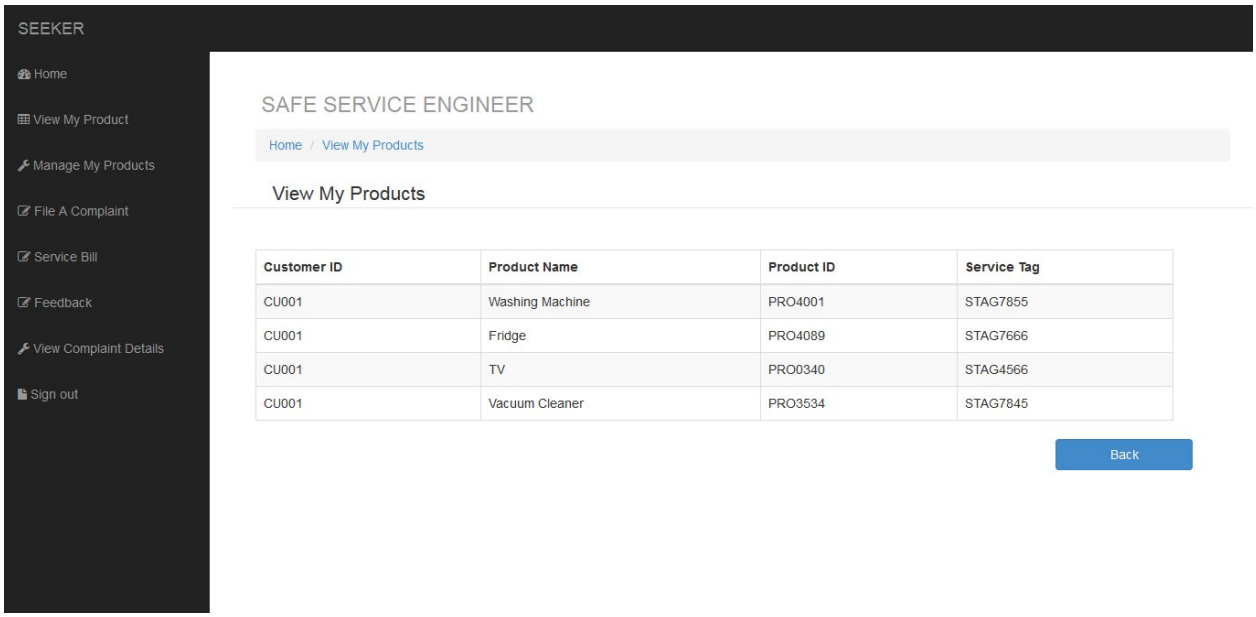


Figure 1.11

Seeker product management:

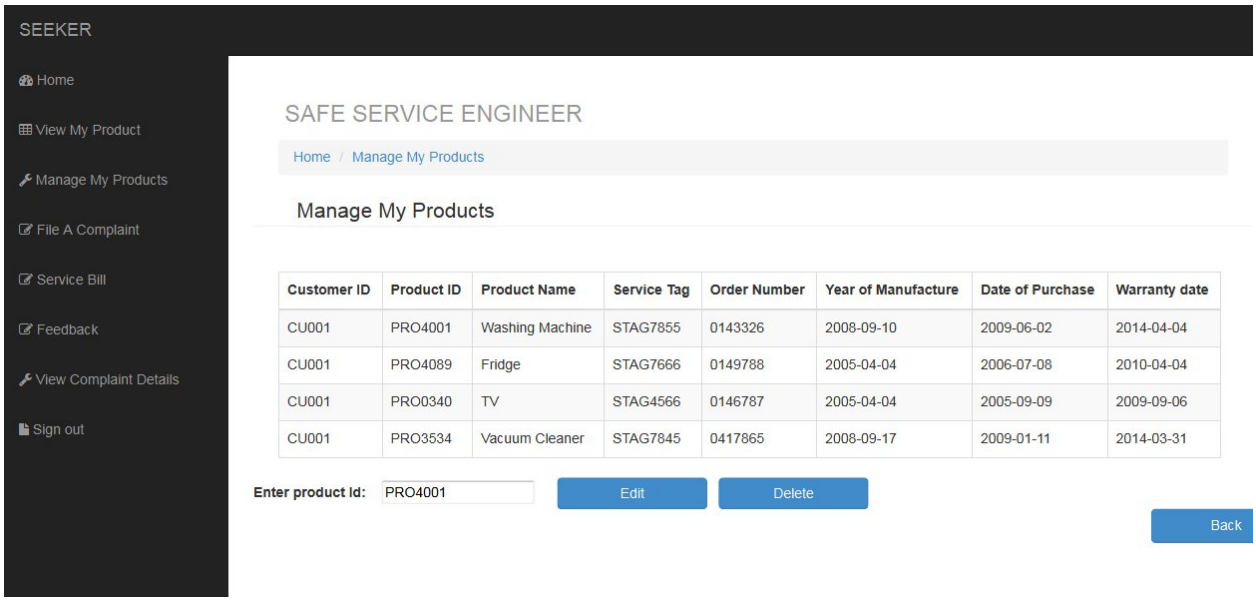


Figure 1.12

File a Complaint Details:

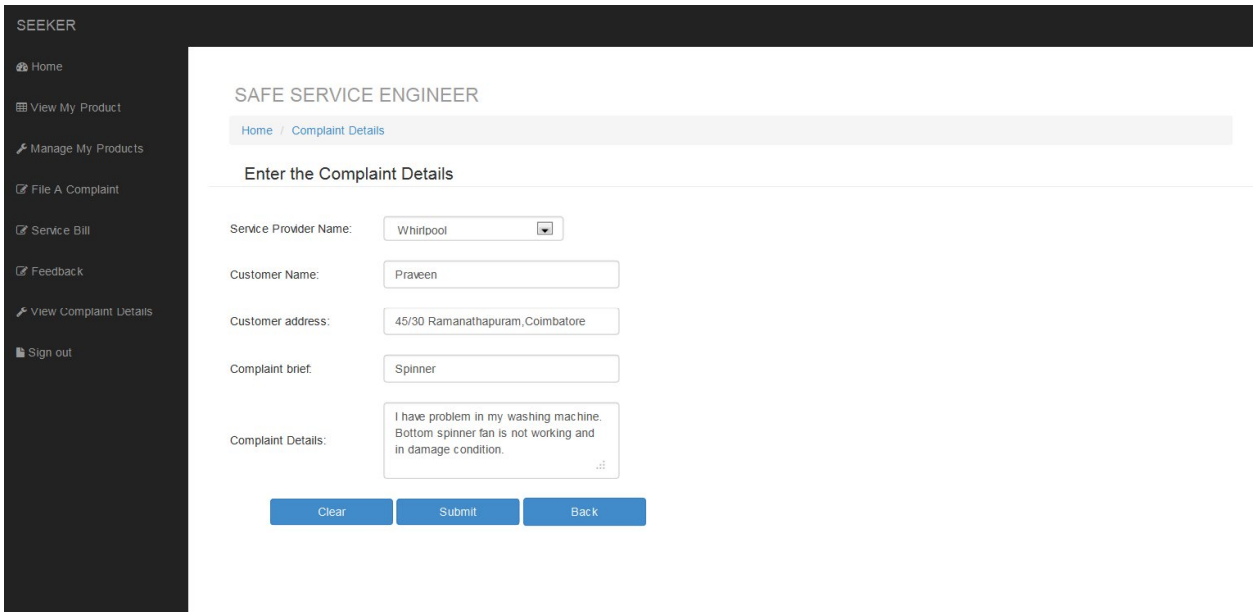


Figure 1.13

Serviced Bill details:

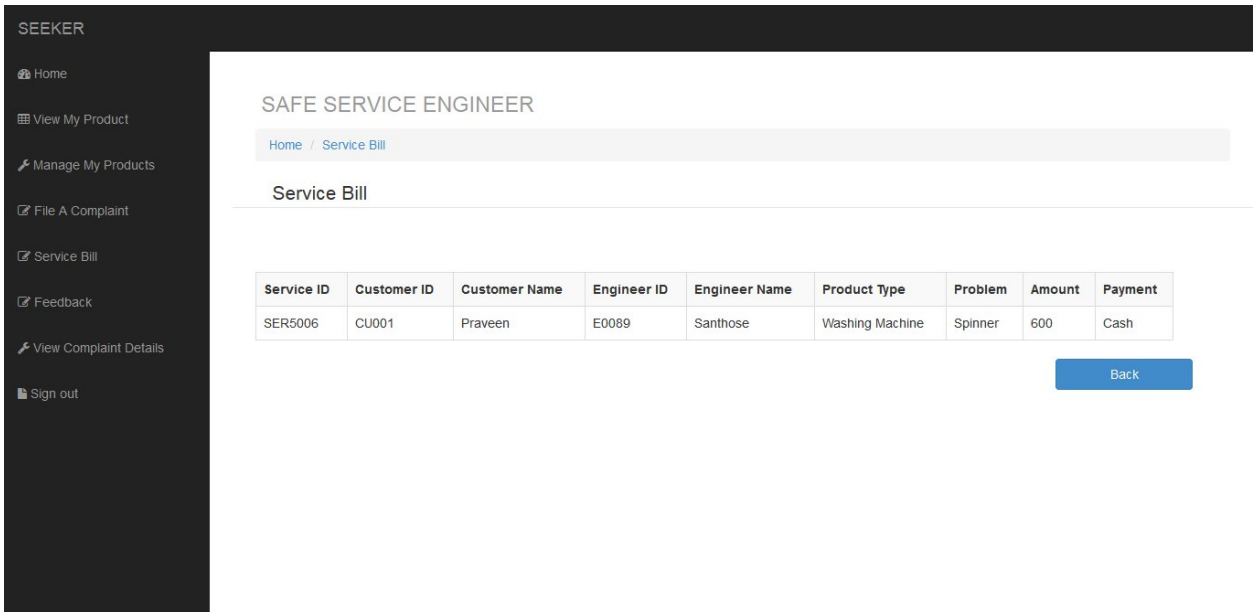


Figure 1.14

View Complaints details:

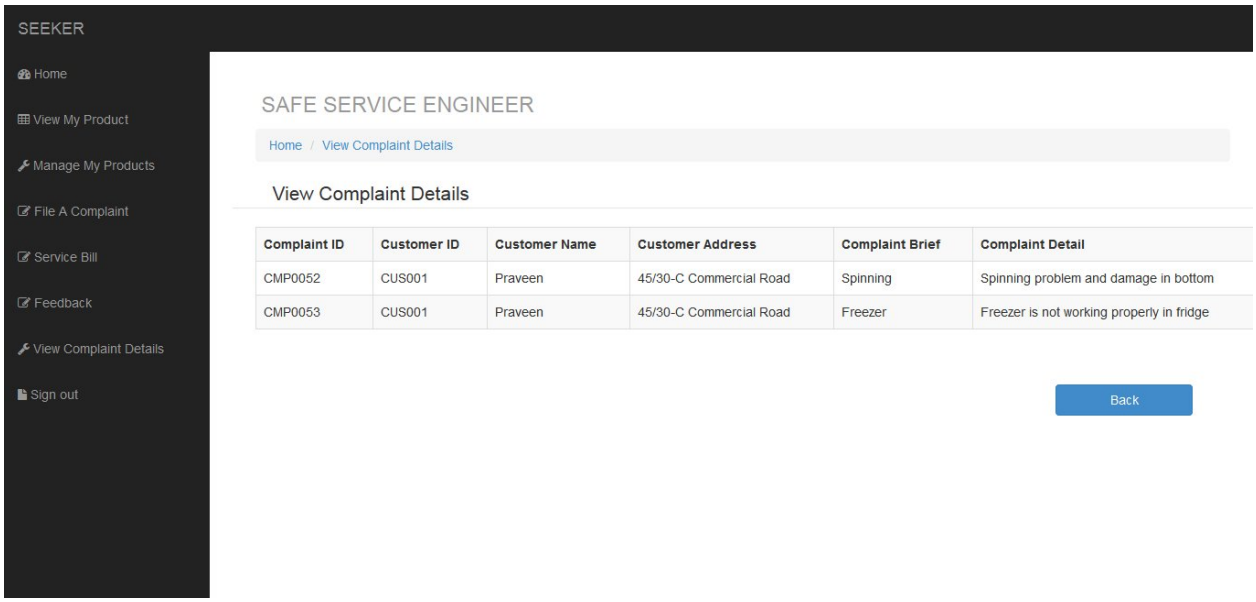
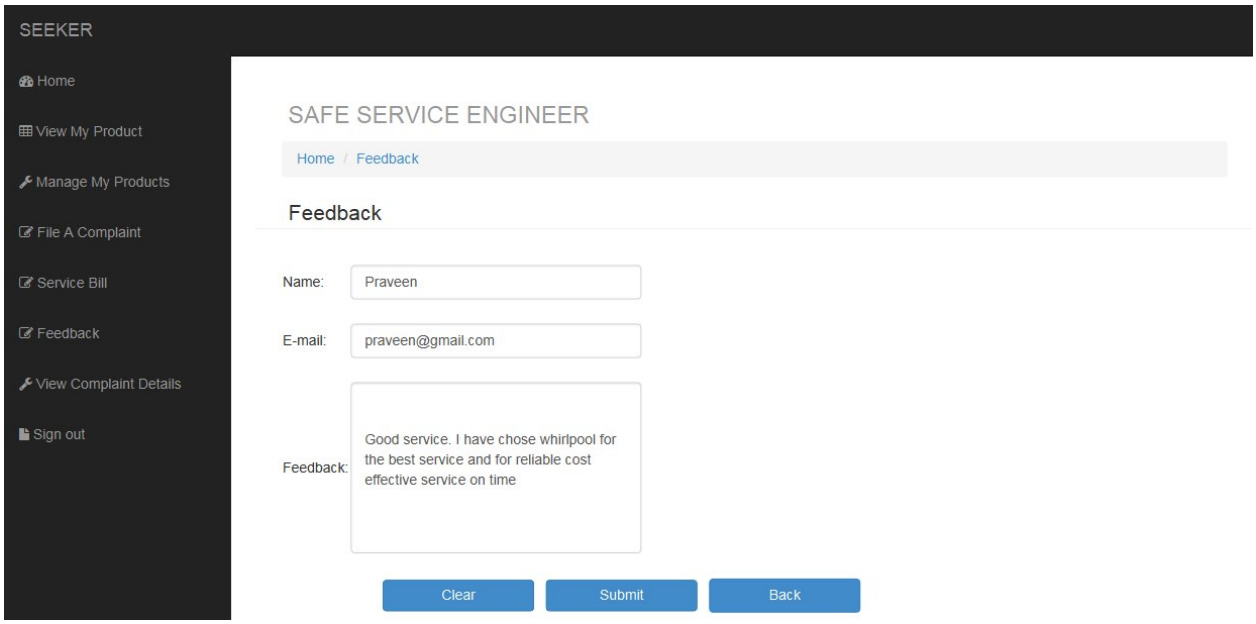


Figure 1.15

Seeker Feedback form:



SERVICE PROVIDER:

Figure 1.16

Service Provider Login:

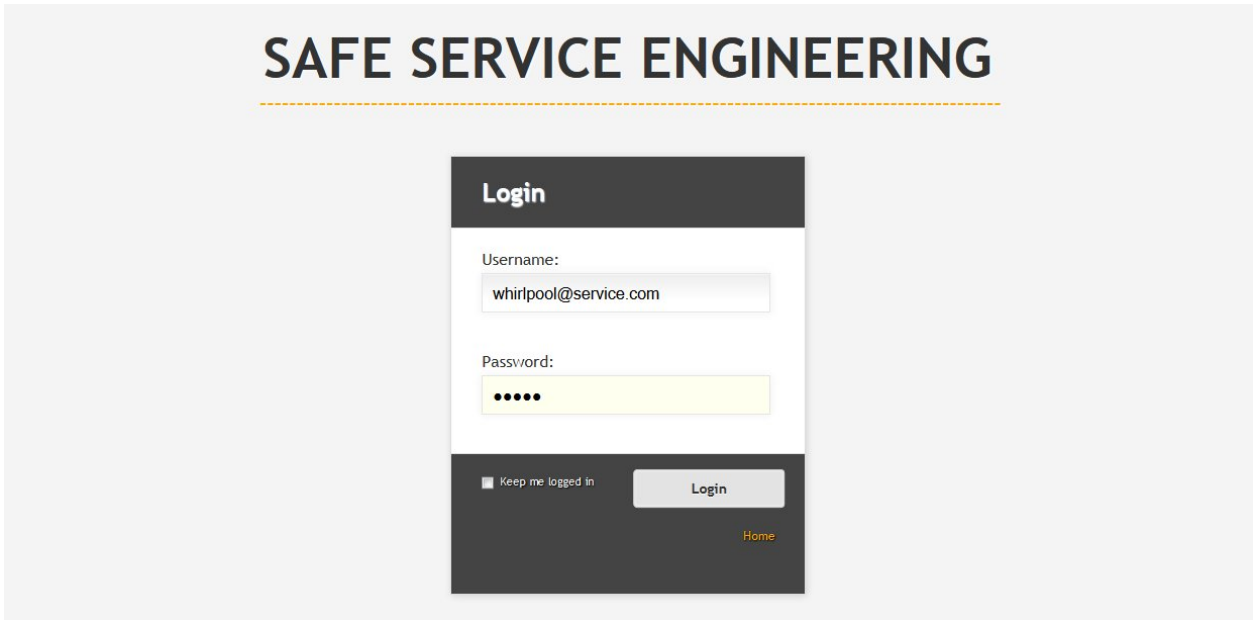


Figure 1.17

Service Provider Dashboard:

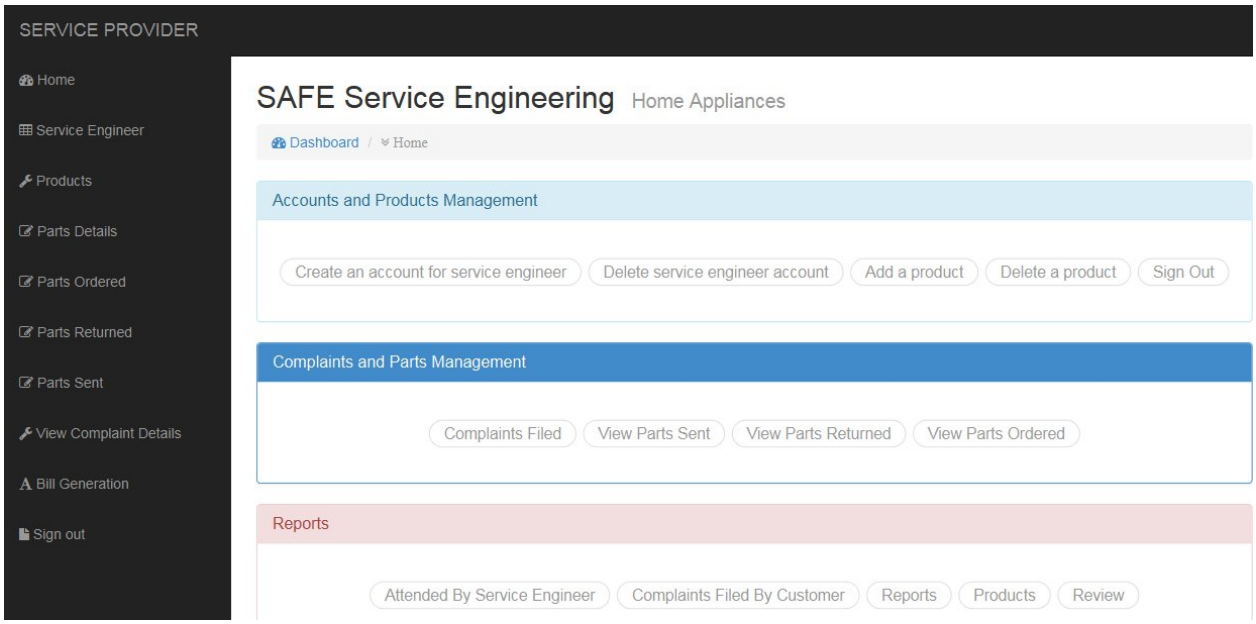


Figure 1.18

Add Service Engineer:

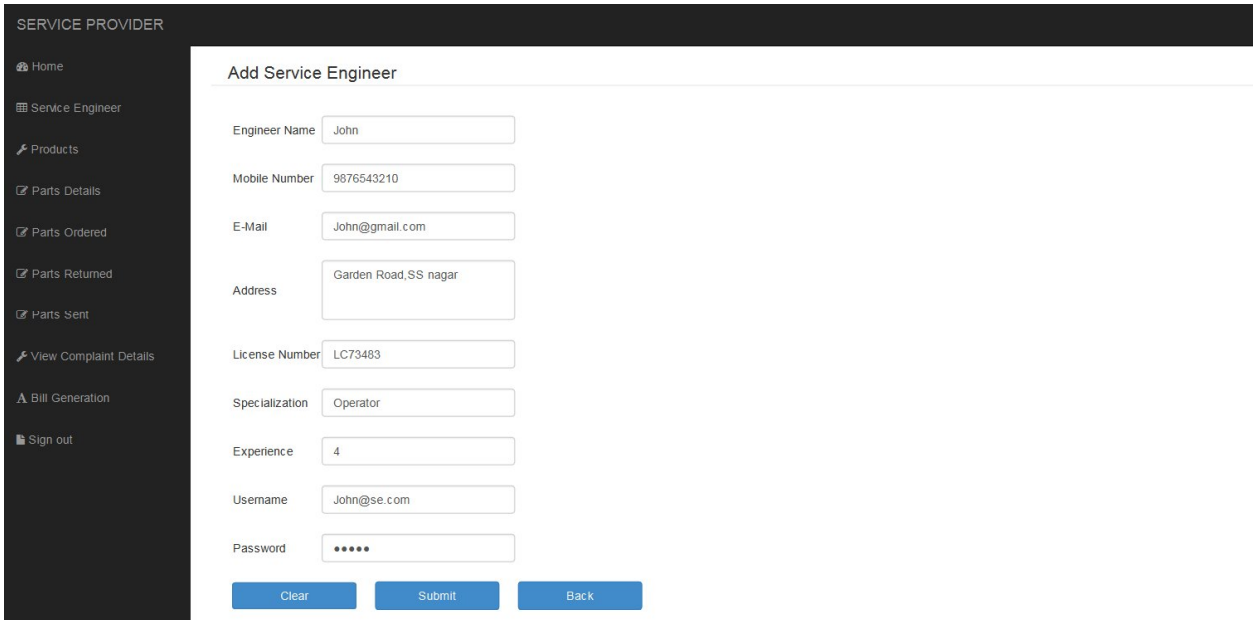


Figure 1.19

View Service Engineer

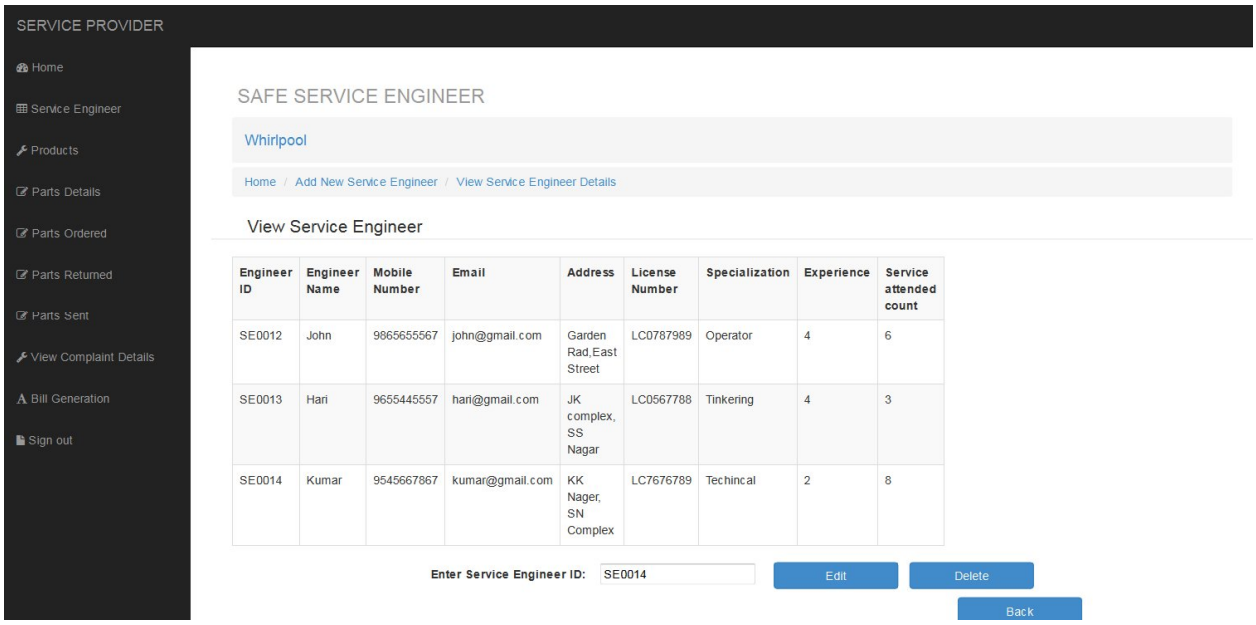


Figure 1.20

Add Product

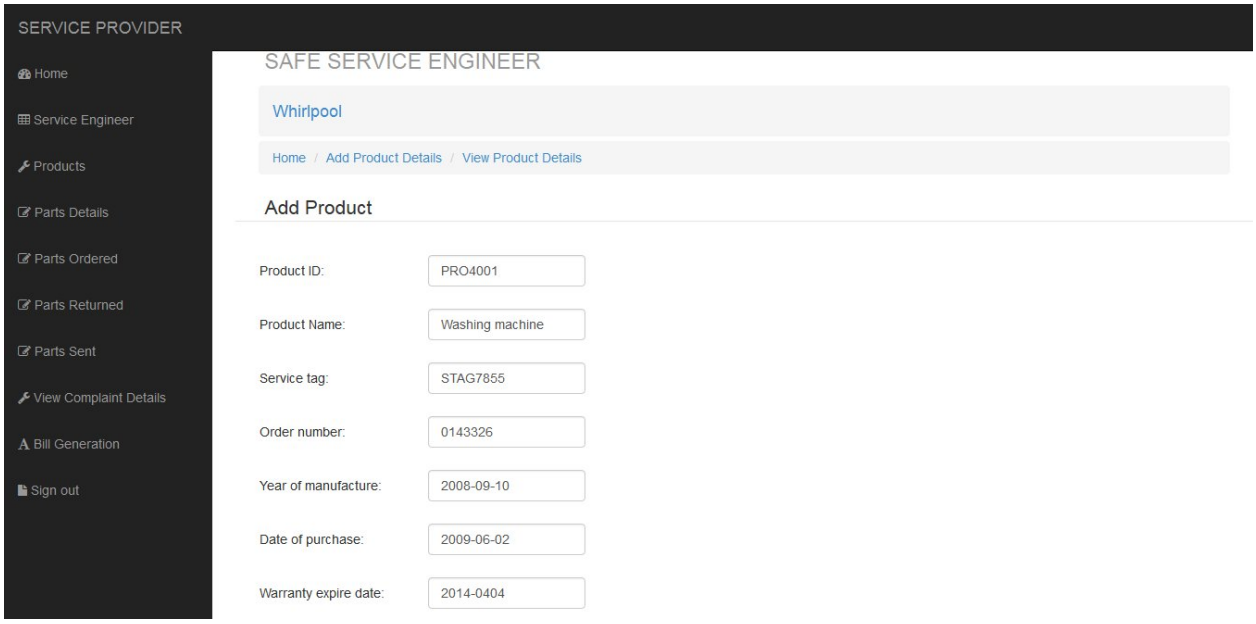


Figure 1.21

View Product Details:

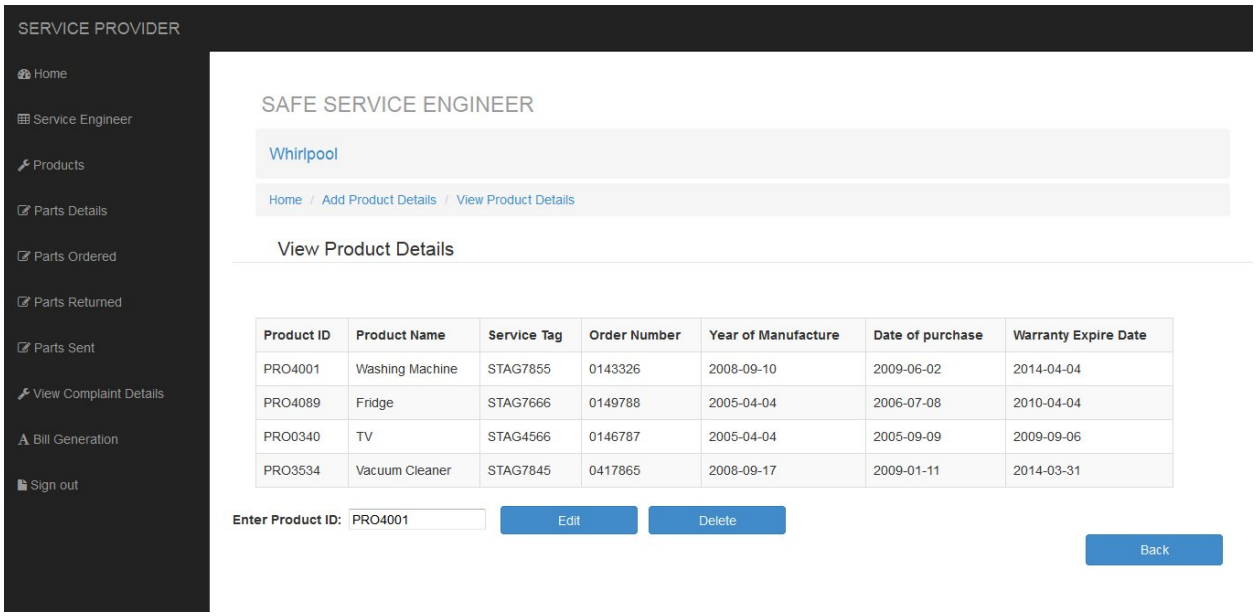


Figure 1.22

Add Part Details:

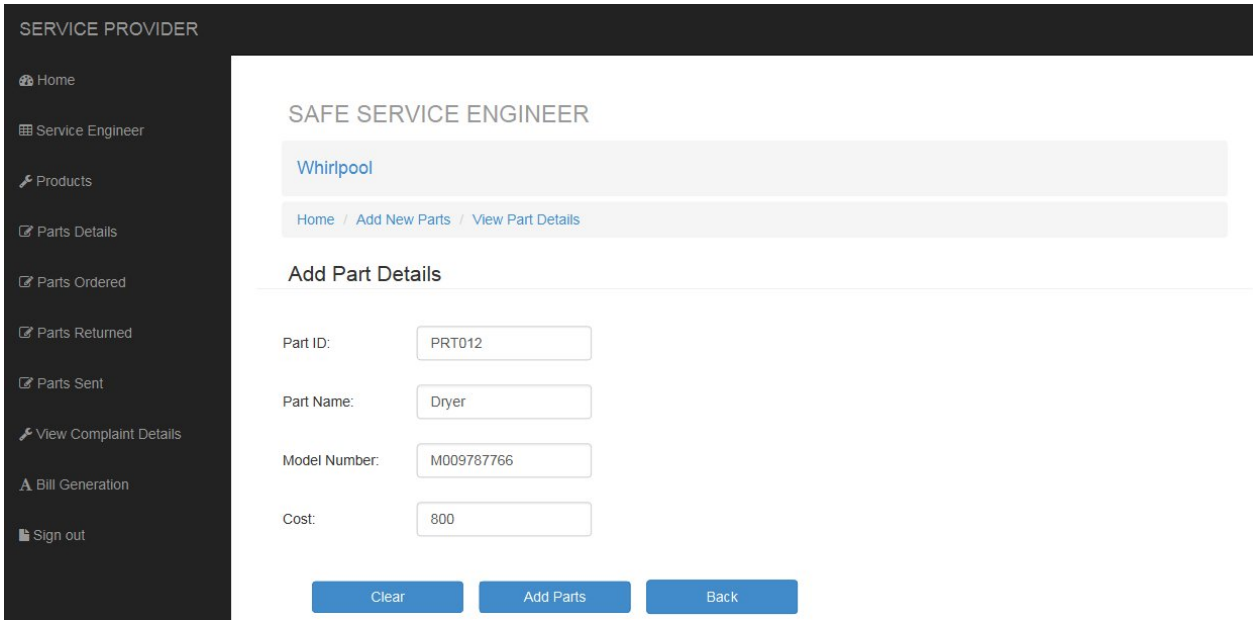


Figure 1.23

View Part Details:

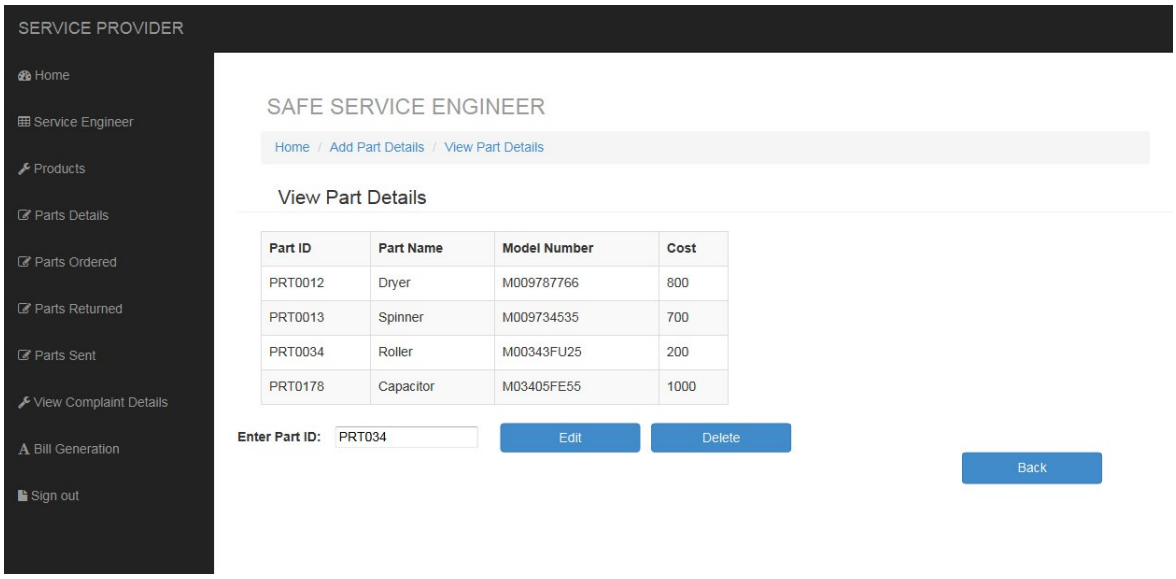


Figure 1.24

View Part Ordered:

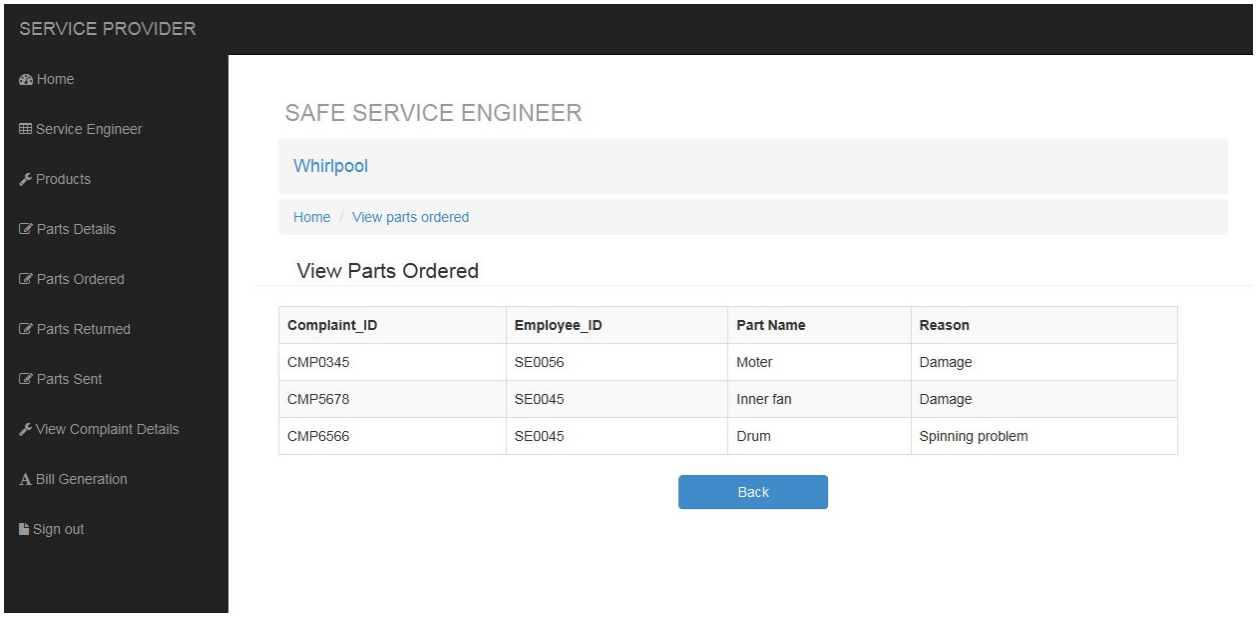


Figure 1.25

View Returned:

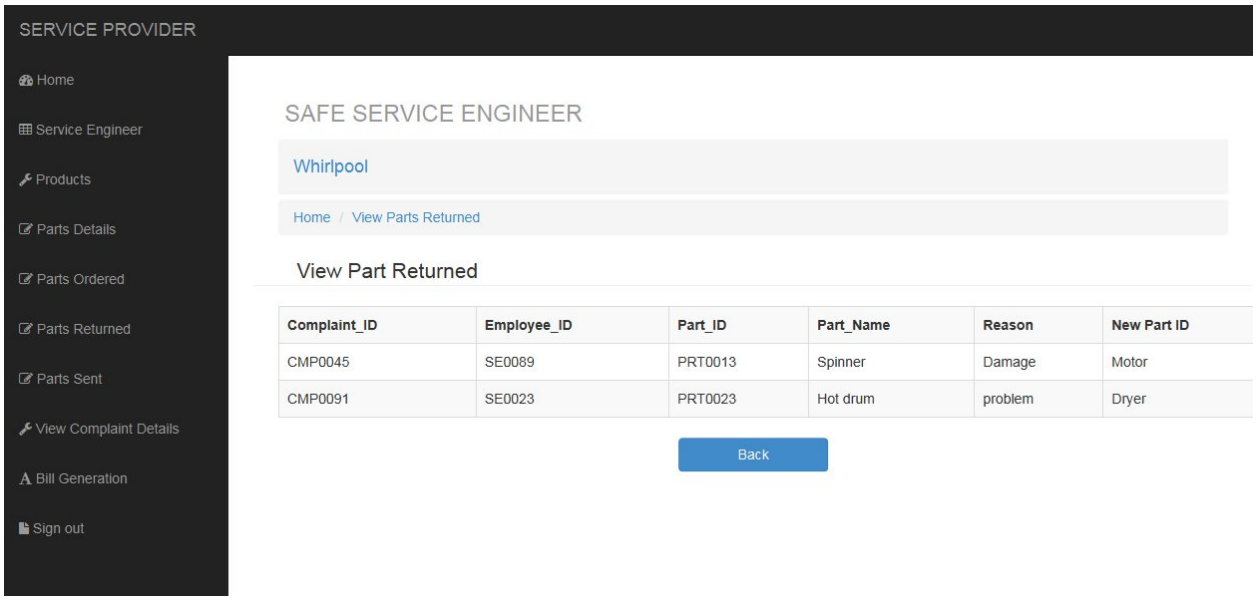


Figure 1.26

View part sent:

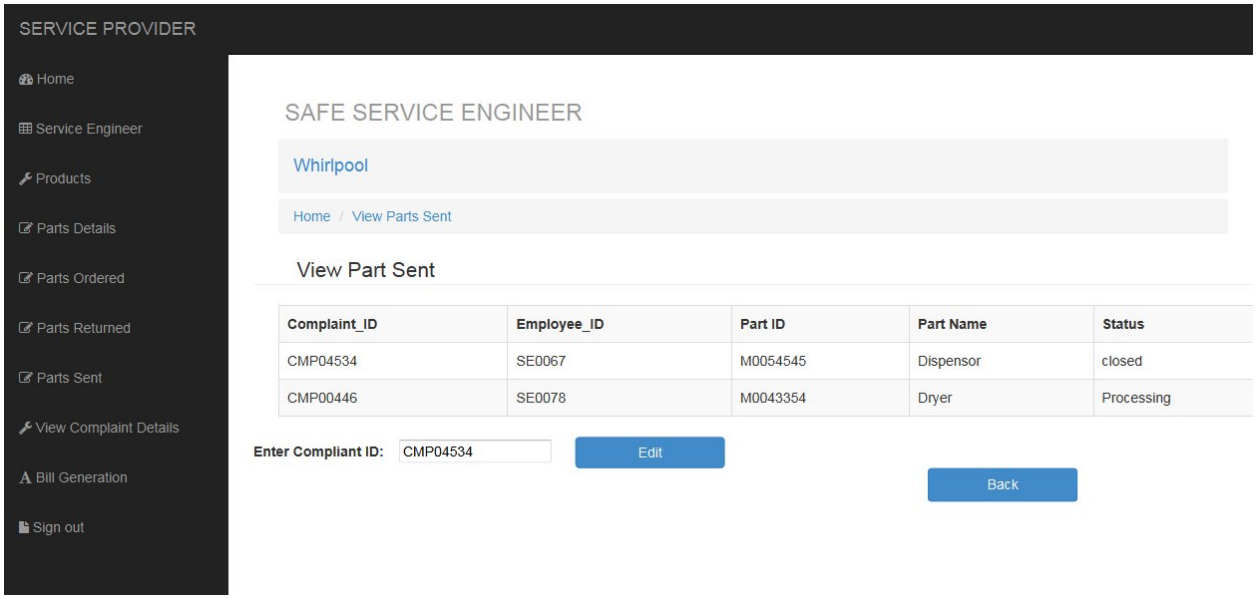


Figure 1.27

Allocate Complaints to Service engineer:

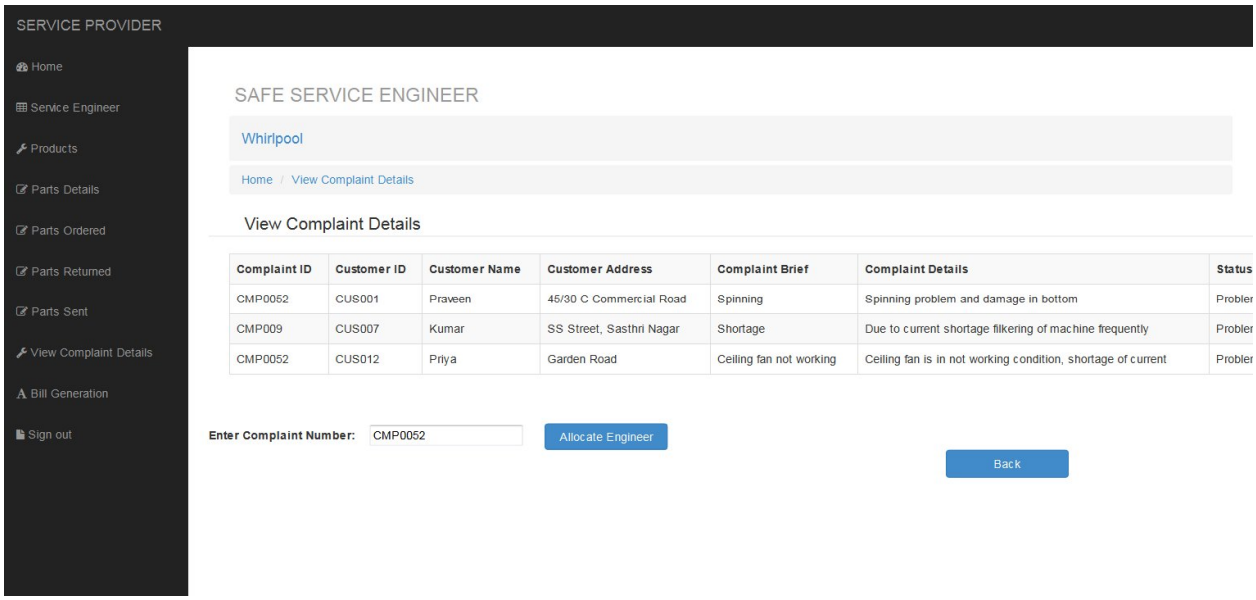


Figure 1.28

Allocate to nearby service engineer:

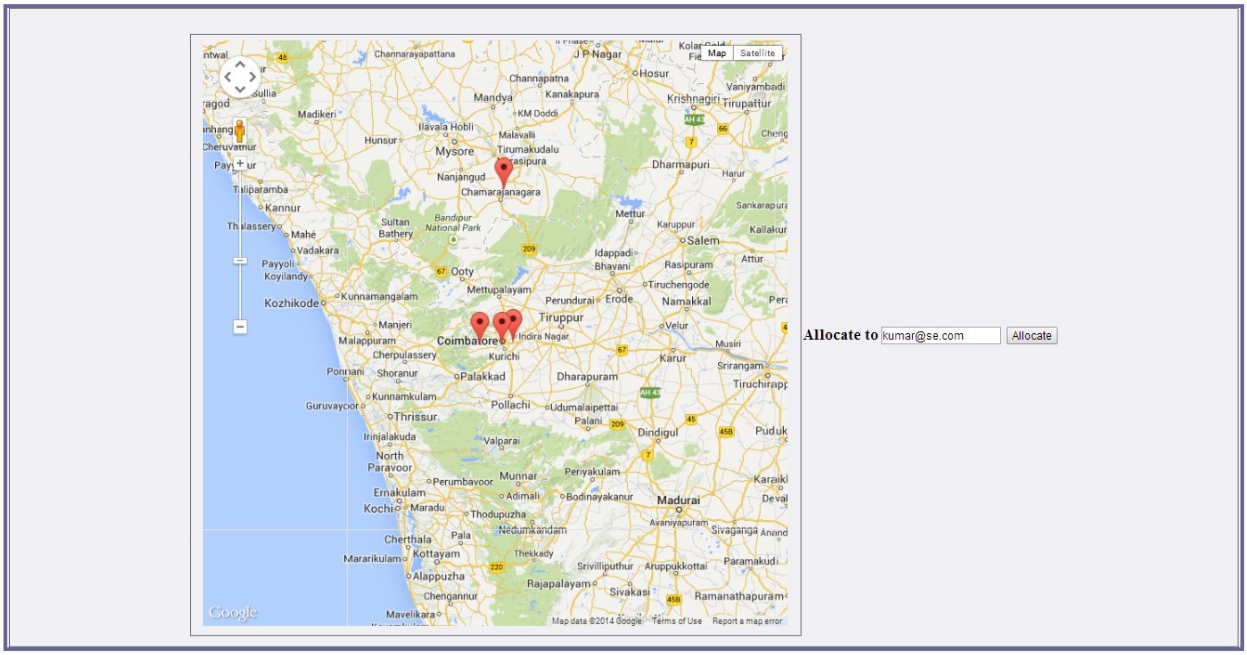


Figure 1.29

Mail to service engineer

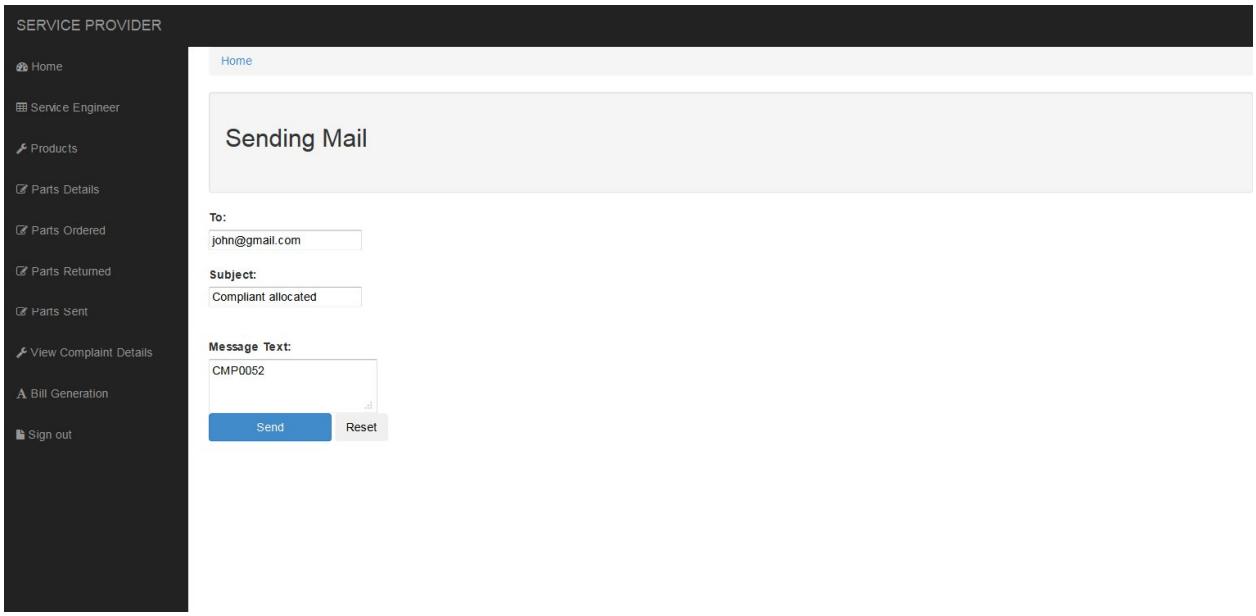
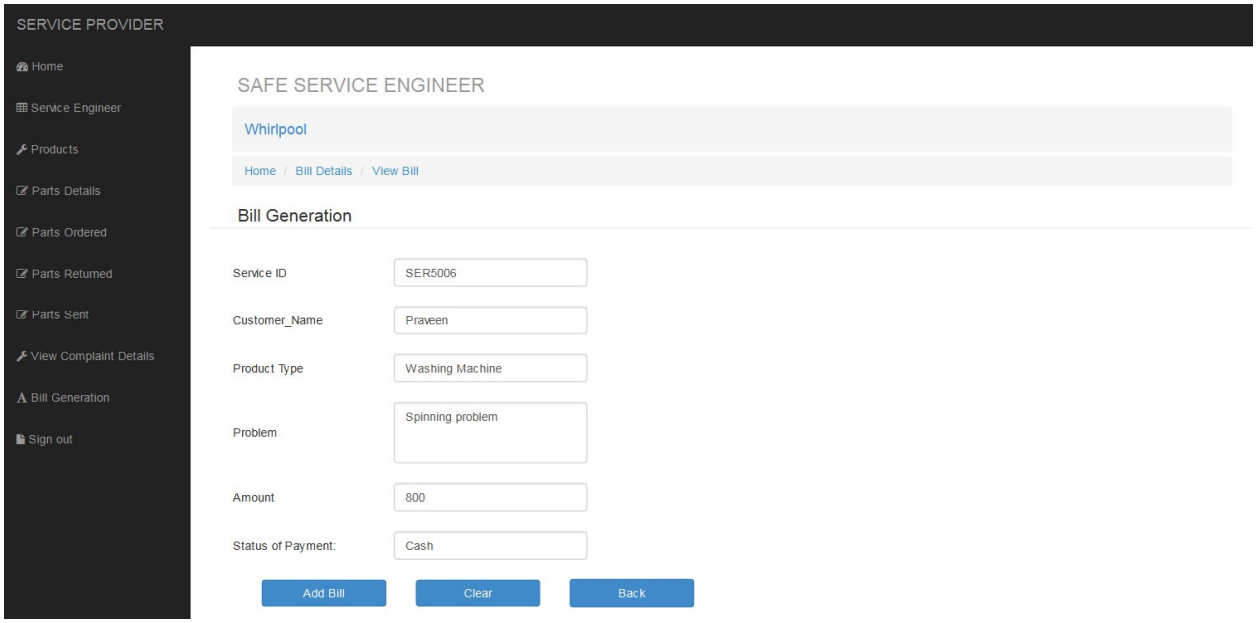


Figure 1.30

Bill Generation:



ANDROID:

Figure 1.31

Service Engineer Login:

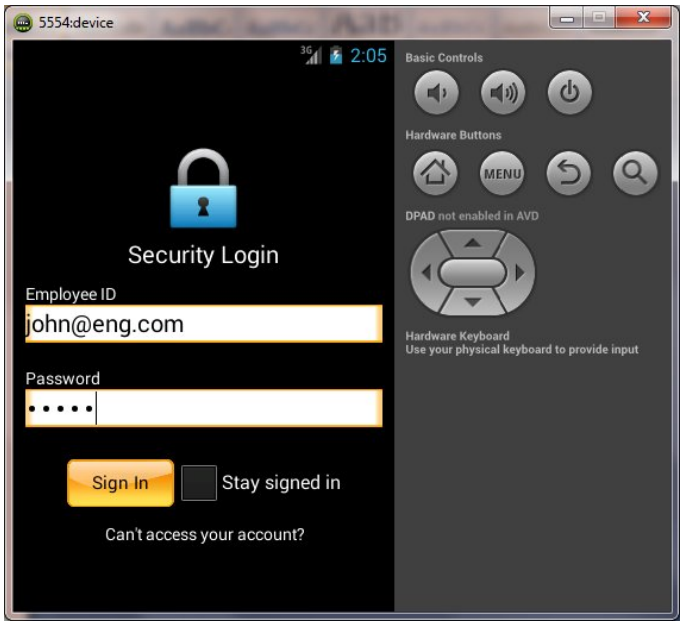


Figure 1.32

View allocated Complaint:

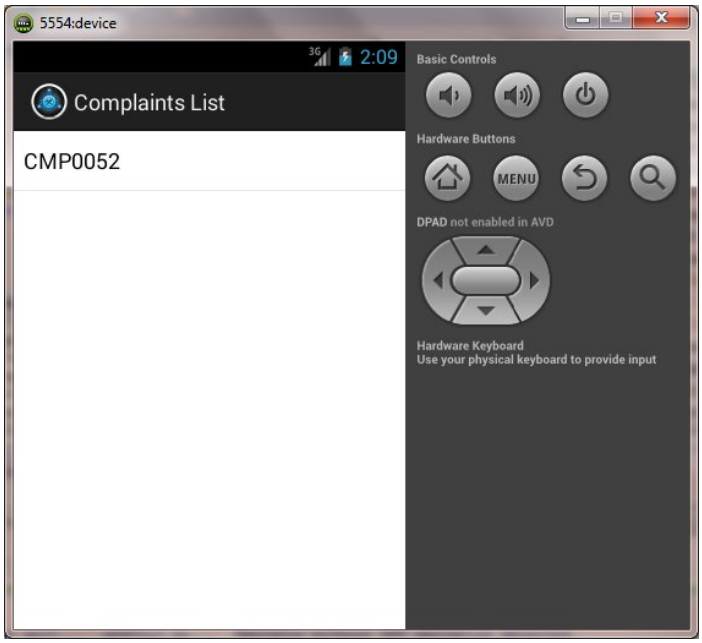
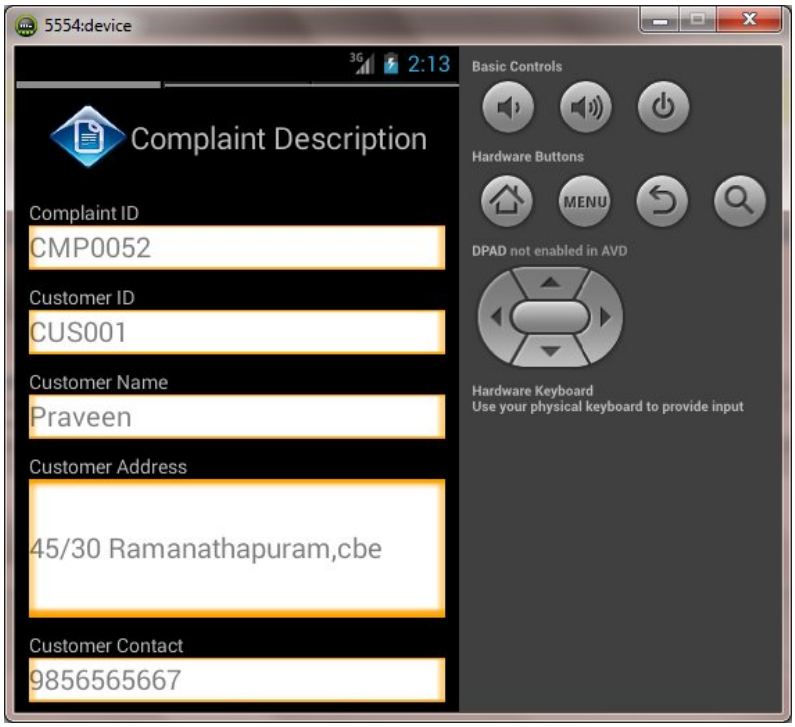


Figure 1.33

Complaint Description details:



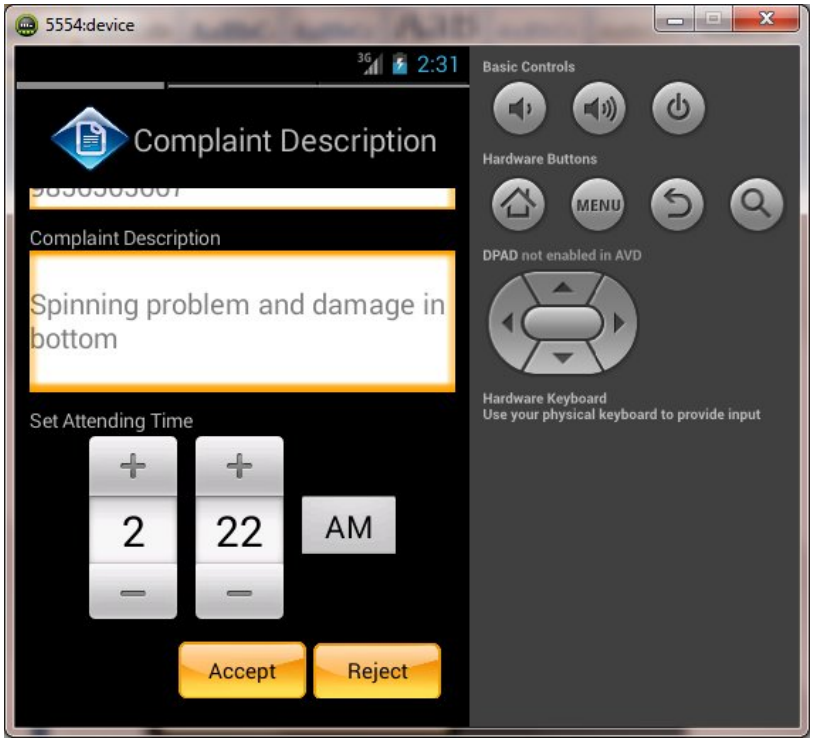


Figure 1.34

Other Tasks:

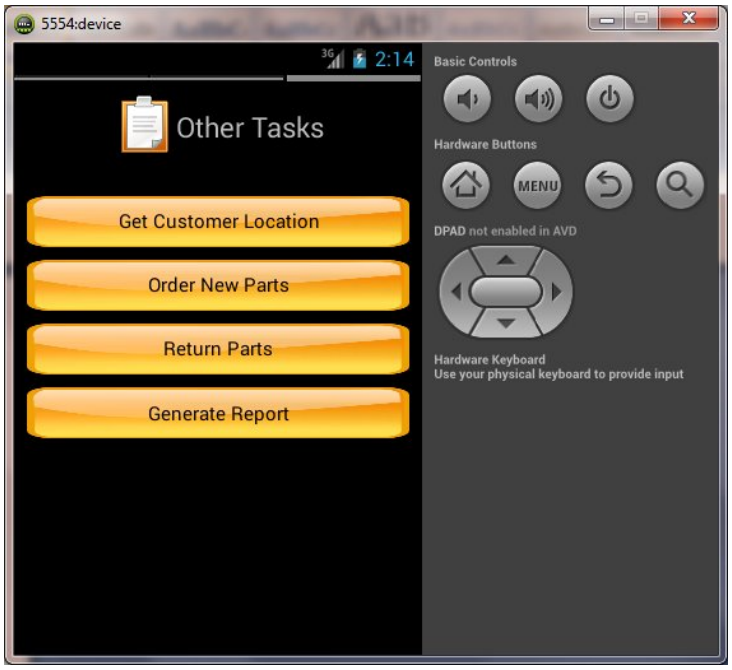


Figure 1.35

Order New Parts

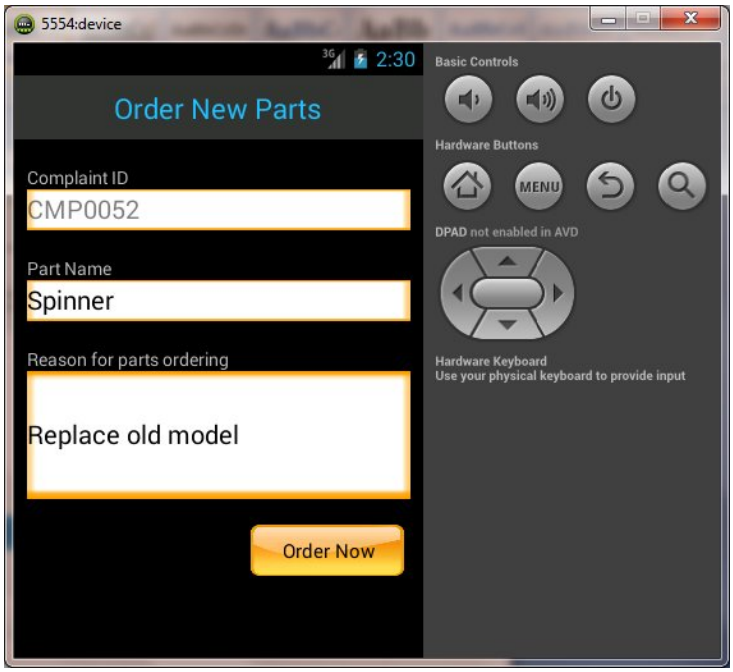


Figure 1.36

Return Parts

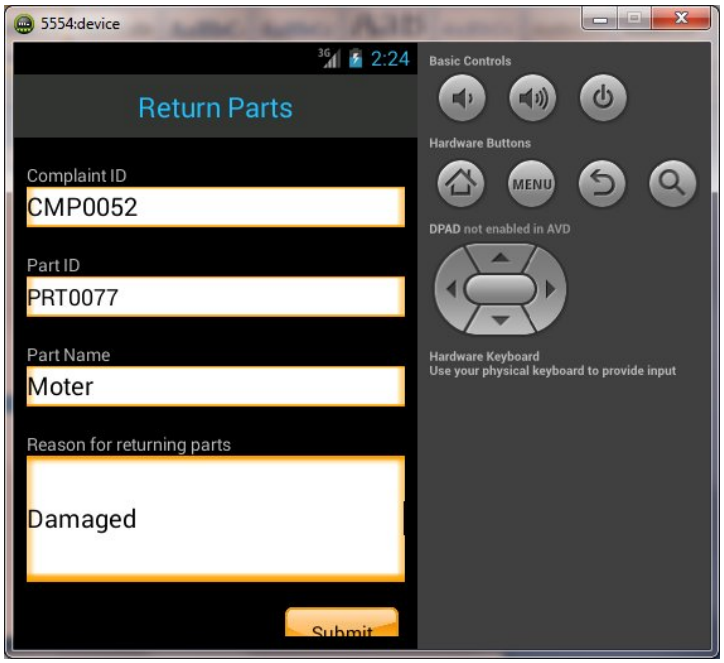


Figure 1.37

Report

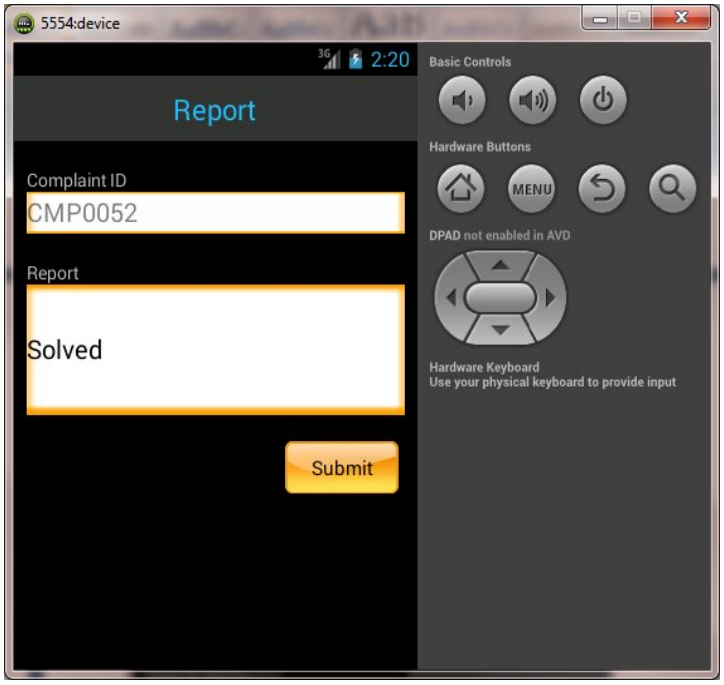


Figure 1.38

Customer location: