

KUMARAGURU COLLEGE OF TECHNOLOGY Department of Computer Science and Engineering COIMBATORE – 641 006.



E-Governance In Telecommunication

PROJECT WORK DONE AT

PENTASOFT TECHNOLOGIES LTD., CHENNAI.

PROJECT REPORT

SUBMITTED BY

T.S. Pradeep Kumar Register # 0038M1048

UNDER THE GUIDANCE OF

Mr. R.K. Gnanamurthy, M.E., M.I.S.T.E., Senior Lecturer, Department of Computer Science and Engineering

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF **MASTER OF COMPUTER APPLICATIONS**OF BHARATHIAR UNIVERSITY, COIMBATORE.

2000 - 2003

KUMARAGURU COLLEGE OF TECHNOLOGY

(Affiliated to Bharathiar University)
COIMBATORE.



Department of Computer Science and Engineering

This is to certify that the project work entitled

E-Governance In Telecommunication Online Telephony

is the bonafide work done by

T.S. Pradeep Kumar 0038M1048

Submitted in partial fulfillment of the requirements for the award of degree of Master of Computer Applications of Bharathiar University, Coimbatore.

S. J. Head of the Department

\ Internal Guide

Viva Voce examination for this project report held on 16-04-2003,

Internal-Examiner.

External Examiner 4



TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. T.S. PRADEEP KUMAR Student of Kumara Guru College Of Technology, had completed his project in "E-Governance in Telecommunication" using ASP.NET, SQL SERVER 2000 from November 2002 to March 2003 at our organization for the partial fulfillment of MCA degree awarded by University of Bharathiyar.

During this period his performance was good and we wish him for future endeavors.

Date: 27-03-2003

Place: Chennai - 24.

Authorized Signatory

Pentasoft Technologies Limited.



TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. T.S. PRADEEP KUMAR Student of Kumaraguru College of Technology, had completed his project in "E-Governance in Telecommunication" at our organization and I assure that this project is not submitted by any of the University.

Date: 29-03-2003

Place: Chennai - 24.

Project Guide

Pentasoft Technologies Limited.

DECLARATION

I hereby declare that this project work entitled "E-Governance In Telecommunication – Online Telephony" submitted to Kumaraguru College of Technology, Coimbatore is a record of original work done by me under the guidance of *Mr.R.K.Gnanamurthy M.E., M.I.S.T.E.*, in partial fulfillment for the award of the degree of Master of Computer Applications of Bharathiar University. It is also declare that this does not form the basis for award of any degree fellowship in any other University and it is not similar to one submitted by any other candidate.

Countersigned by

R.K. Gnanamurthy

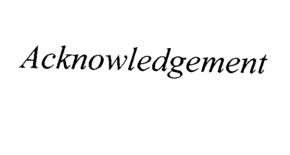
Signature of the Student

J. S. Prondeep Kumay.

T.S. Pradeep Kumar

Place: Coimbatore.

Date : 8/4/-003.



Acknowledgement

First of all, I express my sincere gratitude to our honorable Correspondent *Prof. K. Arumugam B.E., M.S., MIE*, for his encouragement and guidance throughout this course.

I wish to express my profound gratitude to our honorable Principal **Dr.K.K.Padmanabhan M.Tech.**, **Ph.D**, for his overwhelming support evinced in my project.

I express my sincere thanks to our Professor and Head of the Department **Dr.S.Thangasamy Ph.D.**, for his constant and dedicated service to brighten our career.

I also express my sincere thanks to our Assistant Professor

Shri.A.Muthukumar M.Sc., M.Phil., for the encouragement during the course of my project work.

My heartiest thanks to my project guide Shri.R.K.Gnanamurthy M.E., M.I.S.T.E., Senior Lecturer, for the valuable guidance and encouragement during the course of my project work. I am also grateful to all the other faculty members for their valuable guidance.

I also express my deep gratitude to the my project guide, Shri.S.Karthikeyan, of Pentasoft Technologies Limited, Chennai for providing me the opportunity of working in their platform and package as well as for encouraging me during the tenure of my project work.

Last but not the least, I wish to express my deep sense of gratitude and sincere thanks to my parents, colleagues and all my well-wishers for their fullest and kind co-operation during the course of my project.

Synopsis

Synopsis

The Project work entitled "E-Governance In Telecommunication - Online Telephony" deals with providing information about the subscribers and administering the functions involved in the "Department of Telecommunication". It is developed using Client/Server Architecture. These functionalities are supported by Microsoft SQL Server databases which interact with ASP.NET to provide fast and efficient web services.

.This system caters for the following functions.

- Administrative Processes.
- Subscriber / User Needs.
- Searching Facilities.
- Complaints & Feedback.

Administrative Processes, contain the stages involved in initiating a new telephone connection, providing extra facilities, removing existing facilities, change of address and change of subscriber, canceling an existing connection by the department. The Subscriber/User needs involve demanding and registration processes and also to check the connection status.

Searching Facilities involve the process of finding out the subscriber's information, NSD & ISD codes, and the important services offered by the stations. The final process involves registering complaints, providing suggestions and also administering the needs accordingly.

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Organization Profile

Organization Profile

Pentasoft Technologies Limited

Software Training and Development Company dealing with Mainframe based on IBM, Multimedia, Internet, Web and .NET Technologies located in Chennai.

The Company products are Flexible, Dynamic and Responsive. The developers work in unity to improve the quality of lives, globally and programming the future.

The Company's dream is

- To see India emerge as an IT Super Power.
- To transit from IT to Interactive IT to Intelligence Information Technology.

The Company has branches located world wide in USA, UK, Singapore, Malaysia, Mauritius & Thailand, with branches in India located at Chennai, Delhi, Calcutta, Mumbai, Bangalore, Coimbatore, Chandigarh, Secundarabad and Trivandrum.

Sister Concerns

Pentamedia Graphics and Technology

World's No.2 Company in Multimedia Technology with 175 main branches directly dealing with the head office and several franchisees.

Media Dreams

A Production Company dealing with production and distribution of animated films and teleserials.

Project Profile

Introduction

The main objective of the project "E-Governance in Telecommunication – Online Telephony" is to provide efficient and easy way of user interaction with the department. This enables the subscribers of the department to use the web to achieve their needs.

As such this project is very much useful to the subscribers of the department in many ways. The overall functionalities include providing or terminating connection, extra facilities etc. Due importance was given to directory enquiry facilities as it would be of much use to business community and in case of urgencies.

Almost every process that takes place in a telecommunication office is included in this project. This accounts to a situation where a subscriber could fulfill his needs just with Internet. There is no need that he should waste time by approaching the office and waiting for his needs to be fulfilled.

This project is built using well designed ASP.Net pages which are user-friendly and rely on the most advanced .Net Platform. The Database tables are well supported by Microsoft SQL Server 2000.

The facilities that included are targeted at the normal subscriber. This system includes proper authentication processes to enable data integrity and security. It also possesses strong merits like efficient data access, code reusability, easy understanding and maintenance.

Purpose

The purpose behind the design and implementation of this project is to provide better service not only to the subscribers of the department of telecommunication but also to other users. This would help business people who are new to the stations and are in need to search for their clients and their information. They can just log on to the site to avail the exhaustive search facilities that are included in this project and get benefited by them.

The features provided with the system will surely reduce the amount of time included in getting a work done. From the administrator's point of view, he can easily manage the day-to-day functioning of the office.

Scope

E-Governance in Telecommunication would be of much use to the Department of Telecommunication to provide better and much efficient service to its subscribers so as to increase the no. of subscribers and to easily manage the operations involved.

This system as such can be incorporated into any private telephone exchanges also, as there should be some means to simplify the complex operations involved in maintaining a standard with the subscribers.

Also, this project will be ideally suited for private mobile phone authorities. As there is a huge growing need for mobile phones and steep competition among the mobile service providers to get a strong hold among the subscribers by providing comparatively better service options.

System Study

Existing System

The Existing Telephone system has so many difficulties involved in getting information about a subscriber. Administering the needs of a subscriber too gets difficult with the current system of telephone department.

In existing system, everything is very formal, any process should be accompanied by a requisition letter or an application form addressed to the head of operations of that zone. Searching for a telephone number or a subscriber is almost not possible for a non-subscriber when the telephone directory is not available.

As all the operations are manual, more time has to be spent by a subscriber to get his needs fulfilled. Moreover, a number of subscribers pose a threat for any information retrieval. Also, processes like changing of address, changing of subscriber would take a considerable amount of time to get done.

Need for Proposed System

Viewing the difficulties that are present in the existing system, a new system was needed to govern every action that happens within the telecommunication department without wasting any time.

Some system needs to be implemented to get rid of the drawbacks that are present in the manual system in the Department of Telecommunication.

The major drawbacks that are found in the existing system are:

- Every process is manual.
- Time is a major factor in providing service.

- Rendering a service becomes difficult with more number of subscribers.
- All Requisitions are to be separately sent to the desk of zonal head
- No control over station-wise information
- Subscriber and Customer satisfaction could not be given.
- Billing often gets complex

Proposed System

The main aim of this E-Governance package is to replace the manual system of work to maintain and control the administrative processes that are carried out in the Department of Telecommunication with the help of Web.

In this package the control will be centralized. Almost all the operations would be fully automated. Security will be given much importance as only the administrator will have access to all the information. No one else should view or modify or take control over those information except proper authentication.

The objectives of this package are,

- To control the processes of Department of Telecommunication
- Graphical User input screens will be developed with care to make it very user friendly
- Directory Enquiry Facilities will be given due care as they will be of much use to even non-subscribers.
- Security to access subscriber's information will be taken much interest.
- To provide every service that is needed to a subscriber.

- Tasks of Information Services department would be made easier.
- Any changes within the department would be implemented in this package with minimum modifications.

This system includes the following operations,

- Administrative Processes Includes the operations of initiating a new connection, change of address, extra facility and so on.
- Subscriber / User Needs Includes the demand and registration processes that needs to be administered.
- Searching Facilities

 Includes the Directory Enquiry facilities
 together with the information gathering process.
- Complaints & Feedback Includes the complaints registration and giving
 out suggestion, feedbacks to improve the
 performance of telecommunication department.

System Analysis

Feasibility Study

A feasibility study is carried out to select the best that meets performance requirements that the system will be beneficial to the department of telephone.

Therefore the feasibility study is necessary for every computer – based system. Some of the main tests of feasibility are

- Technical feasibility
- Economical feasibility
- Operational feasibility

Technical Feasibility

It is the study of functional performance that may affect the ability to achieve the acceptable system.

- Software used here is Visual Studio.NET is readily available in market.
- The cost of the Visual Studio.NET is compact when compared to others.
- Similarly SQL Server 2000 is also easy to adapt to the system.

Issues that are relatively small and seems just minor irritant in the beginning have ways of growing into big major problems after the implementation. Therefore the operational aspects must be considered carefully.

Economic Feasibility

Economic analysis is the most frequently used method for valuing the effectiveness of the system. More commonly known as Cost / Benefit Analysis, the procedure is to determine the benefits and saving that are expected from a system and compare them with cost.

It is the development cost weighed against the ultimate income or benefit from the developed system or product. Economic feasibility depends on the cost required for the total project.

Cost benefit analysis is done for the system to be developed and it is economically feasible.

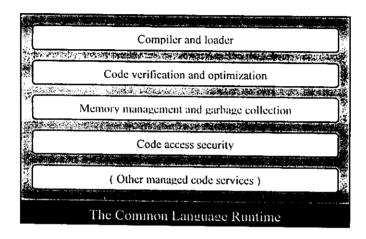
Operational Feasibility

It is more flexible to use very efficiently because entire project was done by GUI windows environment and already available in the market. The process involved in these project operations are transparent to use by the novice users.

Software Requirement Specification

The NET Framework

The Common Language Runtime (CLR), the .Net runtime engine that executes all .NET programs, and provides modern services such as automatic memory management, security, optimization, and garbage collection.



Implications of CLR

Deep language integration All .NET languages, compile to a special Intermediate Language called MSIL (or just IL). This is far more than just language compatibility.

Metadata The extra information about the classes of the components. This automatically prevents an application from using the wrong version of a component.

Side – by – side execution Multiple versions of .NET framework can be installed, meaning that we able to upgrade to new versions of ASP.NET without replacing the current version.

Fewer errors Prevents the wide variety of memory mistakes that are possible with pointers.

The .NET Class Library, which collects thousands of pieces of prebuild functionality that we can snap in to our applications. These are sometimes organized into technology sets, such as ADO.NET (the technology for creating database applications). The Class library targets directly at web development, enabling Web Services, web form user interface, and countless utility classes.

Characteristics

Open standards The deep integration to work with open standards, such as XML and HTTP for Web Services makes cross – platform work much easier.

Disconnected model The dataset process of .NET technology gives up the disconnected, scalable access.

Emphasis on infrastructure Automatic handling of files, message queues, databases, and remote method calls (through Web Services) needs us to only orient on the logic.

ASP.NET, A Programming Framework built on the Common Language runtime that can be used on a server to build powerful web applications. The programmer interact with it by using the appropriate types in the class library to write programs and design web forms. When a client requests a page, the ASP.NET service runs (inside the CLR environment), executes the code, and creates a final HTML page to send to the client. ASP.NET pages and ASP.NET XML Web Services files contain server-side logic (as opposed to client side logic) written in Visual Basic .NET, C# .NET, or any .NET compatible language. Web applications and XML Web Services take advantage of the features of the common language runtime, such as type safety, inheritance, language interoperability, versioning, and integrated security.

Features

Enhanced Performance Fast access to the server by the use of buffers created for every program.

Server Controls Server based equivalents for standard IITML elements. They generate their own interface, retain their state and fire events.

Web Controls Provide a rich user interface, a consistent object model, high level features and tailor output automatically.

Validation & Rich Controls Automates time-consuming and complicated task – verifying user input and reporting errors with an elegant, easy-to-use collection of validators.

Interoperability Web Pages are designed in a modern .NET language that overcomes the scripting limitations.

Web Services A slew of new feature uses WSDL that allow web sites to be dynamically updated and reconfigured.

Visual Studio .NET, An optional development tool that provides a rich environment to rapidly create advanced applications.

Features

Automatic error detection The "spell-as-you-go" feature that detect and reports error automatically.

Debugging tools Legendary debugging tools allow us to watch our code in action and track the contents of variables.

Page design Attractive page can be created with drag-and-drop ease using integrated web form designer.

IntelliSense Provides statement completion for recognized objects, and automatically lists information such as function parameters in helpful ToolTips.

OPERATING SYSTEM

Microsoft Windows 2000 Server is the multipurpose network operating system for businesses of all sizes. The world's best-selling server operating system. Windows 2000 Server lets us:

- Share files and printers reliably and securely.
- Choose from thousands of business applications compatible to run today on Windows 2000 Server.
- Build Web applications and connect to the Internet.
- This combination and flexibility delivers a strong business value proposition for today's IT customer.

Windows 2000 Server is the right solution for workgroup file, print, and communication servers. Powerful end-to-end management, reliability, and scalability features provide the best foundation for integrating our business with the Internet.

The immediate return on investment and the way Windows 2000 Server maps to our long-term goals makes it a perfect fit for our business. The upgrade is so easy.

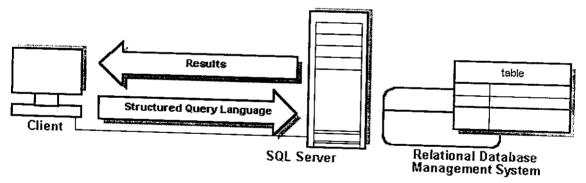
It is a multithreaded and pre-emptive multi tasking operating system which means that it can run multiple applications simultaneously more smoothly. Especially if those programs are of the new breed 32-bit application for windows. Multiple users can access the same application at a time.

Windows run fast on Pentium machines. Easy to install and depends on which event occurs, which in turn depends on what the user does. This is the essence of graphical user interfaces and event driven programming. The user is 'Incharge' and our code responds.

The windows system receives all the events, both hardware and software. There are about 1000 and more API functions available in windows operating system. These events include a keyboard stroke, mouse movement, a system timer event. The windows system converts each event into a message. The message also carries along with it, other information about nature of the event.

SQL SERVER 2000

Business today demands a different kind of data management solution. Performance, scalability, and reliability are essential, but businesses now expect more from their key IT investments.



Microsoft SQL Server 2000 exceeds dependability requirements and provides innovative capabilities that increase employee effectiveness, integrate heterogeneous IT ecosystems, and maximize capital and operating budgets. SQL Server 2000 provides the enterprise data management platform our organization needs to adapt quickly in a fast-changing environment.

With the lowest implementation and maintenance costs in the industry, SQL Server 2000 delivers rapid return on our data management investment. SQL Server 2000 supports the rapid development of enterprise-class business applications that can give our company a critical competitive advantage.

Benchmarked for scalability, speed, and performance, SQL Server 2000 is a fully enterprise-class database product, providing core support for Extensible Markup Language (XML) and Internet queries.

Easy-to-Use Business Intelligence (BI) Tools Through rich data analysis and data mining capabilities that integrate with familiar applications such as Microsoft Office, SQL Server 2000 enables us to provide all of your employees with critical, timely business information tailored to their specific information needs.

Self-Tuning and Management Capabilities Revolutionary selftuning and dynamic self-configuring features optimize database performance, while management tools automate standard activities. Graphical tools and wizards simplify setup, database design, and performance monitoring, allowing database administrators to focus on meeting strategic business needs.

Data Management Applications and Services Unlike its competitors, SQL Server 2000 provides a powerful and comprehensive data management platform. Every software license includes extensive management and development tools, a powerful extraction, transformation, and loading (ETL) tool, business intelligence and analysis services, and new capabilities such as Notification Services. The result is the best overall business value available.

To communicate with database SQL supports the commands,

DDL - Data Definition Language - Supports create, alter, drop and revoke commands.

DML - Data Manipulation Language - Supports insert, delete, select and update commands.

TCL - Transaction Control Language - Supports commit, save point and role back commands.

Benefits of SQL

- Non procedural language, because more than one record can be
 accessed rather than one record at a time.
- It is a common language for all relational databases that is portable and it requires only small modifications to make use of in other database.
- Very simple commands for querying, inserting, deleting and modifying data and objects.

Web Servers

Web Servers run special software namely, the built-in Interner Information Services, or IIS to support mail exchange, FTP, HTTP access, and everything else clients expect in order to access web content. Generally, we perfect our web application on one computer, and then just copy all the files to the web server.

We actually access the page through IIS which runs the ASP.NET service and retrieve the final HTML through an HTTP transfer. IIS is included with Windows 2000, XP and NT as an optional component.

Envirornment Analysis

Hardware & Software Specification

Hardware Specification

Hardware Specification for the client



Intel Pentium - III 450 preferred



64 MB RAM minimum



VGA or high resolution screen supported by Microsoft Windows. (Samsung - Samtron 55V)

Hardware Specification for the server



Intel P – III 800 preferred



4 GB HDD



256 MB RAM

Software Specification

Software used Visual Studio.NET

Software Specification for the client

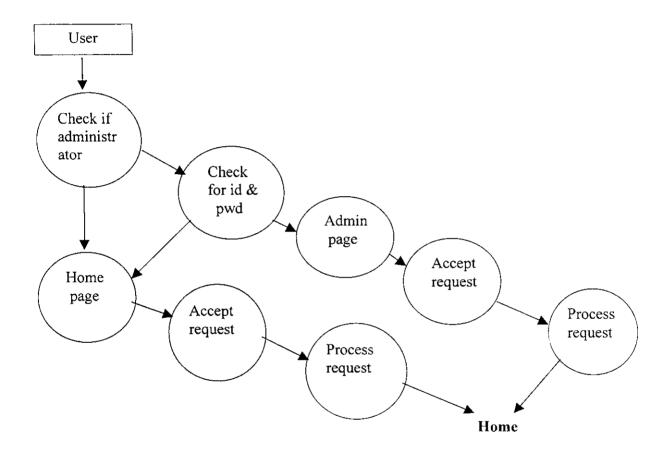
- Microsoft Windows 9x or more
- Internet Explorer 4.0+ or Netscape Navigator 4.0+

Software Specification for the server

- Microsoft Windows NT / 2000 server / Workstation or Microsoft Windows XP
- Microsoft SQL Server 2000
- Internet Explorer 4.0+ or Netscape Navigator 4.0+

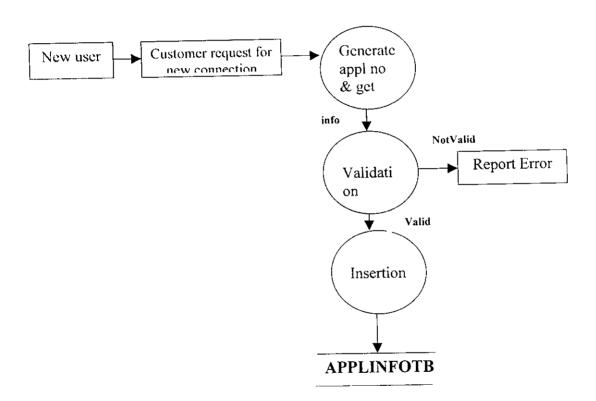
System Design

System Flow

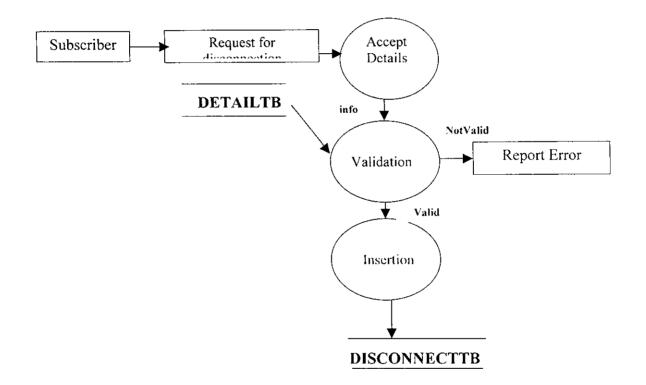


Data Flow Diagram

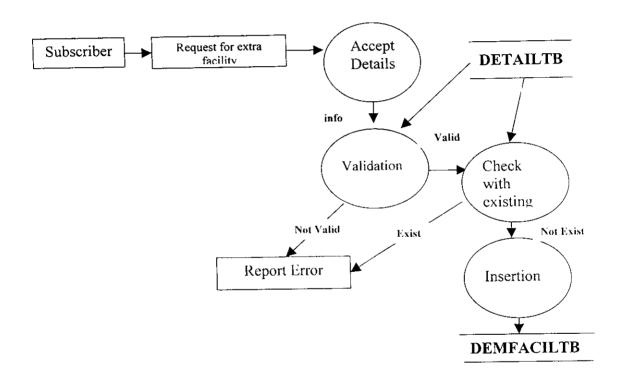
New Connection



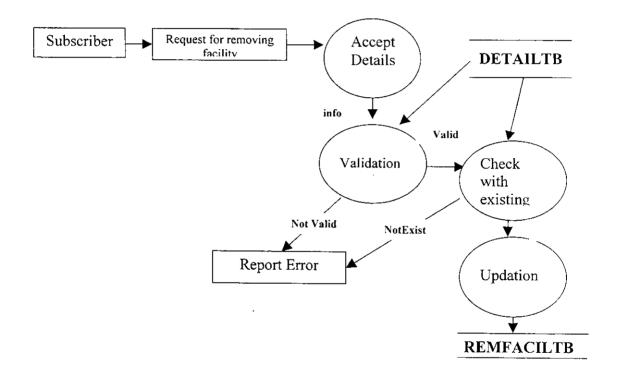
Disconnection



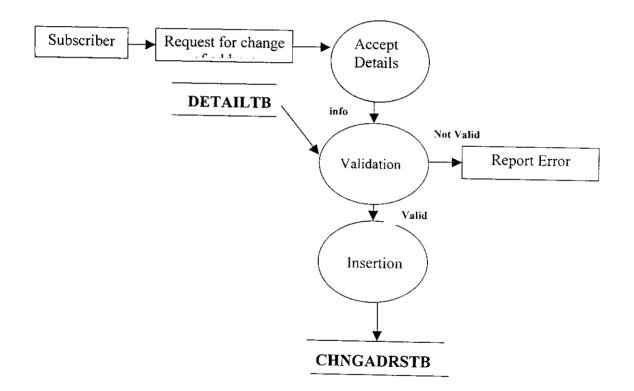
Extra Facilities



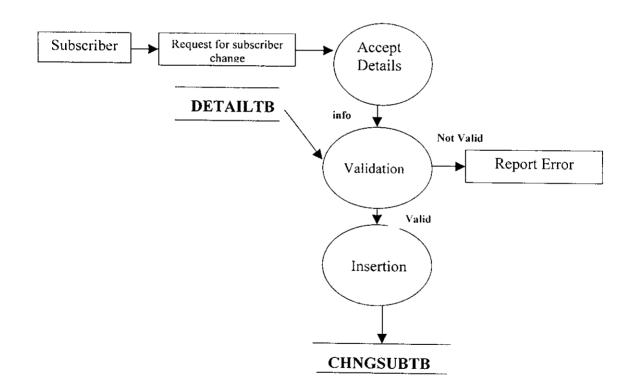
Remove Facilities



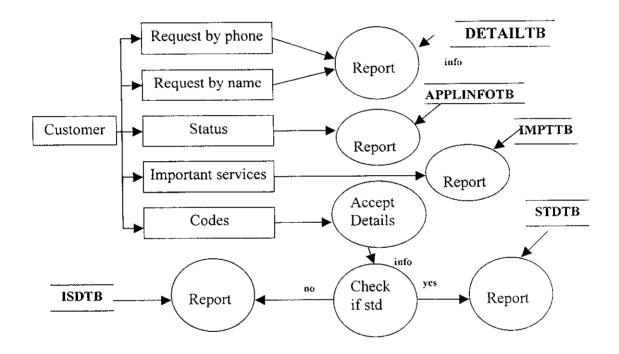
Change Of Address



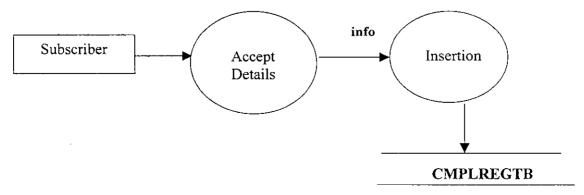
Change Of Subscriber



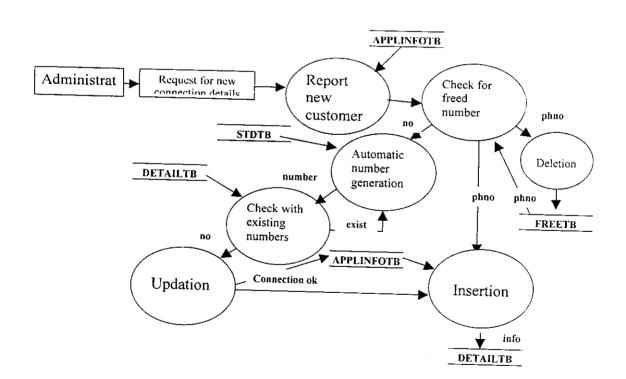
Searching Facilities



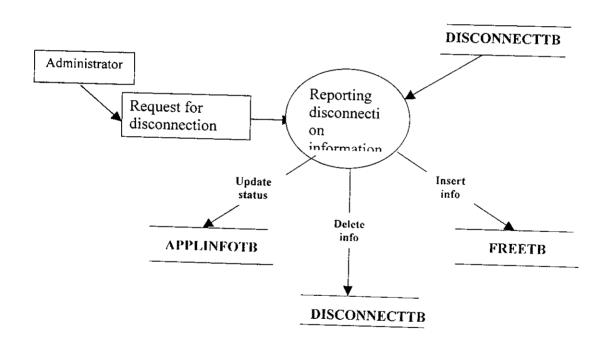
Complaints



Administering New Connection

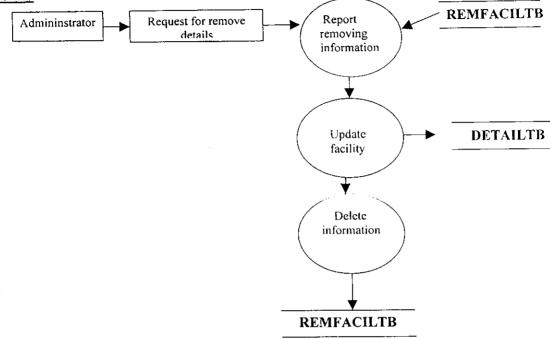


Administering Disconnection

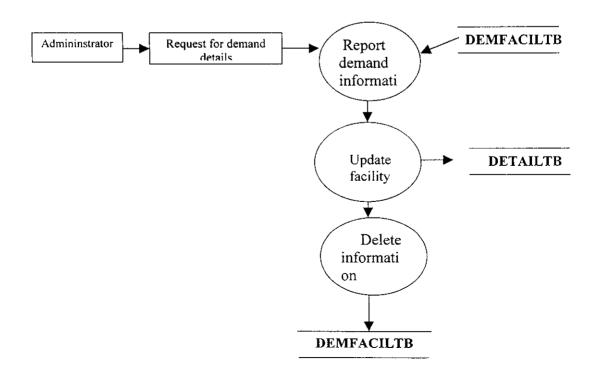


Removing Existing

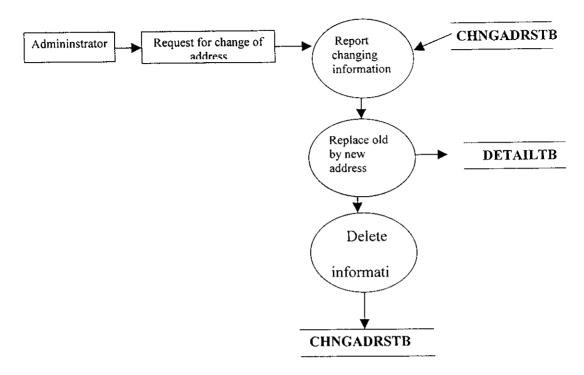
Facility



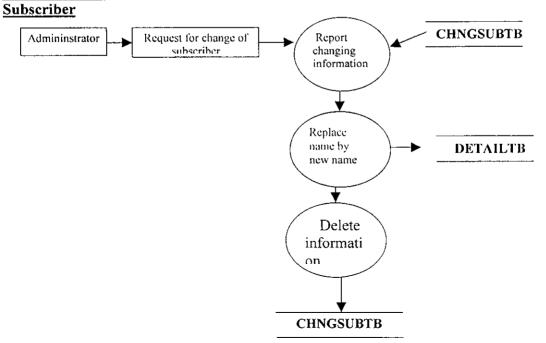
Providing Extra Facility

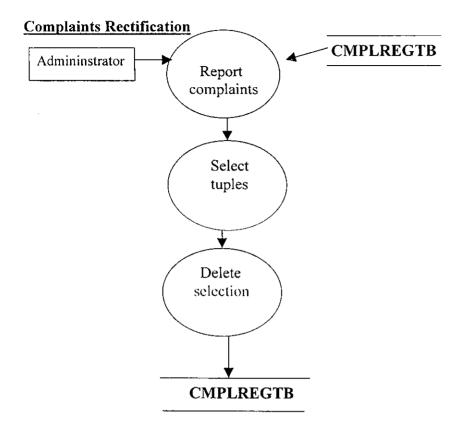


Providing Change Of Address

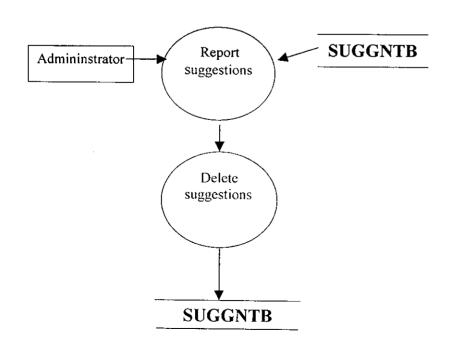


Providing Change Of

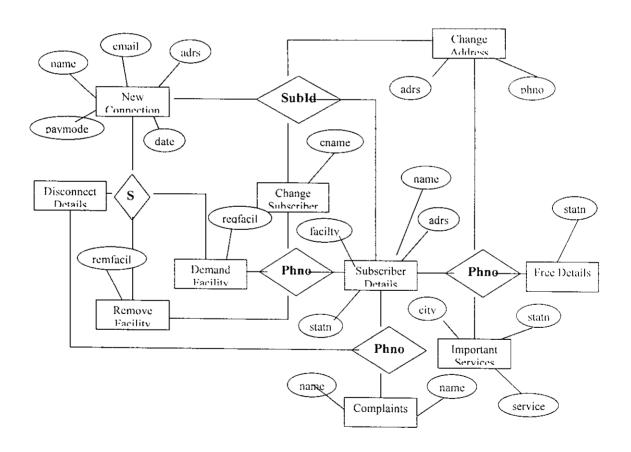




Administering Suggestions



Entity - Relationship Diagram



Database Design

Application Information

Column	Type	Length	Description
SUBID	INTEGER	10	Primary key – subscriber id
WHOM	VARCHAR	15	Organization / Individual
SUBNAME	VARCHAR	30	Subscriber name
JSUBNAME	VARCHAR	30	Joint Subscriber name
FNAME	VARCHAR	30	Father's name
PANNO	VARCHAR	10	Pan / Gir number
WPHNO	INTEGER	15	Working telephone number
EMAIL	VARCHAR	50	E-mail of applicant
CATCODE	VARCHAR	15	Category code
CGCODE	VARCHAR	30	Concessional group code
PURP	VARCHAR	10	Purpose of phone
RFACIL	VARCHAR	20	Facility required
RINST	VARCHAR	5	Instrument required / not
RIWIRE	VARCHAR	5	Internal wiring required / not
DATE	VARCHAR	12	Applied date
ADRS1	VARCHAR	50	Dno,st,apt,pincode
ADRS2	VARCHAR	30	Area,locality,tahsil
ADRS3	VARCHAR	25	City, district
BADRS	VARCHAR	110	Billing address
PAYMODE	VARCHAR	7	Paying mode
DDNO	INTEGER	10	Demand draft number
DDDATE	VARCHAR	12	Demand draft date
BNAME	VARCHAR	30	Bank name
BRANCH	VARCHAR	30	Branch name
CRNO	INTEGER	15	Credit card number
AMOUNT	DECIMAL	7,2	Amount for connection
STATN	VARCHAR	25	Station name
STAT	VARCHAR	20	Status of connection

Main Details

Column	Type	Length	Description
SUBID	INTEGER	10	Fk ref applifnotb
ADRS1	VARCHAR	50	Dno,st,apt,pincode
ADRS2	VARCHAR	30	Area,locality,tahsil
ADRS3	VARCHAR	25	City, district
PHNO	INTEGER	15	Generated phno
SUBNAME	VARCHAR	30	Subscriber name
FACIL	VARCHAR	20	Facility provided
STATN	VARCHAR	25	Station name

Demand Facility Info

Column	Type	Length	Description
SUBID	INTEGER	10	Fk ref applifnotb
PHNO	INTEGER	15	Fk ref detailtb
REQFACIL	VARCHAR	70	Facility required

Remove Facility Info

Column	Type	Length	Description
SUBID	INTEGER	10	Fk ref applifnotb
PHNO	INTEGER		Fk ref detailtb
REMFACIL	VARCHAR		Facility to be removed

Change Of Address Info

Column	Type	Length	Description
SUBID	INTEGER	10	Fk ref applifnotb
PHNO	INTEGER	15	Fk ref detailtb
ADRS1	VARCHAR	50	Dno,st,apt,pincode to change
ADRS2	VARCHAR	30	Area,locality,tahsil to change
ADRS3	VARCHAR	25	City, district to change

Change Of Subscriber Info

Column	Type	Length	Description
SUBID	INTEGER	10	Fk ref applifnotb
PHNO	INTEGER	15	Fk ref detailtb
CHNGNAME	VARCHAR	30	Name to be changed

Disconnection Info

Column	Type	Length	Description
SUBID	INTEGER	10	Fk ref applifnotb
PHNO	INTEGER	15	Fk ref detailtb

Important Services

Column	Type	Length	Description
CITY	VARCHAR	25	City name
STATN	VARCHAR	25	Station name
SERVICE	VARCHAR	60	Service offered
PHNO	INTEGER	15	Phone number

List STD

Column	Type	Length	Description
SLNO	INTEGER	10	Serial number
STATN	VARCHAR	25	Station name
STD	VARCHAR	10	Primary key - code
TDGT	INTEGER	2	Total digits
SDGT	INTEGER	2	Starting digit

List ISD

Column	Type	Length	Description
SLNO	INTEGER	10	Serial number
CNTRY	VARCHAR	30	Country name
ISD	VARCHAR	10	Primary key - code

Complaints

Column	Type	Length	Description
PHNO	INTEGER	15	Fk ref detailtb
SUBNAME	VARCHAR	30	Subscriber name
CMPL	VARCHAR	100	Complaints

Suggestions

Column	Type	Length	Description
NAME	VARCHAR	30	Name of suggestor
SUGGN	VARCHAR	200	Suggestion

Free Numbers

Column	Type	Length	Description
SLNO	INTEGER	4	Serial number
PHNO	INTEGER	15	Fk ref detailtb
STATN	VARCHAR	25	Station name

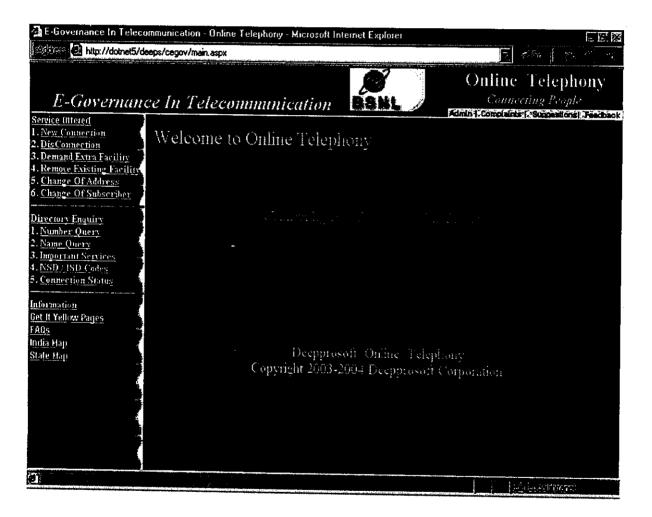
Admin Info

Column	Type	Length	Description
ADMINID	VARCHAR	30	Primary key
PWD	VARCHAR	15	Amdin password

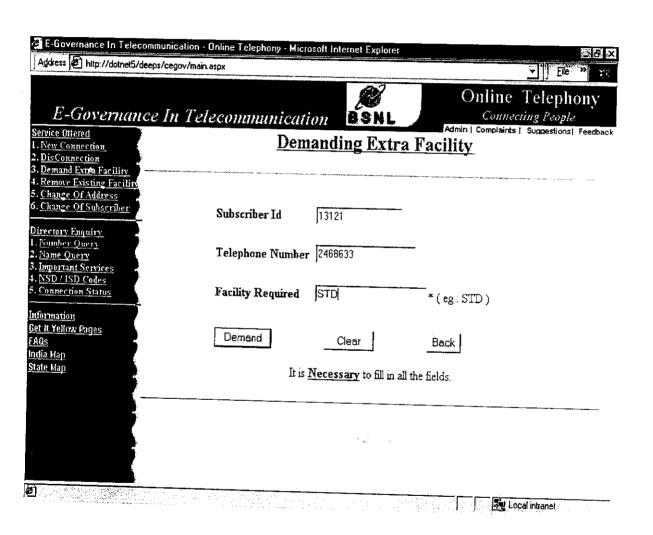
Feedback Info

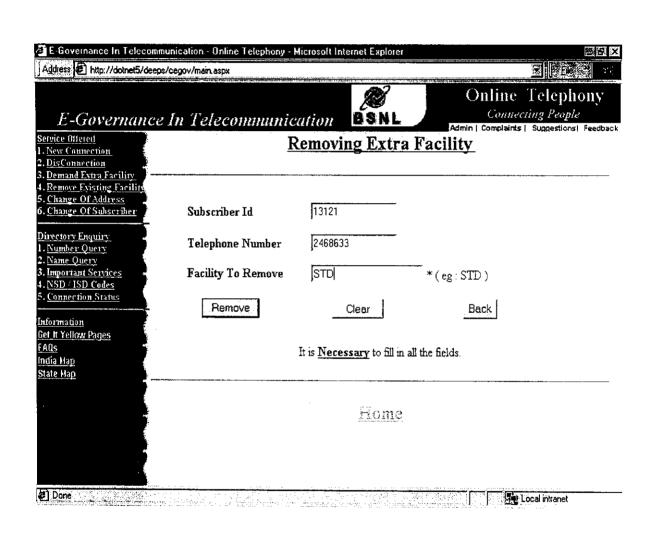
Column	Type	Length	Description
NAME	VARCHAR	30	Name of the customer
DESIG	VARCHAR	20	Designation
CMPNY	VARCHAR	30	Company name
EMAIL	VARCHAR	40	E-mail of the customer
ST	VARCHAR	50	Street name
STATE	VARCHAR	30	State
CITY	VARCHAR	30	City
PCODE	INTEGER	10	Pincode
C1CODE	INTEGER	10	Country code for telephone
A1CODE	VARCHAR		Area code for telephone
PHINO	VARCHAR		Telephone number
C2CODE	VARCHAR		Country code for fax
A2CODE	VARCHAR	I	Area code for fax
PH2NO	VARCHAR	T	Fax number
CNTRY	VARCHAR		Country
FEED	VARCHAR		Feedback information

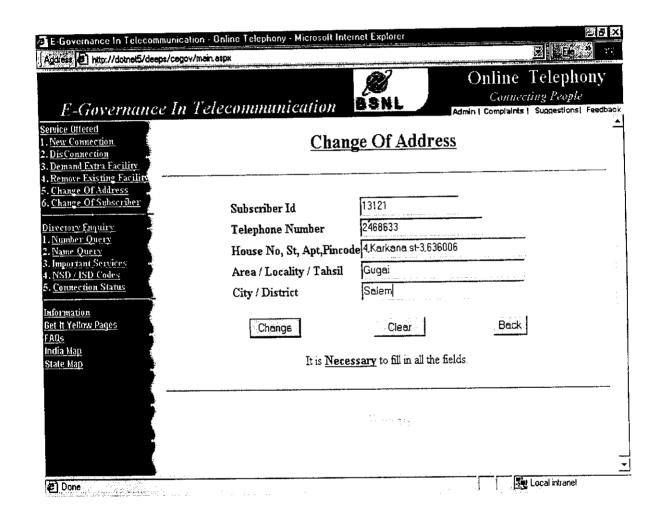
System I/O Design

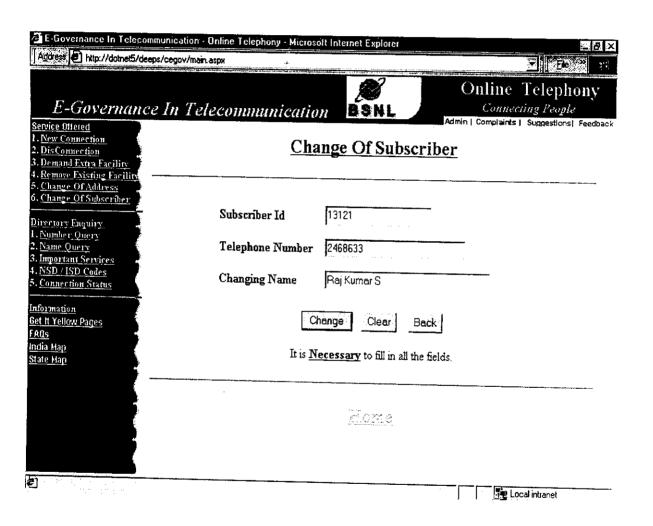


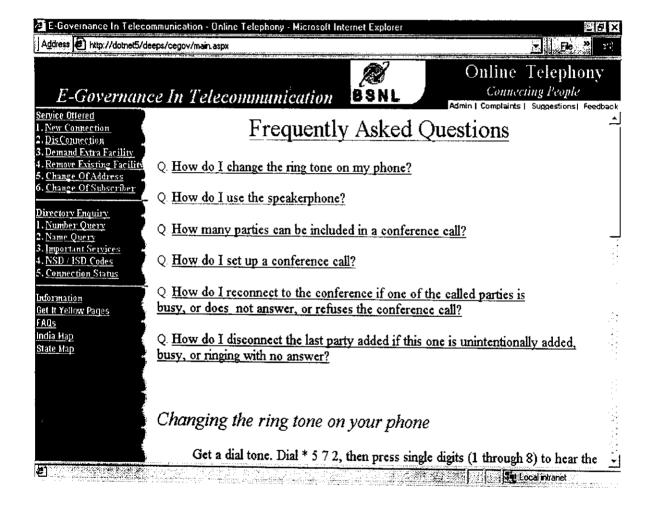
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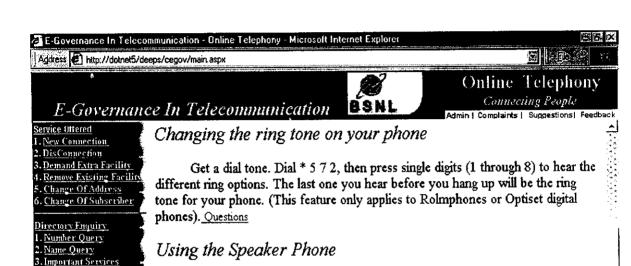












RP240, RP624SL, Opti Standard, Opti Advanced Plus)

Information Get It Yellow Pages FAQs

4. NSD (ISD Codes

5. Connection Status

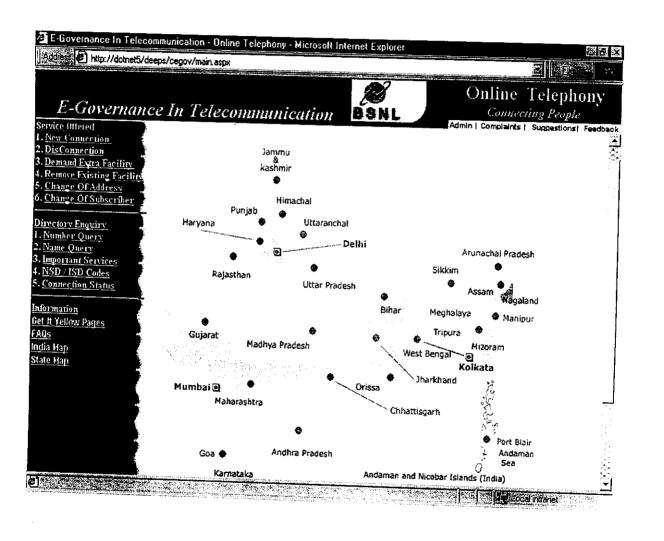
India Map State Map To use your speakerphone to make a call, press any line key and dial the number as usual.

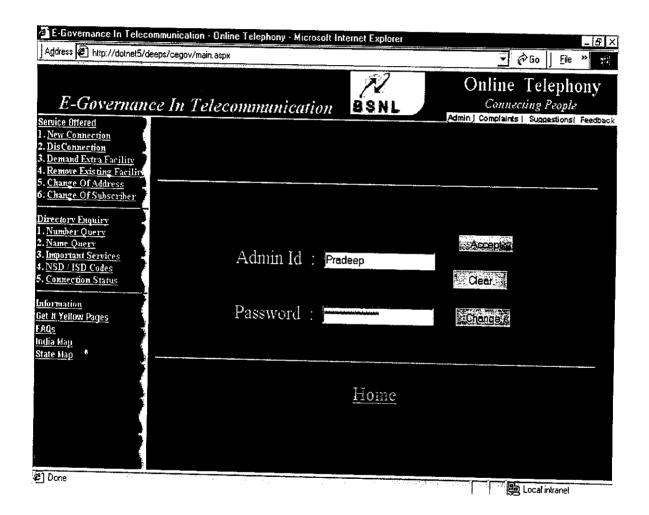
First check if your phone has this option (RP612S, RP612SL, RP624S,

To use your speakerphone during a call, simply press the speaker key (SPKR) and then hang up the handset. If you want to use your handset again just pick it up.

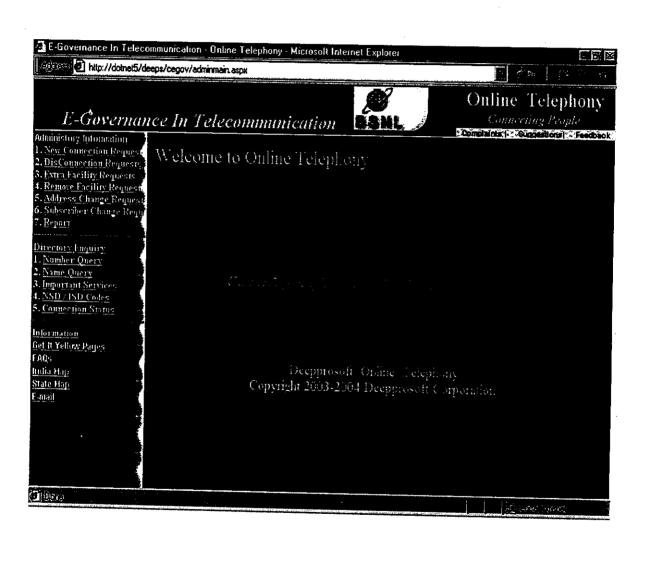
To use the speaker to answer a call, just press the key next to the blinking light. To hang up, press the key again. Questions

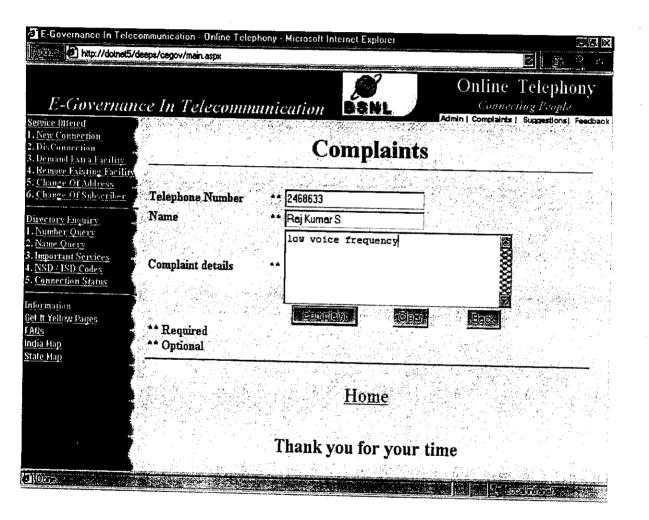


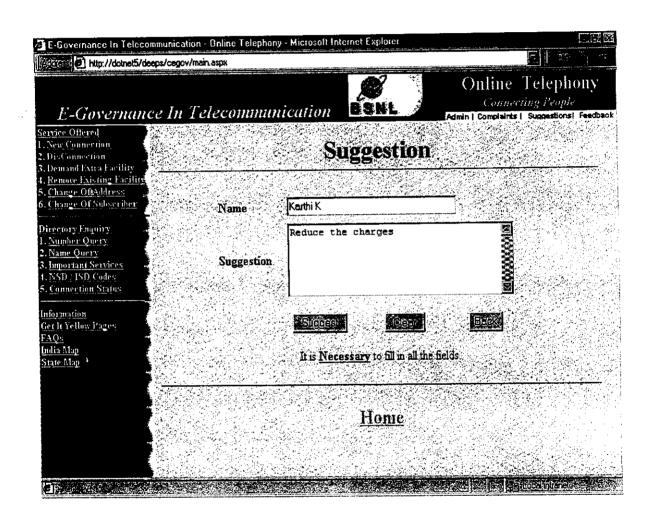


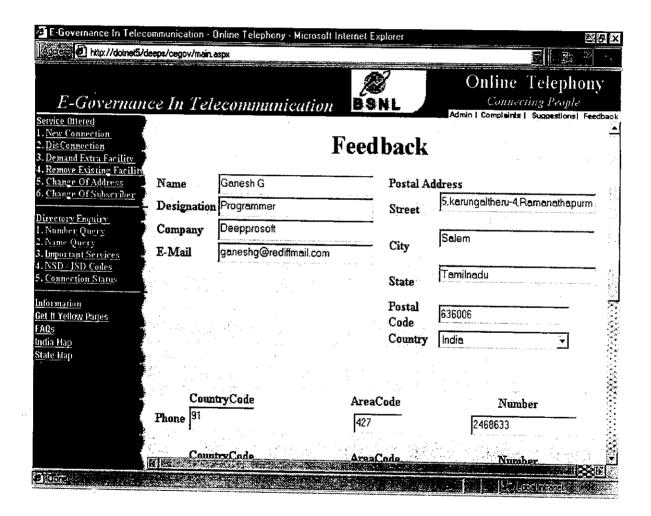


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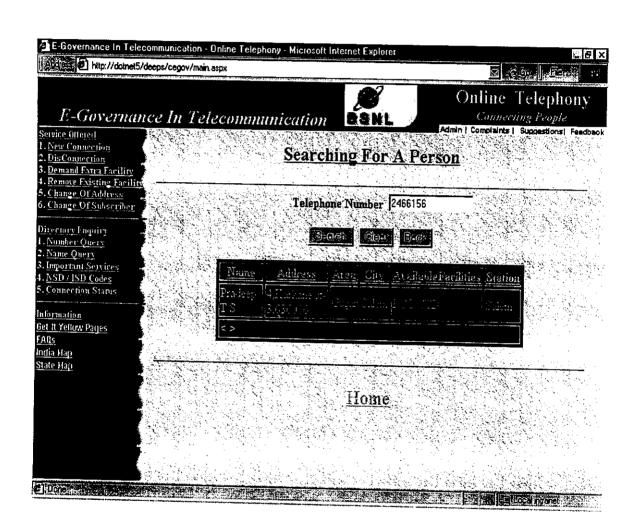


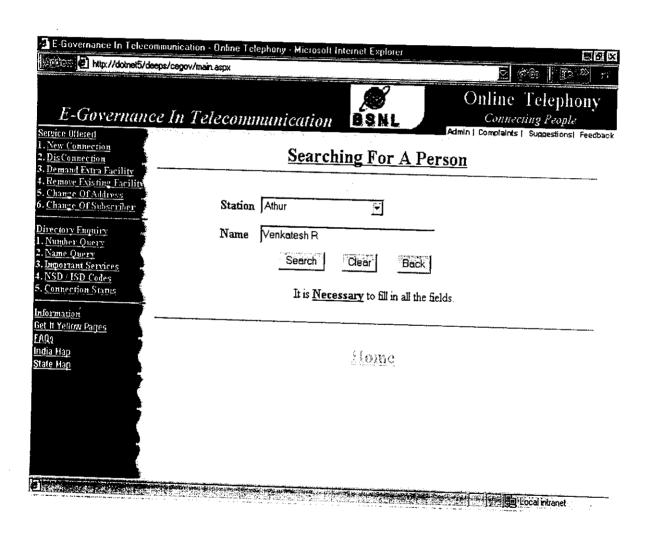


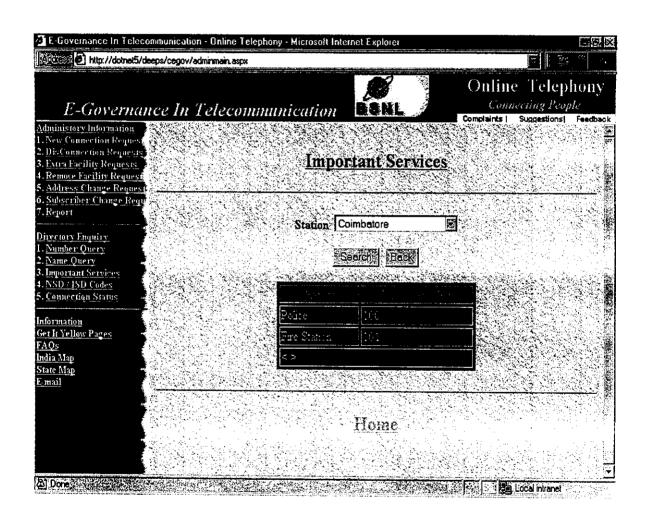


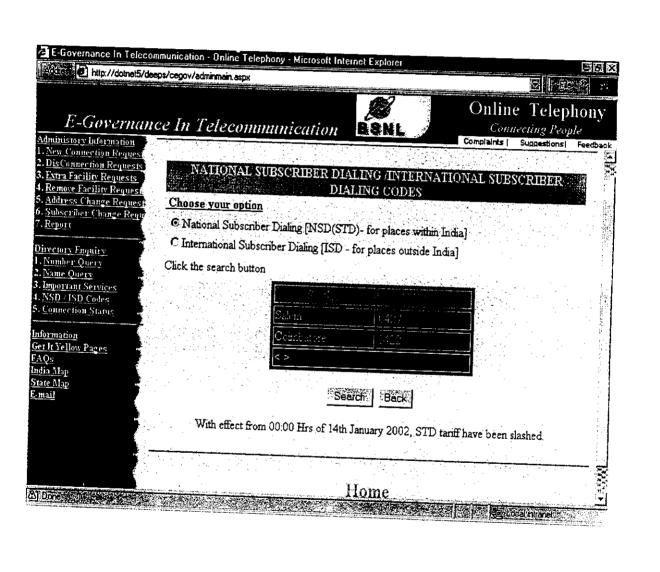


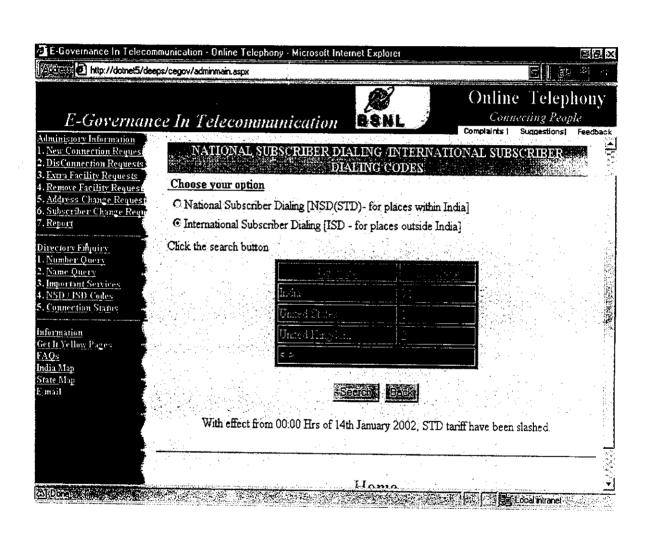
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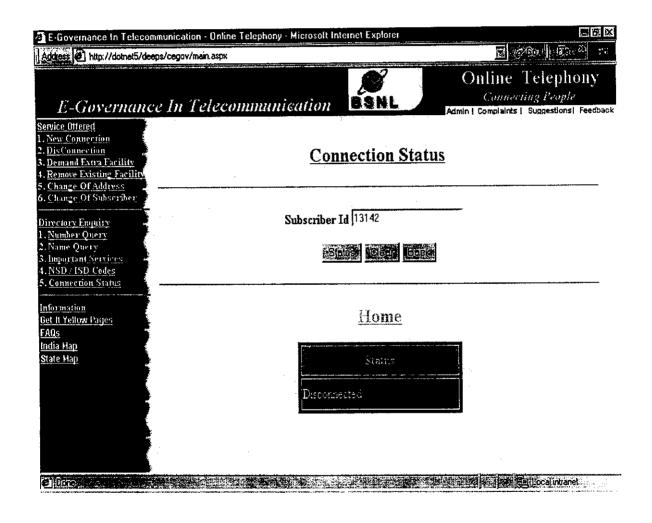


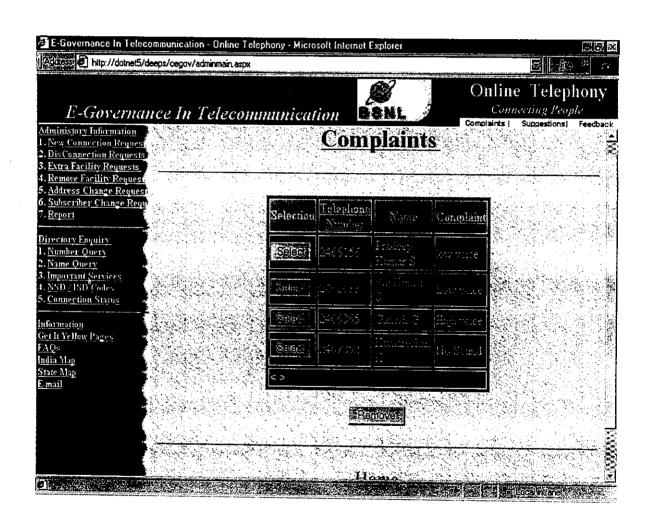


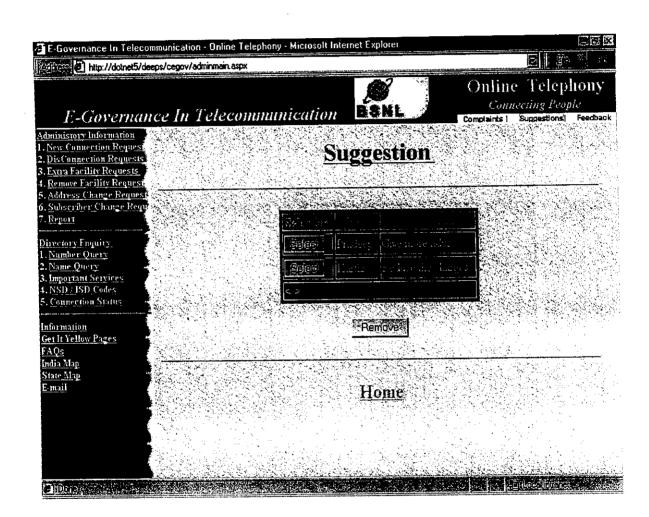


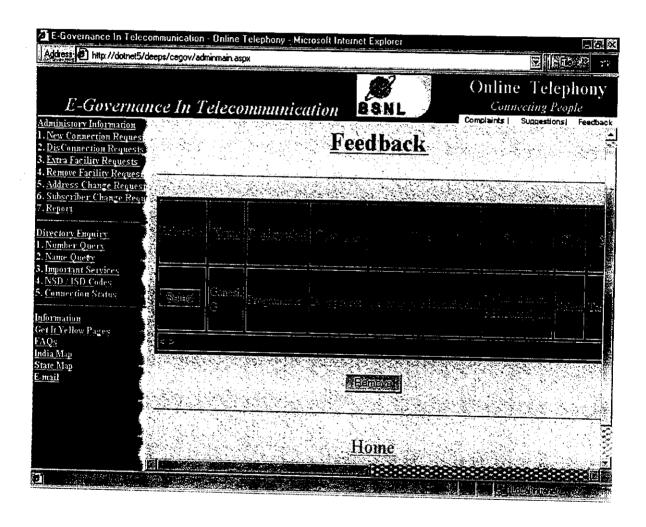


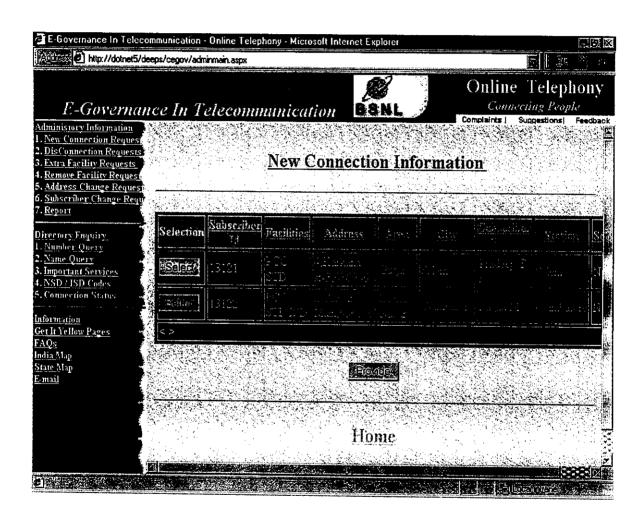


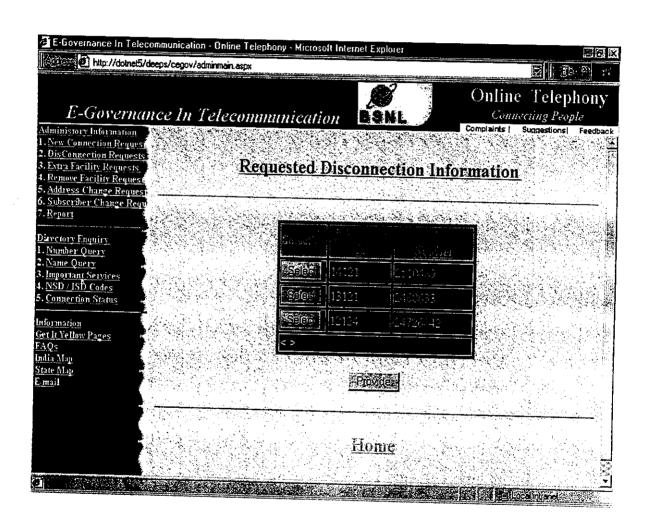


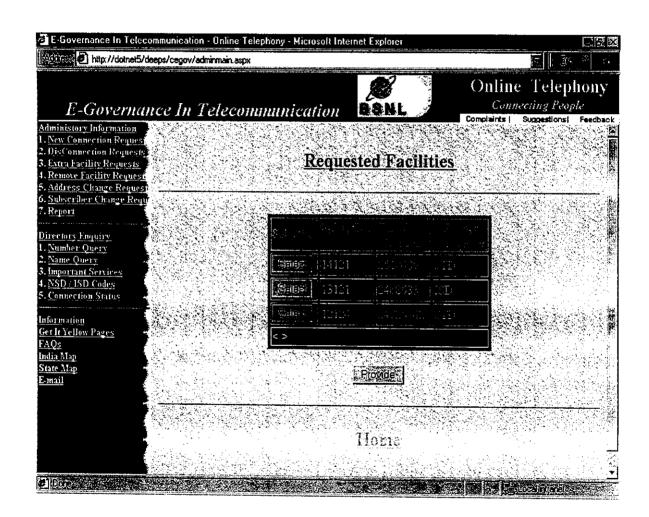


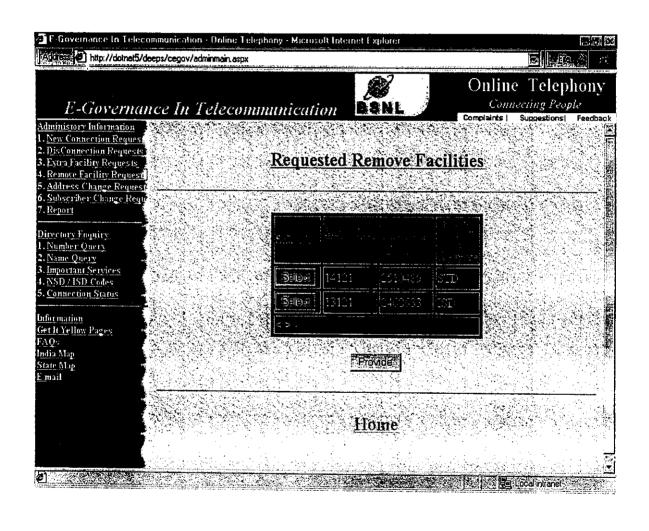


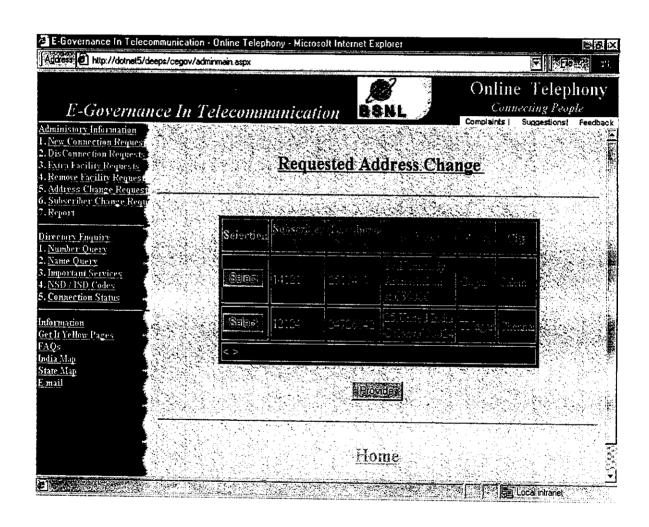


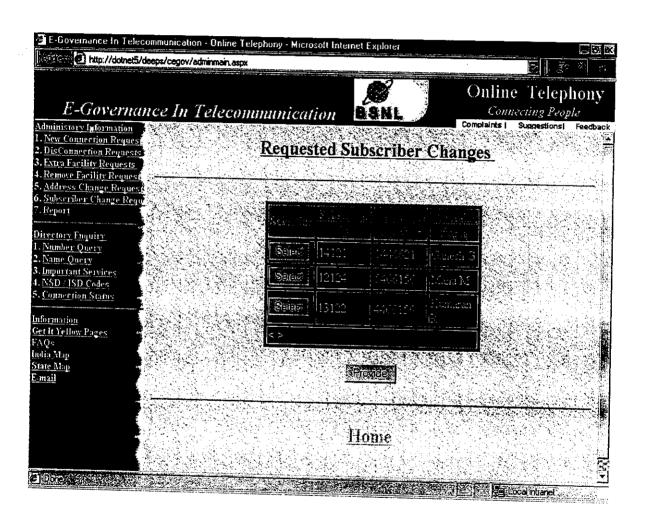


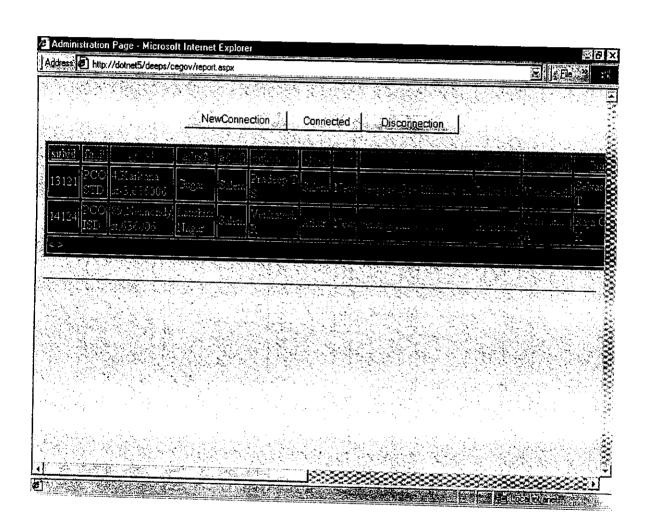


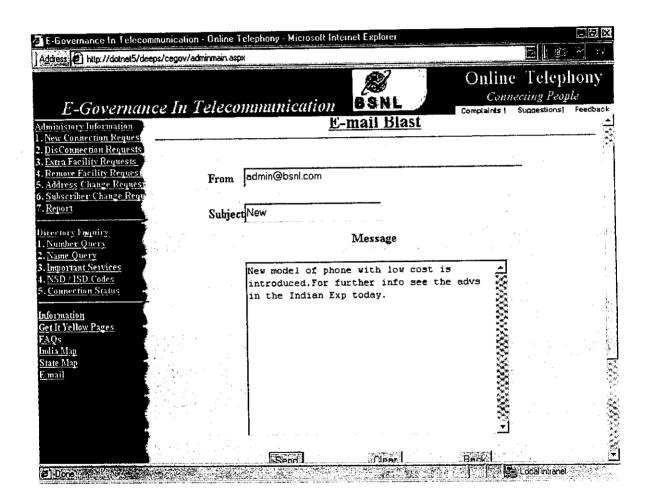












System Testing and Implementation

System Testing and Implementation

TESTING

Before the implementation of the system, testing has been carried out thoroughly, to eliminate any bug, which may be present and is fixed. The testing has been conducted based on the test plan outlined below. Since testing is an important phase in the evolution of Software, care has to be taken in testing each and every module.

Code Walkthrough

In this phase of testing, the code is thoroughly checked for discrepancies that may occur in the code such as redundancy of code, deviations in naming conventions, etc. It has also been checked whether appropriate comments have been incorporated in all the methods, variable named according to naming conventions, etc. Such errors if any were deducted and fixed.

The test cases examined with this are as follows,

- Test case Guarantee that all independent paths within a module have been exercised at least once.
- Test case exercises all logical decision on their true and false side.
- Test case executes all loops at their boundary and within their operational bounds.
- Test case exercises internal data structures to ensure their validity.

Integration Testing

Integration testing is done to verify if the application, after the integration of the modules works properly. This phase of testing is mainly concerned with finding out if variables and data are sent correctly from one module to the other. In this phase, testing is mainly done to see if the particular transaction is functioning properly and data is consistent over the modules. Testing has been carried out to ensure that the links are made properly. Tests were also carried out to check the Gifs and Buttons provided on the user interface perform the required action.

System Testing

This testing is done to check whether the hardware and the software coordinates properly and work with unison with each other for the regular transactions and manipulations of the project. All requirements are verified in the scope of system testing. This covers the functionality of the product.

IMPLEMENTATION

With the system testing producing fruitful results, the implementation of the system went on in full swing in their organization, by incorporating the menu screens, and activating the menu to execute processes of different modules. The system has been implemented to the satisfaction of the various uses involved in the system.

Conclusion

Conclusion

A system was analysed and designed with the drawbacks of the existing system reduced to a considerable limit. Also new features can be further included for the benefit of the subscribers, which makes this system as a full-fledged one.

Benefits

- Better services are provided to subscribers.
- Administrator has the control over the functioning of the system.
- Wastage of Time is avoided.
- Subscriber satisfaction is provided.
- Extra features can be added without making major changes to the system.
- Directory Enquiry System works faster.
- Unwanted redundant data are completely eliminated.
- Only subscribers can avail services.

Limitations

- Internet facility is a must.
- Billing can be included at the consent of Information Services department.
- Mobile telephony is not considered.

Future Enhancements

- Billing System can be incorporated.
- The system can be made broad by governing state-level operations.
- Yellow page services can be included.

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