KUMARAGURU COLLEGE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Coimbatore – 641006

April 2003.

ISSUE TRACKING SYSTEM P-978

PROJECT WORK DONE AT

E-BRAHMA TECHNOLOGIES PRIVATE LIMITED

COIMBATORE.

PROJECT REPORT

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

SUBMITTED BY

MR. ARUL MURUGAN. R
REG. NO.: 0038M1018

GUIDED BY

Internal Guide
Mr. S.GANESH BABU M.C.A.,
Department of Computer Science and Engineering

External Guide
Miss.R.VIDHYA M.Sc.,
E-Brahma technologies private limited

KUMARAGURU COLLEGE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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April 2003.

CERTIFICATE

This is to certify that the project work entitled

ISSUE TRACKING SYSTEM

Done By

Arul Murugan. R
Reg. No. : 0038M1018

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

Professor and HOD

Internal Guide

Submitted to University Examination held on 16.04.2003

Internal Examiner

External Examiner

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Ref : EBITEX/CBE/PCC/2003/0068

26 March 2003

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr.R.Arul Murugan,Registration Number : 0038M1018 pursuing Master of Computer Applications at Kumaraguru College of Technology,Coimbatore has successfully completed his project entitled "**Issue Tracking System**" in the area of Active Server Pages in our Organization. The duration of the project was from December 2002 to March 2003.

During this period, we found him to be sincere and hard working.

With Regards

Lawanya Ramkumar

(Academic Head)

DECLARATION

I here by declare that the project entitled **"ISSUE TRACKING SYSTEM"**, submitted to Bharathiar University as the project work of Master of Computer Applications Degree, is a record of original work done by me under the supervision and guidance of Miss.R.Vidhya, Chief Operations Officer, **e-Brahma Technologies (P) Ltd., Coimbatore and** Mr.S.Ganesh Babu M.C.A Department of Computer Science, Kumaraguru College of Technology and this project work has not found the basis for the award of any Degree /Diploma/Associate ship Fellowship or similar title to any candidate of any University.

Name of Candidate	Register Number	Signature
R.ARUL MURUGAN	**0038M1018**	R. Arul Murugan

Place: Coimbatore

Date: 16.04.2003

ACKNOWLEDGMENT

To add meaning to the perception, it is my indebtedness to honor a few who had helped me in this endeavor, by placing them on record.

With profound gratitude, I am extremely thankful to Dr.K.K.Padmanaban B.Sc. (Eng.), M.Tech, Ph.D., Principal, Kumaraguru College of Technology, Coimbatore for providing me an opportunity to undergo the M.C.A (Master of Computer Applications) course and there by this project work also.

I extend my heartfelt thanks to my CSE department head Prof.Dr.S.Thangasamy B.E (Hons), Ph.D., for his kind advice and encouragement to complete this project successfully.

Gratitude will find least meaning without thanking my guide Mr.S.Ganesh Babu M.C.A and course coordinator Mr. A.Muthukumar M.sc..,M.C.A..,Mphil for the valuable guidance and support throughout my project. It's my privilege to express my deep sense of gratitude and profound thanks to

Mr. V.Paramasivam and Mr. G. Ramasubramanyan, Managing Directors of e-Brahma Technologies (P) Ltd., for having allowed me to do my project work in his esteemed team and for helping me in all means in successful completion of this project work.

Words are boundless for me to express my deep sense of gratitude and profound thanks to Miss.Vidhya, (Project Guide) and all my associates at e-Brahma Technologies (P) Ltd., for all their kind guidance and encouragement towards my project work.

My gratitude is due to all staff members of CSE department, my parents and all my friends for their moral support and encouragement for successful completion of my project.

SYNOPSIS

Issue tracking System is a web-based application designed to help a workgroup keep track of issues and tasks via a shared central resource.

The system is designed specifically with the IT department in mind, where quick access to shared data and history is a requirement, both from a internal organizational perspective, as well as to fulfill the needs of the customers.

The data is stored centrally on the server, which make its specifically suitable for distributed teams who can use just the web browser to access it. No local s/w needs to be installed on the client for all web browsers are supported.

The application can virtually installed on any web server whether internal with in the organization or external hosted by a web browsing company.

CONTENTS

1.1 ABOUT THE ORGANIZATION

e-Brahma Technologies (P) Ltd., is the flagship company of the e-Brahma group providing software services and consultancy. The fast growing e-Brahma group has a presence in software development and IT education. e-Brahma was established in 1999 and has its corporate office in the city of Coimbatore, India.

e-Brahma is...

- One among the leading software companies in the city of Coimbatore
- An ISO 9001 certified company with a well defined process
- Promoted and led by entrepreneurs with several years of international experience having worked with Fortune 500 companies.
- Having a strong team of committed professionals.
- Geared to serve a global customer base from it's well equipped offshore development center
- An established name for successful service in the technology sector to over 50 clients in North America, Europe, Australia and India.

e-Brahma Technologies provides IT solutions and services in emerging Embedded and Internet Technologies with a strong focus in vertical domains such as Finance, Networking and Telecom

Infrastructure

e-Brahma has a sophisticated modern office, equipped with the latest technology which has carved a world class knowledge based network environment.

These facilities enhance productivity and maintain the right kind of environment for a creative culture.

We are registered with the Software Technology Parks of India (STPI).

e-Brahma's development center is equipped with:

- Windows 2000/XP/NT/98, Linux on a TCP/IP LAN
- Contemporary software tools to support the software development life cycle activities
- High speed Internet connectivity over leased line and ISDN
- Firewall protection to ensure high level of information security

Process

e-Brahma software development processes have been certified to be compliant with the requirements of the International Standard ISO 9001 by KPMG Quality registrar.

We follow proven project management methods to ensure that software projects are properly managed to achieve predetermined quality standards. We ensure that our clients receive the benefits of reduced costs, improved control and established metrics for continuous process improvement.

1.2 ABOUT THE PROJECT

The project titled **'Issue Tracking System'** has been developed for e-Brahma Technologies Private Ltd., coimbatore. Issue tracking System is a web-based application designed to help a workgroup keep track of issues and tasks via a shared central resource. The system was designed specifically with the IT department in mind, where quick access to shared data and history is a requirement, both from a internal organizational perspective, as well as to fulfill the needs of the customers.

The data is sorted centrally on the server, which make its specifically suitable for distributed teams who can use just the web browser to access it. No local s/w needs to be installed on the client for all web browsers are supported.

The application virtually installed on any web server whether internal with in the organization or external hosted by a web browsing company.

MODULES

- **ADMINISTRATOR MODULE**
- **PROJECT LEADER MODULE**
- **TESTER MODULE**
- **DEVELOPER MODULE**

ADMIN MODULE:

Staff details are maintained in this module. Staff Details can be Added, modified or deleted through this module. Project Details such as name of the project, platform, and applications are maintained in this module. Login Details such as login-id , Password are added, modified, deleted through this module Administrator can view issues. Designation details are added and view by the administrator. In this module mainly the mailing option such as Internet and Intranet can be maintained by the administrator.

PROJECT LEADER MODULE

In this module the project leader can allocating the project modules and the particular pages in the modules to the developer.

The project leader can send the response to the tester after getting response from the developer or reassign the issue to some other developer through mail. Issues, which are assigned to them, can be viewed in this module and can also view all the issues through this module and particular issues can be searched through this module.

TESTER MODULE:

In this module Testers are the responsible persons for raising and closing the issues. Issues can be modified by setting status field (closed) after getting response from the project leader. Issues can be viewed by exporting the records to MS_EXCEL and particular issue can be viewed through this module.

DEVELOPER MODULE:

In the Developer Module the Response will be given for the issue to the project leader through mail. Issues that are assigned to them can be viewed in this module and all the issue can also viewed through this module. Particular issue can be searched through this module.

1.3 HARDWARE AND SOFTWARE DETAILS

Hardware Configuration :

Processor	:	Intel Pentium III 733Mhz
Cache	:	256 KB
RAM	:	128 MB
Hard Disk Drive	:	20 GB Ultra DMA
Floppy Disk Drive	:	3.5",1.44 MB
Clock Speed	:	500 MHz
Monitor	:	SAMTRON(15" color)
Keyboard	:	104 keys
Mouse	:	FRONTECH
Printer	:	Compaq IJ 600

Software Configuration :

Operating System	:	Windows NT 4.0
Web Server	:	Internet Information Server
Client side	:	Html , Javascript
Server side	:	ASP
Back-End	:	Oracle 8i
Browser	:	Internet Explorer
Connection	:	TCP/IP

ABOUT THE SOFTWARE

Active Server Pages (ASP):

ASP is very powerful and yet easy-to-learn server side scripting environment. ActiveServerPages comes with Internet Information Server for Windows NT server and with Personal Web Server for Windows NT workstation and Windows 98.This environment enables you to create a web site that is dynamic, fast and interactive without requiring you to worry about the capabilities of your clients browsers, which you must do if you rely on client side scripting like client-side JavaScript or client-side VBScript.

We can create dynamic web pages in many ways. Microsoft's solution to building dynamic web pages is through the use of Active Server Pages, commonly abbreviated as ASP. Active Server Pages contain two parts: programmatic code and embedded HTML. The programmatic code can be written in a number of scripting languages. A scripting language is a particular syntax used to execute commands on a computer. A program composed of commands from a particular scripting language is referred to as a script. Some particular web related scripting languages include VBScript and JavaScript. Most ASP pages are created using VBScript. The syntax is similar to Visual Basic's syntax. The embedded HTML allows for existing static web pages to be easily converted into dynamic web pages. An ASP page must contain an .asp extension.

The Internet runs on a client-server model. With the Internet, the server is a particular Web Server. The client on the Internet is a web Browser. The Web Server has to process the programmatic code in ASP before sending the HTML to the client .The client can not tell the difference between an ASP page and a static web page because in both cases, it receives just HTML.

Client-side scripting is programmatic code in an HTML file that runs on the browser. ASP scripts are server-side scripts, which are executed on the web server. These scripts are processed and their output is sent to the client.

ASP is designed by Microsoft to make it easier to web application developer to create sophisticated web applications. ASP applications are executed on the server side. Some of the benefits of ASP are as follows:

- ASP is available on multiple platforms.
- ASP development is easy to learn.
- ASP compliments client-side scripting.

JAVA SCRIPT

Java Script is a compact, object-based scripting language for developing client and server intranet applications.

The Java Script language resembles Java, but without Java's static typing and strong type checking. JavaScript supports most of Java's expression syntax and basic control flow constructs. In contras to Java's compile-time system of classes built by declarations, JavaScript supports a run-time system based on a small number of data types representing numeric, Boolean, and string values. JavaScript has a simple instance-based object model that still provides significant Capabilities.

JavaScript also supports functions, again without any special declarative requirements. Functions can be properties of objects, executing as loosely typed methods.

In contrast, JavaScript descends in spirit from a line of smaller, dynamically typed languages like JyperTalk and DBase. These scripting languages offer programming tools to a much wider audience because of their easier syntax, specialized built-in functionality, and minimal requirements for object creation.

- Interpreted (not complied) by client.
- Object-based. Code uses built-in, extensible objects, but no classes code integrated with, and embedded in HTML (accessed from HTML pages).
- Variable data types not declared (loose typing).
- Dynamic binding. Object references. Static binding. Object references must check at run-time.
- Secure. Cannot write to hard disk.

JavaScript can be embedded in an HTML document in two ways:

- As statements and functions using the SCRIPT tag.
- As event handlers using HTML tags.

VB SCRIPT

Vbscript is designed as a subset of the full Visual Basic programming system the guiding principles of VBScript are:

Provide the Basic developer with a path to Web development on the client and server.

1. Bring an easy-to-use and understand scripting language to the Web.
2. Expand the Visual Basic family of languages to platform not covered by Visual Basic or Visual Basic for Applications.

Most readers will think of using Vbscripting three primary kinds of applications:

- Internet Explorer,
- Internet Information Serer, and
- Windows Scripting Host.

Advantages

1. **Easy to understand and master.** VBScript's biggest asset is that it's Basic, a language designed to be learned quickly. Visual Basic has brought Basic users some of the advantages of more complex languages, while not losing sight of the fact that the language should be easy to understand.
2. **Flexible.** VBScript can be used in a wide variety of applications, and Microsoft is committed to ensuring that wherever script is part of and application. VBScript will be included.

Language features:

1. **Error handling :** VBScript has a subset of the error handling provided by Visual Basic. This includes the error object and on error resume next. Error handling is very important when developing server-side code, since most of the functionality will require access to external COM objects, which could throw errors.

2. **Formatting :** VBScript has the ability to format dates, numbers, and currency built into the language.

3. **Easier COM integration :** Many COM objects return information in the form of a collection. VBScript has built-in support for iterating through collections.

4. **Standard Event-binding Syntax :** Visual Basic developers will immediately recognize the object event (sub button1_onclick) naming convention for event handlers.

VBScript works in exactly the same way, so in any application that supports event binding (such as Internet Explorer, Outlook, and Windows Scripting Host),

you can use this syntax for your event hook-up code. This also means that you can cut and paste existing Visual Basic code into VBScript (assuming you are using features that are in VBScript).

CLIENT SERVER ARCHITECTURE:

In the client server model of pc the power can be spread across the client and the server. The client software supplies the interface and the knowledge of how to pass the request to the server, and then format the data from the user then it is returned from the server. The approach divides the processing across several computers, which has the advantage of not overloading any Single processor.

ODBC (OPEN DATABASE CONNECTIVITY)

Open Database connectivity helps us to access different databases. This allows a single uniform language to access different databases, instead of using the proprietary languages of each database. This is done by API (Application program Interface). The API is developed fro each database such that it interprets the request so that any database can write the information.

The open connectivity allows an application to get data from any kind of database. The ODBC sit on the client and is called from an application. The request from the client is sent to the OCBC driver manager, which decides whether the data base driver is installed in the client either Fulfills or denies the request and sends the information back to the driver manager which returns information to the client application.

A driver usually contains the callable API functions for a single database. The drivers and Driver manager needs to be installed on every client machine. The drivers are dynamic link libraries (DLL) and the driver manager is an executable programs fro each database. You want to connect to a data source name (DSN). The DSN tells to the driver where the database is located.

Oracle 8i :

Oracle 8i, the database for Internet computing, changes the way information is managed and accessed to meet the demands of the Internet age, while providing significant new features for traditional Online Transaction Processing (OLTP) and Data Warehouse applications, It provides advanced tools to manage all types of data in Websites , but it also delivers the performance , scalability , and availability needed to support Very Large Database (VLDB) and mission-critical applications.

- It simplifies the management of applications
- It simplifies the management of Internet content.
- It simplifies the deployment of applications

DHTML

Web pages are created by using HTML. All the operations are performed by using tags in HTML.Hyper Text Markup language is named as HTML.DHTML is a new and emerging technology that has evolved to meet the increasing demand for eye-catching and mind-catching web sites. DHTML combines HTML with Cascading Style Sheets (CSSs) and scripting languages.

HTML specifies web page elements like table, frame, paragraph, bulleted lists etc. Cascading Style Sheets can be used to determine an element's size, color, position and a number of other features. Scripting languages can be used to manipulate the web pages elements so that styles assigned to them can change in response to a user's input. The advantages of style sheet includes the ability to make global changes to all documents from a single location.

2.1 EXISTING SYSTEM

In the existing system, all the services such as developing the bug reports and issuing the reports are not in organized manner.

- Bug reports are generated and issued manually.
- The team member does not easily understand bug reports.
- Time taken for detecting the bug is too high.
- There may be a chance of redundancy of bug reports and multiple reports can be generated.
- Assigning and tracking the reports are complicated.
- Difficult in data storing and accessing.

2.2 PROPOSED SYSTEM

- This software is maintained in the centralized system, and it can work both the Internet and Intranet.
- It is a browser compatible, no local software needs to be installed on the client machines.
- Bug reports are generated and issued systematically.
- The team members can easily understand and identify the bug reports.
- Bug reports are done in online and it takes very little time.
- Redundancy is reduced.
- Based on the bug's priorities, it can be easily assigned and tracked easily.
- Storing and accessing the data is easier.

3.1 DATA DESIGN

A database is a collection of information stored in an organized way. The database is made up of one or more tables containing zero or more record. Each record contains one or more fields. The interconnection of record and field in a table is called an item. The record that the database is operating on is called current record. A table can be stored or arranged in peculiar order. The process of breaking up data into related tables is called normalization. It is a process that endeavors to produce a stable organization of interrelated data while minimizing structured redundancy. There are three normal forms. They are:

- First normal form:-

To be in the first normal form, the table must not contain any repeating groups of data.

- Second normal form:-

In addition to meeting the conditions of first normal form , the second normal form requires that all non key data be functionally be dependent on the entire key. This means that all non-key fields must be uniquely dependent on the key fields.

- Third normal form:-

With first and second normal form, conditions being met, the third normal form requires that the table contain no transitive dependencies. A transitive dependency occurs when a data field is dependent on the information in other data field that is not part of the key.

In the issue tracking system, the first normal form is used for Normalization. Normalization is used to avoid the redundancy in this project. First normal form is used in the issue table, issue table contains all the details about the issues. In this table the following are the foreign keys.

- Defect_ Type_Id
- Iss_ Priority_id
- Iss_ Status_id

Here the Defect_Type_Id is primary key in the table Defect type and the Iss_Priority_id is primary key in the table Issue Priority. The Iss_Status_id is primary key to the table Issue Status. Because these tables are used to reduce the redundancy. here the tables can be divided in to several sub tables so the redundancy is avoided.

The System is developed by using oracle software. Oracle is the robust software for developing a database. The main advantage of using oracle is security. Because all the data's are stored in highly secured manner. In this system the administrator has the highest-level security. He is the responsible person for maintaining all the information such as staff detail and designation, project details. Providing Password and access permissions to the developer, tester Projectleader are done by the administrator.

Table Design

Table Name: T_Project
Description : Project Details

Field Name	Type	Size	Description	Constraint
Pr_id	Text	10	Project id	Primary key
Pr_title	Text	25	Project title	
Descr	Text	30	Description	
Application	Text	25	Application	
Platform	Text	25	Platform	
Prj_srt_date	Date/Time	8	Start date	
Prj_exp_end_date Date/Time	Date/Time	8	Expected date	
Prj_act_end_date	Date/Time	8	Actual end date	
Prj_manager_id	Text	10	Project manager id	Foreign Key
Prj_leader_id	Text	10	Project leader id	Foreign Key

Table Name : T_Staffdetail
Description : Staff details

Field Name	Type	Size	Description	Constraint
S_id	Text	10	Staff id	Primary Key
Pr_id	Text	10	Project id	Foreign Key
Name	Text	25	Name	
Desig_id	Number	2	Designation id	Foreign Key
Phno	Text	10	Phone no	
Mailid	Text	30	Mail id	
Intra_mail_id	Text	30	Company mail id	
doj	Date/Time	8	Date of joining	

Table Name: T_Desig
Description : Designation

Field Name	Type	Size	Description	Constraint
Desig_id	Number	2	Designation id	Primary Key
Desig	Text	15	Designation	

Table Name : T_Login
Description : Login details

Field Name	Type	Size	Description	Constraint
S_id	Text	10	Staff id	Foreign Key
Pass	Text	10	Password	

Table Name : T_Prjldrmdl
Description : Project Module Details

Field Name	Type	Size	Description	Constraint
Pla_id	Number	2	Project allocation id	Primary Key
S_id	Text	10	Staff id	Foreign Key
Pr_id	Text	10	Project id	Foreign Key
Mdl_id	Text	10	Module id	Primary Key

Table Name : T_prjldrprg
Description : Program Details

Field Name	Type	Size	Description	Constraint
Pla_id	Number	2	Project allocation id	Foreign Key
Prg_nam	Text	15	Program name	

Table Name: T_Issue
Description : Issue Details

Field Name	Type	Size	Description	Constraint
Iss_id	Text	10	Issue id	Primary Key
Pr_id	Text	10	Project id	Foreign Key
Iss_name	Text	15	Issue name	
Iss_desc	Text	30	Issue description	
Defect_type_id	Number	2	Defect type id	Foreign Key
Iss_priority_id	Number	2	Issue priority id	Foreign Key
Iss_status_id	Number	2	Issue status id	Foreign Key
Version	Text	8	Version	
Assigned_to	Text	15	Assigning issue to	
Reassigned_to	Text	15	Reassigned issue to	
Submitted_by	Text	15	Issue submitted by	
Date_of_submission	Date	8	Date of submission	

Table Name : T_Defecttype
Description : Defect type details

Field Name	Type	Size	Description	Constraint
Defect_type_id	Number	2	Defect type id	Primary Key
Defect_type	Text	15	Defect type	

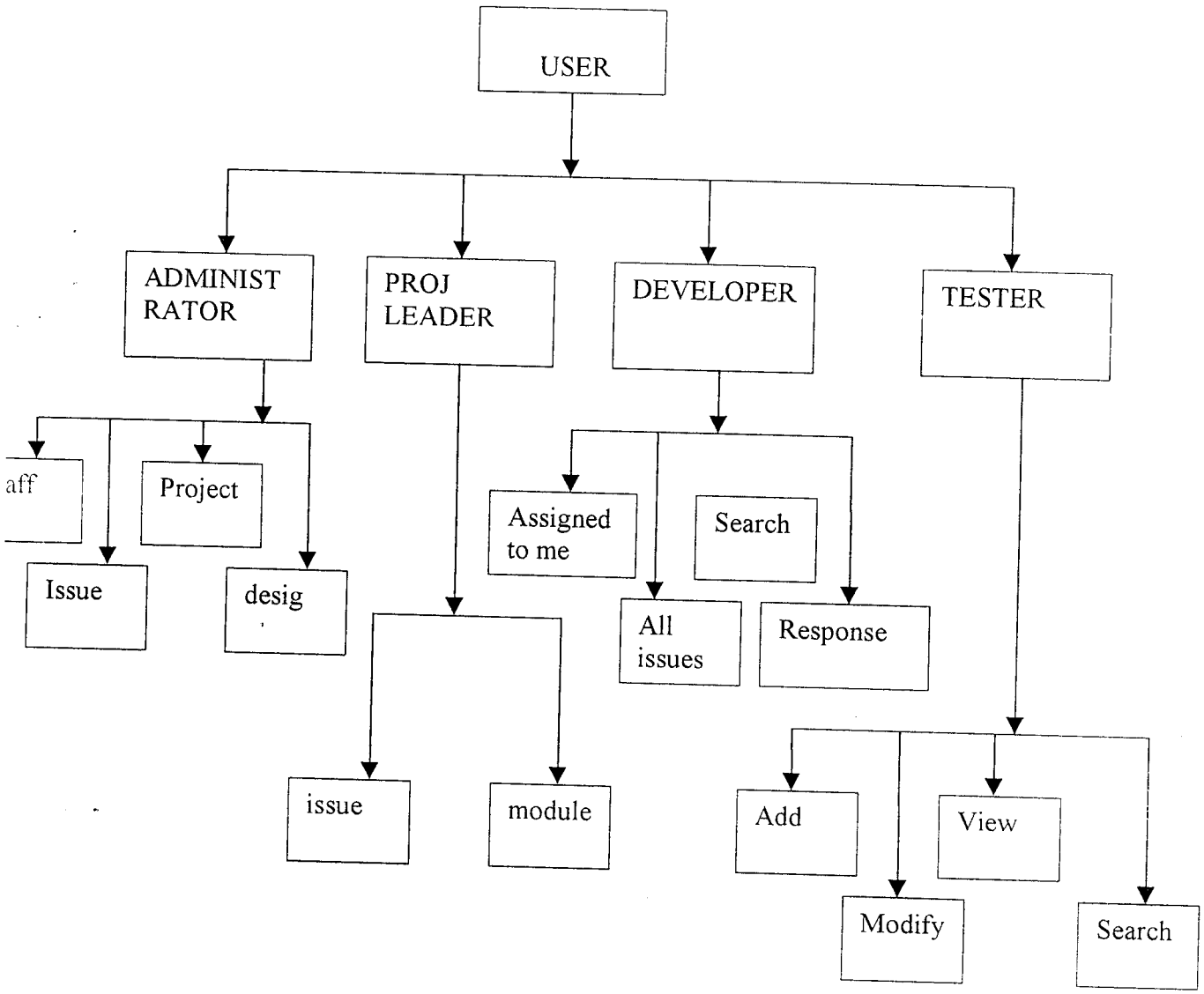
Table Name : T_Priority
Description : Issue priority details

Field Name	Type	Size	Description	Constraint
Iss_priority_id	Number	2	Issue priority id	Primary Key
Priority	Text	15	Priority values	

Table Name : T_Status
Description : Issue status details

Field Name	Type	Size	Description	Constraint
Iss_status_id	Number	2	Issue status id	Primary key
Status	Text	15	Status value	

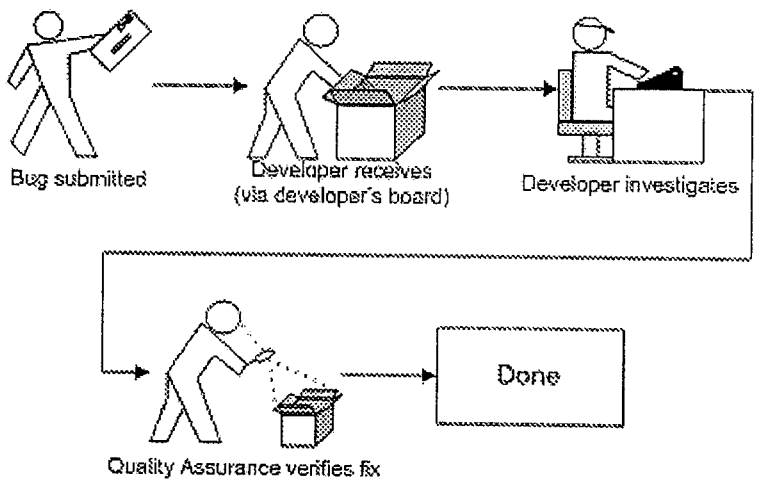
3.2 ARCHITECTURAL DESIGN



3.3 PROCEDURAL DESIGN

The procedure of the project titled "Issue Tracking System "is as follows. The main objective of the software is to keep track of issues and tasks. This project has been developed by using ASP as middle tier, HTML and JavaScript as front-end tool and Oracle as back end tool.

The process of the issue tracking is shown below



The process starts when a problem report is submitted. Once the problem report is submitted it goes to a Developer's Board as a case. The Developer's Board displays all the cases that haven't been reserved or assigned yet. Developers can pick appropriate cases to work on and a Project Leader can assign cases to developers. When cases are reserved or assigned they go to the Investigate step. At this step the developer can view detailed information about the problem. When the developer has resolved the problem, the resolution can be recorded and passed to the Verify step. If the case is not appropriate for the developer, he can pass the case back to the Developer's Board. In the Verify step a QA can test the bug fix made by the developer. If the bug fix is verified, the QA can pass the case to the End step

where it becomes closed. Otherwise the case can be returned to the developer who worked on it.

The user of this software can login to the system in four different ways-as the Administrator, as the Project Leader, as the Tester and as the Developer on the basis of their Designation.

ADMINISTRATOR:

Maintaining the project and staff details. New project can be added and keying the information about the project assigned to project manager and project leader. The details of the staff, project and issues can be viewed through this module. Login id for the staff can be added or modified through this module.

PROJECT LEADER:

Allocating project modules, programs to the developer or sending response to the tester after getting response from the developer or reassign the issue to the developer through mail. Issues, which are assigned to them, can be viewed in this module and can also view all the issues through this module and particular issues can be searched through this module.

TESTER:

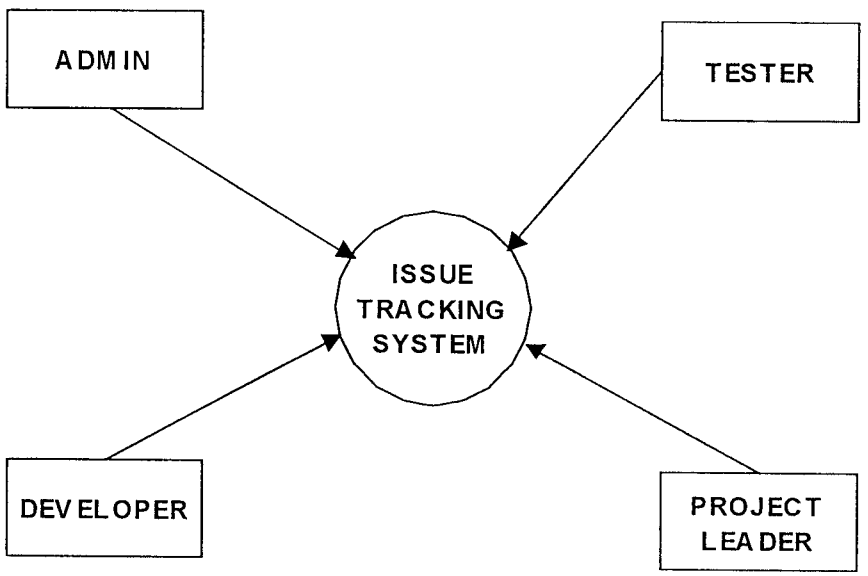
Issues can be added and report to the project leader through mail. Issues can also be modified by setting status closed after getting response from the project leader. Issues can be viewed by exporting the records to MS_EXCEL and particular issue can be viewed through this module

DEVELOPER:

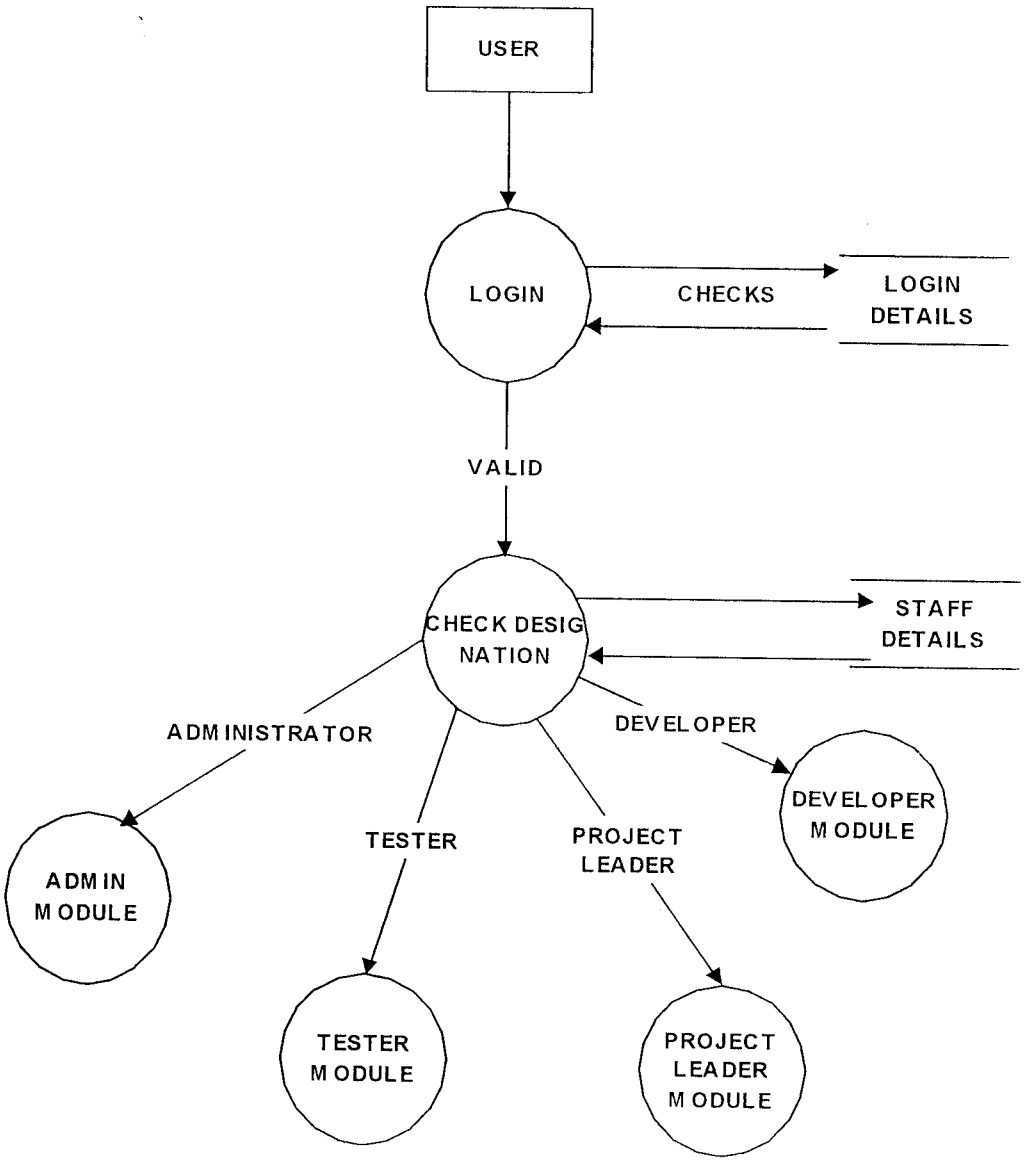
Response will be given for the issue to the project leader through mail. Issues which are assigned to them can be viewed in this module and all the issue can also viewed through this module. Particular issue can be searched through this module.

3.4 DATA FLOW DIAGRAM

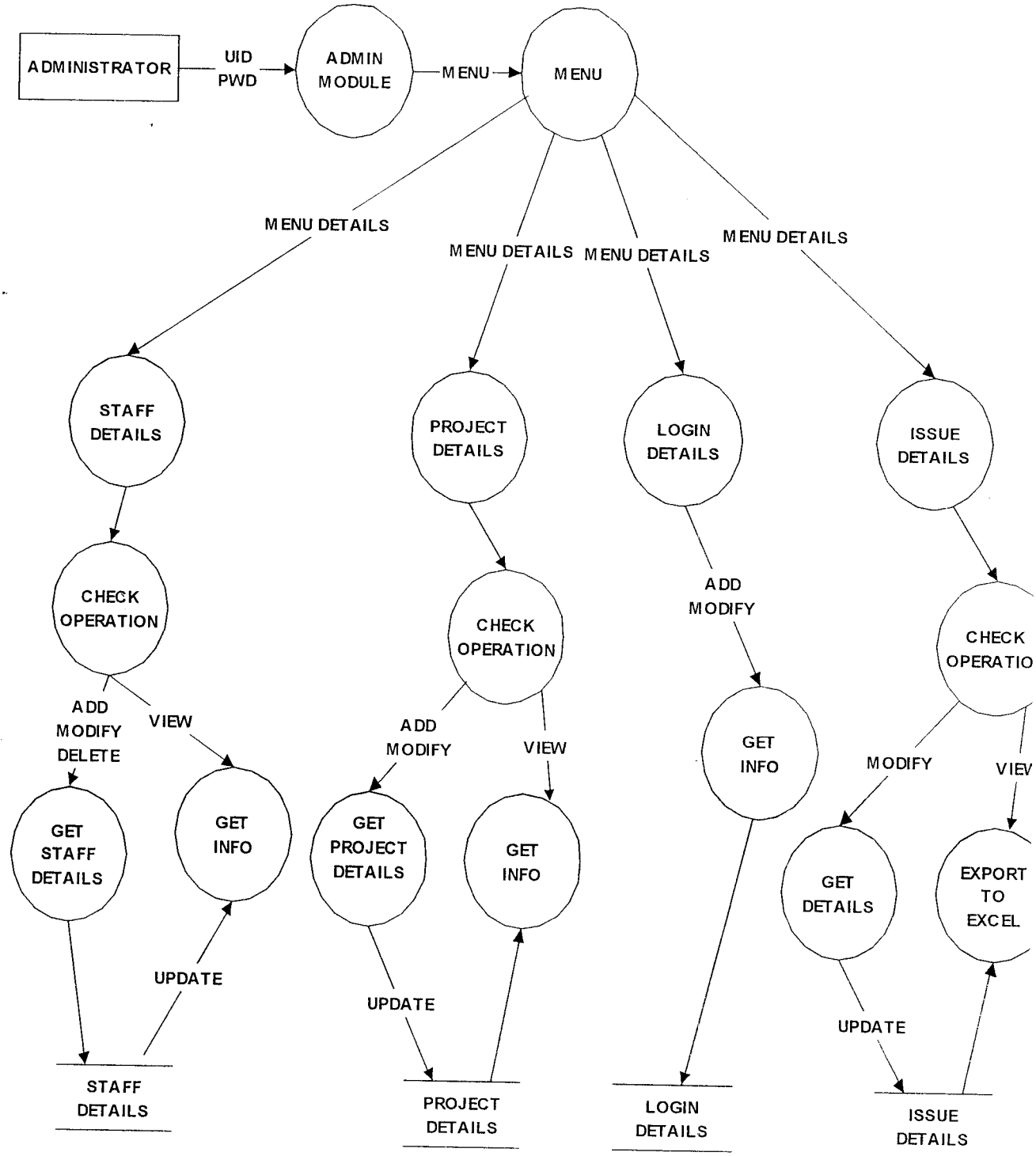
CONTEXT DIAGRAM



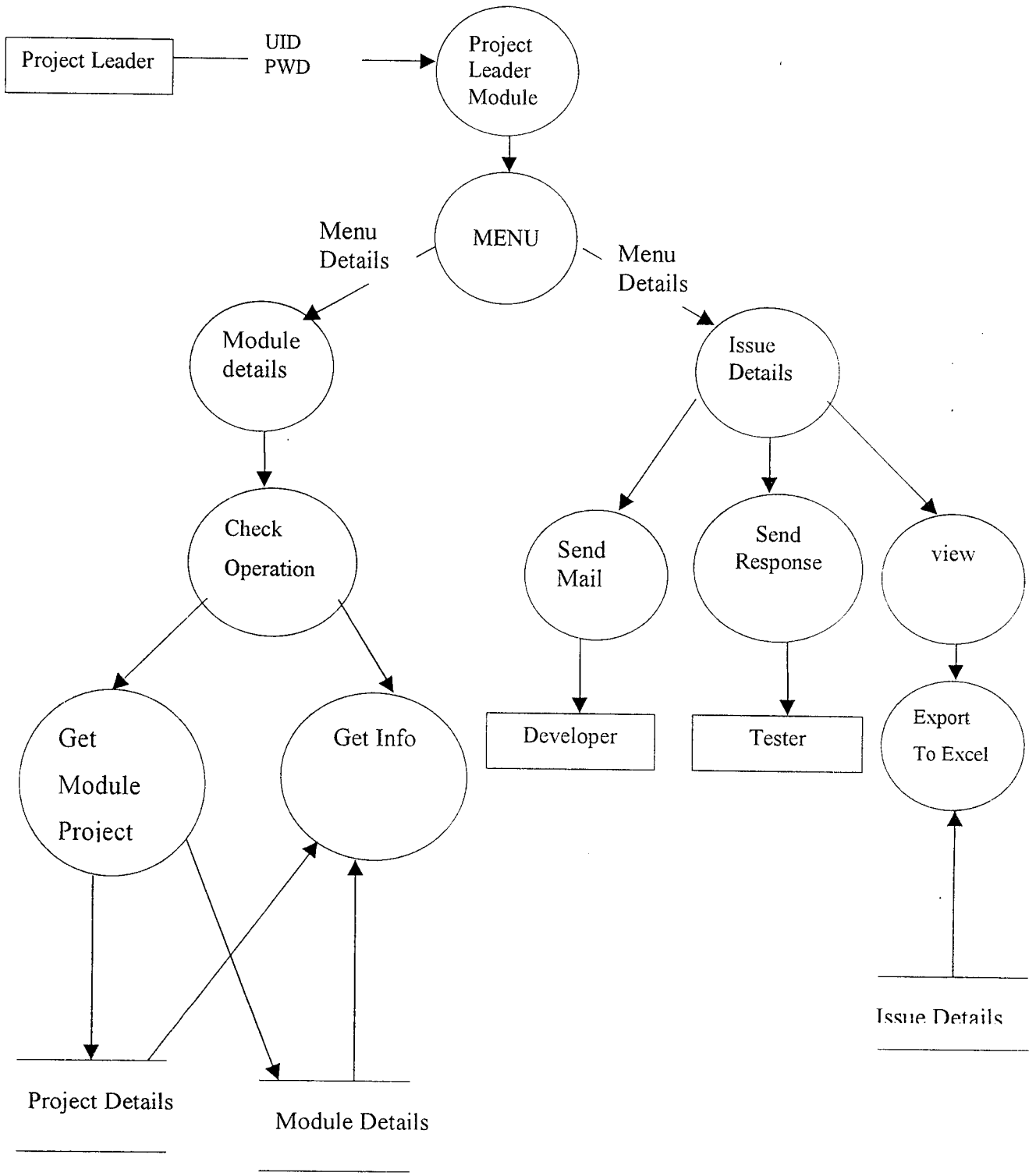
LOGIN DFD:


USER
LOGIN
CHECKS
LOGIN DETAILS
VALID
CHECK DESIG NATION
STAFF DETAILS
ADMINISTRATOR
DEVELOPER
TESTER
PROJECT LEADER
ADMIN MODULE
DEVELOPER MODULE
TESTER MODULE
PROJECT LEADER MODULE

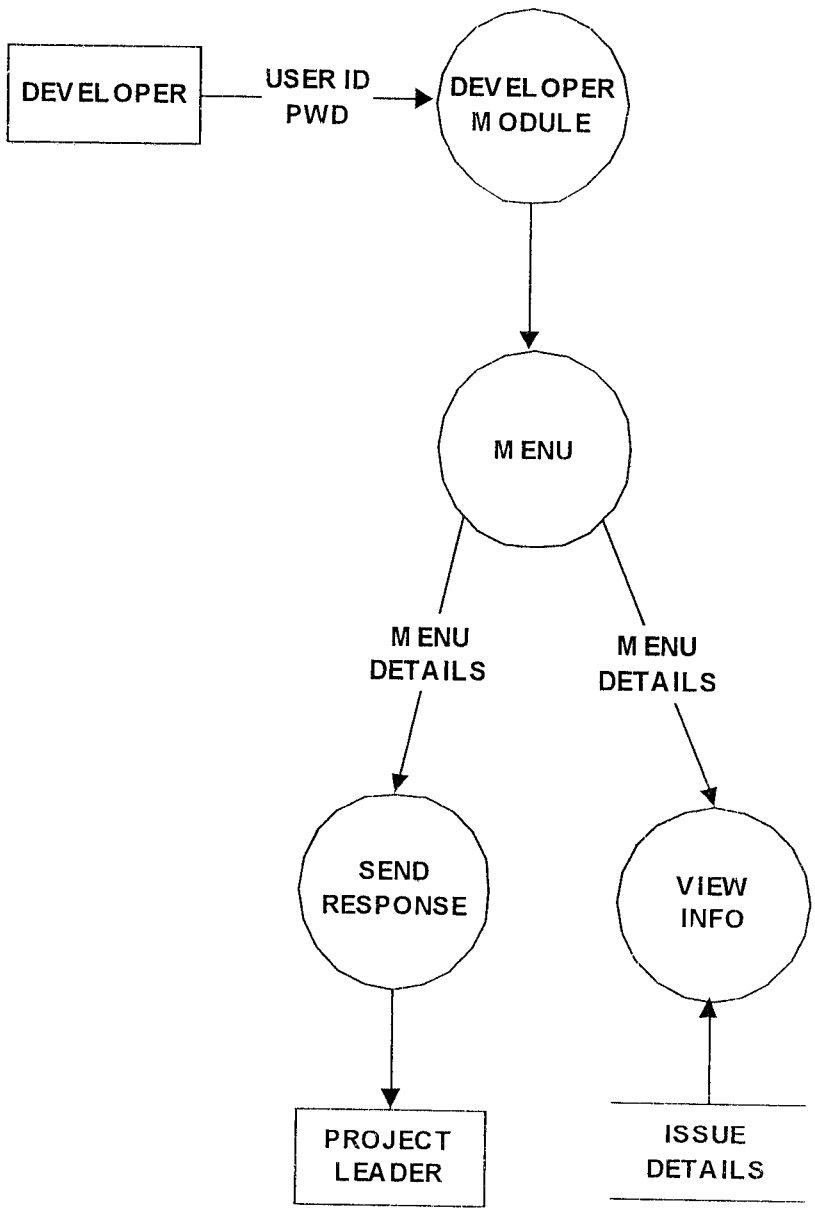
ADMINISTRATOR MODULE



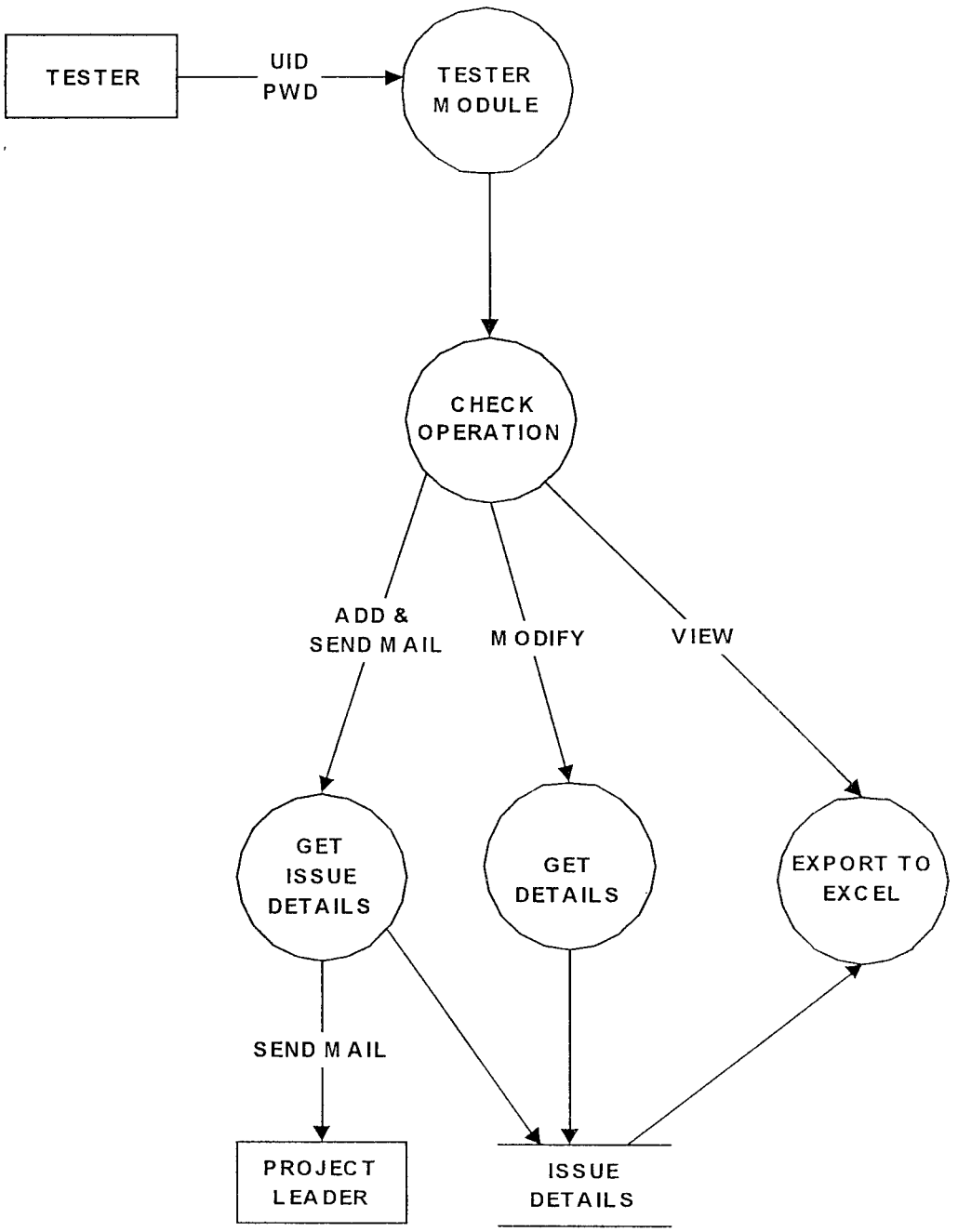
PROJECT LEADER MODULE



DEVELOPER MODULE



TESTER MODULE



SYSTEM IMPLEMENTATION

4. IMPLEMENTATION

Implementation is the stage of the project where the theoretical design is turned into a working system. At this stage the main work load,the greatest upheavel and the major impact on the existing system shifts to the user department. If the implementation is not carefully planned and controlled it can cause chaos and confusion .

Implementation includes all those activities that take place to convert from the old system to the new one . The new system may be totally new , replacing an existing manual or automated system or it may be a major modification to an existing system. Proper implementation is essential to provide a reliable system to meet the organization requirements . Successful implementation may not guarantee improvement in the organization using the new system, but improper installation will prevent it.

The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from the old system to the new system. The system can be implemented only after thorough testing is done and if it is found to be working according to the specifications. The system personnel check the feasibility of the system.

The most crucial stage is achieving a new successful system and giving confidence on the new system for the user that it will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover. The more complex the system being implemented , the more involved will be the system analysis and the design effort required just for implementation. The system implementation has three main aspects. They are education and training, system testing and changeover.

The implementation stage involves following tasks.

- Careful planning
- Investigation of system and constraints.
- Design of methods to achieve the changeover.
- Training of the staff in the changeover phase.
- Evaluation of the changeover method.

The method of implementation and the time scale to be adopted are found out initially. Next the system is tested properly and the same time users are trained in the new procedures.

Education and Traning:

To achieve the objectives and benefits expected from computer based system, it is essential for the people who will be involved to be confident of their role in the new system. As systems become more complex, the need for education and training is more and more important.

Education information can make training more interesting and more understandable. The aim should always be to make individual feel that they can still make all important contributions, to explain how they participate in making system changes ,and to show that the computer and computer staff do not operate in isolation, but are of the same organization.

Training on the Application Software

After providing the necessary basic training on the computer awareness the users will have to be trained on the new application software. This will give the underlying philosophy of the use of the new system such as the screen flow, screen design.

5.TESTING AND MAINTENANCE

Testing:-

A strategy for software testing integrates software test case design techniques into a well-planned series of steps that result in the successful construction of software. As importantly, a software testing strategy provides a road map for software developer, the quality assurance organization, and the customer a roadmap that describes the steps to be conducted as a part of testing. When these steps are planned and then undertaken and how much effort, time and resources will be required.

In many ways testing is an individualistic and the number of different types are tests varies as much as different development approaches. And hence testing considered as a set of activities that can be planned in advance and conducted systematically. Software testing is one element of a broader topic that is often referred to as verification and validation. Verification refers to the set of activities that ensure that the software correctly implements a specific function. Validation refers to a different set of activities that ensures that the software has been built is traceable to customer requirements.

Purpose of Testing:

- To attain the quality of the product
- To find and eliminate any residual errors from previous stages.
- To demonstrate the presence of all specified functions in the product.
- To validate the software as a solution to the original problem.

Black Box Testing:-

Black Box Testing focus on the fundamental requirements of software and on the input and output of module. It enables the software engineer to derive sets of input conditions that will truly exercise all functional requirements of a program. Black box testing, rather a contemporary approach that is likely to uncover different class of errors. It attempts to find that errors in the following category.

- Errors in database structure and database access.
- Incorrect and missing functions.
- Performance errors.
- Initialization and termination errors.

White Box Testing:-

White box testing is a test case design method that uses control structure of the procedural design to drive test cases. Using white box testing method, software engineer can test cases that,

- Exercise all logical decisions on their 'true' or 'false' sides.
- Guarantee that all independent paths with a module have been exercised atleast once.
- Exercise internal data structure to ensure validity.
- Execute all loops at their boundaries and their operational bounds.

Unit Testing:-

Unit testing focuses verification effort on these smallest of software design modules. Using the detailed design description as a guide, important control paths are tested to uncover errors within the boundary of the module. The relative complexity if tests and errors detected as a results is limited by the constraint scope established for unit testing. The unit testing is always white box oriented, and the step can be conducted in parallel for multiple modules. The module interface is

tested can ensure that information properly flows in it and out of the program unit under test. Boundary conditions are tested to ensure that the module operates properly at boundaries established to limit or restrict processing. Unit testing is normally considered on adjunct to coding steps. After source code has been developed, reviewed and verified for correct syntax, unit test case design begins.

In this system, the unit test has performed in following modules that are admin module, project leader module, tester module and the developer module. The information flow has been tested, the module operates properly at boundaries.

System Testing: -

System testing is a series of different tests whose purpose is to fully exercise the computer-based system. Although each test has a different purpose, all work should verify that all system elements have been properly integrated and perform allocated functions.

There are four different types of system testing.

- Recovery Testing
- Security Testing
- Stress Testing
- Performance Testing

Recovery Testing:-

Many compiler-based systems must recover from faults and resume processing within pre-specified time. Recovery testing is a system test that forces the software to fail in a variety of ways and verifies that recovery is properly performed. In the Issue Tracking System the data transactions cannot be lost, the system will automatically recover from improper operations such as power failure high network traffic.

Security Testing:

Security testing attempts to verify that protection mechanisms built into a system will, in fact protect it from improper penetration. The system security must be tested for invulnerability from frontal attack.

In Issue Tracking System each user has their own login id and password. In this system the administrator has the highest level security. He is the responsible person for maintaining all the information such as staff detail and designation, project details. Providing Password and access permissions to the developer, tester and Project leader are done by the administrator. The unauthorized users cannot enter into the system. The system has highly secured.

Maintenance Testing:-

Software maintenance is of course, far more than "fining mistakes". Provision must be made for environmental changes that may affect either the computer or other parts of computer based systems: such activity is normally called maintenance. It includes both the improvement of the system functions and the correction of faults that arise during the operation of a new system.

It may involve the continuing involvement of a large proportion of computer department resources . The main task may be to adapt existing systems in a changing environment.

Systems should not be changed casually following informal requests. To avoid unauthorized amendments, all requests for changes should be channeled to a person nominated by management. The nominated person has sufficient knowledge of the organization's computer based systems to be able to judge the relevance of each proposed change.

In the Issue Tracking System, the verification testing is important one. The System cannot affect by change of environment. The system has the capable to working both in Internet and intranet, so the change of environment does not affect the system. In Internet the client can access the system only using browsers. All type of browsers supported by the system. The administrator is the responsible person for selecting and maintaining the environments such as Internet and intranet. When the client accesses the system, the DLL can be loaded automatically. Separate DLL for both the environment.

6. CONCLUSION

The Issue **Tracking System** has been developed after a detailed investigation of the existing system in e-Brahma Technologies Private Ltd. The successful installation of this software in the organization will greatly enhance the performance and play an indispensable role in increasing the actual throughput of Quality Cell Department. It speeds up working and minimizes the error.

The package has been developed so as to reduce the strain on the user. There is no need of special training to use this package since it is user-friendly software.

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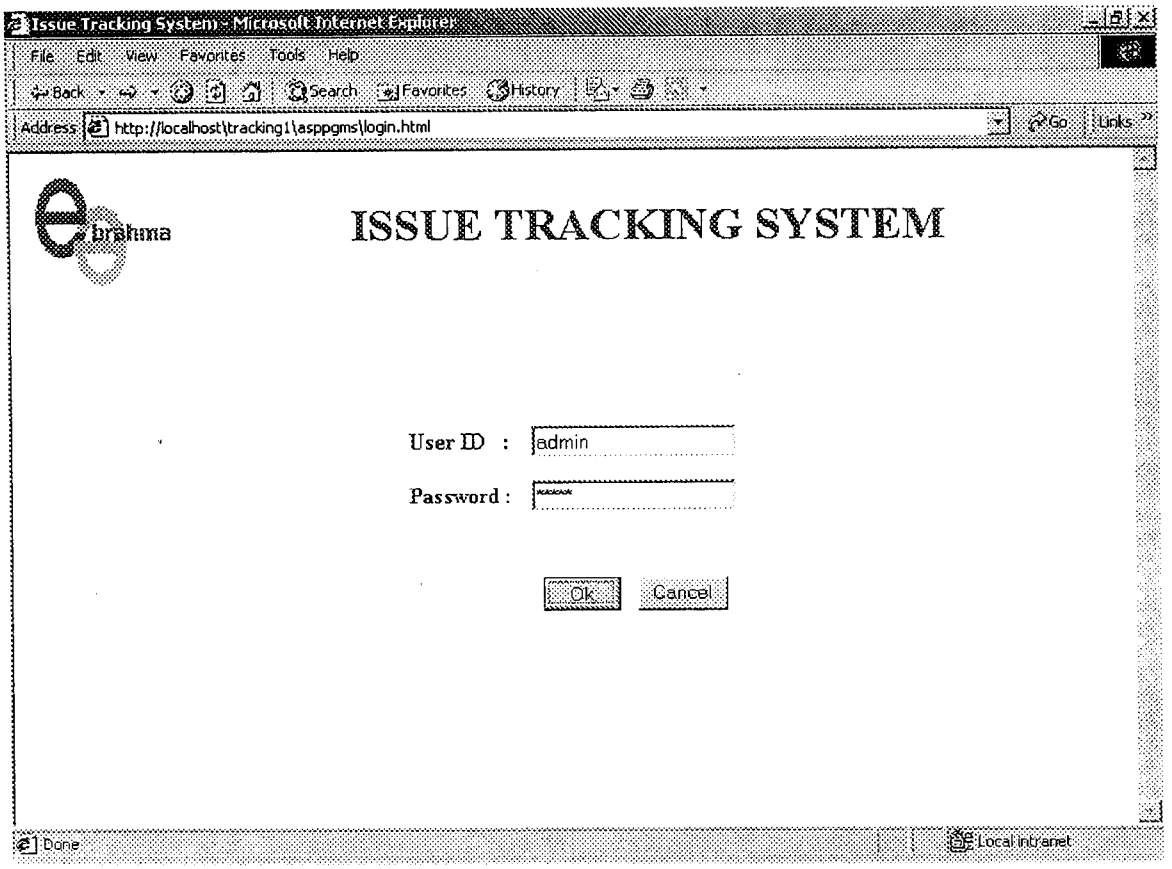
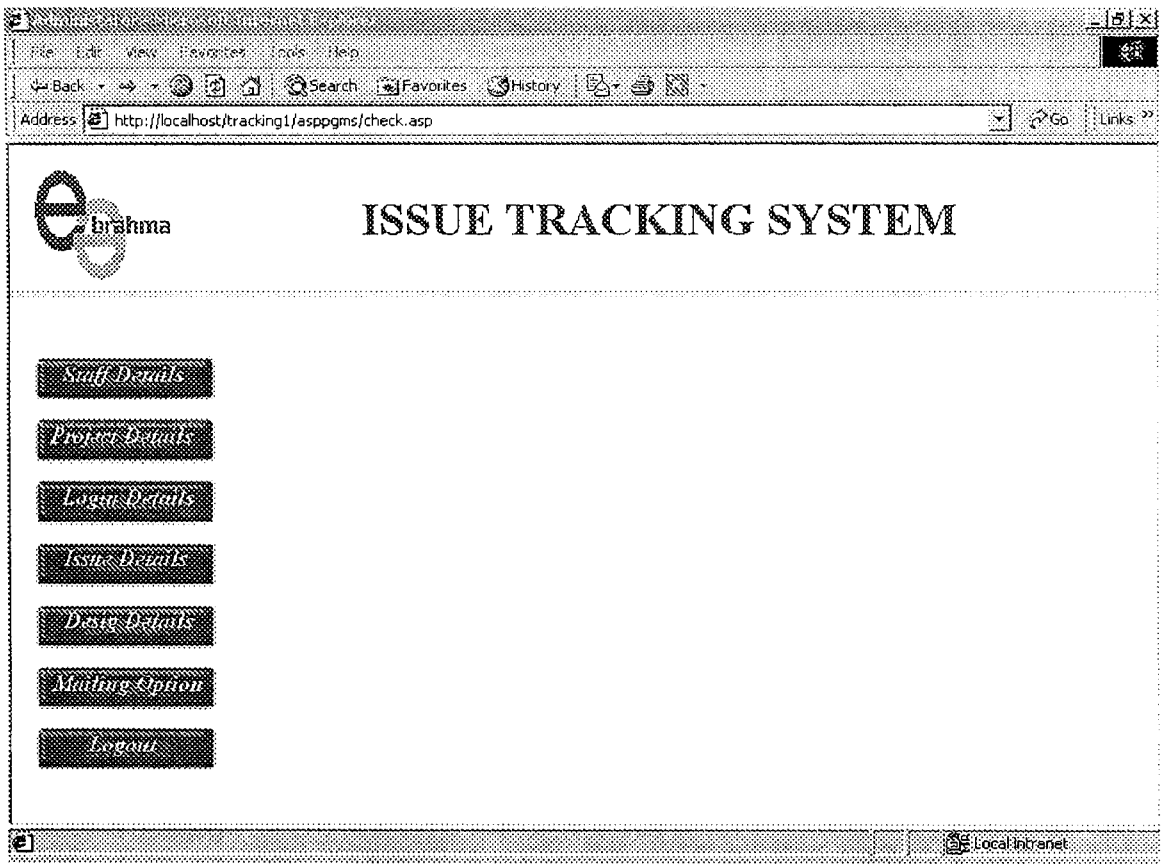
Login Screen



Admin screen



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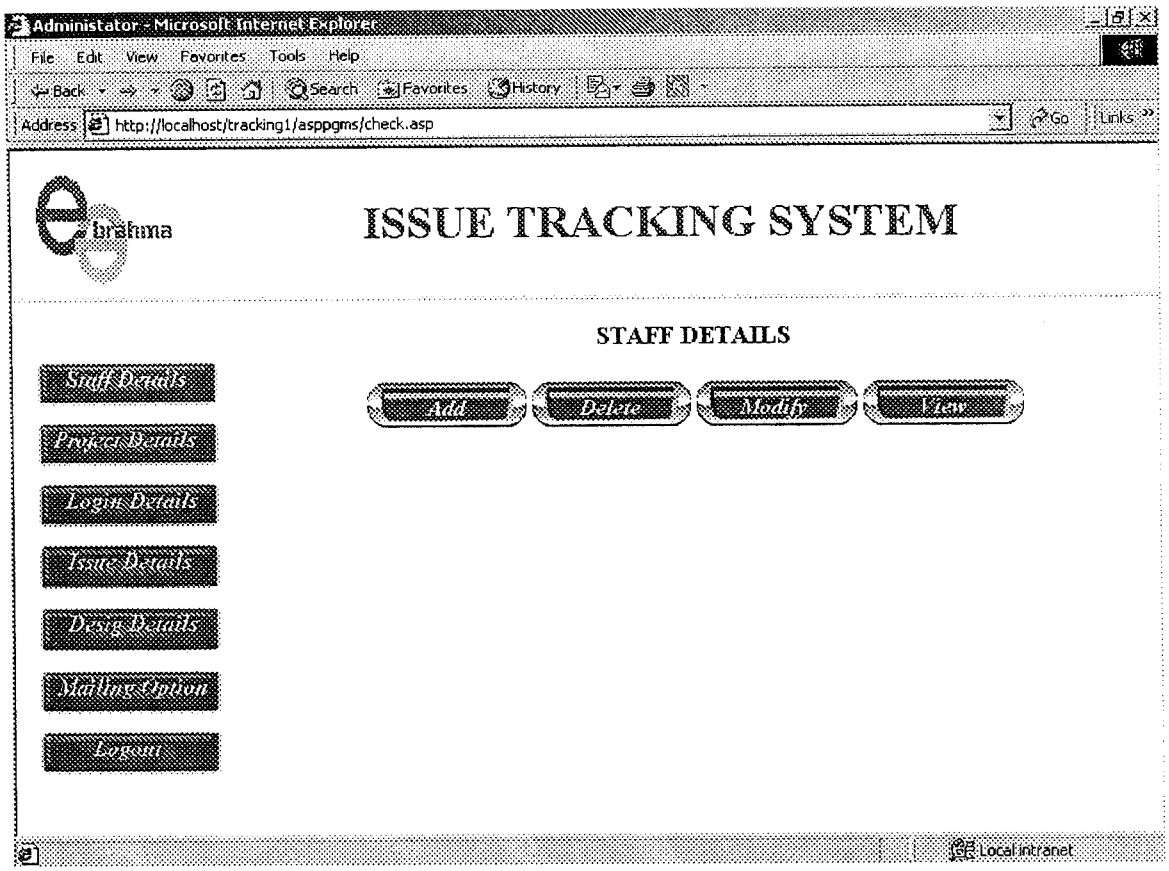

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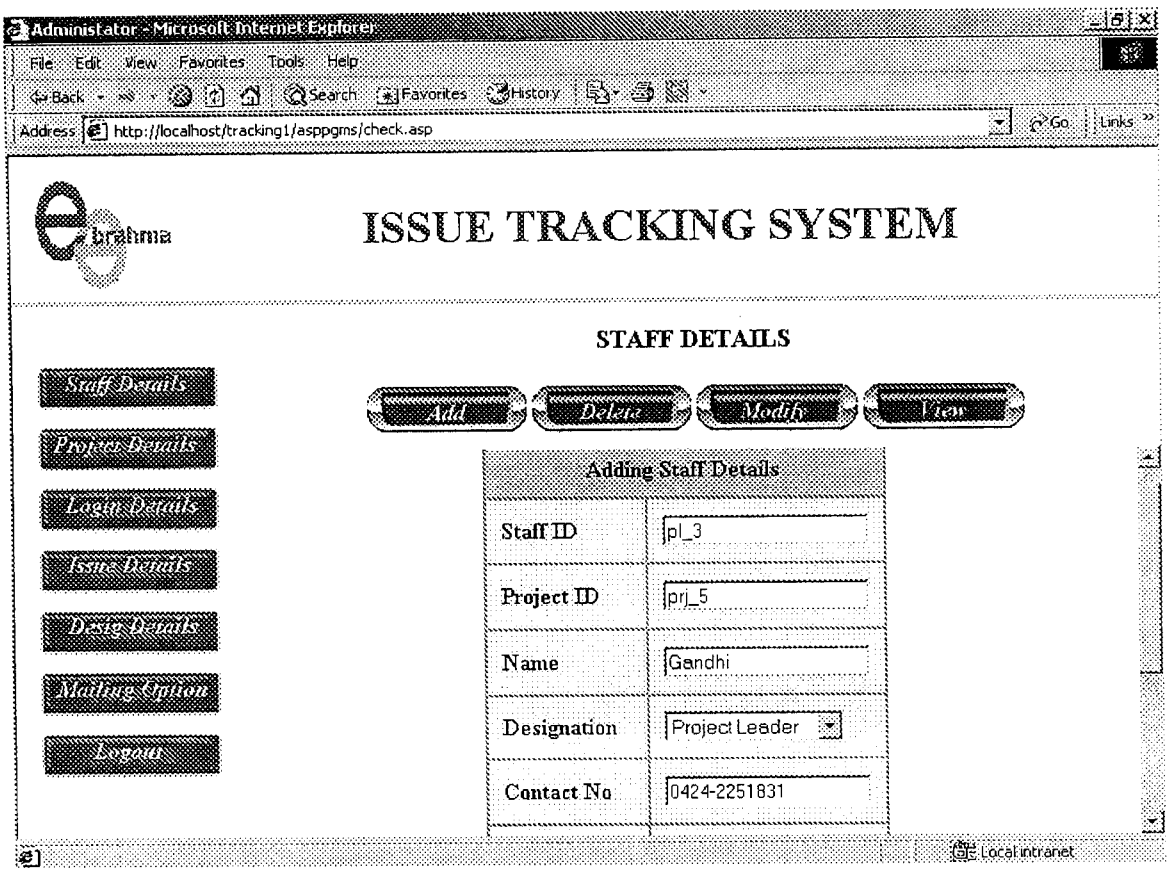
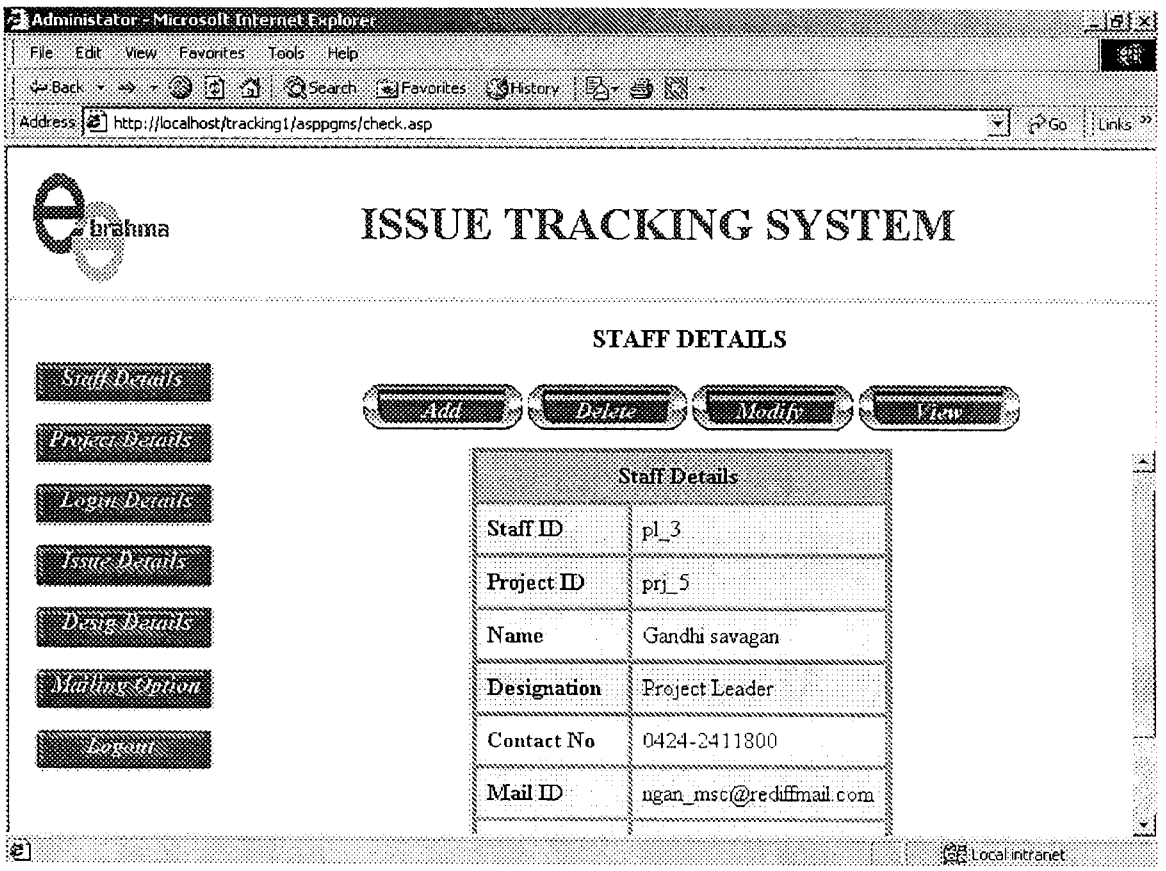


Display screen



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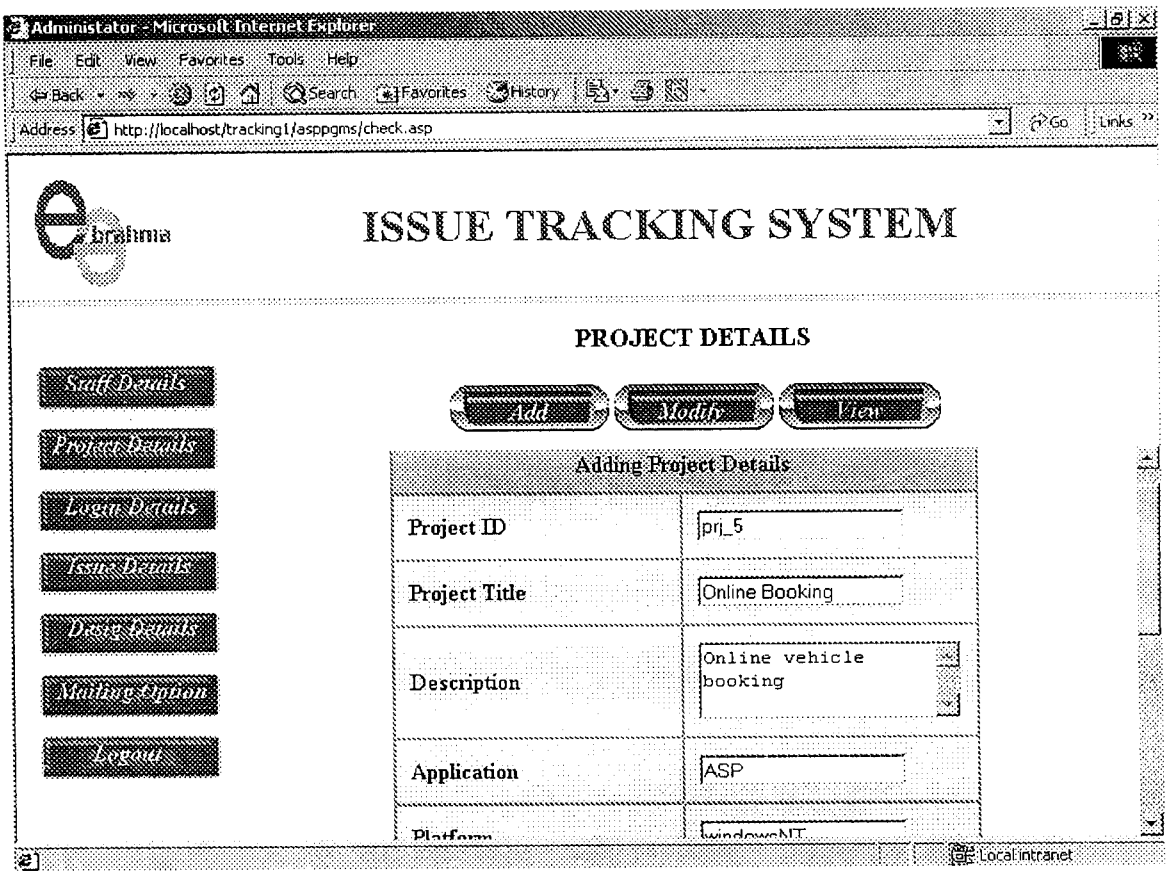

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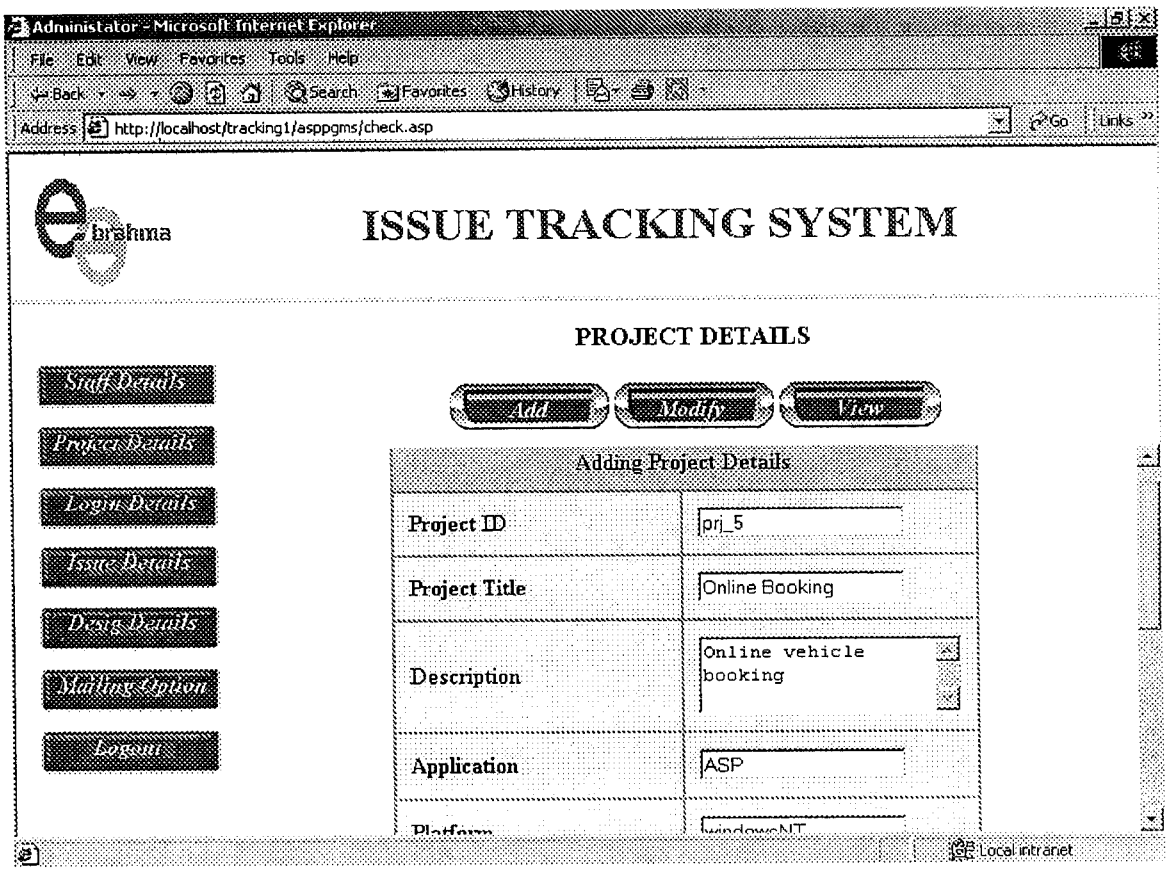

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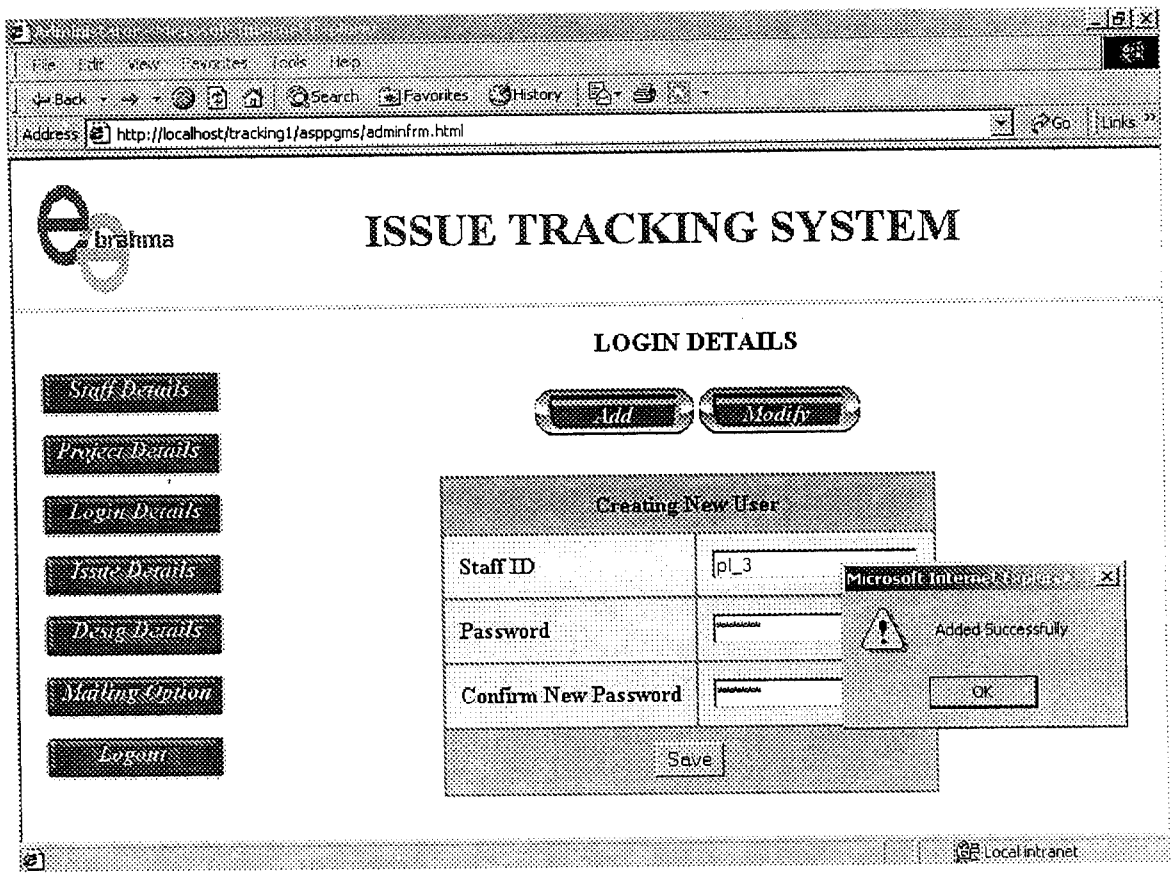
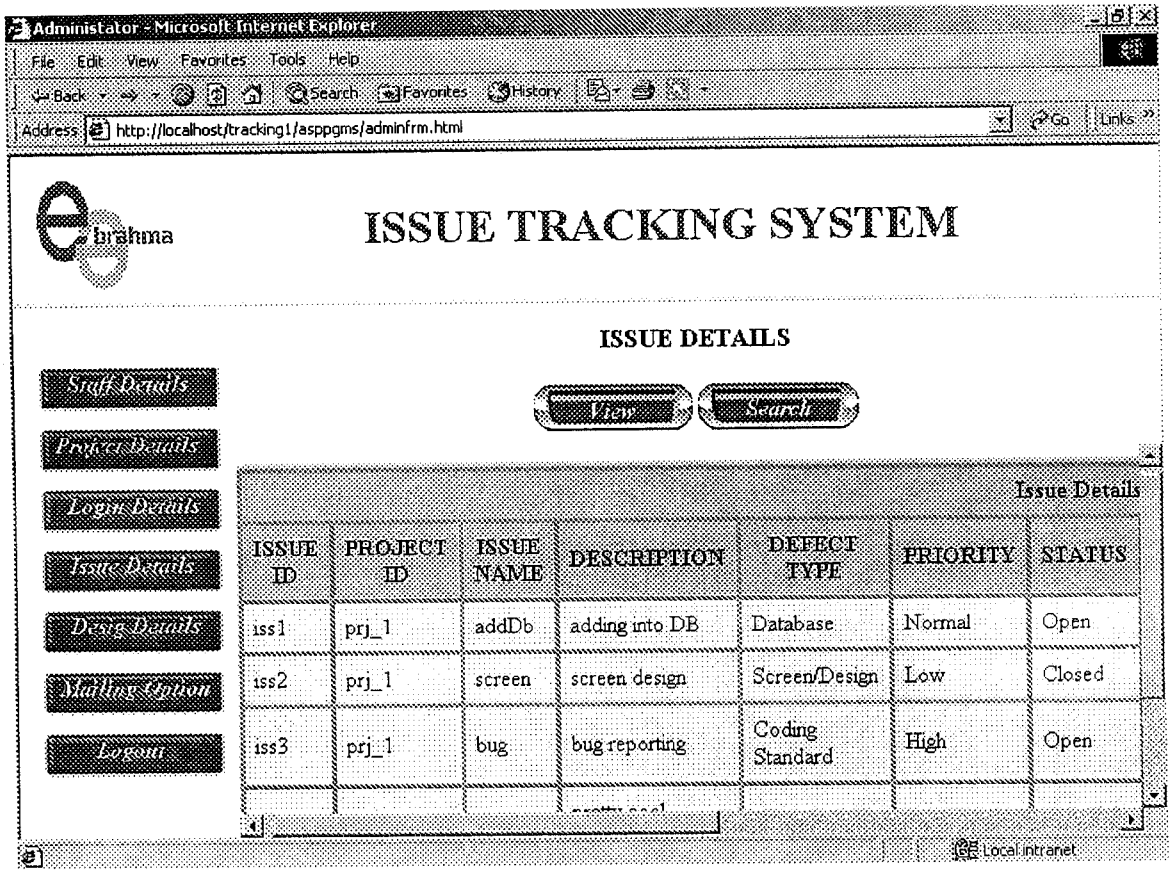
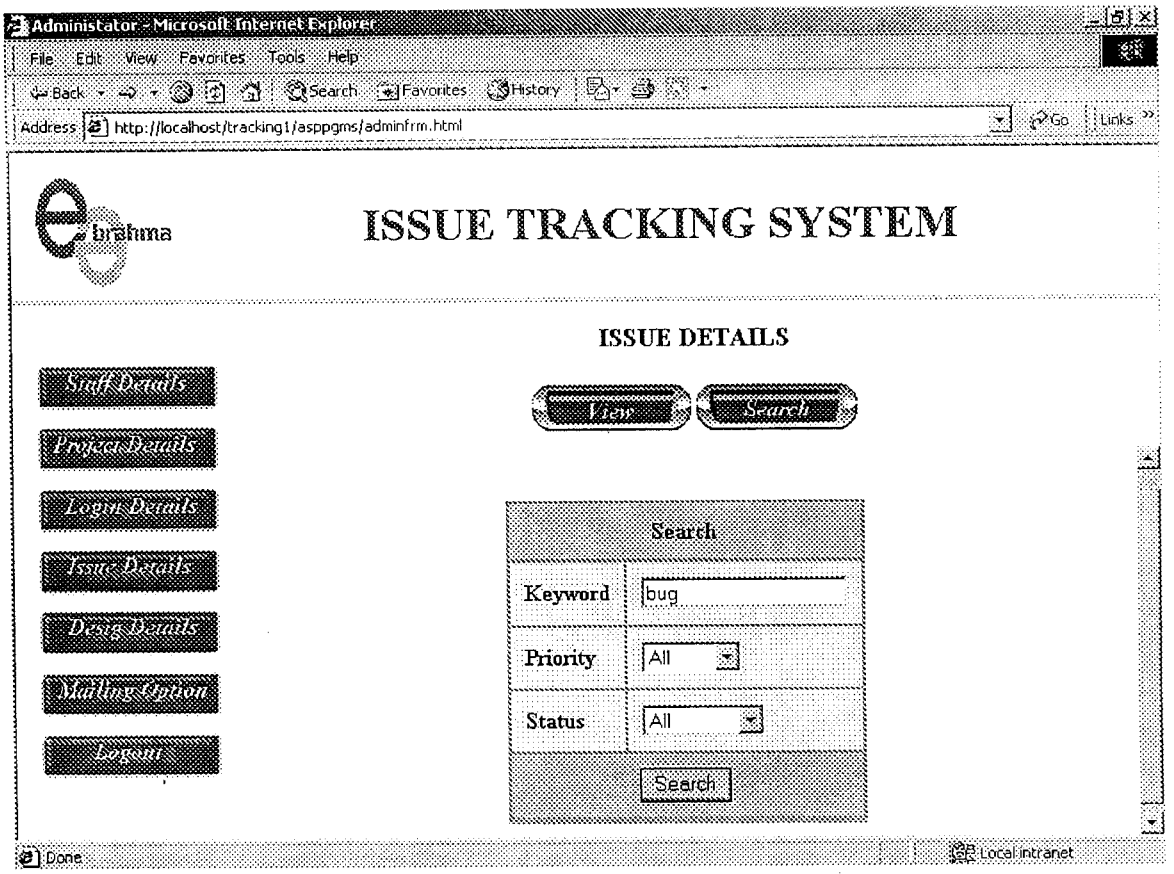


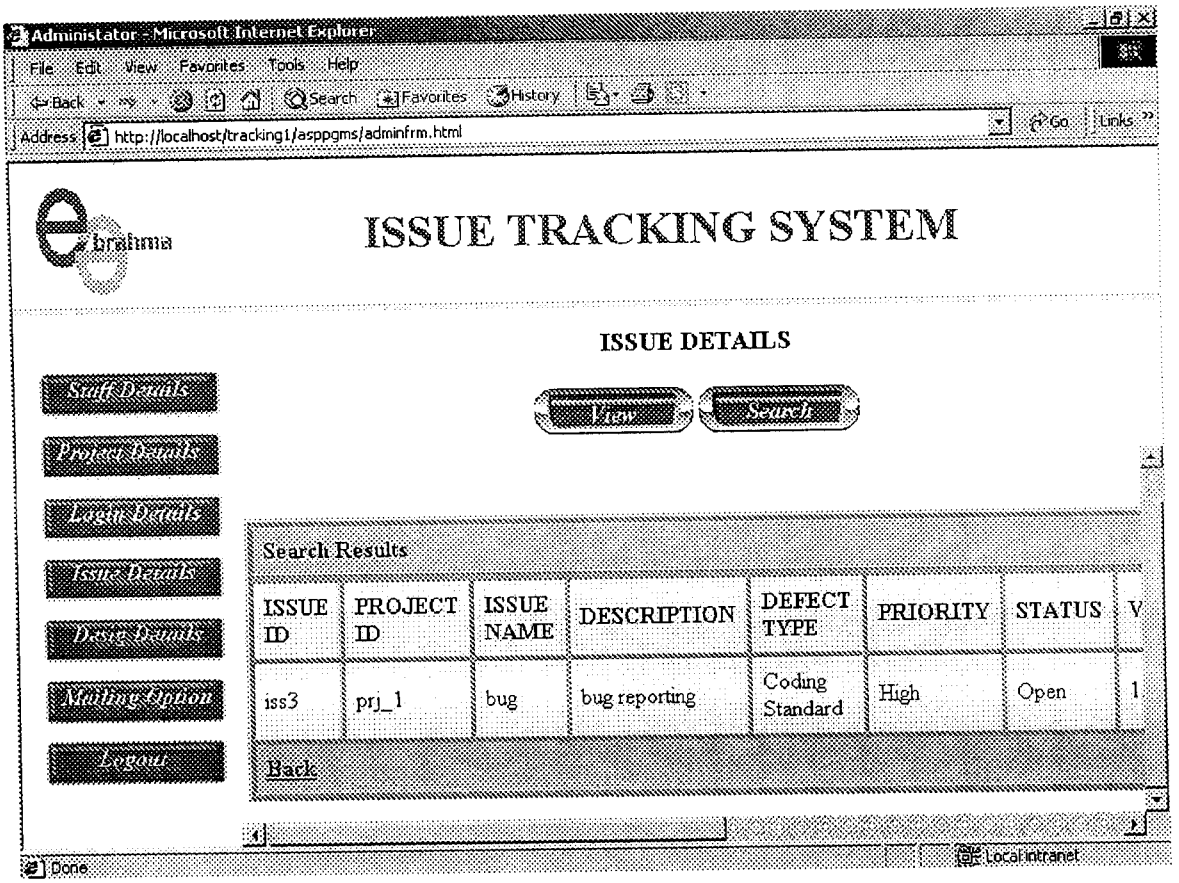
Issue view screen



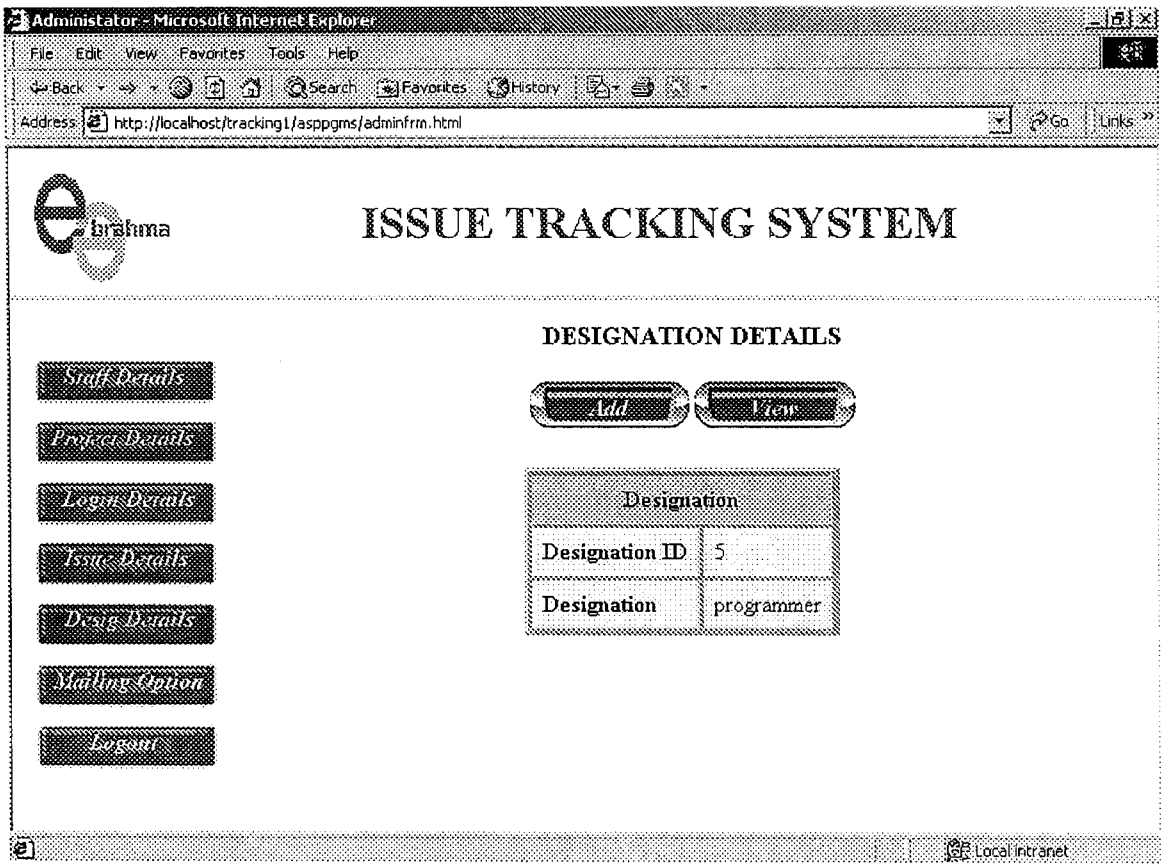
Issue search screen



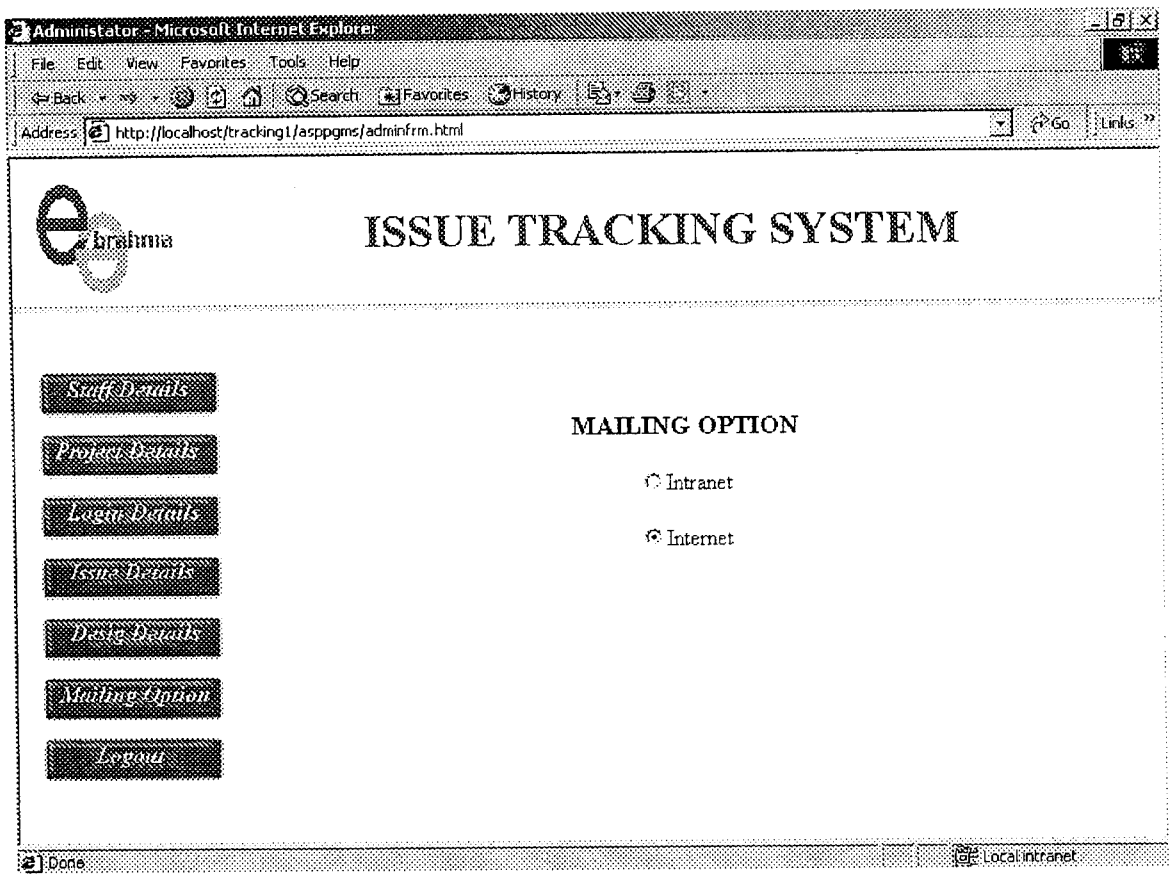
Search result screen



Designation view

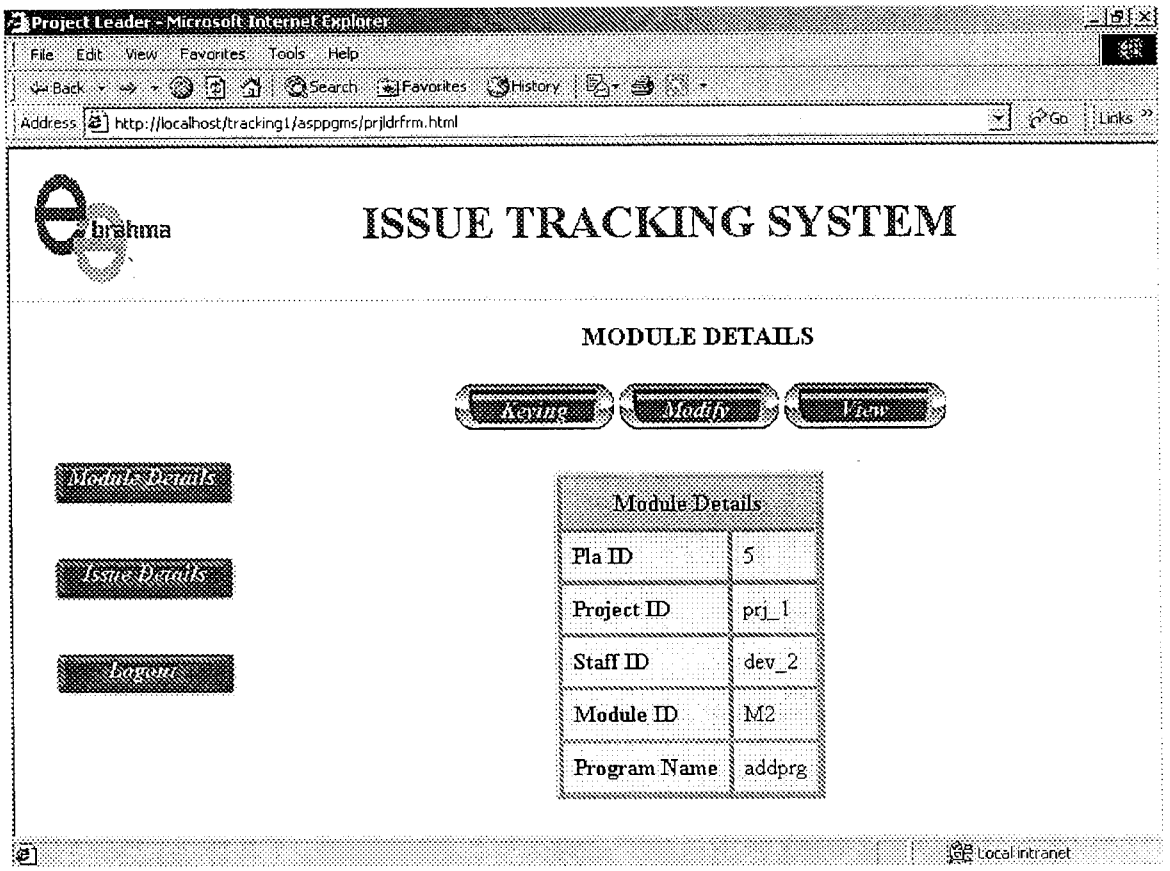


Mailing option

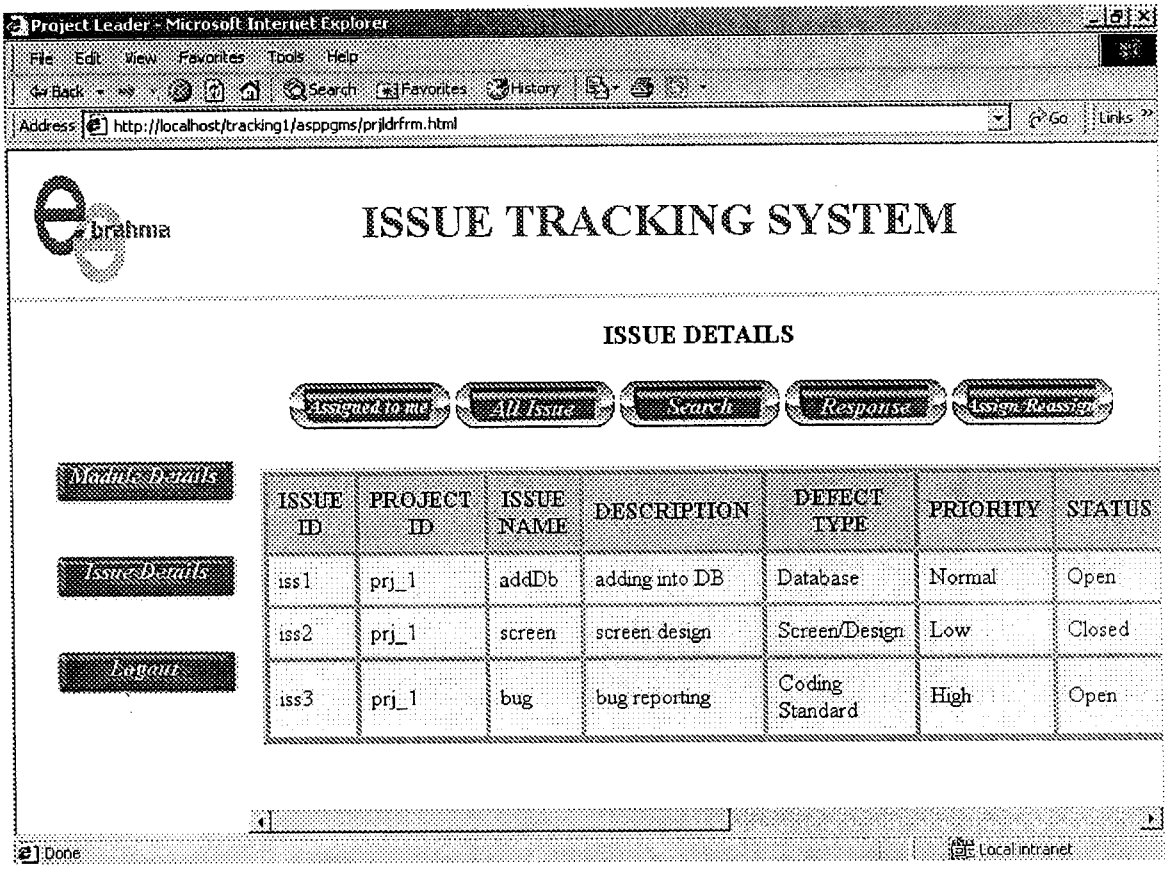


PROJECT LEADER MODULE

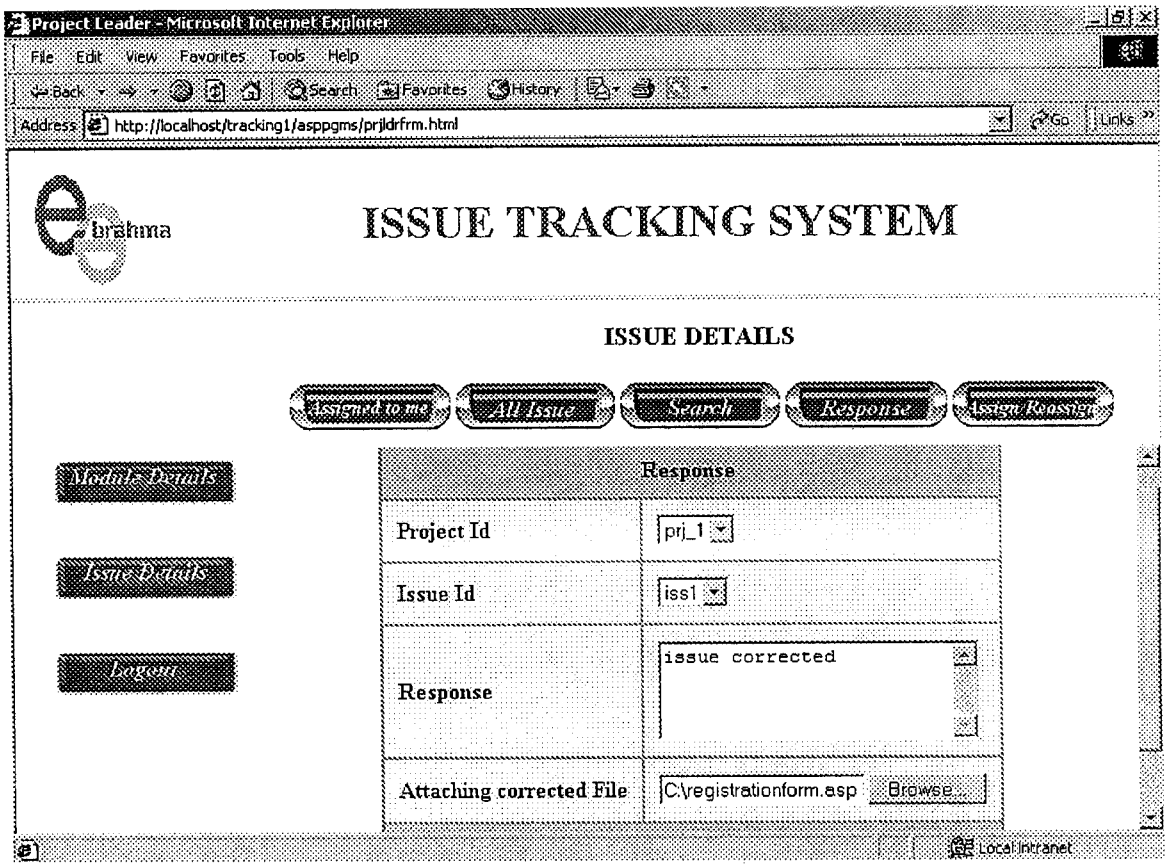
Project module details view



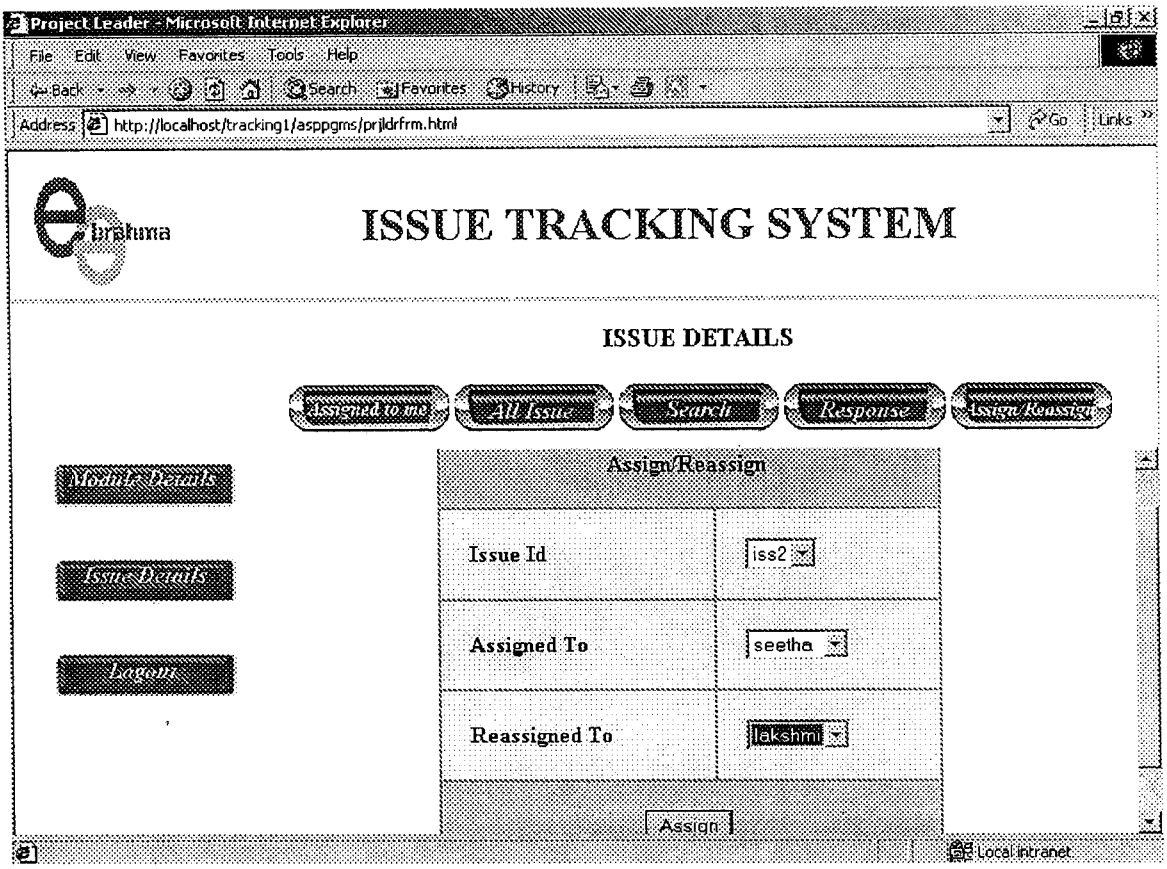
Issue details – Assigned to the Project Leader pl_1



Issue Response to Tester

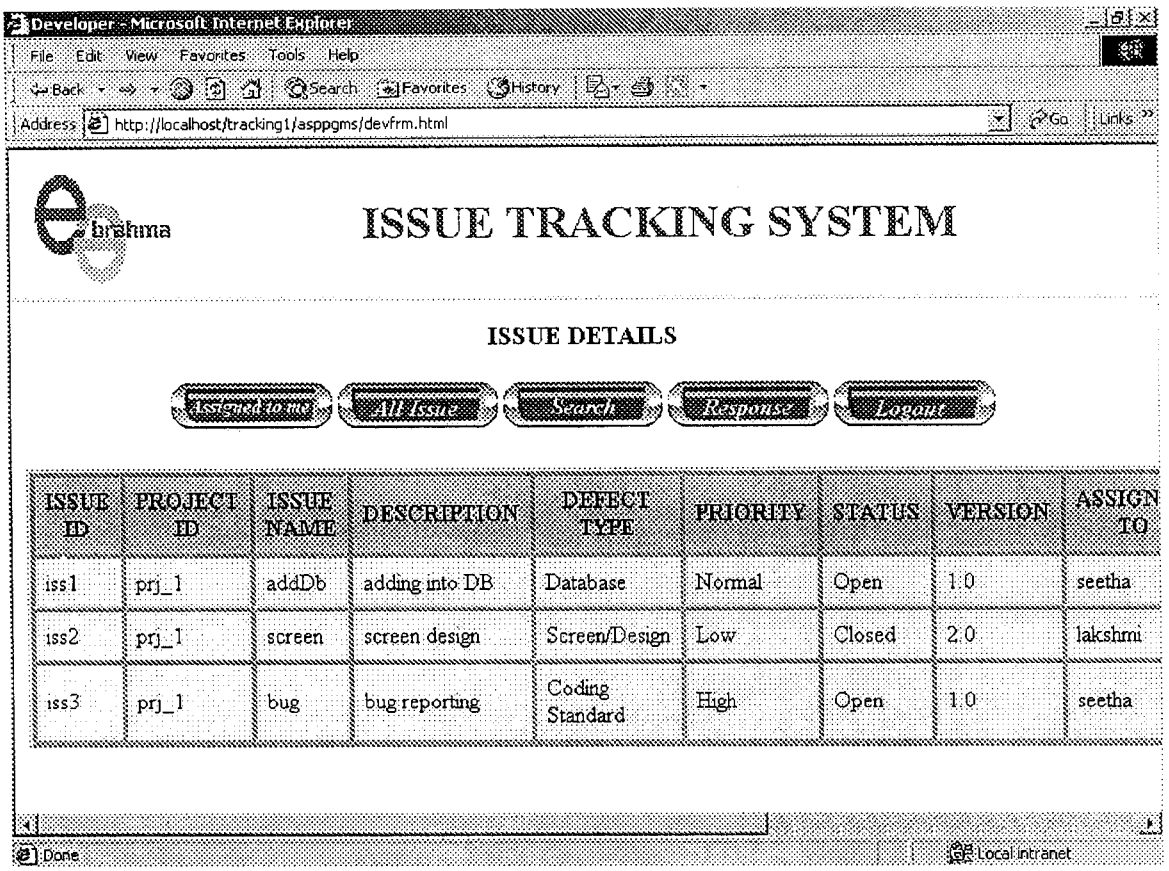


Re-assigning issue to developer



Developer module

Assigned to developer_1



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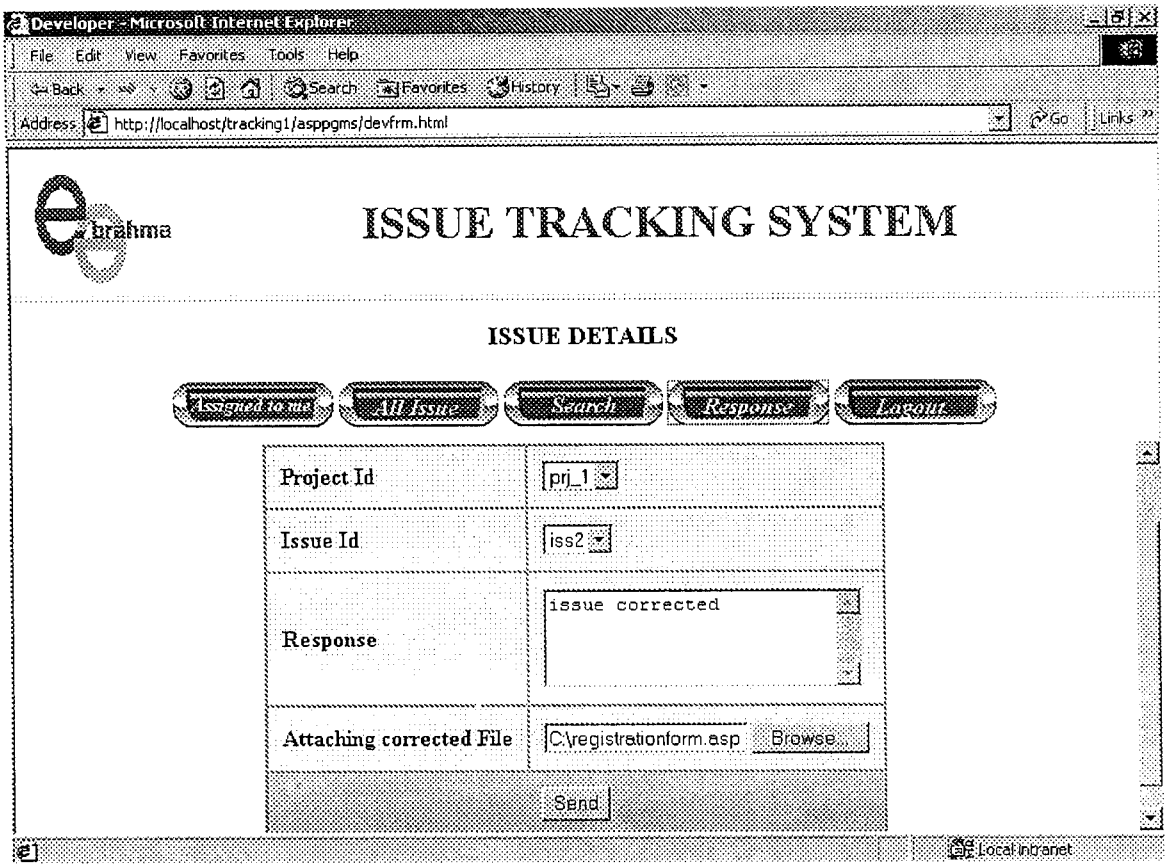
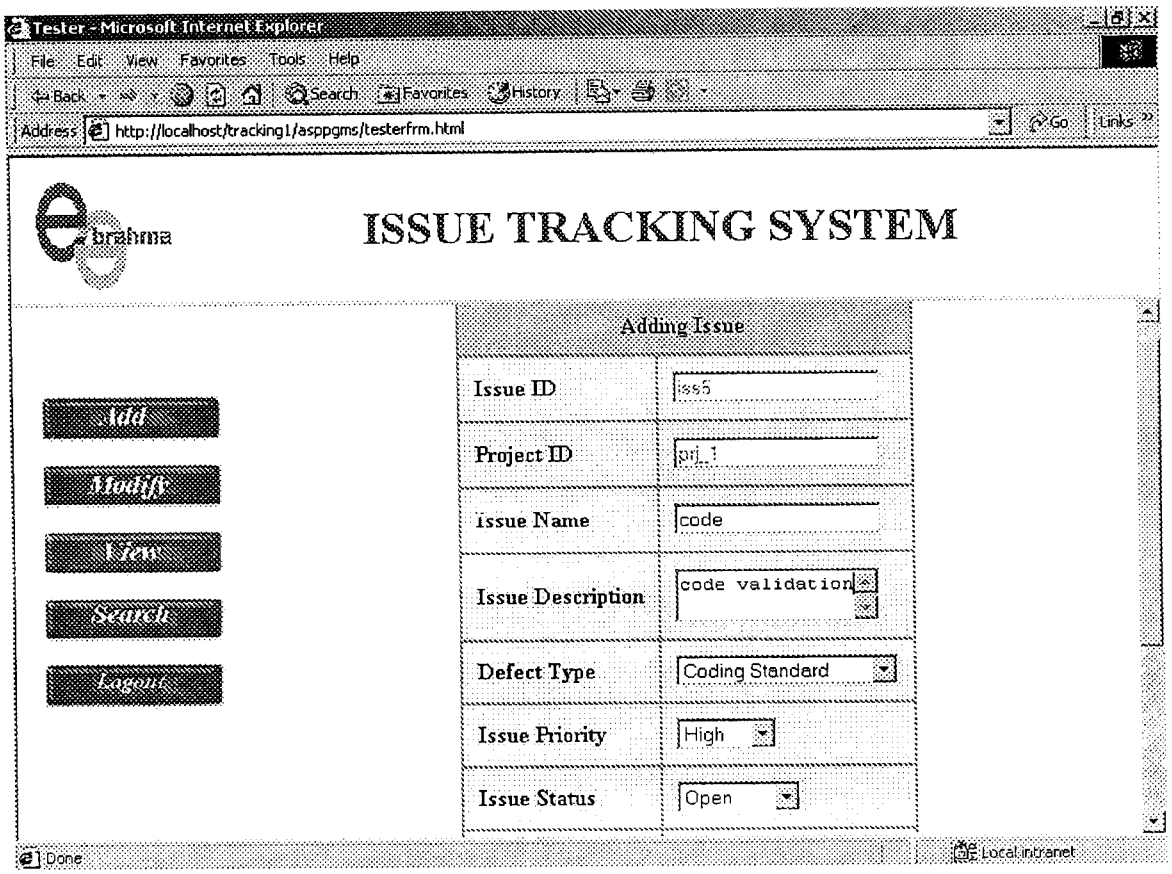
iss2	prj_1	screen	screen design	Screen/Design	Low	Closed	2.0	lakshmi
iss3	prj_1	bug	bug reporting	Coding Standard	High	Open	1.0	seetha

Issue response to leader from developer



TESTER MODULE

Adding issue and sending mail to leader



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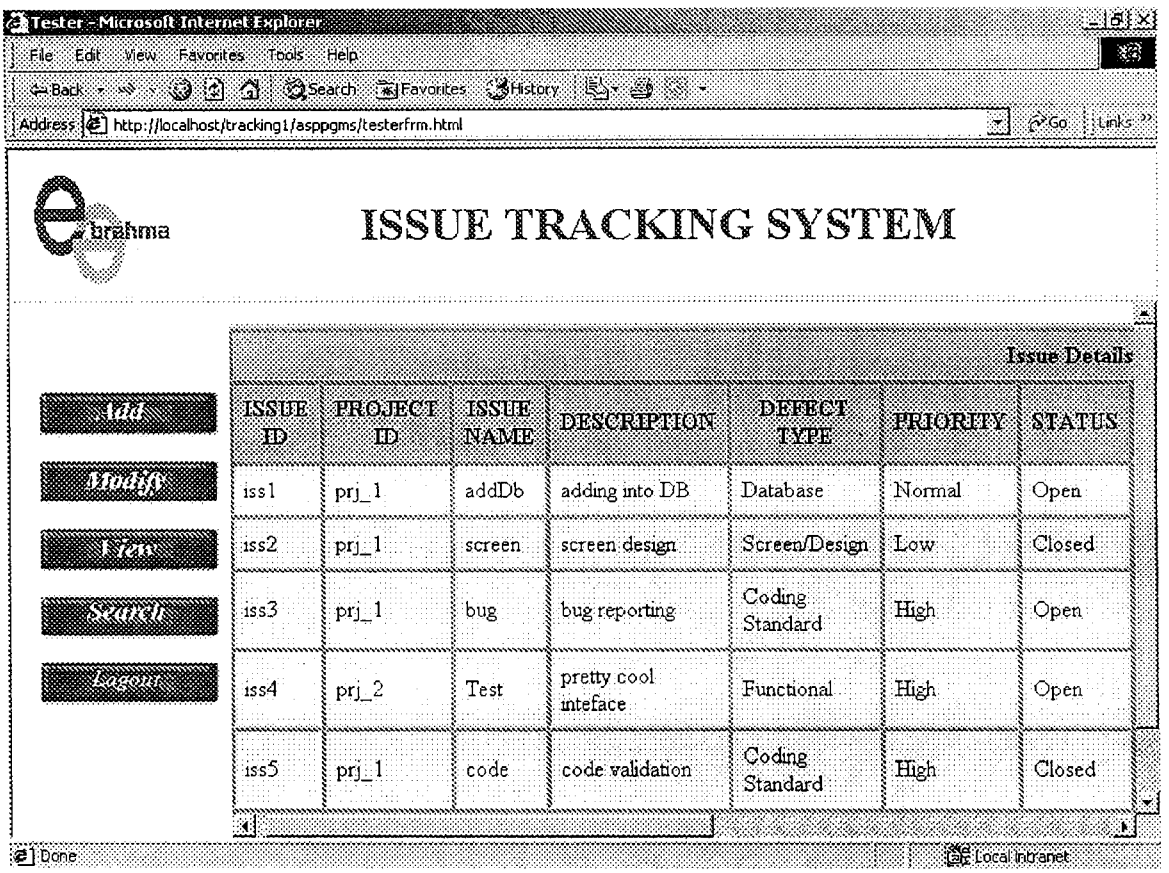
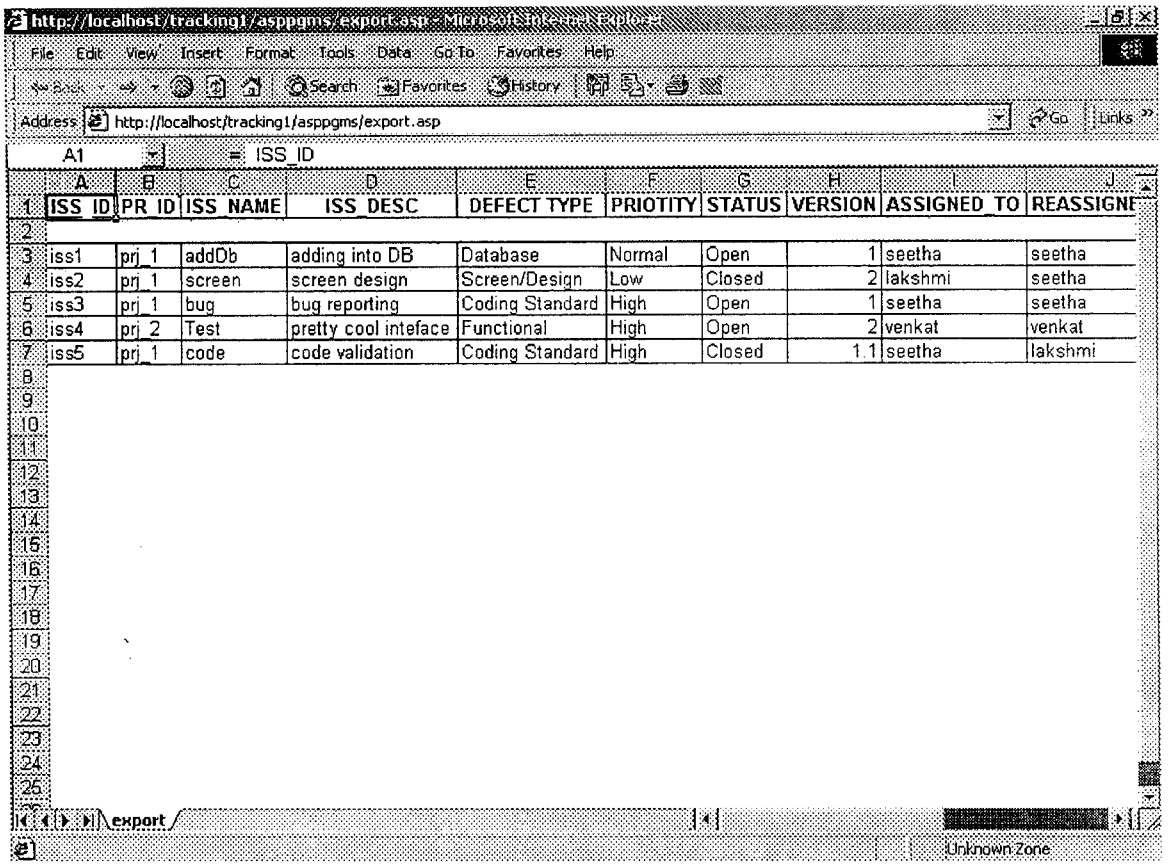


Dynamic report using ms-excel and asp



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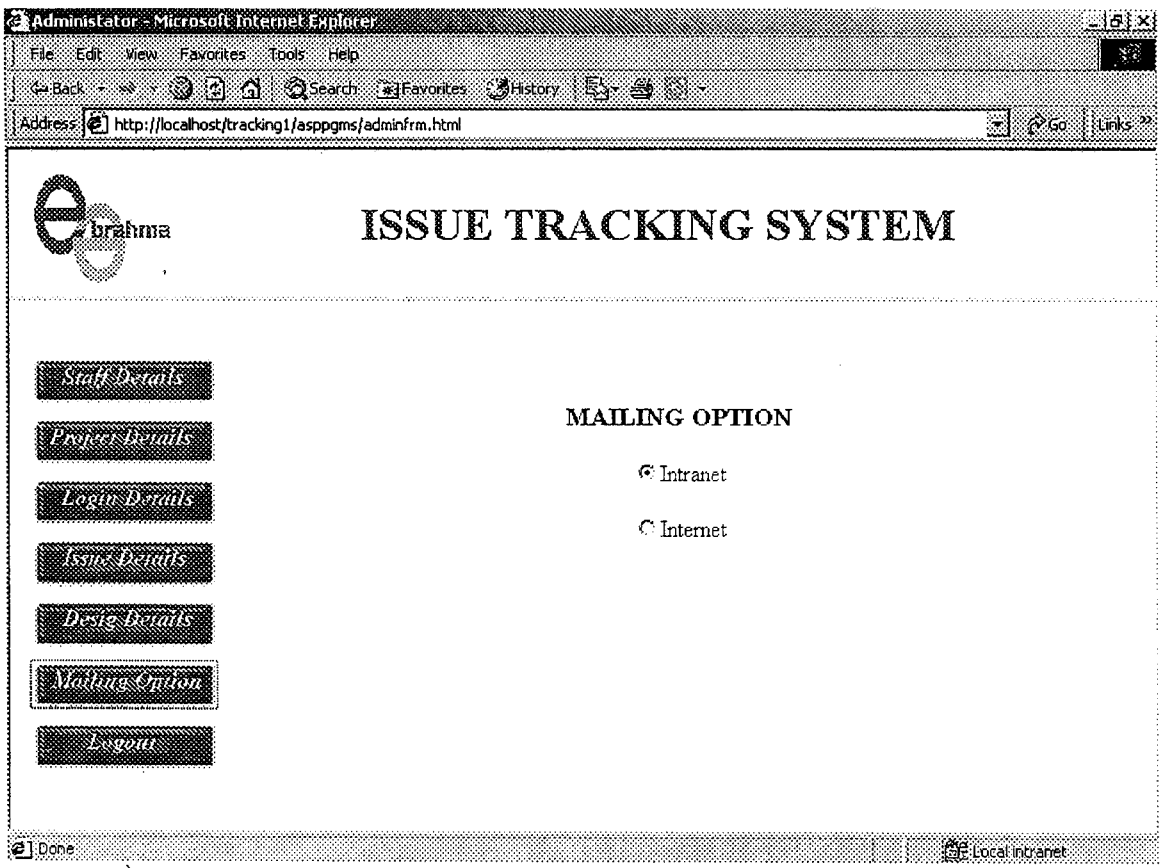
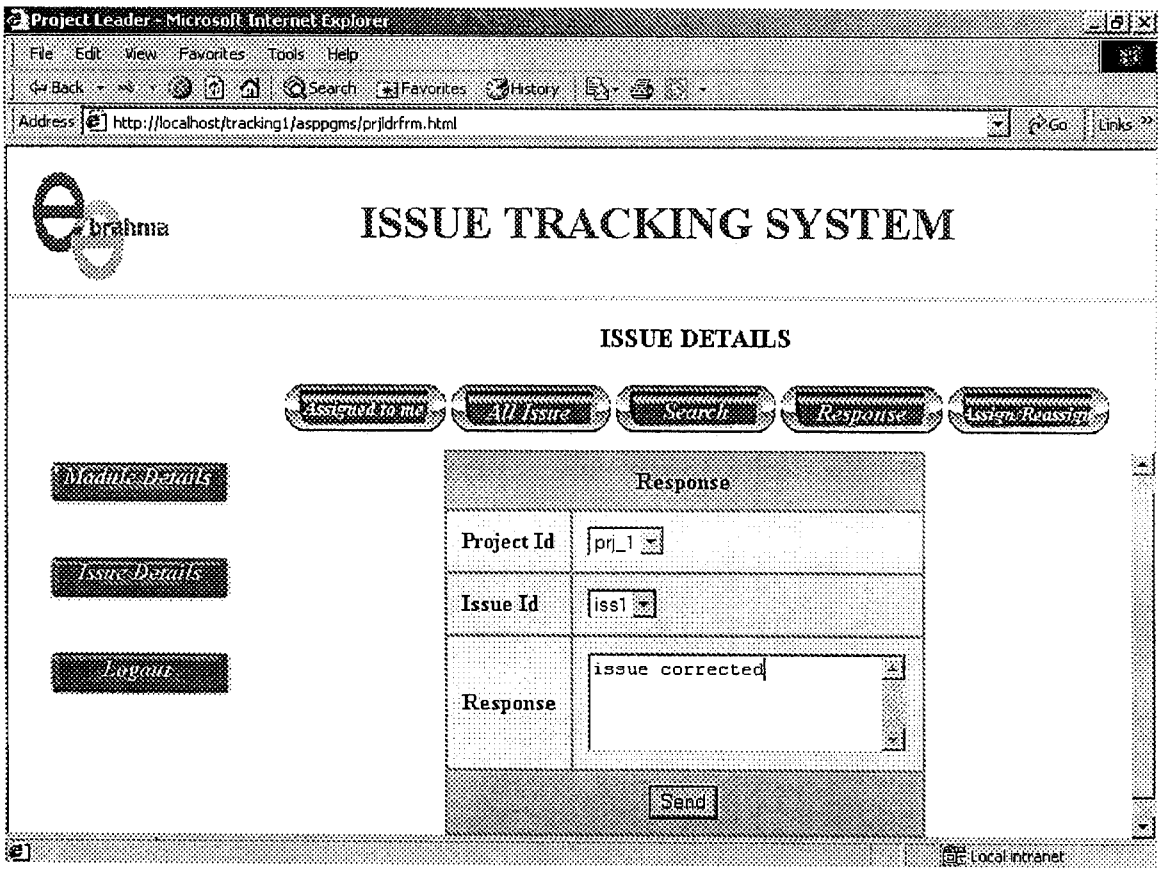
iss2	prj_1	screen	screen design	Screen/Design	Low	Closed	2	lakshmi	seetha
iss3	prj_1	bug	bug reporting	Coding Standard	High	Open	1	seetha	seetha
iss4	prj_2	Test	pretty cool inteface	Functional	High	Open	2	venkat	venkat
iss5	prj_1	code	code validation	Coding Standard	High	Closed	1.1	seetha	lakshmi

Selecting intranet mailing option



Issue response to tester in Intranet configuration



Tester to Project Leader in Internet configuration