…Tracks

By

Christopher Robert Justin

Submitted to
the Faculty of the Information Engineering Technology Program
in Partial Fulfillment of the Requirements
for
the Degree of Bachelor of Science
in Information Engineering Technology

University of Cincinnati
College of Applied Science

June 2003

Acknowledgements

I would first like to give thanks to my family for allowing me to freely pursue whatever I wanted in search of happiness and giving all the support in the world. I would also like to thank Tim Bair for his attention to detail and ability work with me throughout this long road called college and Mark Leonhartsburger for being Mark L. We have been through a lot over the past four years. I would also like to thank Chad Williams for his help on testing my project and giving me the ability to see world in from many different view points. I would also like to thank Russ McMahon for his role as advisor of this project and his ability to see my strengths and weaknesses and help me fine tune them, not only on this project, but also throughout his tenure at the CAS. A special thanks to those who took the time to look at my project and fill out my evaluation: Keith Daegle, Eric Hausen, Deb Messmore, Mark Beck and Robert Hogan.

Table of Contents

Table of Figures

Abstract

Tracks is a tool that provides a tracking system to improve communication between employees working together on projects. This web based application acts as a channel of communication between its users. *Tracks* consists of a web front-end and a database back-end. The web front-end is the graphical user interface that provides the users with a way to add their input to a project. The database back-end is used to store the user's input. The goals of this tool are to help eliminate communication conflicts, present user input in a meaningful way, delegate balanced workloads and track the progress of projects. *Tracks* provides a central storage location for all information about projects to be recalled and accessed by the users. The centralized documentation helps users see all remaining tasks at hand, know who performed an action and be sure that all problems have a resolution before a project reaches production.

…Tracks

1. Purpose

The task of creating a communication tool that will increase awareness of issues to project managers, developers and testing personnel has been the goal of this project since the beginning of Senior Design I. Although the thoughts and ideas on how to accomplish this task have changed since the concept of the idea, the final product is a solid web application that has the ability to provide a communication tool for its users. Since the task of finding the most effective way to solve the problem there has been many changes that have occurred.

A major change that was implemented was the decision to use ASP 3.0 instead of ASP.NET as the middle layer between the presentation and database layers. The reasoning behind this choice was the possibility of being implemented in a business setting. At the time when the decision had to be made, the .NET framework was still in its Beta Testing stage, this brought up the problem of changes that may occur from Beta to final release and bugs within the .NET program that may hinder the development process. From personal experience and asking others at the time of the decision not many companies were using the .NET Framework or planning on switching to it anytime soon; therefore, ASP 3.0 became the development solution for the project.

In the proposal there were six objectives that needed to be met for this project to become an effective tool: User-Friendly, Provide Information, Measure Progress, Search Capabilities, and Generating Reports. In design freeze process these six objectives were broken down further into deliverables. There have been modifications made to the original ideas to accomplish the objectives and deliverables. These modifications were in the best interest of the project meeting its overall goals.

2. Statement of Problem

In the fast paced business world of today development schedules need to be precise, span several employees, meet all functionality criteria and be punctual. For all of these elements of to come together those involved within a project must be able to communicate freely. The problem that *Tracks* is trying to overcome is communication flaws that occur between company personnel working together on a project. It will provide a central storage location for all information about projects to be recalled and accessed by the users. This centralized documentation will help users see all remain tasks at hand, know who performed an action and be sure that all problems have a resolution before a project reaches production.

3. Solution

Tracks will provide a channel of communication for employees working together on project. Store all project documentation in a central location. It will aid in the assigning of tasks within a project. It will also act as a check to ensure that all issues are known and resolved before a product is put in to production.

Tracks uses Active Server Pages (ASP pages) 3.0 for the front-end and SQL Server 2000 for the back-end. ASP code acts as the user-interface layer that provides an intuitive layout for ease of use and error checking to ensure that no corrupt data will be entered into the database. SQL Server 2000 is a relational and normalized database back-end for the retrieval and insertion of dynamic user data. These will seamlessly work together to create a completely dynamic web application to produce a channel of communication for its users.

3.1 User Profiles

There are two types of users Administrators and Users. This helps give extra functionality to those users that will need to utilized it and keep a simpler interface for those who do not need the extra functionality. Both user types will only need minimal level of computer literacy. They will need to have a grasp on the purpose of the tool and will need strong communication\writing skills to be able to convey their in within this medium.

3.1.1 Administrator

The Administrator role is designed to be given to project managers. The administrator will have all the rights that a standard user does, as well as access to control panel tools. The control panel tool will allow the user to manage users and delegate task to users of projects.

3.1.2 Users

The User type will allow a user to have the functionality to search, add, and edit Projects and Trackers. This will allow them to take full advantage of the communication aspect of *Tracks*.

3.2 Design Protocols

The main goal for the design *Tracks* was to provide a simple, intuitive and user friendly interface. To obtain this goal consistency was a must to make the user feel comfortable in all section of the project. Consistency of buttons, layouts, color scheme and fonts were the elements that were concentrated on the most.   The buttons were created in Adobe Photoshop and used a very minimalist format, such as one or two word captions, flat and square appearance and a color slightly different from the background to make stand out. Functions such as displaying and updating data appear within the web interface in the initial browser window. When the user is adding new information to the database the application uses a Wizard style pop up window to give the user extra awareness and instructions of the task at hand. A cascading style sheet was used for consistent font types, sizes and color. The consistency throughout the application meets the requirement of creating a simple, intuitive and user friendly interface.

4. Deliverables

These goals were define to ensure *Tracks* will be able to provide a channel of communication to its users. The success of this project was based on the following objectives:

- A Web-Based Channel of Communication to track communication on project
- Allows authenticated users to login to the program
  - An invalid user error will appear if the user is not in the database
  - Based on the user type is where the user will be directed
- Administrator can add user with the Add User wizard
  - Administrator adds the user’s information and the project they will work on.
- The new user can now login and see the projects that they are associated with.
- The user can then select a project and any or no criteria for the report
  - This will display all trackers and their attributes within the project
  - This view will give the user all of the information logged on the tracker
- For every tracker there will an edit button
  - The edit button will allow the change and edit the attributes of the tracker
  - Add users to the tracker
  - Add description to the tracker
- After the changes have been made the Tracker will be displayed with the updates
- The users may also Add Projects
  - The user enter the name of the project
  - The user selects users to be associated with the new project
  - The new project will then show up in there project menu
- When a new issue is found the user can Add a Tracker
  - The user select the project for Tracker to be associated with
  - Fills out the necessary information about the tracker
  - Adds a description describing the problem at hand
  - This Tracker becomes available to every one associated with project
- Statistics Page for all Projects
  - Shows the Project Lead in charge of the project

    - Shows the number of Trackers
    - Shows the users associated with the project
    - Shows the number of users working on the project
    - Shows a bar graph and percentage of Open, Verified, and Closed Trackers
- Control Panel gives an administrator the ability
    - To move a users to a project
    - Remove a users from a project
- All users have the ability to use the Search Functionality
    - The users can search on Project Title
    - The users can search on Tracker Title
    - The users can search on Tracker ID
- All user can edit there personal information
- All users can view demonstrations about …Tracks

5. Design and Development

During the Senior Design sequence there have been many milestones accomplished and issues overcame. The following is a list of these broken down by each step of the sequence.

5.1 Senior Design I

- Research and develop general project concept
- Explore technologies to use for development
- Gather informational sources
- Develop and document concepts for specific components of project
- Pricing on technologies
- Create final proposal and present concept to peers and faculty.
- Begin preliminary development

5.2 Senior Design II

- Install and configure software for development
- Create graphics and general page layout and navigation
- Begin initial ASP coding

- Create majority of database tables and stored procedures
- Achieve database connectivity
- User logon creation
- Copy site and database to senior server
- Install UC VPN on home terminal to connect to database from home
- Draft of Product Description, Intended Uses, and User Profiles
- Data entry
- Coding for user features
- Draft of Design Freeze
- Present and demonstrate working prototype

5.3 Senior Design III

- Finalize coding for functionality
- Perform testing phase
- Finalize testing
- Complete documentation
- Submit final documentation and present final project June 2003

5.4 Budget

Product	Cost
MacroMedia Dreamweaver MX	$399.00
MS SQL Server	$1,489.00
Robo Demo	$449.00
900 Mhz Sony Laptop	$2,200.00
800 Mhz Desktop	$1,500.00
Total	**$6037.00**

Figure 1. *Tracks* Budget

6. Proof of Design

Tracks is a web application designed to provide a completely dynamic user interface for its users. The interface will allow users to communicate freely and make decision based on information present to them by the application. It uses SQL Server for the back-end to provide a centralized storage of data and Active Server Pages to create the information and provide a gateway to enter and retrieve data to database. The user interface is user-friendly, simple, and intuitive.

6.1 SQL Server 2000 Database

SQL Server will be the back-end of this product and stored data that has been entered by the users and retrieve that data that has been requested by the users. The data will be stored in a normalized and relational way to increase speed and decrease storage space. A major advantage to using SQL Server is the ability to use stored procedures. Stored procedures are queries that can be saved and thoroughly tested to ensure the correct results are returned based on the criteria given. Once they are tested they then can be called by the presentation layer and return the data that is needed based on the user’s request.

6.1.1 Database Design

The database design is setup in a relational and normalized format. This will aid in increasing response time for retrieving and inserting data, as well as decreasing the amount disk space used. This format will also make programming the stored procedures easier, because the normalized data will only appear once in the database make the result distinct. The relationships that are used are many-to-many and one-to-many. The many-to-many uses a linking table that have two primary keys (one from each table being used) to create a unique identifier.

6.1.2 Database Tables

Table Name	Fields	Data Type
Descriptions	DescriptionID DescriptionContent DateTime	Int (pk) Char(500) DateTime
Priority	PriorityID PriorityDescription	Int (pk) Text(16)
ProblemType	ProblemTypeID ProblemTypeDescription	Int (pk) Varchar(30)
Projects	ProjectID ProjectName	Int (pk) Varchar (50)
Status	StatusID StatusType	Int(pk) Char (25)
Trackers	TrackerID TrackerTitle ProjectID PriorityID StatusID ProblemTypeID ProjectLeadID	Int(pk) Char(50) Int Int(pk) Int Int Int
TrackerDescriptions	TrackerID DescriptionID	Int(pk) Int
TrackerUsers	TrackerID UserID	Int Int
UserProject	UserID ProjectID	Int Int

Users	UserID
	UserName
	Password
	Email
	UserTypeID
	FirstName
	LastName
		Int(pk)
		Char(25)
		Char(25)
		Char(50)
		Int
		Char(25)
		Char(25)

UserType	UserTypeID UserType	Int (pk) Char(15)

Figure 2. Table of Database Tables and Columns

6.2.3 Store Procedures

These Stored Procedures are tested queries that can be called by ASP to retrieve or insert user defined data and make this a dynamic data driven web application that has the ability to adapt to the user's and company's environment.

- *AddDescriptionToTracker* – Adds the DesciptionID and the TrackerID to a linking table to create a many-to-many relationship.
- *AddProblemType* – Adds a user defined problem type to the Problem Type Table. Problem type is an attribute of a Tracker.
- *AddProject* – Adds a new project to the data base and the Title attribute.
- *AddStatus* – Adds a new user defined status to the Status Table. Status is an attribute of a Tracker.
- *AddTracker* – Adds a new Tracker to the Tracker Table as well as defines its attributes such as Title, Priority, Status, and Problem Type as well as adds an association to a project.
- AddTrackerDescriptions – Adds the user's description and the date/time to the Descriptions Table.
- *AddUser* – Adds a new users to the Users Table as well as defines its attributes such as User Name(log in), Password, Email, User Type, First Name, and Last Name.
- *AddUserToProject* – Adds the User ID and the Project ID to a linking table to create an association with User and a Project.
- *AddUserToTracker* – Adds the User ID and the Tracker ID to a linking table to create an association with User and a Tracker.
- *GetAllProblemTypes* – Returns all Problem Types descriptions to display them to the users.
- *GetAllUsers* – Returns all Users to display them to the users.
- *GetDescriptionsForTrackerID* – Returns all the descriptions for a specific Tracker based on its unique identifier.
- *GetPriority* – Returns all Priorities descriptions to display to the users.
- *GetProjectUser* – Returns all users associated with a Project.

- *GetStatus* – Returns all Status descriptions to display to the users.
- *GetTrackersForProjectID* – Returns all Tracker Attributes based on the Tracker's unique identifier.
- *GetUser* – Returns the User ID, if the User Name and Password are found in the in Users Table.
- *SearchProjectTitleForUserInput* – Returns all matches in the Project Title field of a string entered by the user.
- *SearchTrackerTitleForUserInput* – Returns all matches in the Tracker Title field of a string entered by the user.
- *SearchTrackerIDForUserInput* – Returns the attributes of the Tracker if the user entered string matches any of the Tracker IDs found in the Tracker Table.

6.2 Active Server Pages

The ASP pages will serve three primary functions. The first function is design for the user interface. ASP uses a combination of VBScript, JavaScript and HTML code. The HTML will be used to make the overall design of the interface, thus granting the ability to make an intuitive and simple interface for the user and be able to display in an Internet Explorer browser. The second is dynamic data display based on users and their needs. The ASP pages provides, thru the use of VBScript and its ability to call Stored Procedures within SQL Server, a way for the presentation layer to transform the data from its normalized and relational form in the database to a more useful and meaningful format for the user to interpret. The third function is error checking. ASP will be using JavaScript for client-side error checking and form validation. Client-side scripting will decrease the number of requests on the server, thus decreasing its work load. It will also use VBScript for server-side error checking for more complicated validation that needs to request information from the server before it will continue a process.

The Web Layout is similar to most web applications that are user specific. The first screen that user see is the log in page.

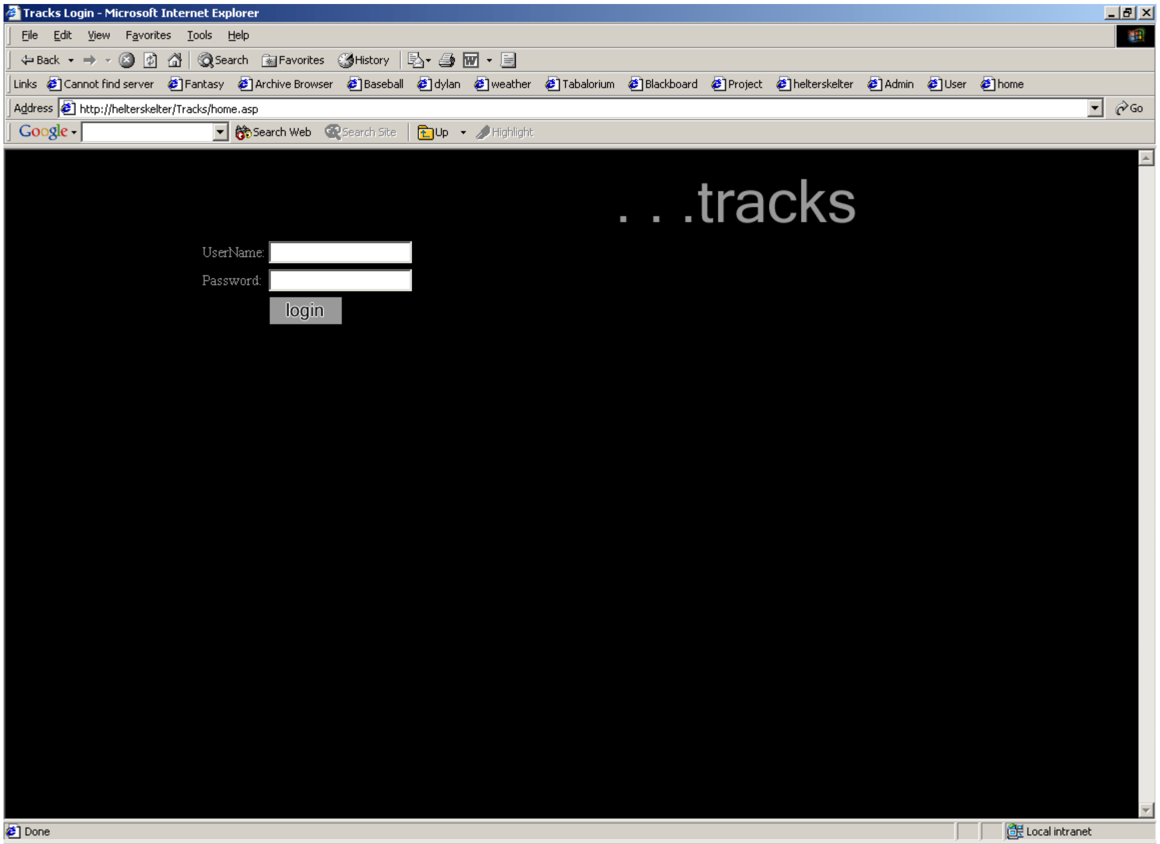
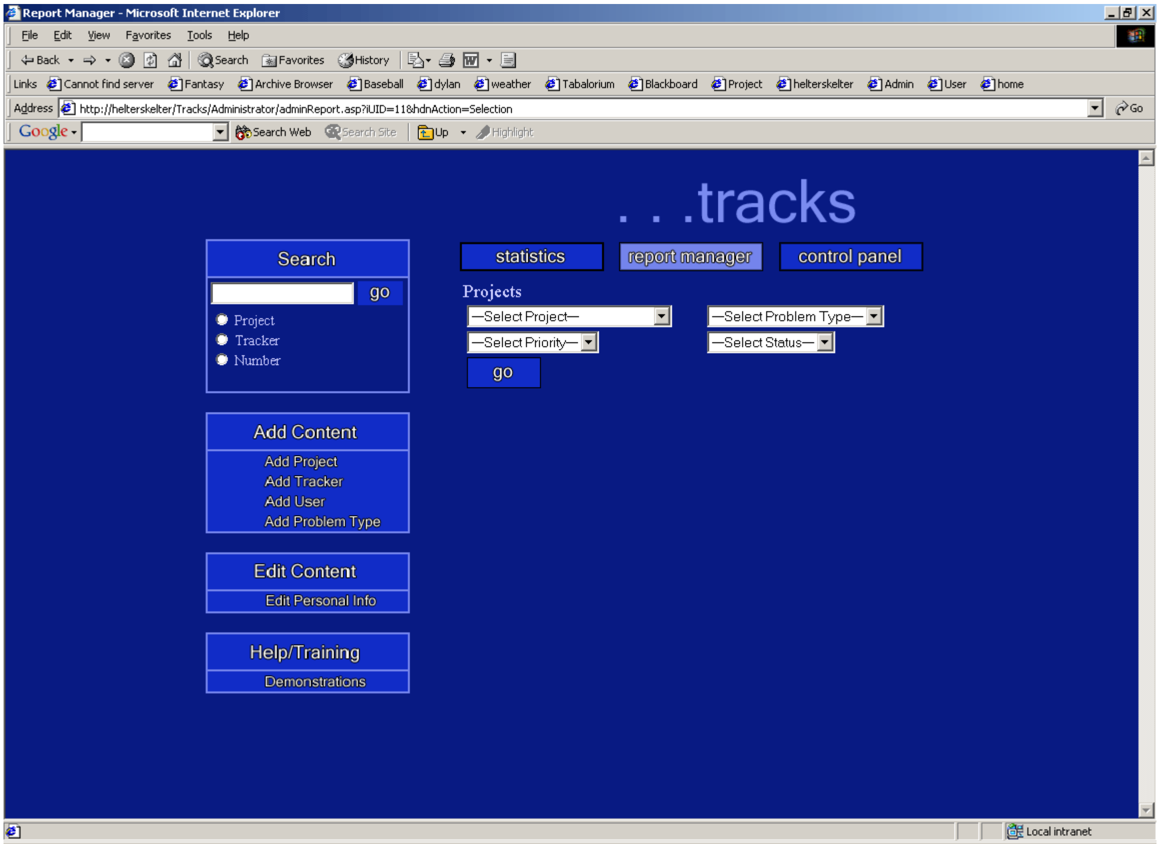

Tracks Login - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address http://helterskelter/Tracks/home.asp
Go
Google Search Web Search Site Up Highlight
. . .tracks
UserName:
Password:
login
Done
Local intranet

Figure 4. *Tracks* Login Page

This page checks to see if the user exists in the database and if so what type of user. If the user is a type of “Administrator” then it is directed to the Admin part of the site.

6.2.2 Report Manager Section


Report Manager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Google Search Web Search Site Up Highlight
. . .tracks
Search
go
Project
Tracker
Number
statistics
report manager
control panel
Projects
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
Local intranet

Address http://helterskelter/Tracks/Administrator/adminReport.asp?iUID=1&hdnAction=Selection

—Select Project—

—Select Problem Type—

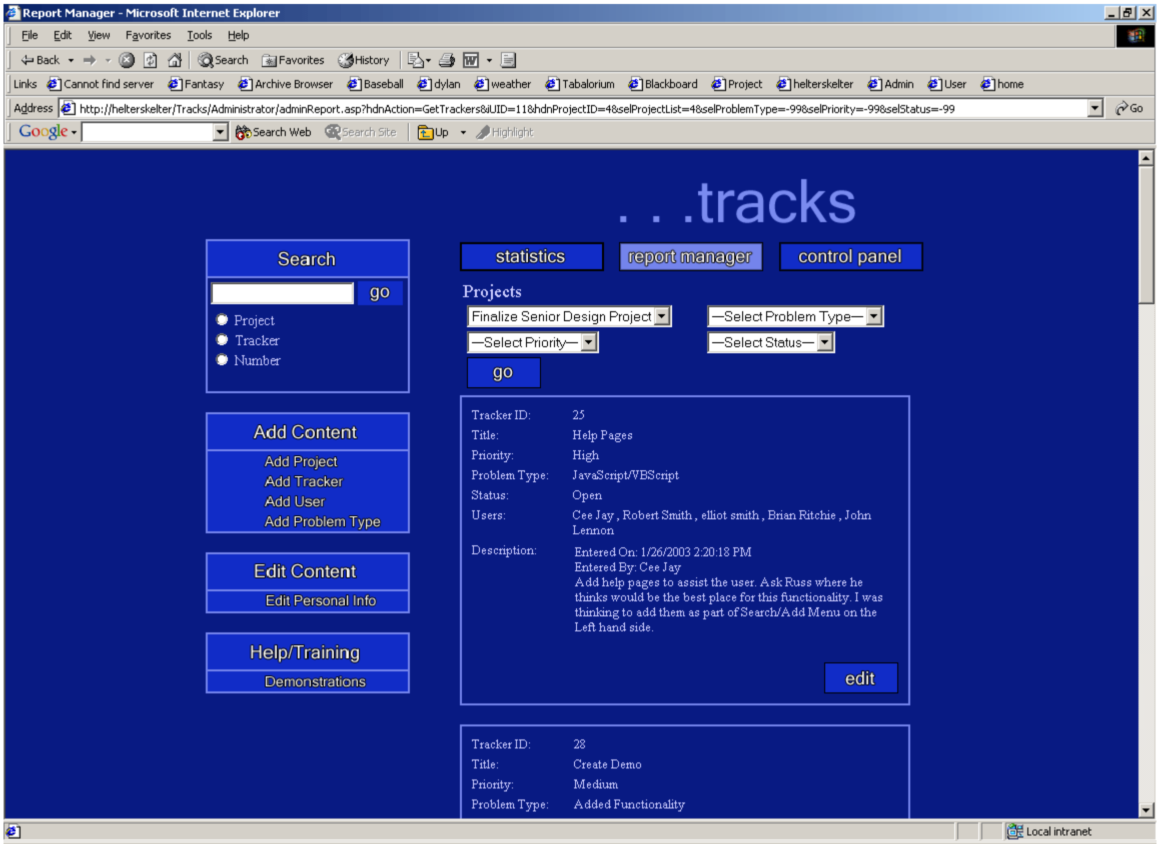
—Select Priority—

—Select Status—

go

Figure 5. Administrator Initial Screen

This page populates the drop down menus with all of the projects that are associated with the logged-in user and populates all of the attributes of a tracker. The user can then select a project and the attributes that they are looking for and click **go**. This will bring all trackers matching the user’s requests and display the results to the user.


Report Manager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address
Go
Google Search Web Search Site Up Highlight
. . .tracks
statistics
report manager
control panel
Search
go
○ Project
○ Tracker
○ Number
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
Projects
go
edit
Local intranet

Address: http://helterskelter/Tracks/Administrator/adminReport.asp?hdnAction=GetTrackers&iUID=11&hdnProjectID=4&selProjectList=4&selProblemType=-99&selPriority=-99&selStatus=-99

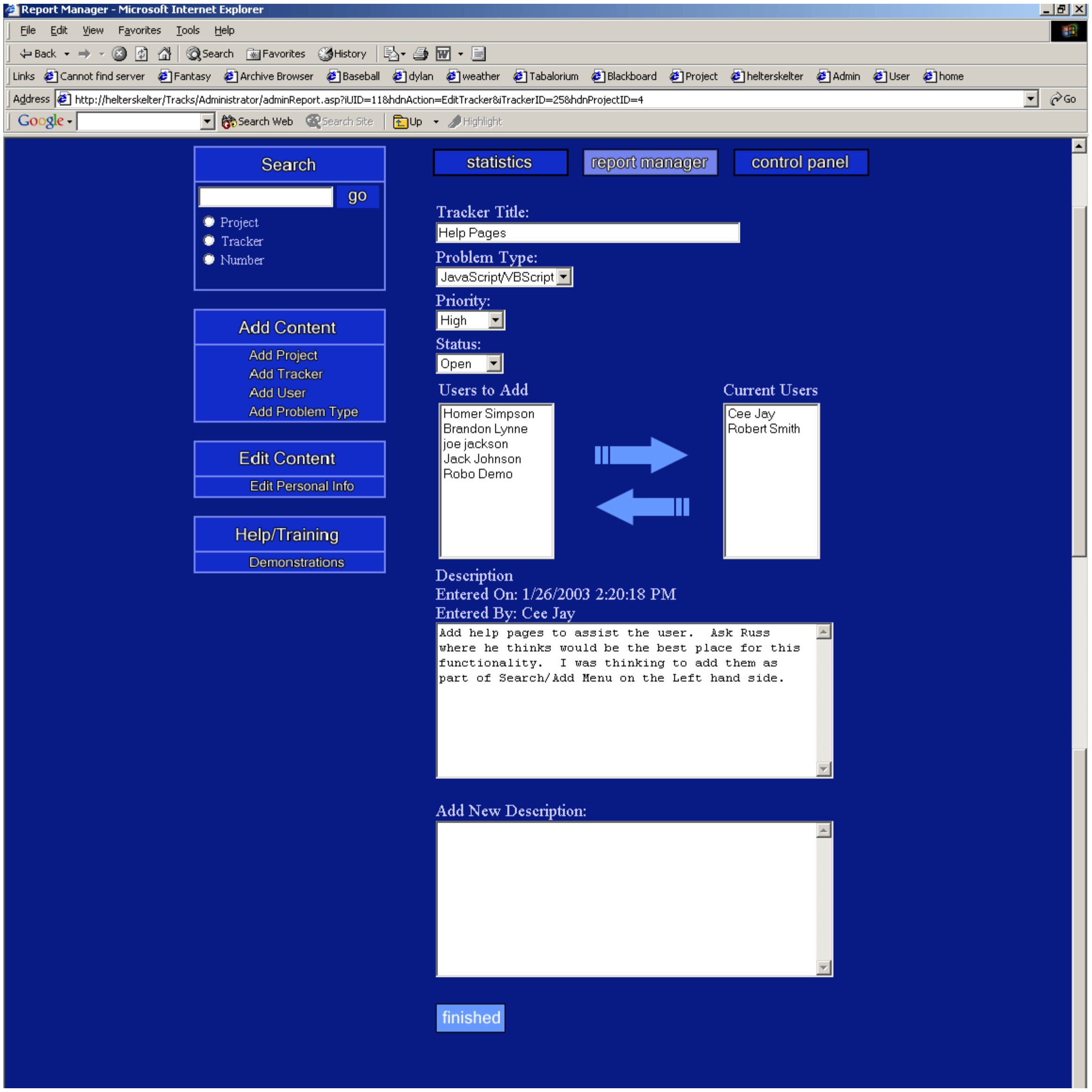
Projects: Finalize Senior Design Project | —Select Problem Type— | —Select Priority— | —Select Status—

Tracker ID:	25
Title:	Help Pages
Priority:	High
Problem Type:	JavaScript/VBScript
Status:	Open
Users:	Cee Jay , Robert Smith , elliot smith , Brian Ritchie , John Lennon
Description:	Entered On: 1/26/2003 2:20:18 PM Entered By: Cee Jay Add help pages to assist the user. Ask Russ where he thinks would be the best place for this functionality. I was thinking to add them as part of Search/Add Menu on the Left hand side.

Tracker ID:	28
Title:	Create Demo
Priority:	Medium
Problem Type:	Added Functionality

Figure 6. *Trackers* results screen

This screen displays a read only format of all information about the *Tracker* the attributes include: ID, Title, Priority, Problem Type, Status, Assigned Users, and Descriptions. The user can then click **edit** and add a description or change attributes of the Trackers as necessary or when updates have occurred to the problem at hand.


Report Manager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address http://helterskelter/Tracks/Administrator/adminReport.asp?iUID=11&hdnAction=EditTracker&iTrackerID=25&hdnProjectID=4
Go
Google Search Web Search Site Up Highlight
Search
go
Project
Tracker
Number
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
statistics
report manager
control panel

Tracker Title: Help Pages

Problem Type: JavaScript/VBScript

Priority: High

Status: Open

Users to Add: Homer Simpson, Brandon Lynne, joe jackson, Jack Johnson, Robo Demo

Current Users: Cee Jay, Robert Smith

Description
Entered On: 1/26/2003 2:20:18 PM
Entered By: Cee Jay

```
Add help pages to assist the user.  Ask Russ
where he thinks would be the best place for this
functionality.  I was thinking to add them as
part of Search/Add Menu on the Left hand side.
```

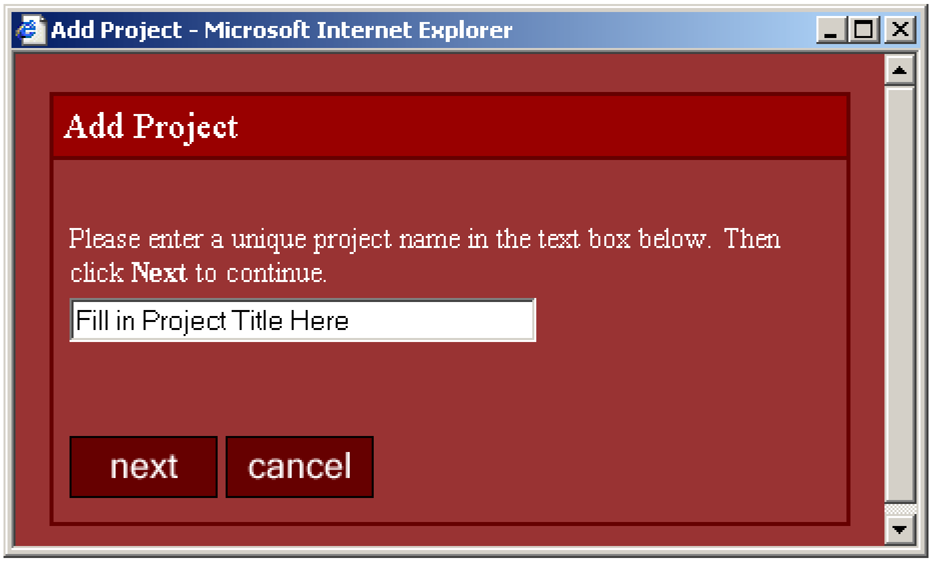
Add New Description:

Figure 7. Edit *Tracker* screen

The Edit user page gives the user the ability to update the information about the *Tracker*, add users to the *Tracker* and add new description. When the updating complete the user can click **Finished** and the updates will be reflected.

6.2.3 Wizards

The way most data is entered by the user is in an intuitive application style called a Wizard. For example if the user clicks add project a pop up screen would appear requesting the following information. The Wizards are pop up windows and have a different color scheme to make them stand out to the user and let them know that they are going to have to endure a series of steps for this task.



Add Project - Microsoft Internet Explorer

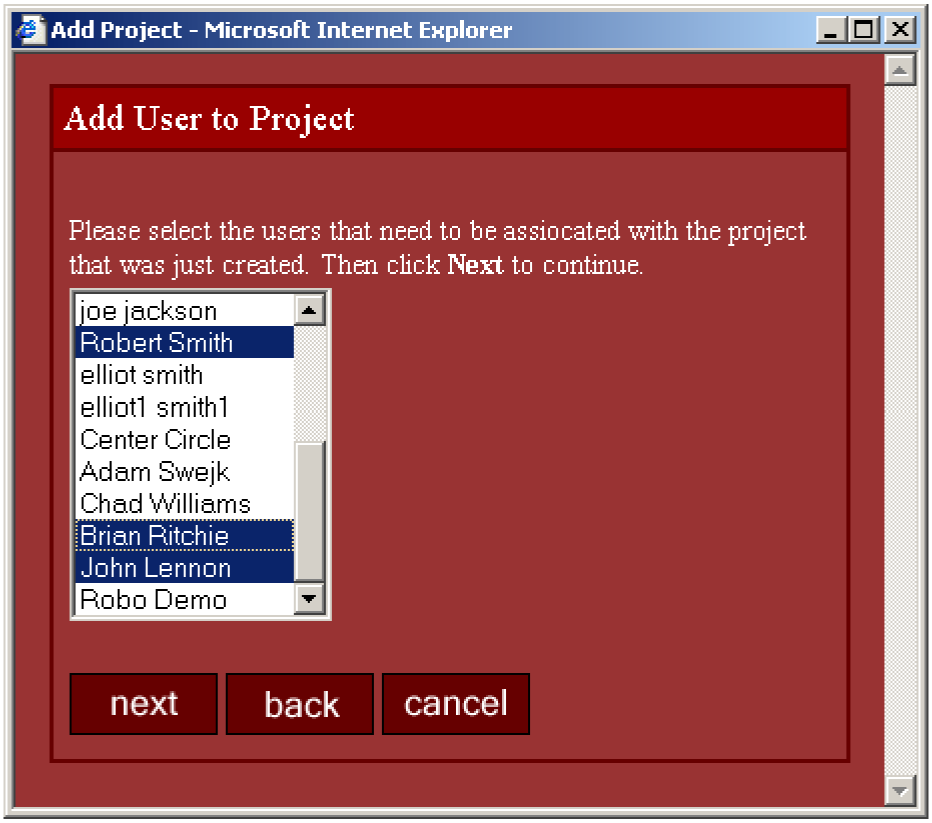
Add Project

Please enter a unique project name in the text box below. Then click **Next** to continue.

Fill in Project Title Here

Figure 8. Initial *Add Project* screen

The user would then follow the directions to add a title of their new project and click **next** to proceed.



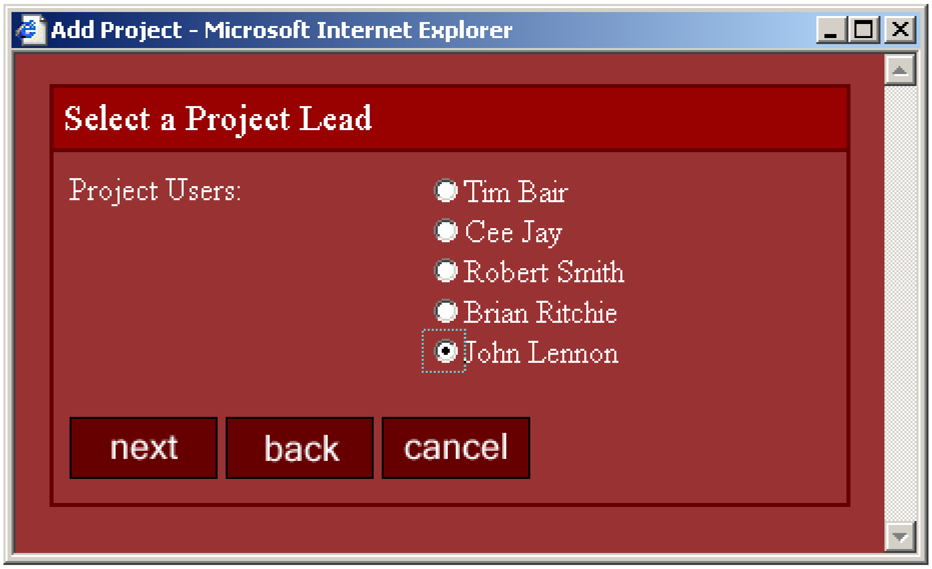
Add User to Project

Please select the users that need to be assiocated with the project that was just created. Then click **Next** to continue.

- joe jackson
- Robert Smith
- elliot smith
- elliot1 smith1
- Center Circle
- Adam Swejk
- Chad Williams
- Brian Ritchie
- John Lennon
- Robo Demo

Figure 9. ***Add User to Project*** **Screen**

This shows all users in the database and the user may add them to the project and click **next** to proceed.



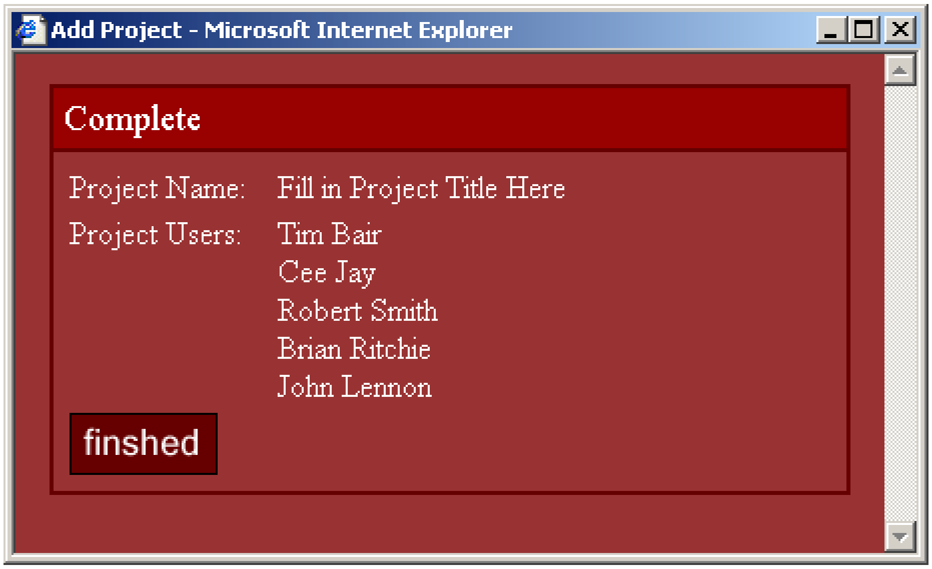
Select a Project Lead

Project Users:

○ Tim Bair
○ Cee Jay
○ Robert Smith
○ Brian Ritchie
● John Lennon

Figure 10. Select a Project Leader

This allows the user to select a member of the group that is working on the project as a Project Lead.



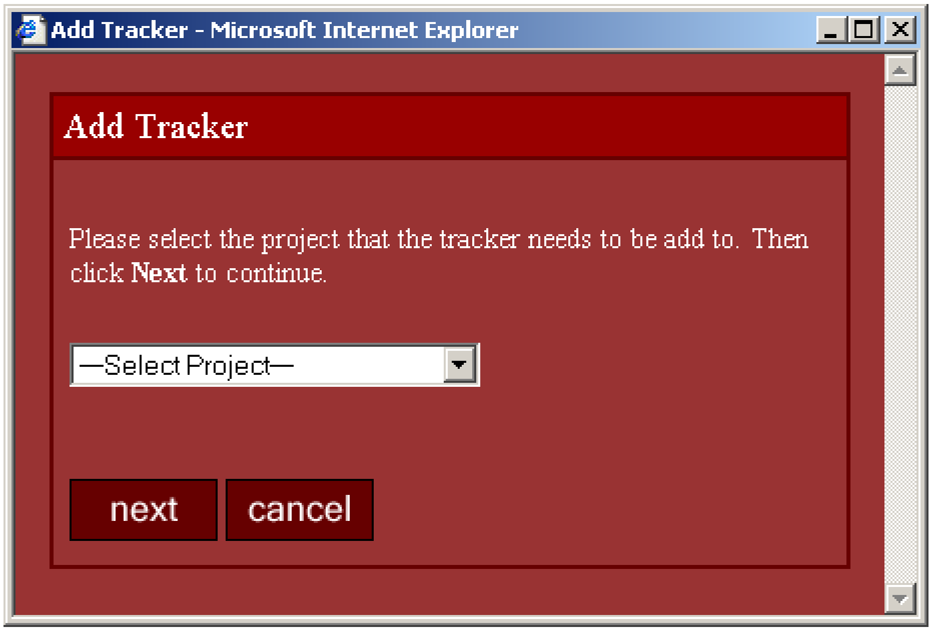
Project Name: Fill in Project Title Here

Project Users: Tim Bair
Cee Jay
Robert Smith
Brian Ritchie
John Lennon

Figure 11. Final *Add Project* Screen

The final screen shows the users the name of the project and the associated users. Then user can click **finish** to close the window.

The Add Tracker Wizard has a similar layout and allows give the users values to choose from. The first screen allows the user to select one of their personal projects to add a tracker.



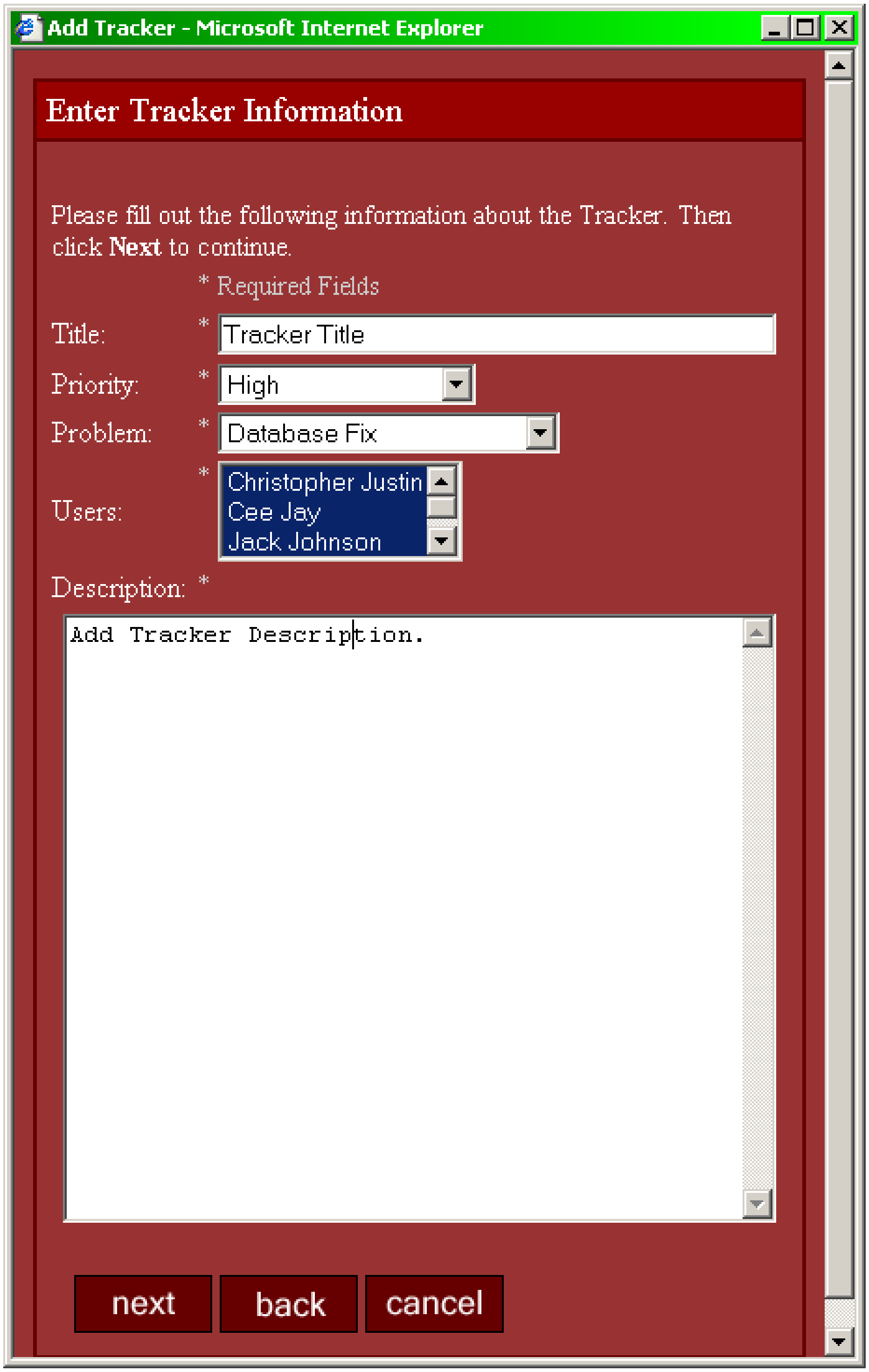
Add Tracker - Microsoft Internet Explorer

Add Tracker

Please select the project that the tracker needs to be add to. Then click **Next** to continue.

Figure 12. Initial *Add Tracker* screen

After a user selects the project that they wish to add a tracker to, the user then clicks **next** to proceed. The next screen is where the user adds the attributes to identify the tracker.



Enter Tracker Information

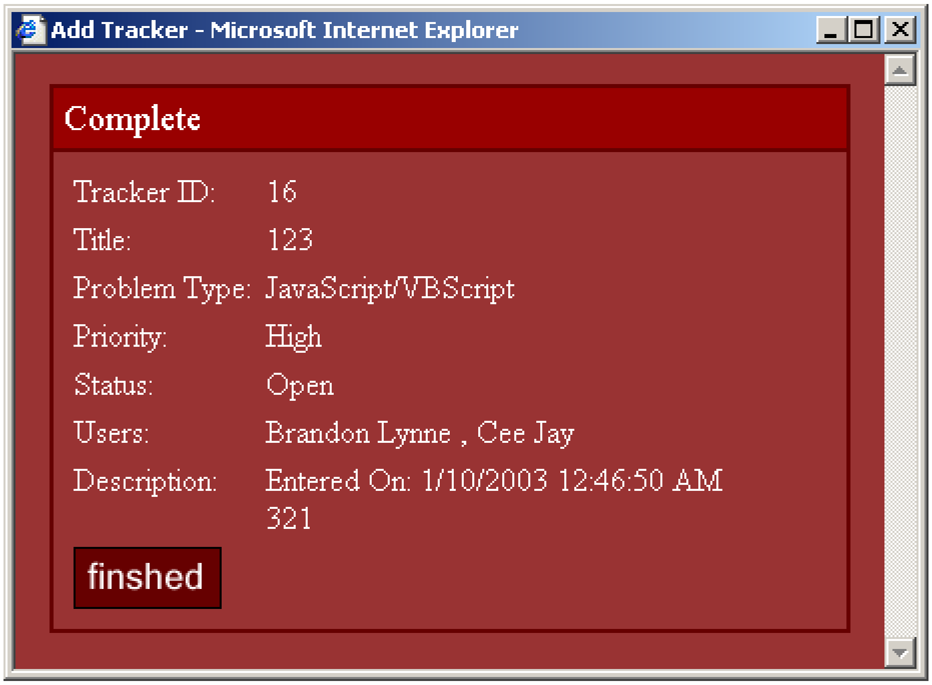
Please fill out the following information about the Tracker. Then click **Next** to continue.

* Required Fields

Title: *	Tracker Title
Priority: *	High
Problem: *	Database Fix
Users: *	Christopher Justin Cee Jay Jack Johnson
Description: *	Add Tracker Description.

Figure 13. *Enter Tracker* screen

The user then adds a title, description and selects the attributes that will associated with the tracker.



Complete

Tracker ID: 16

Title: 123

Problem Type: JavaScript/VBScript

Priority: High

Status: Open

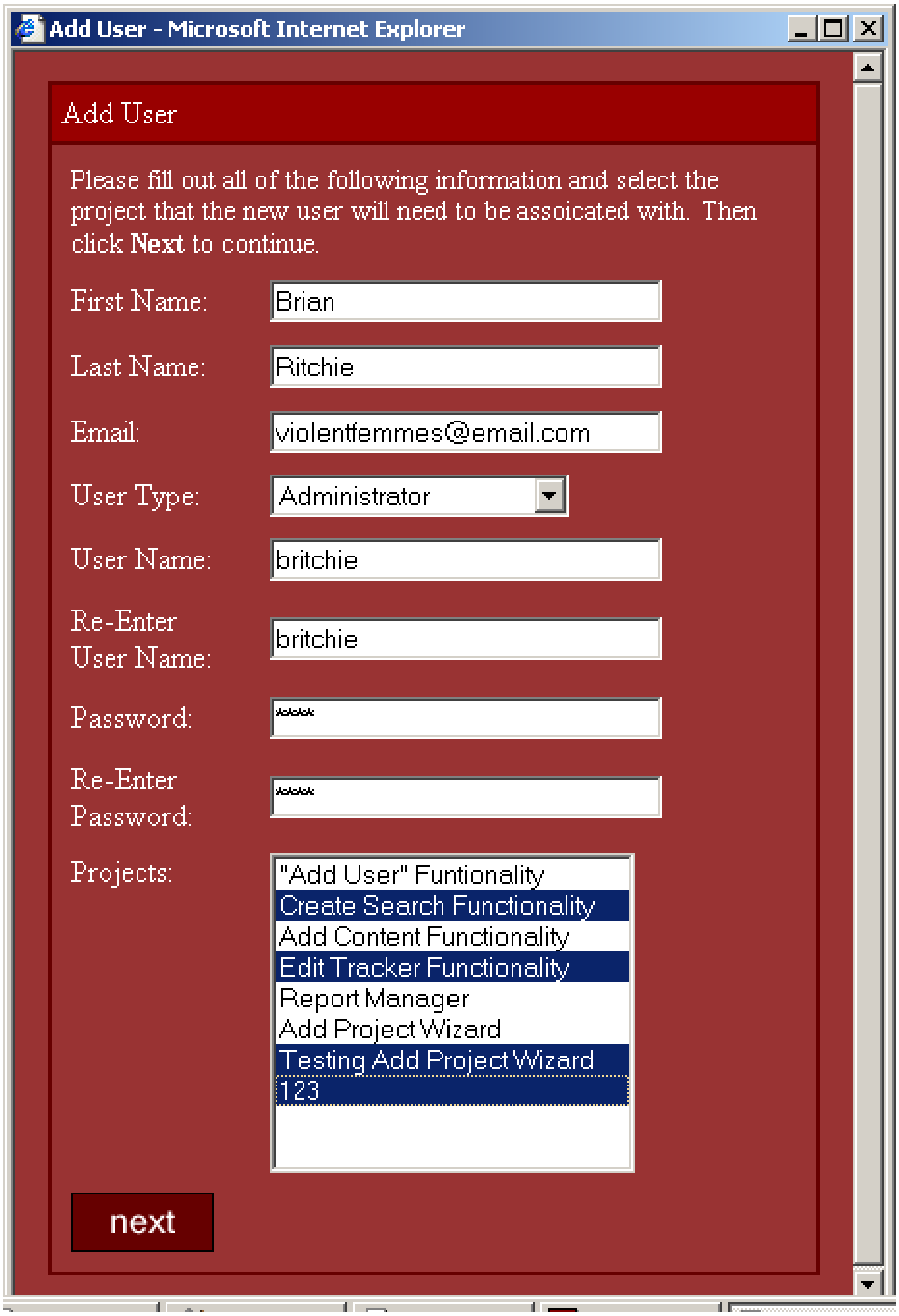
Users: Brandon Lynne , Cee Jay

Description: Entered On: 1/10/2003 12:46:50 AM
321

Figure 14. Final *Add Tracker* wizard screen

The Wizard style will help provide an intuitive way for the users to enter data and update the database.

The Add Users Wizard gives the administrator the ability to add users to the database. Once the user is added they will be ready to use the functionality of the product based on their user type. They will have the ability see everything within the project(s) that have been associated with as well find any issues within the entire database and be able to generate statistics based on any user or project.



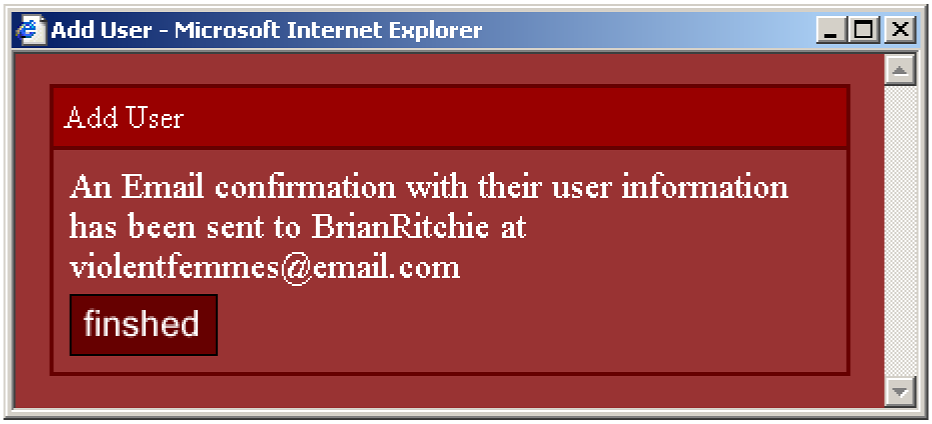
Add User

Please fill out all of the following information and select the project that the new user will need to be assoicated with. Then click **Next** to continue.

First Name:	Brian
Last Name:	Ritchie
Email:	violentfemmes@email.com
User Type:	Administrator
User Name:	britchie
Re-Enter User Name:	britchie
Password:	****
Re-Enter Password:	****
Projects:	"Add User" Funtionality Create Search Functionality Add Content Functionality Edit Tracker Functionality Report Manager Add Project Wizard Testing Add Project Wizard 123

Figure 15. Initial *Add User* screen

The user enters the information and then select the projects that user will be able to see upon their first login. The user then clicks **next** to add the new user.



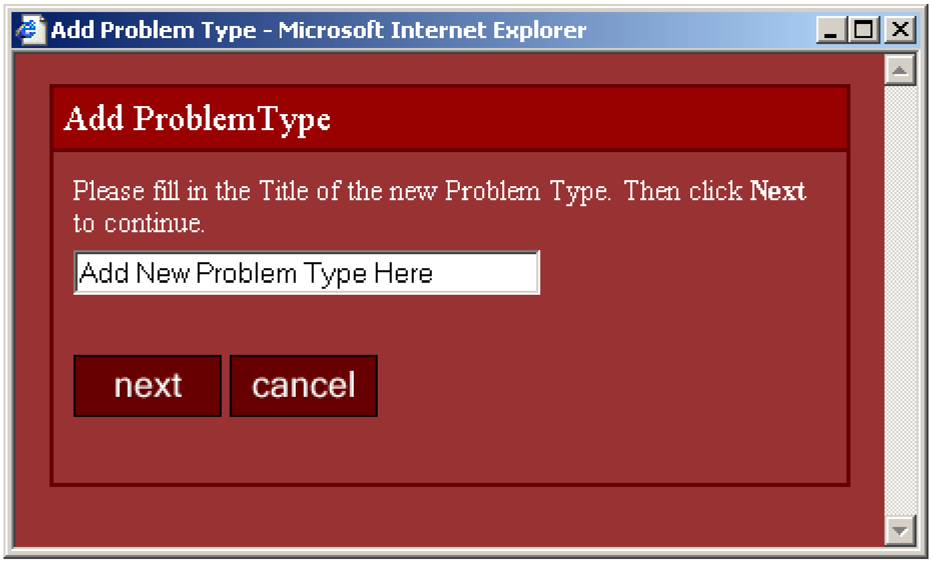
Add User

An Email confirmation with their user information has been sent to BrianRitchie at violentfemmes@email.com

Figure 16. Final *Add User* screen

I ran into problems with the automated emails. I think that I need to have an email server running on the server that the project resides. There might be one on the Dit-Server, but I was able to see it or connect to it. The user can then click **finished** to close the window.

The next wizard gives the Administrator the ability to add a problem type to the database. The problem type helps describe the tracker that is being logged. It also is used as a filter on Report Manager Page; therefore, a user has the ability to display on all Trackers within a Project that have the problem type.



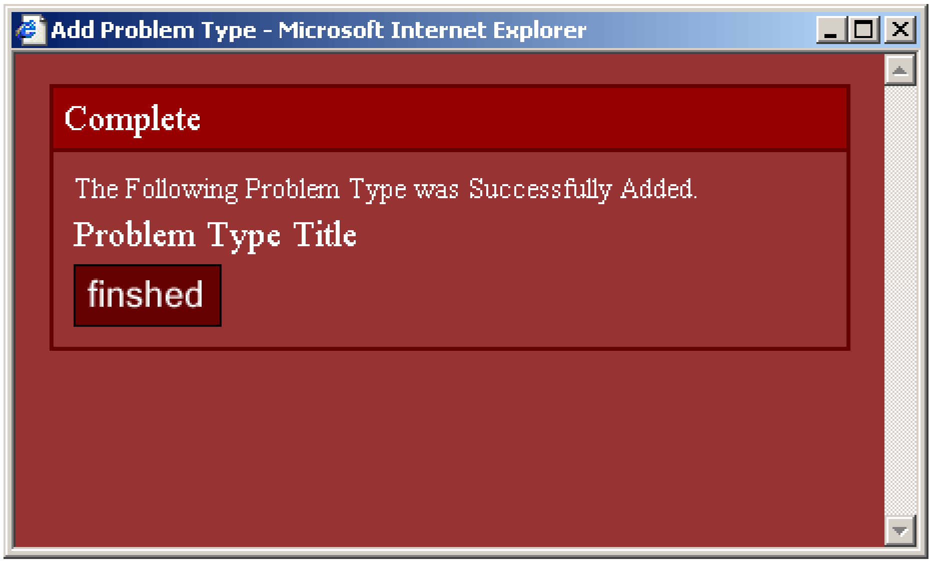
Add ProblemType

Please fill in the Title of the new Problem Type. Then click **Next** to continue.

Add New Problem Type Here

Figure 17. Initial *Add Problem Type* screen

After the user provides a new problem type title then click **Next** to complete the process.



Complete

The Following Problem Type was Successfully Added.

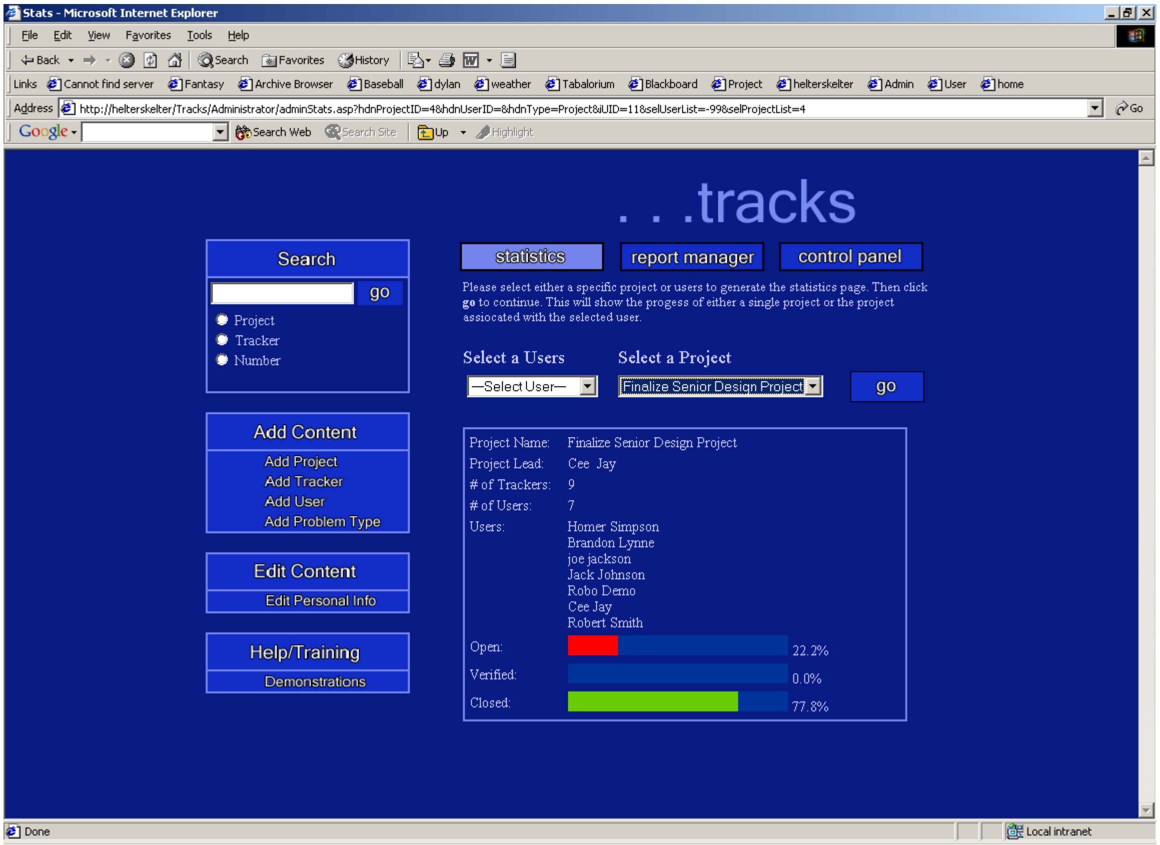
Problem Type Title

Figure 18. Final *Add Problem Type* screen

These Wizards provide an intuitive way for users to add data to the database. All Wizards are complete with error checking for form validation as well as only allowing unique data for field, such as User Name, Problem Type, and Project Name.

6.2.4 Statistics Section

The Statistics section provides a tool to measure progress within projects. The Users can select a specific Project or select a specific user. If a specific project is selected then a statistics box will be displayed for that project. If a specific user has been selected a statistic box will appear for all projects associated with that user. The statistic box contains the Project Name, Project Lead, All Users associated with the project, Number of Trackers, Number of Users, and a bar graph complete with percentages of Open, Verified and Closed Issues. This gives all necessary information to the user, such as, overall progress of the project, the amount of resources going into the project and who is in charge of the project.



Stats - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Go
Search Web Search Site Up Highlight
. . .tracks
Search
go
Project
Tracker
Number
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
statistics
report manager
control panel
go
Done
Local intranet

Address: http://helterskelter/Tracks/Administrator/adminStats.asp?hdnProjectID=4&hdnUserID=&hdnType=Project&iUID=11&selUserList=-99&selProjectList=4

Please select either a specific project or users to generate the statistics page. Then click **go** to continue. This will show the progess of either a single project or the project assiocated with the selected user.

Select a Users: —Select User—

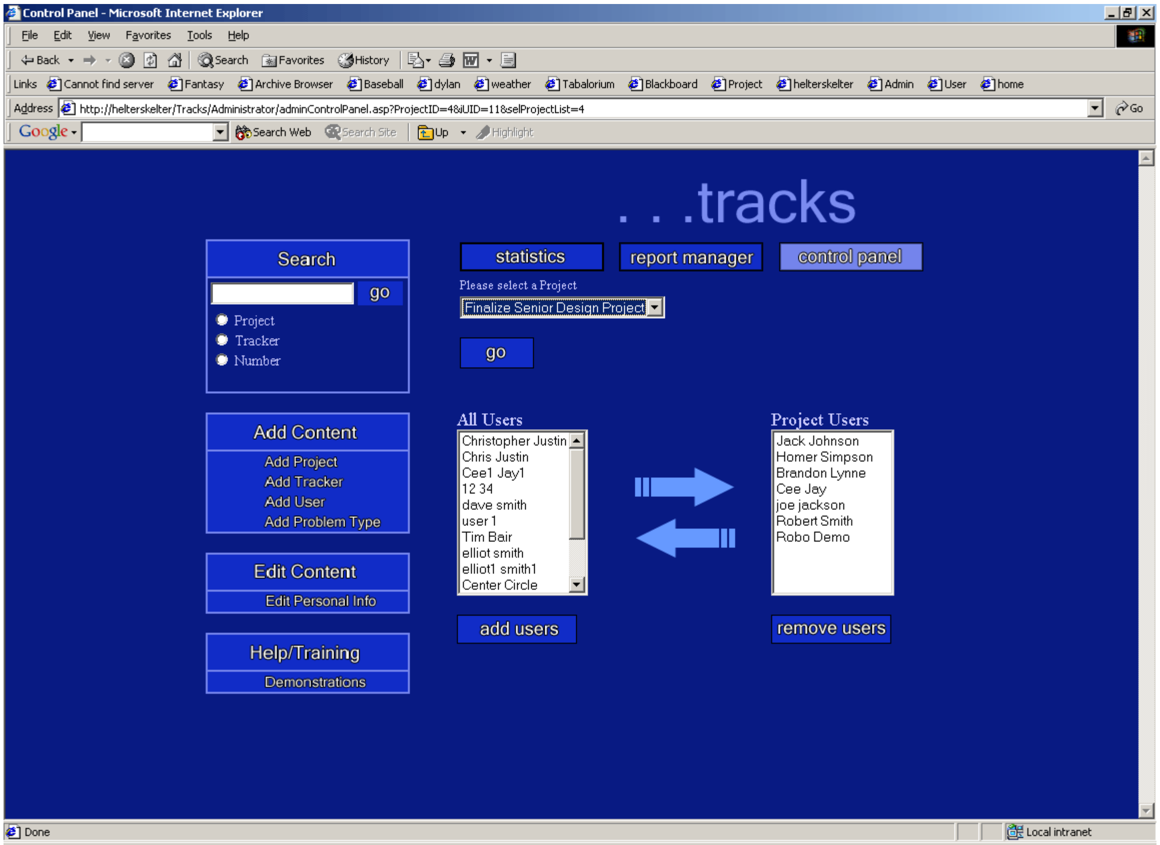
Select a Project: Finalize Senior Design Project

Project Name:	Finalize Senior Design Project
Project Lead:	Cee Jay
# of Trackers:	9
# of Users:	7
Users:	Homer Simpson Brandon Lynne joe jackson Jack Johnson Robo Demo Cee Jay Robert Smith
Open:	22.2%
Verified:	0.0%
Closed:	77.8%

Figure 19. ***Statistics* screen**

6.2.5 Control Panel

The Control Panel was developed to go hand and hand with Statistics section. The Control Panel gives an administrator the ability to move users to a project and remove them as well. If an Administrator notices that one project has many users and is further along than a project that has a fewer users, they can easily move users to the project that is lacking resources or running behind.


Control Panel - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Go
Google Search Web Search Site Up Highlight
. . .tracks
Search
go
Project
Tracker
Number
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
statistics
report manager
control panel
go
add users
remove users
Done
Local intranet

Address http://helterskelter/Tracks/Administrator/adminControlPanel.asp?ProjectID=4&iUID=11&selProjectList=4

Please select a Project: Finalize Senior Design Project

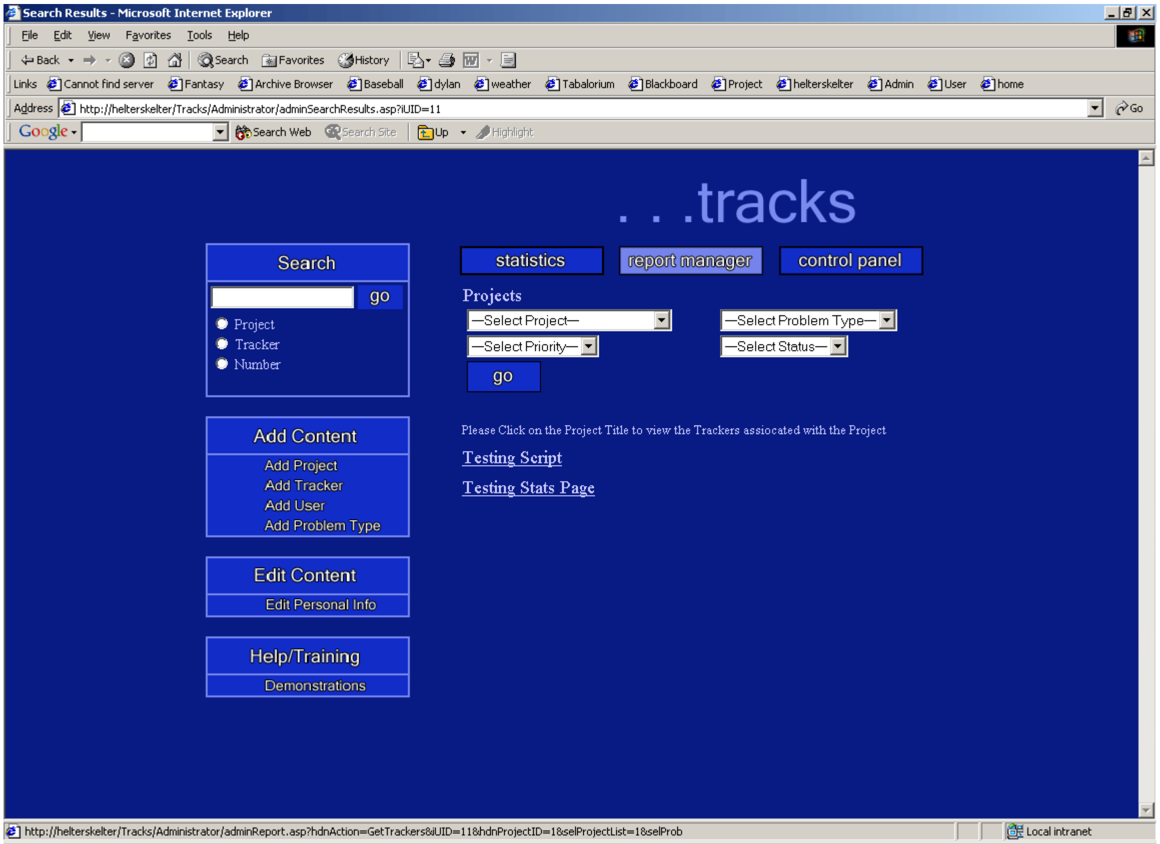
All Users
Christopher Justin
Chris Justin
Cee1 Jay1
12 34
dave smith
user 1
Tim Bair
elliot smith
elliot1 smith1
Center Circle

Project Users
Jack Johnson
Homer Simpson
Brandon Lynne
Cee Jay
joe jackson
Robert Smith
Robo Demo

Figure 20. ***Control Panel*** **screen**

6.2.6 Search

The gives the users the ability to enter in a search term and select a type search that will return similar results. There are three types of searches that are available to all users. The Project Search will find all projects that have a name similar to the search term and then display a link that will take the user to the where all Trackers associated with project. The Tracker search will return all trackers with a title similar to the search term. The Tracker Number Search will return the tracker with the ID that the user entered.



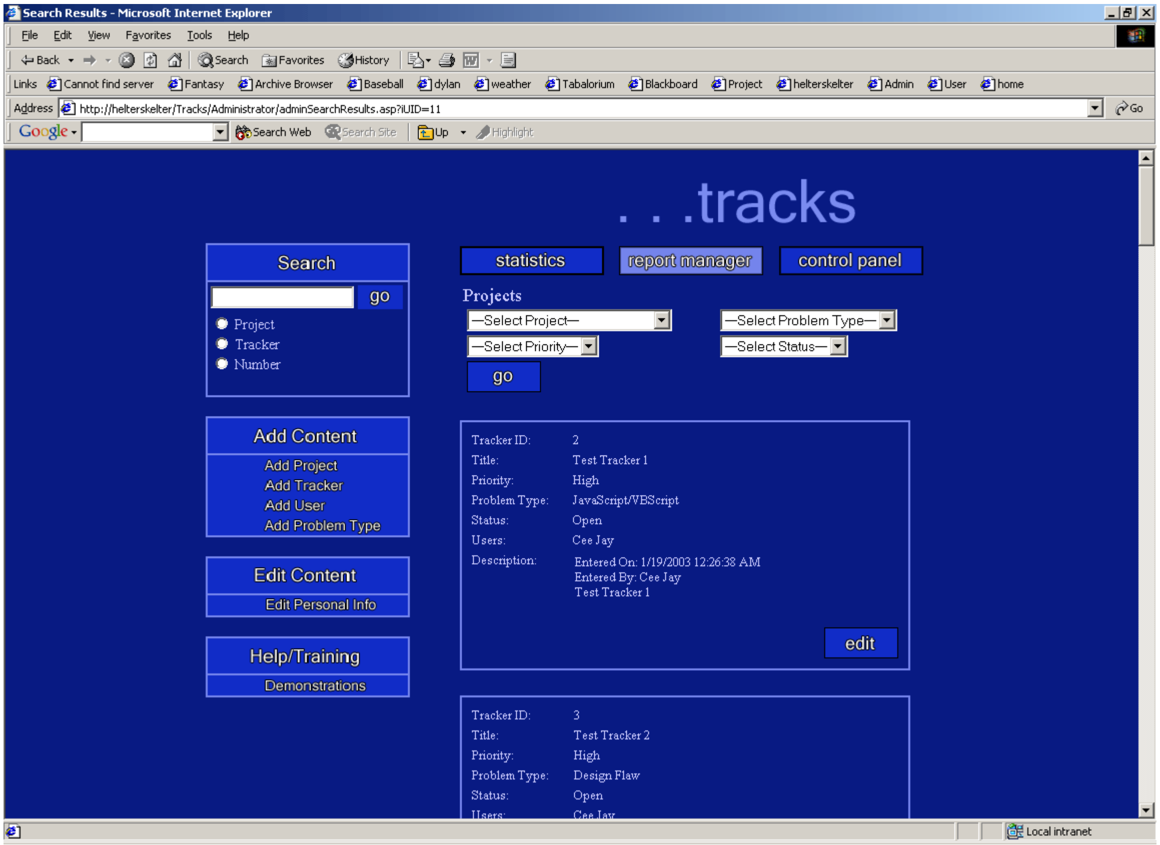
Search Results - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address http://helterskelter/Tracks/Administrator/adminSearchResults.asp?iUID=11
Go
Google Search Web Search Site Up Highlight
. . .tracks
Search
go
○ Project
○ Tracker
○ Number
statistics
report manager
control panel
Projects
—Select Project—
—Select Problem Type—
—Select Priority—
—Select Status—
go
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
http://helterskelter/Tracks/Administrator/adminReport.asp?hdnAction=GetTrackers&iUID=11&hdnProjectID=1&selProjectList=1&selProb
Local intranet

Please Click on the Project Title to view the Trackers assiocated with the Project

Testing Script

Testing Stats Page

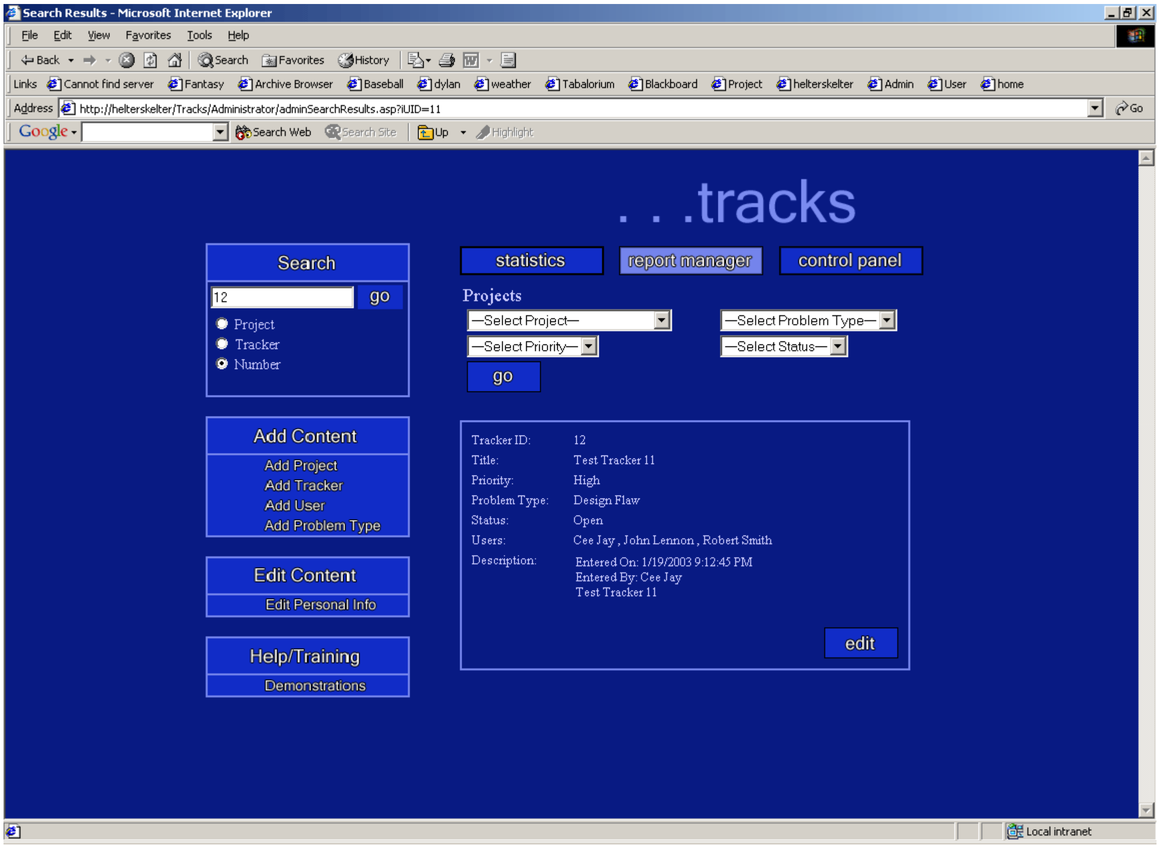
Figure 21. ***Project Name Search*** **screen**


Search Results - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address http://helterskelter/Tracks/Administrator/adminSearchResults.asp?iUID=11
Go
Google Search Web Search Site Up Highlight
. . .tracks
Search
go
Project
Tracker
Number
statistics
report manager
control panel
Projects
—Select Project—
—Select Problem Type—
—Select Priority—
—Select Status—
go
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
edit
Local intranet

Tracker ID:	2
Title:	Test Tracker 1
Priority:	High
Problem Type:	JavaScript/VBScript
Status:	Open
Users:	Cee Jay
Description:	Entered On: 1/19/2003 12:26:38 AM Entered By: Cee Jay Test Tracker 1

Tracker ID:	3
Title:	Test Tracker 2
Priority:	High
Problem Type:	Design Flaw
Status:	Open
Users:	Cee Jay

Figure 22. ***Tracker Title Search*** **screen**


Search Results - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address http://helterskelter/Tracks/Administrator/adminSearchResults.asp?iUID=11
Go
Google Search Web Search Site Up Highlight
. . .tracks
Search
go
Project
Tracker
Number
statistics
report manager
control panel
Projects
—Select Project—
—Select Problem Type—
—Select Priority—
—Select Status—
go
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
edit
Local intranet

Search: 12

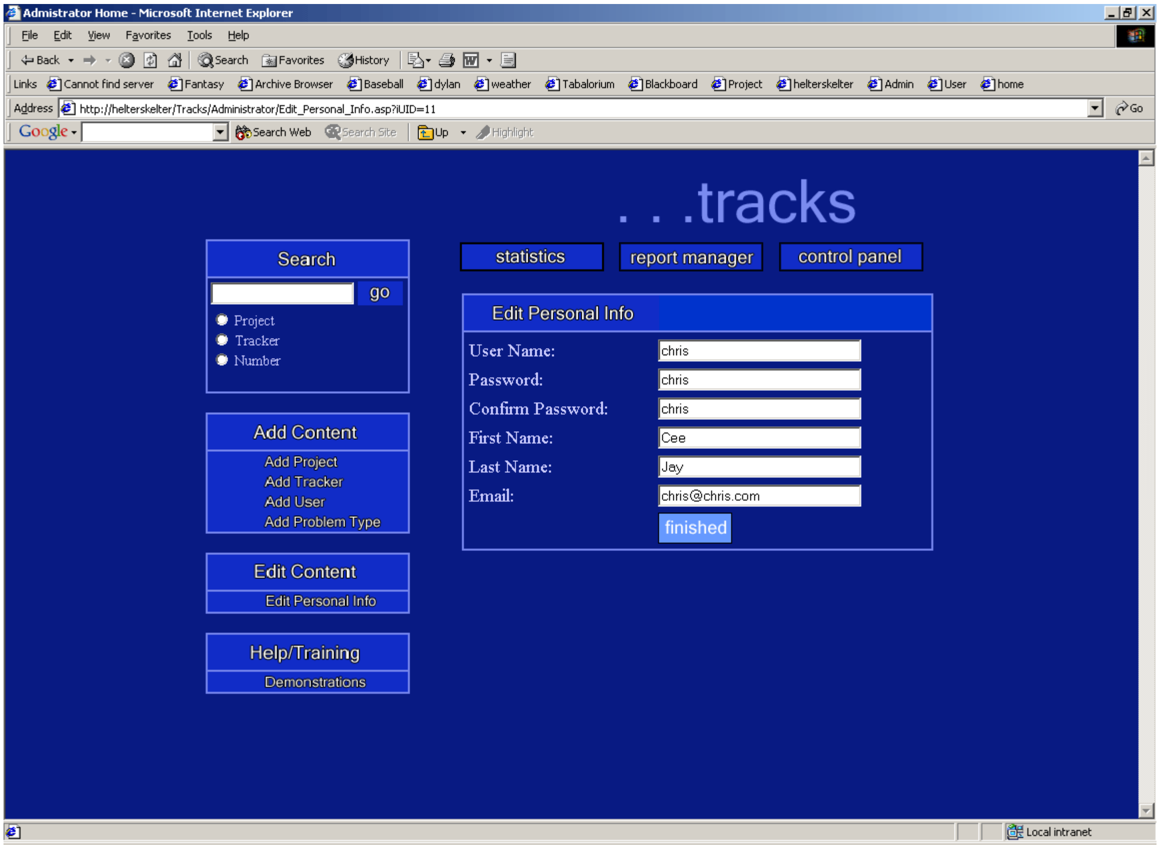
○ Project
○ Tracker
● Number

Tracker ID: 12
Title: Test Tracker 11
Priority: High
Problem Type: Design Flaw
Status: Open
Users: Cee Jay , John Lennon , Robert Smith
Description: Entered On: 1/19/2003 9:12:45 PM
Entered By: Cee Jay
Test Tracker 11

Figure 23. ***Tracker Number Search*** **screen**

6.2.7 Edit Personal Information

This page allows the user to edit their information such as User Name, Password, Email address, First Name and Last Name.


Administrator Home - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links Cannot find server Fantasy Archive Browser Baseball dylan weather Tabalorium Blackboard Project helterskelter Admin User home
Address http://helterskelter/Tracks/Administrator/Edit_Personal_Info.asp?iUID=11
Go
Google Search Web Search Site Up Highlight
. . .tracks
Search
go
Project
Tracker
Number
Add Content
Add Project
Add Tracker
Add User
Add Problem Type
Edit Content
Edit Personal Info
Help/Training
Demonstrations
statistics
report manager
control panel
Local intranet

Edit Personal Info

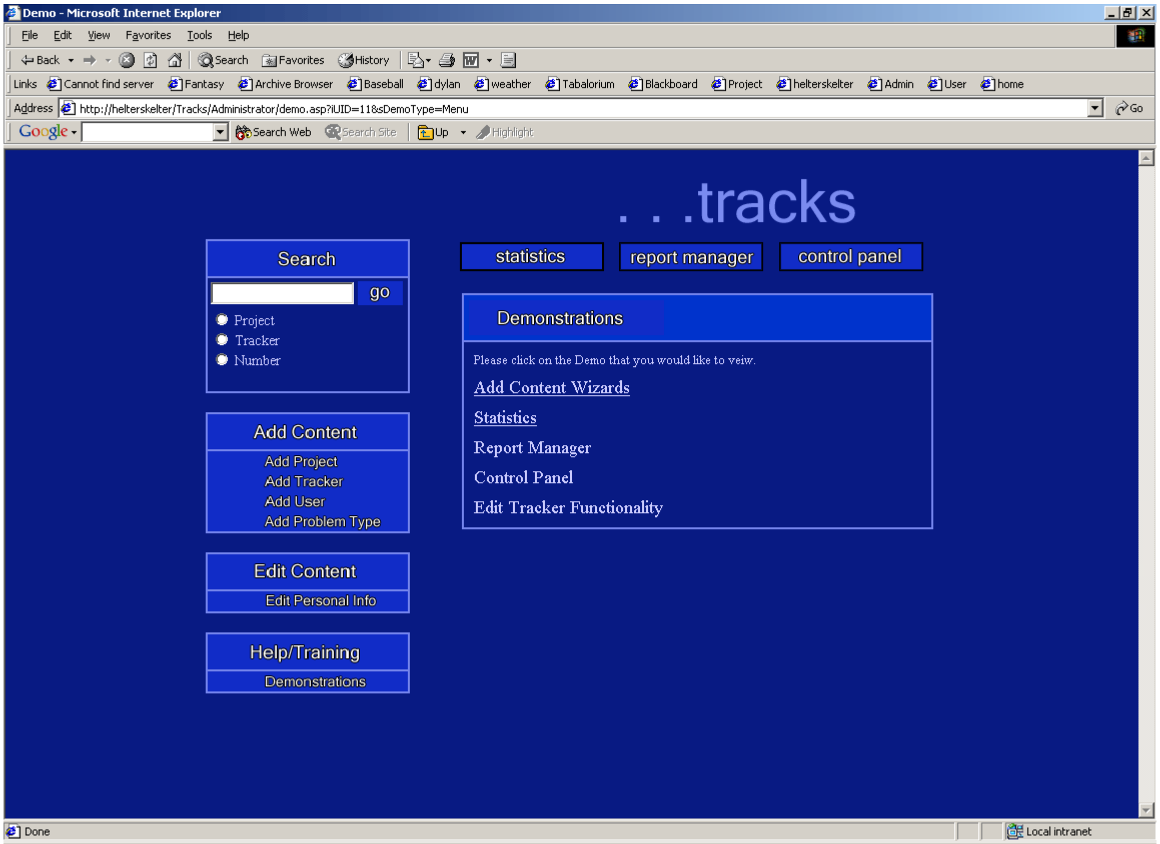
User Name:	chris
Password:	chris
Confirm Password:	chris
First Name:	Cee
Last Name:	Jay
Email:	chris@chris.com

finished

Figure 24. *Edit Personal Information* screen

6.2.8 Help/Training

This section will contain a flash movie that was created with a Software package called Robodemo. The flash movies will show a demonstration of using the Wizards, Statistics page, Report Manager and Control Panel. These demonstrations will help train users and provide reasoning for the steps that are being shown.



Demo - Microsoft Internet Explorer

Address http://helterskelter/Tracks/Administrator/demo.asp?iUID=11&sDemoType=Menu

. . .tracks

Demonstrations

Please click on the Demo that you would like to veiw.

Add Content Wizards

Statistics

Report Manager

Control Panel

Edit Tracker Functionality

Figure 25. *Demonstration* screen

7. Testing Procedure

Strict testing was done throughout the development of the functionality of the project. Once the development was considered finished I contacted a former colleague that was a Quality Assurance Engineer at my former place of employment. He agreed to thoroughly test the product as if it was going to reach his production server. He logged issues that he found within *Tracks* and we went back and fourth until all issues were resolved. The following is a guide that I followed during the development and testing stages.

1. Only allow authenticated users to view get into the site
2. Give user functionality based user type
    a. Users get to edit/add
        i. Trackers
        ii. Project
        iii. User Information
    b. Administrators will be able to edit/add
        i. Trackers
        ii. Projects
        iii. Tracker Attributes
        iv. Users to Existing Projects
        v. New Users\User Information
3. Report manager present the correct results
4. Search functionality returns the correct results
5. Statistical analysis presents the correct information
    a. Based on the User’s Project
    b. Based on the User’s Trackers
    c. Based on all Project and Trackers

8. Conclusion and Recommendations

8.1 Conclusion

Creating a viable solution to overcome communication flaws that occur between company personnel working together on a project was a difficult and rewarding task. There were many elements that needed to come together for *Tracks* to be considered a success. I saw first hand how to see a project that started from a simple text file and with hard work become a stable web application to serve as a communication tool. There were many elements that requirement very detail attention, such as database design, overall interface layout, application design and project management needs. Paying attention to all of these elements helped make a solid application that will help the communication process become strong and more reliable.

8.2 Recommendations

There were many challenges that came up while developing *Tracks*. Improvements are always a part software development of any kind. This was apparent in my project from the working prototype to final product that it became during Senior Design III. If there was a Senior Design IV or I was going to try to distribute my product as a communication tool, I would include email automation to send updates to users when certain events occurred, create a section that allow employee to log their hours on a project, and provide a way to receive more details about the project from the users.

Appendix A.
Evaluation of …Tracks

The survey was sent out to many former colleagues that work in the computer industry and others that I felt would have an interest in my application. In all about fifteen surveys were completed and sent back. I receive many complements as well as suggestion and concerns. I got really good feedback from those who replied.

The overall view that I receive from the survey was I had plenty of functionality to meet the needs of my problem, "I think it does an excellent job of meeting the core responsibility of bug tracking software", but I would need to make some enhancement for it to become a competitive product on the market. A few of the enhancement suggestions were to the ability to print reports, add more instruction on the pages to increase clarity of tasks for users and to add email automation when tasks are completed or updated. There were many compliments on the overall design, "I like the functionality and directness of the screens and workflow" and "Impressive design that is both user-friendly and visually pleasing to the user" which was rewarding in itself.

If I could do it again I would have sent out the survey about around the second week of the quarter and tried to incorporate some of suggestions into the final project in time for the presentation.

Please fill out this survey to help provide feedback on my application called *Tracks*. Remember this is a learning process and all comments are welcome. The scales is “1” being the lowest score and “5” being the highest score. All result will be recorded anonymously, but if you return the survey completed you will be included in my acknowledgements for my Final Draft. Please just make changes to this document and re-attach it to a reply email. When filling out the survey please keep in mind the following.

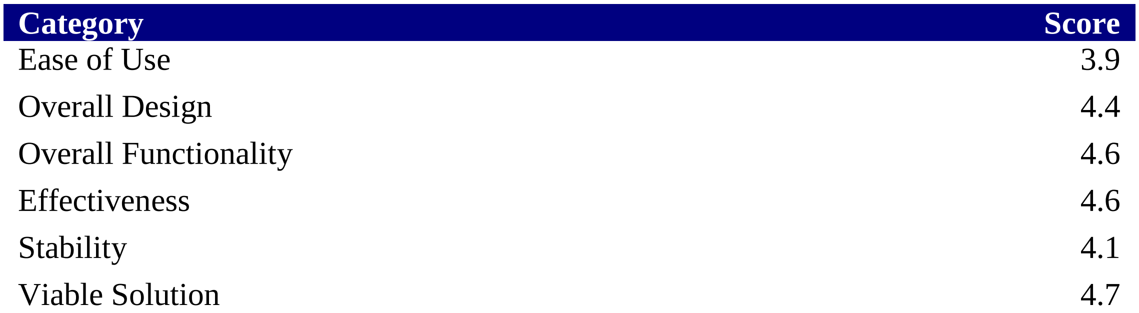
Statement of Problem
In the fast paced business world of today development schedules need to be precise, span several employees, meet all functionality criteria and be completed in a punctual manner. For all of these elements to come together those involved within a project must be able to communicate freely. The problem that *Tracks* is trying to overcome is communication flaws that occur between company personnel working together on a project. *Tracks* provides a central storage location for all information about projects to be recalled and accessed by the users at anytime. This centralized documentation helps users see all remain tasks at hand, know who performed an action and be sure that all problems have been resolved before a project reaches production.

Ease of Use	1	2	3	4	5
Overall Design	1	2	3	4	5
Overall Functionality	1	2	3	4	5
Effectiveness	1	2	3	4	5
Stability	1	2	3	4	5
Viable Solution	1	2	3	4	5

Comments/Concerns/Recommendations:

Figure 26. A copy of the Survey

The final results for the survey are included in the table below.



Category	Score
Ease of Use	3.9
Overall Design	4.4
Overall Functionality	4.6
Effectiveness	4.6
Stability	4.1
Viable Solution	4.7

Figure 27. Final Results of the survey