

Hixson's Quality Assurance Application

By

John J Lucchetta

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

March 2006

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_____ John J Lucchetta	_____ 3/10/06
_____ Dr. Hazem Said	_____ 3/10/06
_____ Patrick C. Kumpf, Ed.D. Interim Department Head	_____ 3/10/06

Acknowledgements/Dedication

This report is dedicated to all of the people who have helped me in my life and my collegiate career. First, I would like to thank my mom and dad for their love, support and most of all patience. Next I would like to thank the rest of my family in helping me become who I am today. I would also like to thank James O'Keefe, Dr. Hazem Said, and the University of Cincinnati. Most importantly, I would like to thank Becky for being there every day supporting me all the time in everything I do. I never could have reached my goals and successfully completed any of this without your love and support. Thank you!!!

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Abstract

The *Hixson's Quality Assurance Application (HQAA)* is designed to efficiently and reliably collect client satisfaction surveys that can be stored and used to improve Hixson's business practices in the future. The Hixson Quality Assurance Application allows a Hixson client to fill a satisfaction survey out for each project clients have with Hixson. Clients can also upload supporting documents in any format and send messages to Hixson. The application also enables the Hixson Quality Assurance Team to review the surveys and add specific comments and notify internal departments with specific information, the internal departments can review and respond to the Quality Assurance comments. The application was built using ASP.NET and a Microsoft Access database is used to store data. Overall, *Hixson's Quality Assurance Application* will securely collect valuable information from clients, allow Hixson employees to customize their business strategy for each client, with a high-tech yet user-friendly interface.

Hixson's Quality Assurance Application

1 Description and Intended Use

The Hixson Quality Assurance Application is a Web application designed to allow Hixson Quality Assurance Department to evaluate the quality of Hixson's products and the satisfaction of its clients.

1.1 Problem

After a job is completed Hixson's Quality Assurance Department sends a seven page paper based satisfaction survey to their clients, Hixson uses this survey to gauge their own level of performance or client satisfaction. The Quality Assurance Department analyzes the returned survey and discusses its contents with the appropriate departments and Hixson's CEO. Upon review, a meeting is held two weeks later to discuss the results and plan for the future. Several problems exist with this process. First, the return rate of the surveys is currently 9%, leaving 91% of the surveys unaccounted for. Second, when feedback is received, the quality assurance manager makes photo-copies of the returned survey that are distributed to department heads and Hixson's CEO. This process only adds to the same problem of inefficient paper shuffling that increases the chance of a photo-copy getting lost and then forgotten about or simply not being reviewed before the meeting.

2 Solution

The Hixson Quality Assurance Application is a reliable and efficient Web application that enables that Hixson to access information about specific job performance and other sensitive information from anywhere Internet access is available. Having an electronic version of the survey will cut down the monotony and time it takes for a client to complete the form by hand. After the survey has been completed it can be submitted electronically to be stored in a database and enable Hixson to have the opportunity to review past feedback from clients and then better the quality of their future business strategy.

After client feedback is received, the Quality Assurance team will review the data and then will then pass on the information to internal department managers and Hixson's CEO through E-Mail notification of the new available information. These users can then login to view the new information and if need be review other client information as well. Due to the fact that some survey results may be positive or negative, the Quality Assurance Manager and Hixson's CEO have the ability to access client's contact information through the Web application and either E-Mail or call the client on the phone to discuss the reasons for their answers and thank the client for taking the time to fill out the Hixson survey before meeting internally to discuss what went wrong or what went right before the next job begins. Other client documents other than the survey, such as drawings and requests can also be sent using the application through a document upload function which will allow the client to use a more up-to-date and reliable system for communicating and sharing supporting documents with Hixson.

2.1 User Profiles

The intended users of the Hixson Quality Assurance Application are Hixson clients, Hixson's quality assurance team, which includes Hixson CEO, internal Hixson department heads, and the administrator.

2.1.1 Clients

Hixson clients will mainly use the Hixson Quality Assurance Application to answer the survey and enter any other feedback the client may have for Hixson. Clients will also be able to upload supporting documents of any kind to a Hixson server if need be. The client will also have the ability to E-Mail Hixson's quality assurance team with any questions or concerns.

2.1.2 Quality Assurance Team

The quality assurance team will be able to login to the application and view the results of the completed surveys, contact the client, and notify Hixson department heads and CEO about completed surveys. They will not be able to make changes or alter the data in any way due to the fact that answers displayed will be marked as read-only to ensure data integrity.

2.1.3 Department Heads

Hixson department heads will be able to login and view company survey's that pertain to a specific department. This feature allows the department head from the Architectural department to review information specific to his or her department. The

architectural data displayed has been narrowed down to only show the answers to questions that pertain to document quality, innovativeness, and design. If the logged in user was from the Project Management department then the information displayed would only pertain to Project Management related issues such as communication levels, project scheduling, efficiency, etc... Each department can make comments about specific completed surveys and also view all comments from all departments about the specific job. The comments will be saved and are marked unique by three factors, the unique surveyed, the name of the company, and the specific job description related to that company.

2.1.4 Administrator

The administrator will only be able to create and update client and employee contact information. This feature is important to the quality assurance team because it is possible that a specific contact may begin working for another company which means that all of that contacts personal information has changed. Upon notice of the change, the administrator can then update the contact information for this person so if the quality assurance department needs to contact this person the information is up to date and reliable.

A use case diagram in Figure 1 is supplied on the next page to help in understanding the different functionality between the user profiles. All users are required to login to the application before they can submit or view any information.



Figure 1 – Use Case Diagram

2.2 Design Protocols

2.2.1 Style & Layout

Regardless of the user's role the application layout and structure will remain uniform. The site navigation will always remain light brown and will reside on the left-hand side of the page regardless of the contact. Hixson's logo will be centered on the top of the page with a bold, black log-out option always available to the user on the top right of each page. The main content of each page is always placed in the center of the screen bordered by the site navigation, title and logout. Figure 2 below shows the page structure to help explain the previous description.

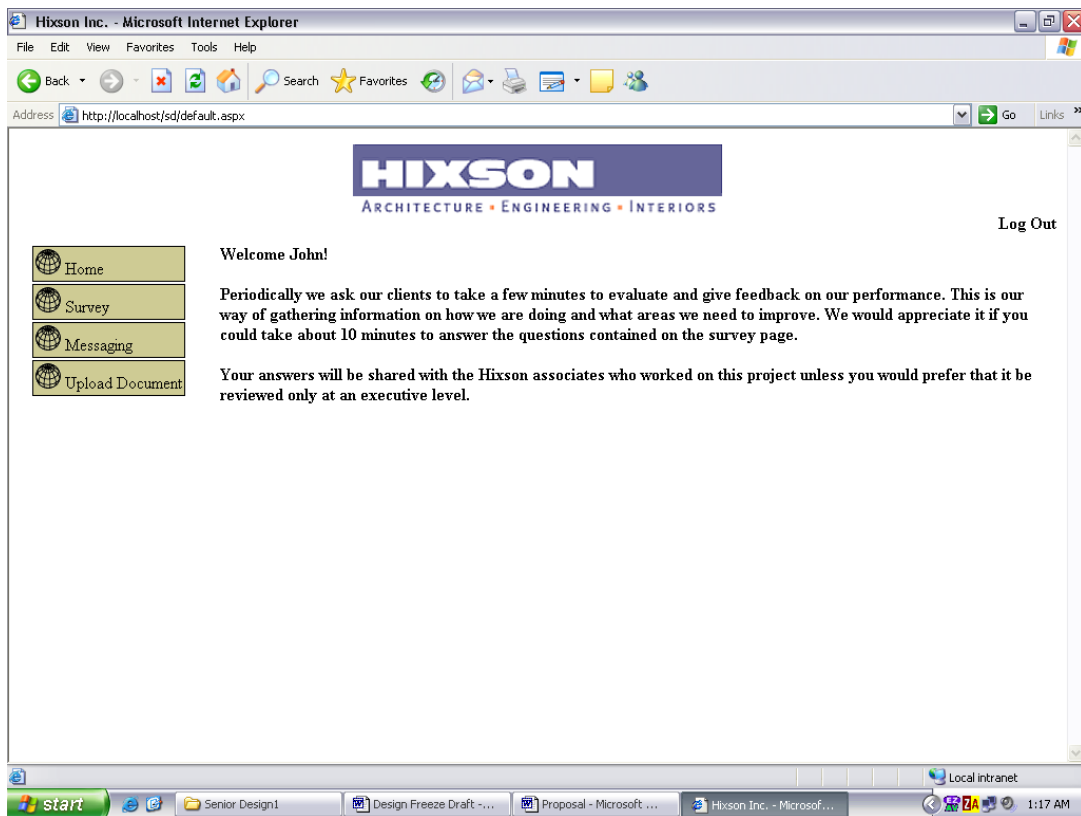


Figure 2 - Page Layout

Figure 3 below depicts the style used for displaying error messages. All error messages will be displayed on the page to the user in red text with an Arial font.

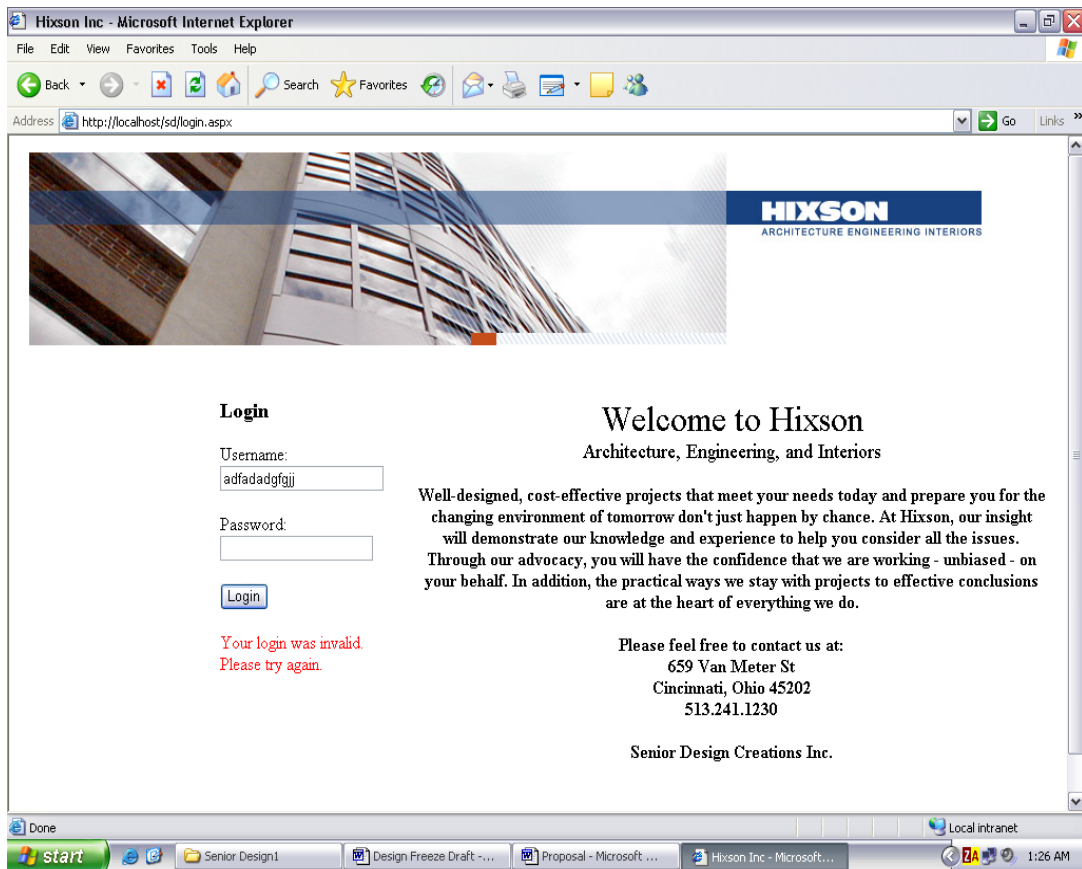


Figure 3 – Error Display

Figure 4, shown on the next page, shows the style used for confirmation messages, all confirmation messages will be displayed with blue text using an Arial font as shown.

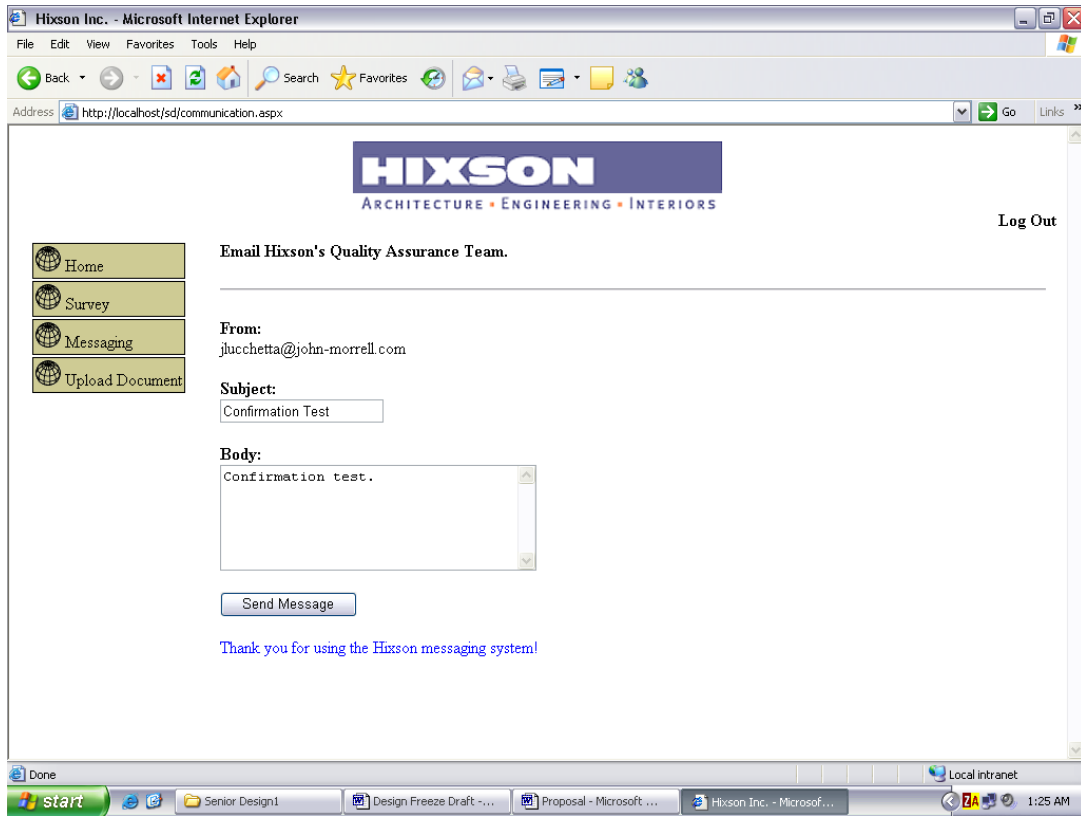


Figure 4 - Confirmation

2.2.2 Database

Microsoft Access - Having a database that can be read and written to will allow Hixson to review information of the past to help make their business adaptable to change and to customize client needs for the future. The database stores answers to company and job specific survey questions, company contact information, all information used to authenticate all users, navigation for the client, the Quality Assurance Department, Department Heads, and the Administrator.

Figure 5 below shows the structure of the database in a diagram.

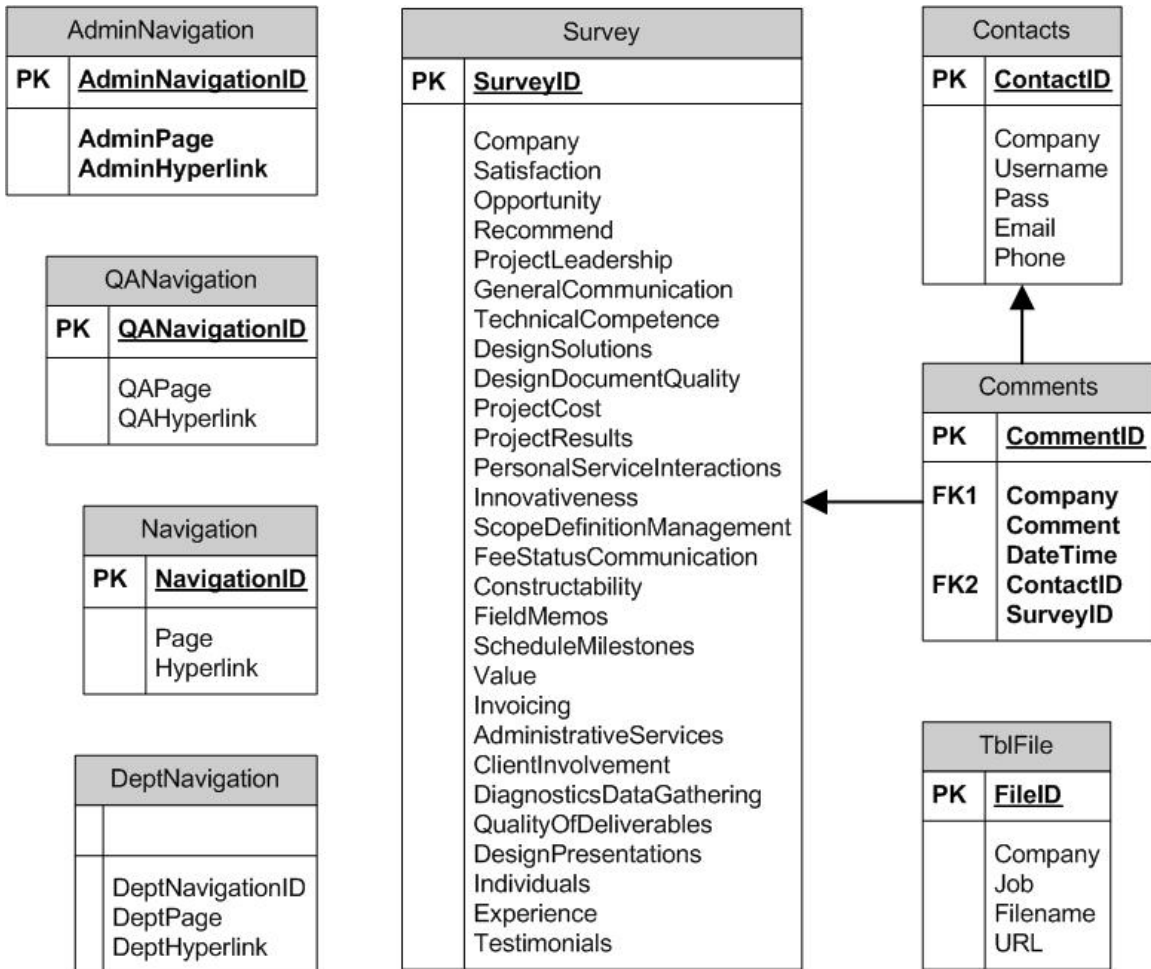


Figure 5 - Hixson Database Structure

The Hixson database holds eight tables, AdminNavigation, QANavigation, Navigation, DeptNavigation, Survey, Comments, TblFile, and Contacts. The AdminNavigation table is used solely for the purpose of holding page location and hyperlink titles for the Administrator section of the application. Storing the navigation in the database makes for a quick and easy change of the navigation content if needed. It also makes the navigation modular so the application administrator will only have to

make one change in the database to populate the pages instead of changing the navigation content on each page. Just like AdminNavigation, QANavigation holds navigation content design purposely for the Quality Assurance and specific department sections of the application. This will cater to the Quality Assurance Department and Hixson's internal Department Heads. The next table, Navigation, is meant for clients that access the application. Clients have limited access to the rest of the site, their only options are to fill out the survey, contact Hixson using the E-mail functionality, and a home page that mostly welcomes the user and offers instructions pertaining to the use of the survey.

The Contacts table holds all information about all clients and Hixson employees such as Name, Company Name, Username, Password, E-mail, and Phone. This table is mainly used during login, the username and password are checked against the database and if there is a match the user will be granted authentication but it is also used to store session variable information that will be referenced throughout the application for many reasons such as when the survey is being submitted the session variable that pertains to the user's company name is accessed and the name of the company is submitted with the survey data into the database to ensure the organization of the stored data.

The Survey table is the largest table in the database and stores a great amount of information. This table stores the company name and specific job of the submitted data and also all answers to the survey questions. The primary key in this table is "SurveyID" which identifies the survey information uniquely from each other. The survey information is also organized by company, this way when the Quality Assurance Department is looking for survey answers for Kraft Foods, Inc., the database can be queried and the results will be displayed in the QA section. If there are multiple jobs

associated with Kraft Foods, Inc. they are displayed as company specific information. The user then selects the specific job title to display the client submitted answers and the comments for that specific job by that specific company.

The last table mentioned in the database is the Comments table. The Comments table is used to store comments that were submitted by the Quality Assurance Department and Hixson Department Heads. The comments are given a unique ID reference number and are stored depending on the active survey by specific job. This way when the Quality Assurance Department or Department Heads want to access a survey the comments specifically pertaining to that survey will display and can be read by the user. The comments are read-only to ensure the integrity of the data.

2.2.3 Logic

The application is built using ASP.NET technology with C# as the programming/scripting language to capture the form data, provide login authentication, read/write to the data source, document upload, and E-Mail functionality. Microsoft's Notepad was the primary text editor used in the development of the application. HTML was used to create the page structure along with C# scripting in the HTML header to provide functionality to the application.

An example of this mix and separation of HTML and C# scripting is represented below in Figure 6 showing the method used to logout of each page. .

```
1 <html>
2 <head>
3 <title>Hixson Inc.</title>
4 <link href="styles.css" rel="stylesheet" />
5
6 <script runat="server" language="C#">
7
8 //logout function
9 void Logout(Object s, EventArgs e) {
10 FormsAuthentication.SignOut();
11 Response.Redirect("login.aspx");
12 }
13
14 </script>
15 </head>
16 <body>
17 <asp:LinkButton id="lbLogOut" Text="Log Out" Font-Bold="true"
18 OnClick="Logout" runat="server" />
19 </body>
20 </html>
```

Figure 6 - Page Scripting

In the above example the HTML page begins as normal by creating the <html> tag and then creating a header tag, <head>, within this tag is the title of the page. The scripting language begins on line 6, by using the tag “<script runat="server" language="C#">” inside of this scripting tag is where the C# coding is placed. Inside the scripting tag is a simple logout function, this is used to log users out of the application and then as you can see on line 11 the application redirects the user to “login.aspx” which is the login page. The scripting tag closes on line 14 with the

</script> tag which closes the scripting of the page. After the scripting tag has been closed the header of the document closes on line 15.

The body of the document is opened on line 16 and the structure of the page can be built using HTML. In line 17, the HTML shows a button has been created and uses a property called “OnClick”, when the button on the Web page is clicked the function called “Logout” is called from the scripting section of the code and following the instructions of the code redirects the user to the login page. Read more in Appendix A about other coding techniques used.

3 Deliverables

1. A Hixson Quality Assurance Web Application.
2. Throughout the application...

Clients will be able to:

- Log in with database authentication
- Fill out client feedback survey
- Upload documents to Hixson
- E-Mail the Hixson Quality Assurance team

Quality Assurance will be able to:

- View past company surveys
- Notify Hixson departments of new survey
- Add / View Hixson Comments
- View uploaded documents

Department Heads will be able to:

- View past company surveys
- Add / View Hixson Comments
- View uploaded documents

Administrators will be able to:

- Create new user profiles
- Update existing user profiles

4 Design and Development

4.1 Budget

Figure 7 below shows the projected cost to create and host the application. All of this cost will be covered by Hixson Inc.

Item	Cost
Web Server Running Windows Server 2003	\$1,439
Development Computer – Windows XP Professional	\$749
Microsoft Office	\$469.00
Internet Browser	Free
Total Cost	\$2,657.00

Figure 7 – Budget

4.2 Timeline

The timelines of this project spans three academic quarters of school spanning from the spring of 2005 to the winter quarter of 2006. The first quarter of work was spent developing an idea, creating a topic, researching the topic and then presenting the idea of the Hixson Quality Assurance Application to the class. The second quarter was devoted

to the development of the project architecture and the beginning of the testing. Finally, the third quarter was to finish the development and the testing and present the final project to the class. The following figures show the timeline of the project broken down into weekly frames.

Senior Design I – Spring 2005	
<u>Week 1</u>	Create Topic.
<u>Week 2</u>	Preliminary Design.
<u>Week 3</u>	Create Application
<u>Week 4</u>	Create Outline and Define Purpose
<u>Week 5</u>	Begin Research.
<u>Week 6</u>	Begin Design.
<u>Week 7</u>	Continue Design.
<u>Week 8</u>	Continue Research.
<u>Week 9</u>	Complete research.
<u>Week 10</u>	Present project to class.

Figure 8 – Spring 2005

Senior Design II – Fall 2005	
<u>Week 1</u>	Sketch structure of pages and database.
<u>Week 2</u>	Begin database development.
<u>Week 3</u>	Begin login page creation.
<u>Week 4</u>	Begin informational page creation and test login. -Create use case diagram -Create Problem Statement
<u>Week 5</u>	Continue coding and testing of informational pages.
<u>Week 6</u>	Meet with Hixson CEO and development team to confirm layout and structure.
<u>Week 7</u>	Continue coding and testing of informational pages.
<u>Week 8</u>	Complete coding and testing of Web application
<u>Week 9</u>	Host application and test in the auditorium.
<u>Week 10</u>	Present Senior Design II prototype to class.

Figure 9 - Fall 2005

Senior Design III-Winter 2006	
<u>Week 1</u>	Complete coding and development.
<u>Week 2</u>	Fix any bugs and begin testing.
<u>Week 3</u>	Develop Design Freeze paper and continue testing the application.
<u>Week 4</u>	Continue Design Freeze paper development and begin retrieving test results.
<u>Week 5</u>	Submit design freeze draft and complete testing.
<u>Week 6</u>	Correct and edit design freeze upon return. Create slide presentation for SD III presentation.
<u>Week 7</u>	Continue correcting the design freeze report. Practice presentation.
<u>Week 8</u>	Practice Presentation.
<u>Week 9</u>	Present the Hixson Quality Assurance Application to the class.
<u>Week 10</u>	Submit Final copy of design freeze.

Figure 10 - Winter 2006

4.3 Software Requirements:

The following software is required for the creation and the use of the Hixson Quality Assurance Application.

- Windows XP Professional
- Internet Information Services
- Microsoft Access
- Text Editor - Notepad
- Browser

4.4 Hardware Requirements:

The following hardware is required to host and view the application.

- Web Server - Windows Server 2003
- PC for Development
- Client computer able to access Internet

4.5 Testing

This process is critical to the success and efficiency of the product. The application is continually being inspected for broken code, design flaws, and redundancy during the development phase. Also, Hixson's Quality Assurance team and the Information Systems department are currently reviewing the application and trying to "break" the software and then will return a follow-up oral report of their over all idea of the application (9).

A number of load tests and procedural tests are currently in place for the application. Tests such as:

- 1) On the login page, try and login without entering any login information.

- 2) On the login page, enter only the username no password and try to login.
- 3) On the login page, enter incorrect data and then try to login.
- 4) On the survey page, try and submit the form without any data entered.
- 5) On the survey page, try and submit the form with only the location and job description.
- 6) On the survey page, begin filling out the survey, wait for 30 minutes then try to submit the data.
- 7) Login as the qa dept and then manually type in a URL that is only available to the client.
- 8) Manually type in a URL without logging in trying to get to any page of the application.
- 9) On submit of the form on the survey page with the full amount of possible data time the amount of time it takes to write to the database and for the “thank you” page to display.
- 10) Open the application in 25 different instances to see if all instances open correctly.
- 11) On the edit profile page enter numeric data into the name field to see if it updates as numeric data or not.
- 12) View survey page, add comments under a specific company and job and try and view them in a different job or company.
- 13) Log in as admin and manually type in a URL in the QA section.

5 Proof of Concept

As previously stated in section 1.3 User Profiles, there are four different user profiles that will be using this application and there are currently only three sections to the application. The following information will give you screen-shots of the application and its four sections.

Figure 11, shown below, displays the point of entry for all users. This login screen will be used by everyone regardless of their role, but depending on credentials and authentication, the page content will change to fit the different profiles needs.

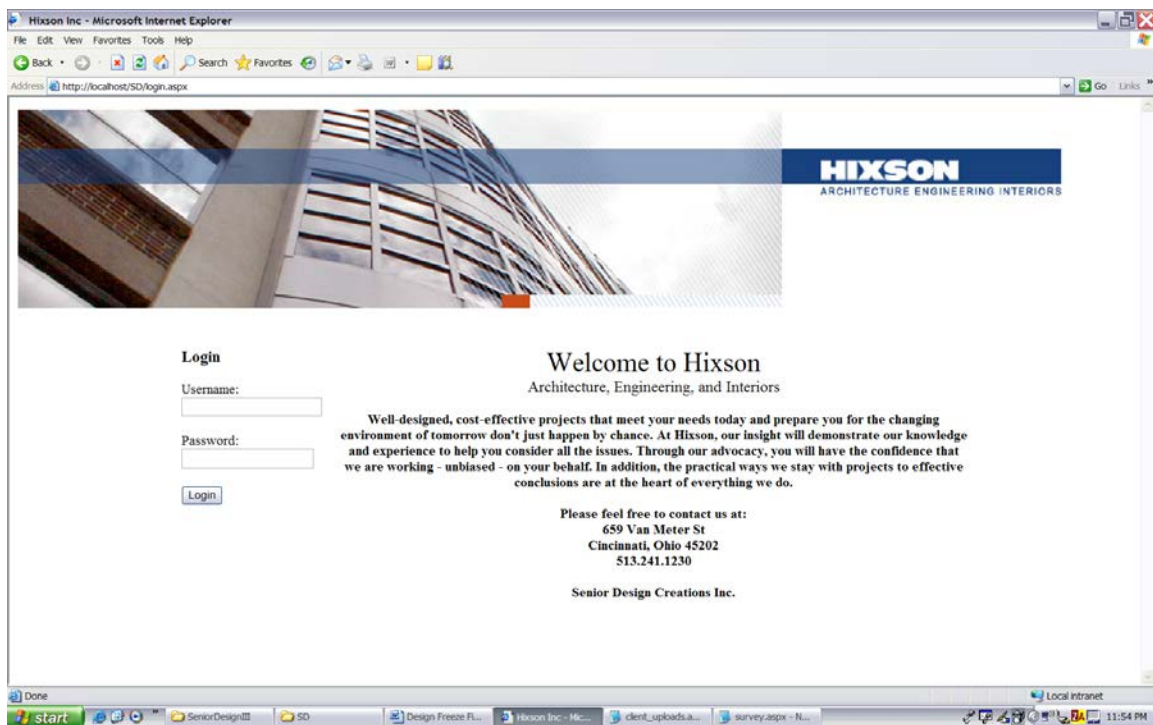


Figure 11 – Login Page

5.1 Clients

To further show the different profiles and their functionality, a client will login to the application and be redirected to a default client page shown in Figure 12 that welcomes the client to the application and will offer instruction for using the application.

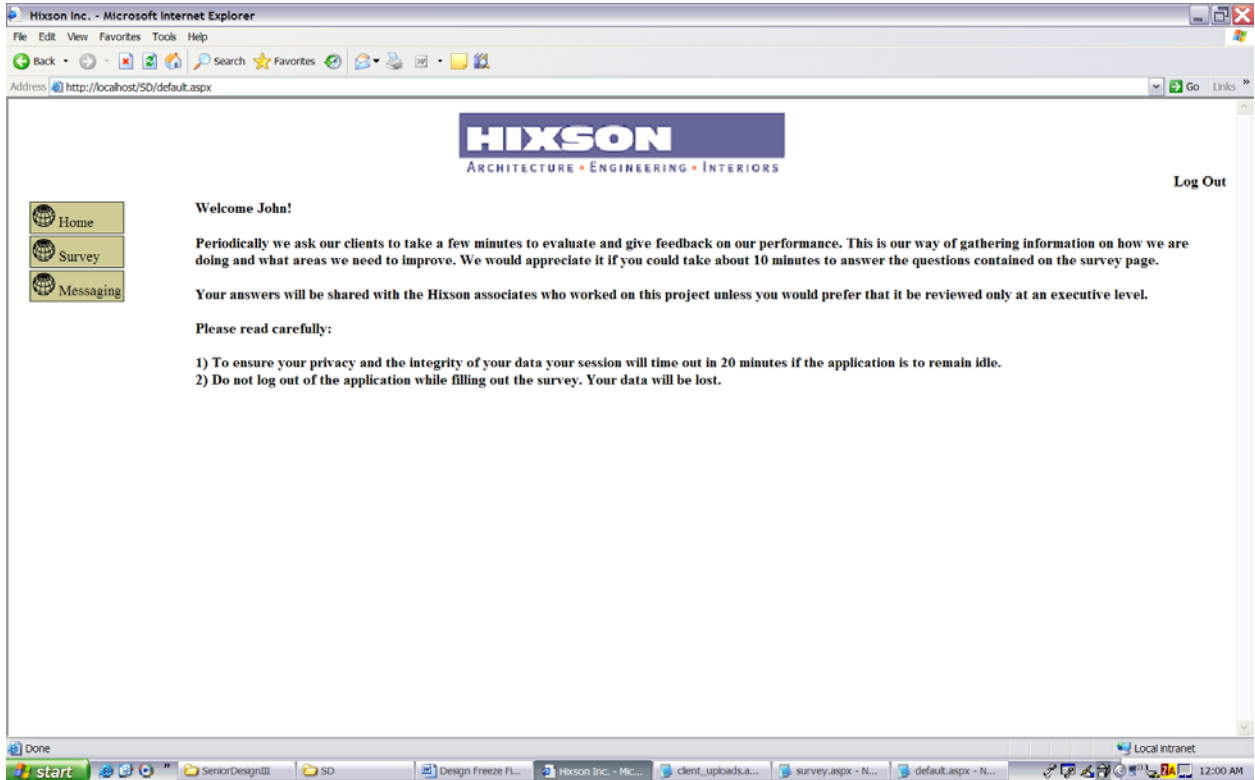


Figure 12 – Welcome Page

The default page for clients offers the site navigation with the choices of Home, Survey, and Messaging. These are the only navigation options the client has.

Session variables are used on login to save the client's name which is to be used at the top of the clients default page welcoming the client, the client's company name, and E-Mail address will also be stored and then used later in the application (1, 386).

Figure 13 shows the clients “Survey” page after the page has loaded. This page is setup to allow the client to enter answers to the survey questions that the Hixson Quality Assurance Department has created. To reduce scrolling with the mouse and the monotony of filling out lengthy surveys the survey itself has been placed in a tabbed format using a DHTML script that helps break up the information into smaller sections for the client (2, 139). Also, session variables are called above the survey by welcoming the client with their first name and their company name and then asking the client to complete the form.

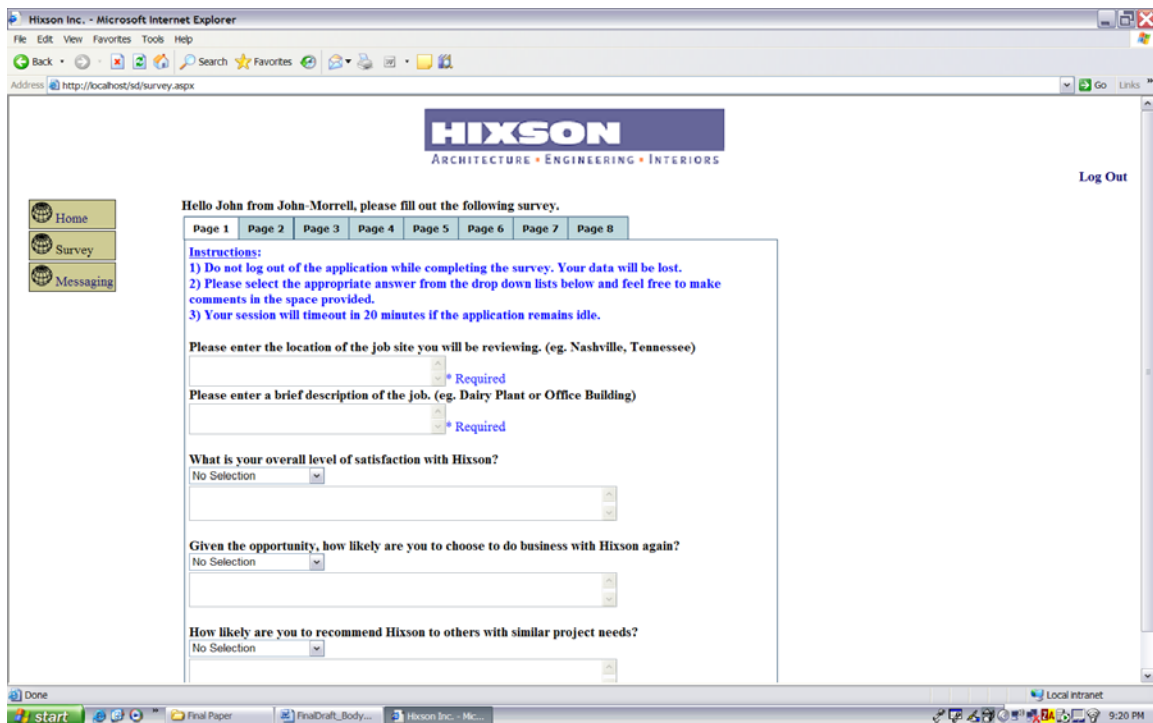


Figure 13 – Survey Page

Figure 14 on the next page shows the same survey page that was displayed in Figure 13 except for the client is beginning to answer Hixson’s questions by typing their

answers and comments into the according text boxes on “Page 1” and selecting the correct answers from the drop-down list of the seven-page survey. The first two text boxes of the survey must be filled in with data to give the survey a job location and job description. Without this information the form will not submit and the user will be notified of an error.

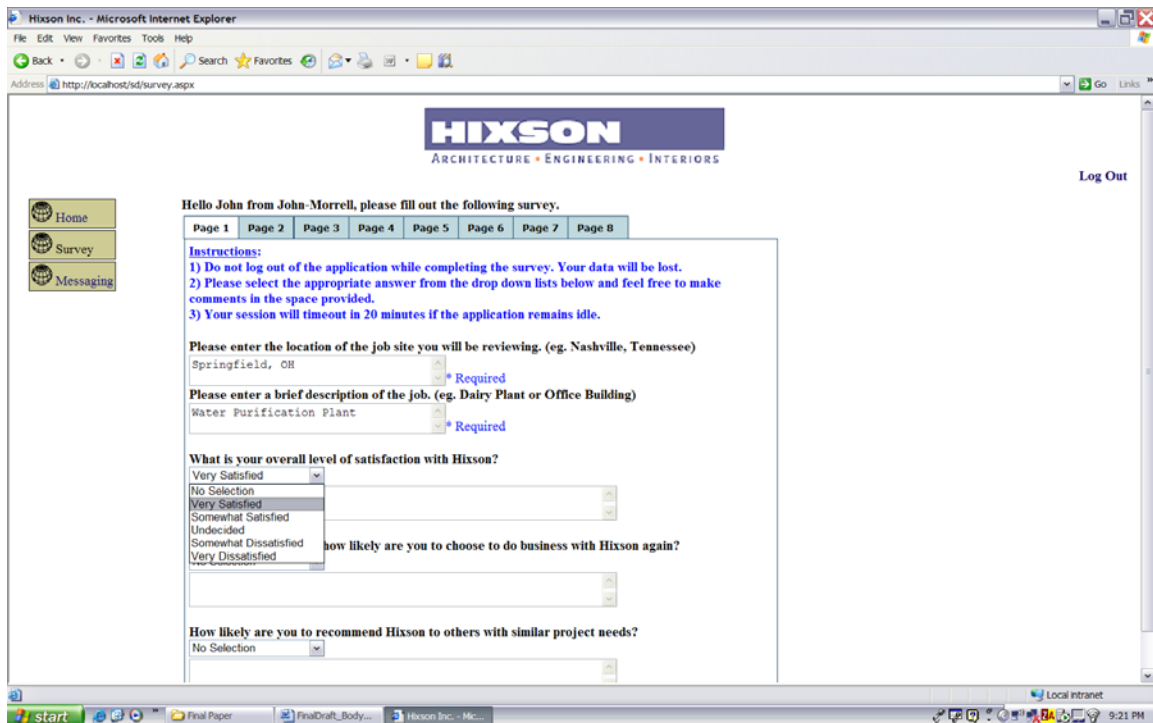


Figure 14 – Completing the Form

Figure 15 on the next page shows the survey after all seven pages of the survey have been filled out. The client has not yet submitted the survey to the database. On this last page the client has the opportunity to upload supporting documents to Hixson before the form is submitted.

When the client submits the form, the client's company name will be submitted in to the database along with the rest of the information to keep the information organized by company and job description. Also, on submit an E-Mail is sent to Hixson's Quality Assurance Department to notify them of a new survey submission. The notification will tell the Quality Assurance Department what company submitted the information regarding which specific job.

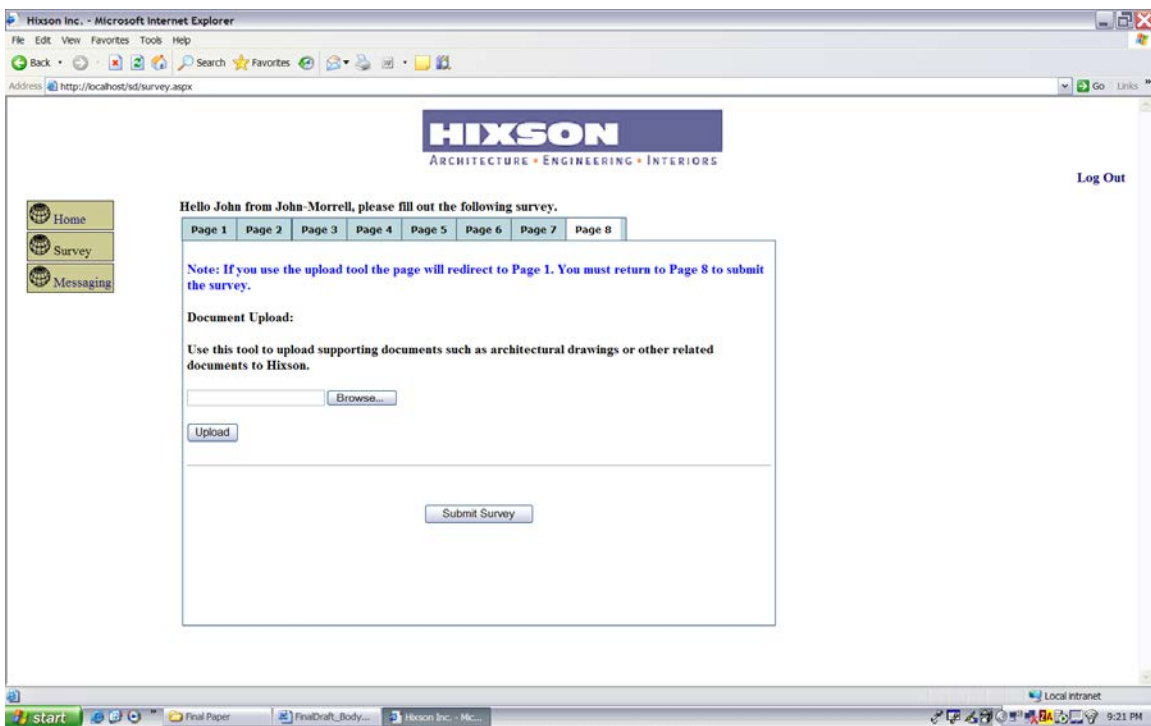


Figure 15 – Survey Complete

Hixson thanks the client for submitting their information by using Figure 16. Figure 16 also uses the same session variables by thanking the client name John from the specific company, which in this case is John-Morrell. Also, figure 16 offers the client a hyperlink

to E-Mail functionality if there is more information that the client would be interested in sharing with Hixson along with the regular navigation.

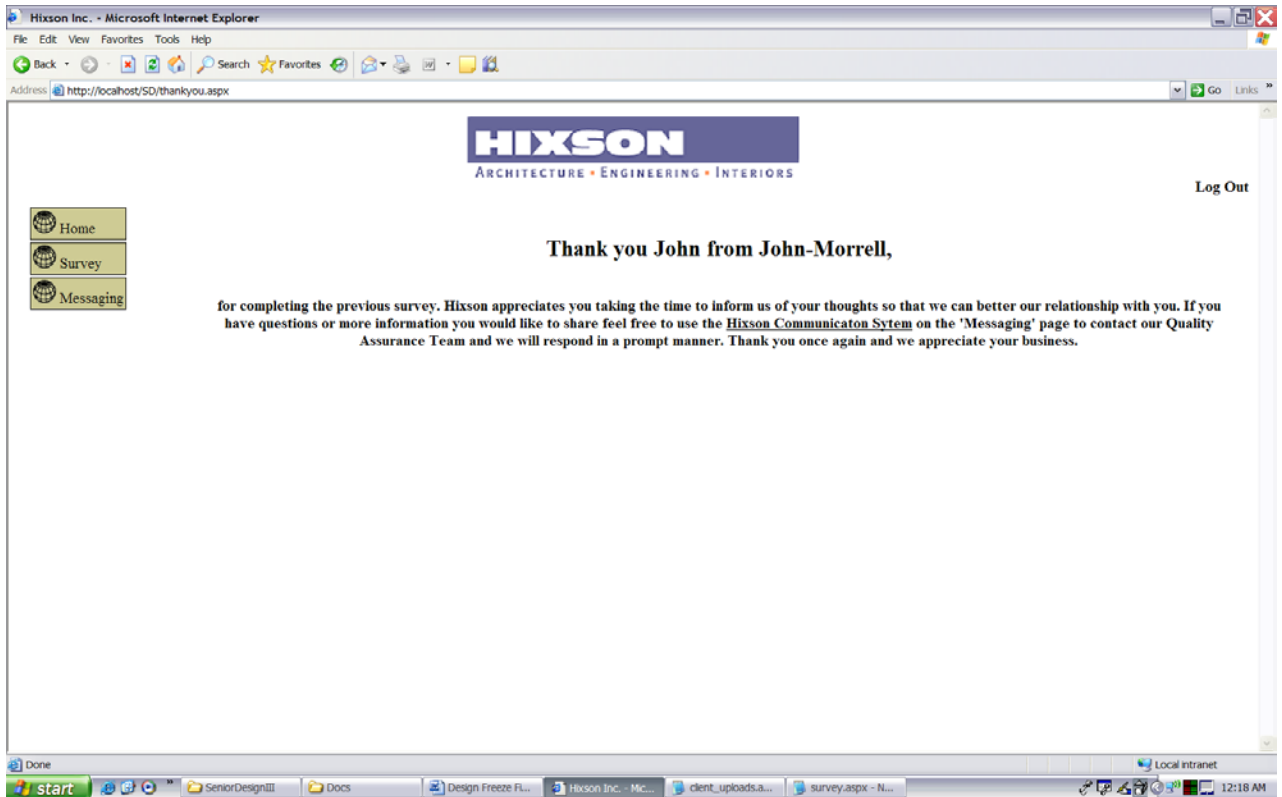


Figure 16 – Successful Survey Submission Page

The “messaging” page shown in Figure 17 on the next page, allows a client the ability to E-Mail Hixson’s Quality Assurance Department directly. Instead of giving the client the opportunity to type in his or her E-Mail address, session variables are called to access the specific clients E-Mail address and enter it automatically. This reduces the possibility of error in typing the address.

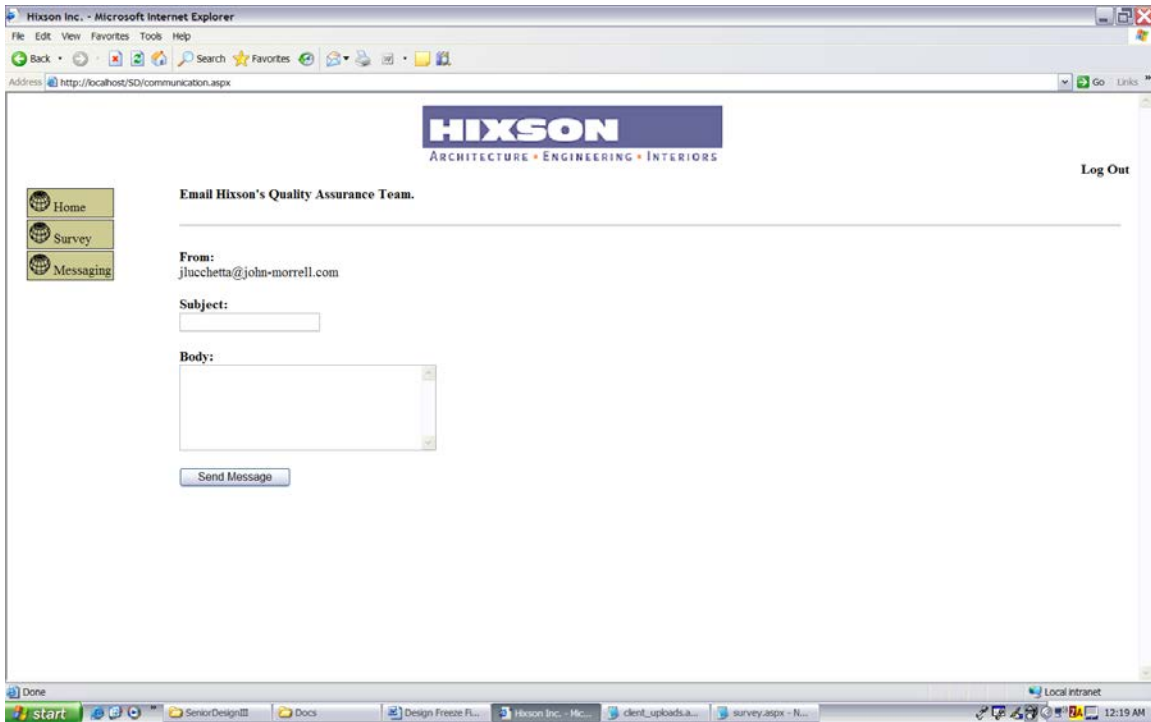


Figure 17 – E-mail Functionality

This also reduces the risk of an error in the syntax of the address and will allow Hixson to reply to the correct contact E-mail address if needed. Also, to reduce any confusion, the “Subject” line and the “Body” text area are both required fields that must be filled out before the form will be able to submit.

Figure 18, gives the client confirmation that the message has been sent to Hixson’s Quality Assurance Department and thanks the client for using the Hixson messaging system in blue text below the “send message” button. This tells the client that the message has been sent.

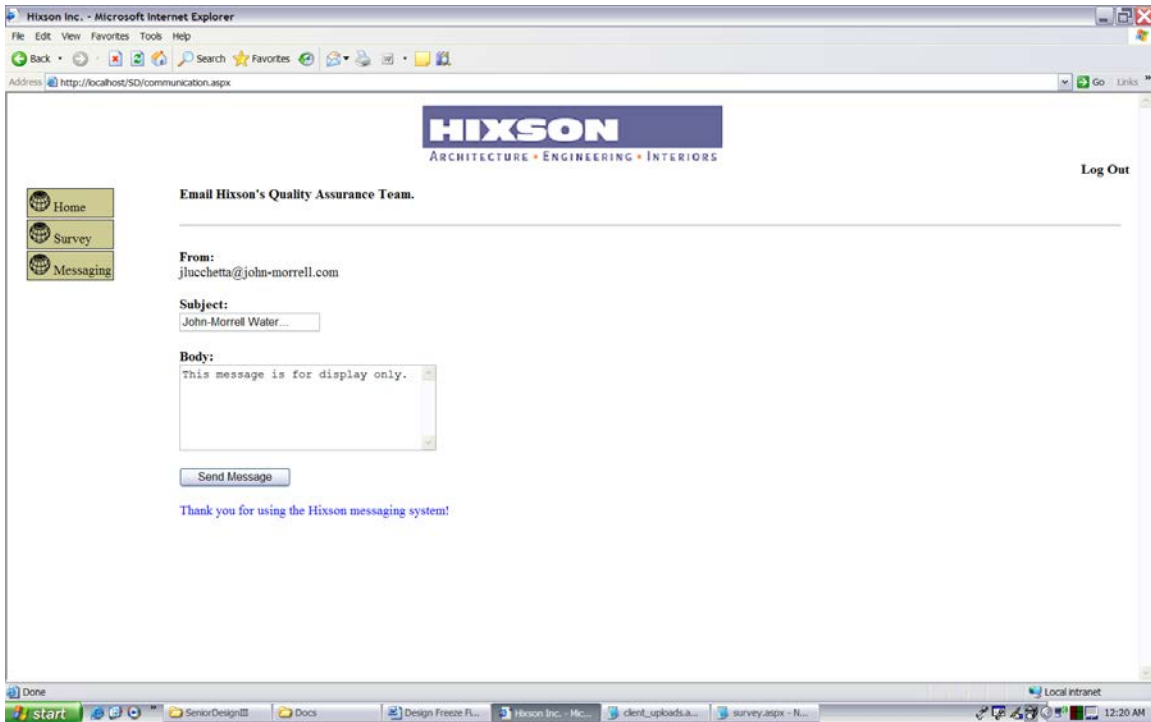


Figure 18 – Message Confirmation

Figure 19, shows the output of the E-Mail message that is sent to Hixson's Quality Assurance Department on the next page. It shows the clients E-Mail address in the "From" line, it also shows the subject and the body that the client entered into the message. A Hixson logo is placed in the body of the E-Mail to give a sense of uniformity and design and the message "this E-mail is a test from John-Morrell" that the client submitted is displayed below.

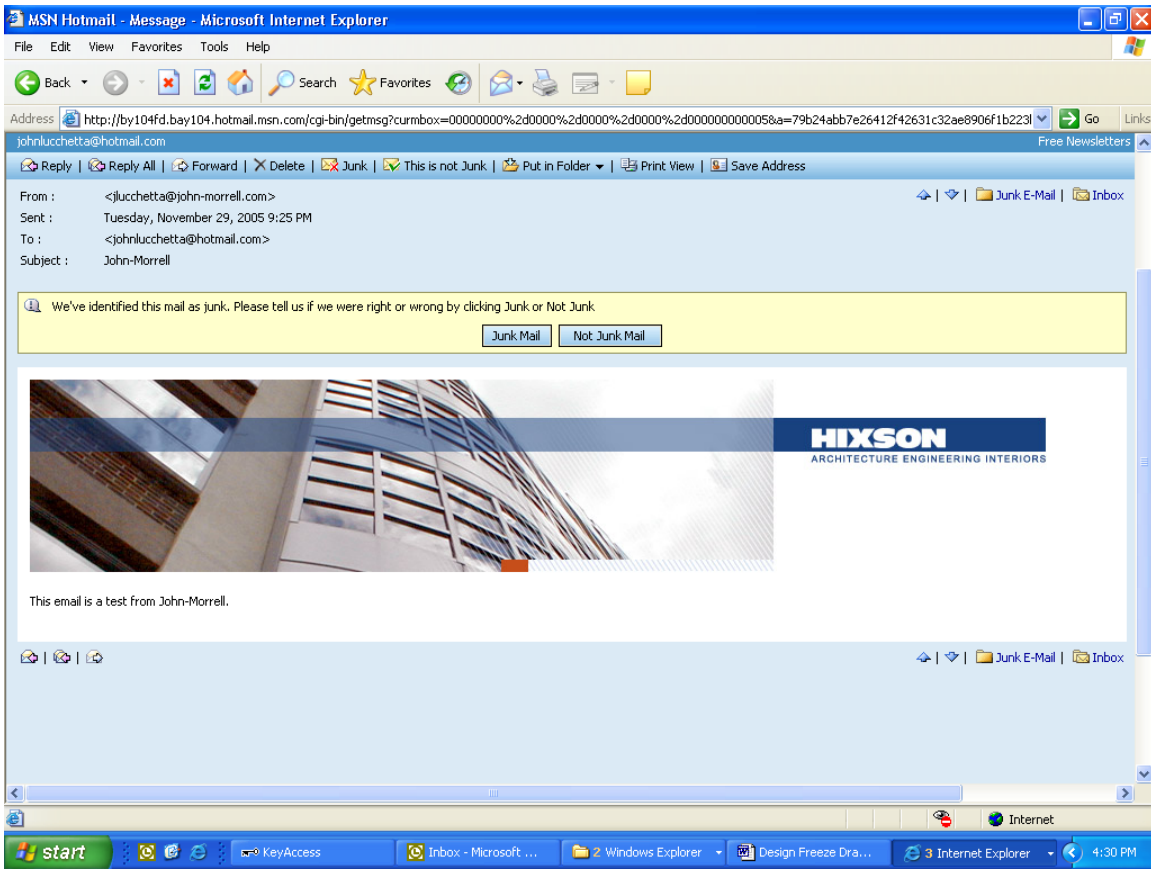


Figure 19 – Received E-mail

Sometimes a client will need to share a document with Hixson or send related supporting documents. The document could be a spreadsheet containing budget information or an electronic drawing in AutoCAD format that Hixson needs to review, so the client is offered the functionality of document upload. This document upload is actually a part of the survey page shown in Figure 20 below.

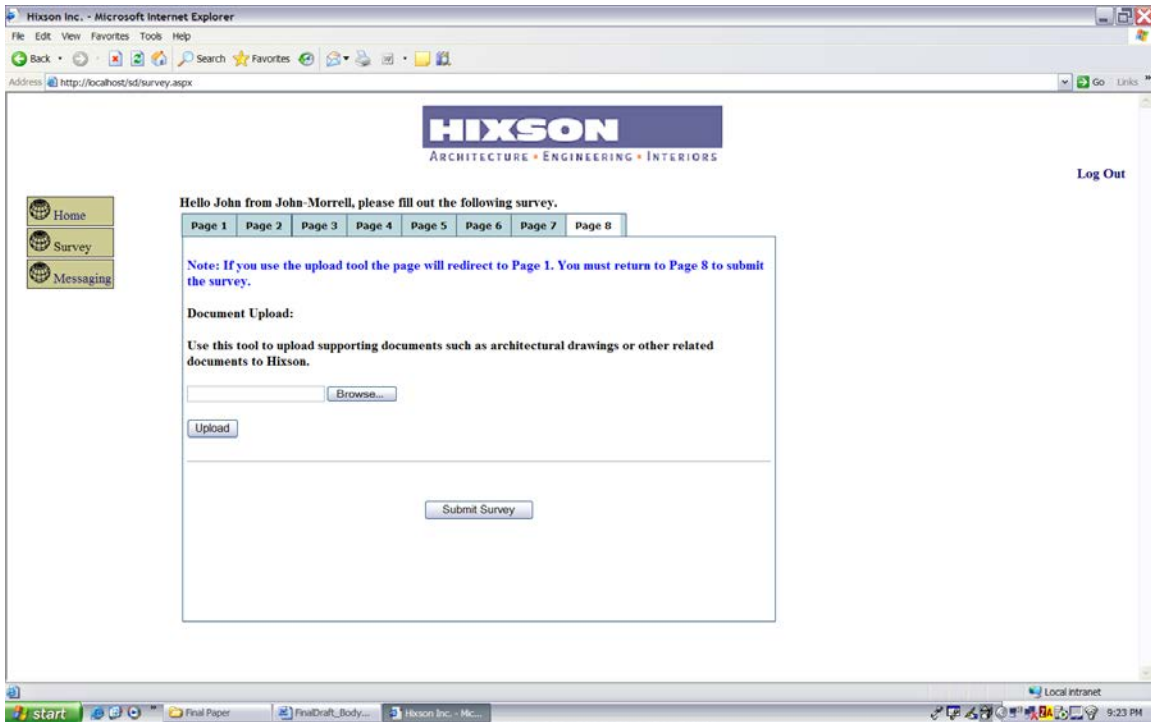


Figure 20 – Document Upload

The client can use this upload function, which is displayed on Page 8 of the form, by first selecting the document they would like to send by pressing the “Browse...” button. After the button is pressed a print dialog box appears and allows the client to search through their own file directory as shown on the next page in Figure 21.

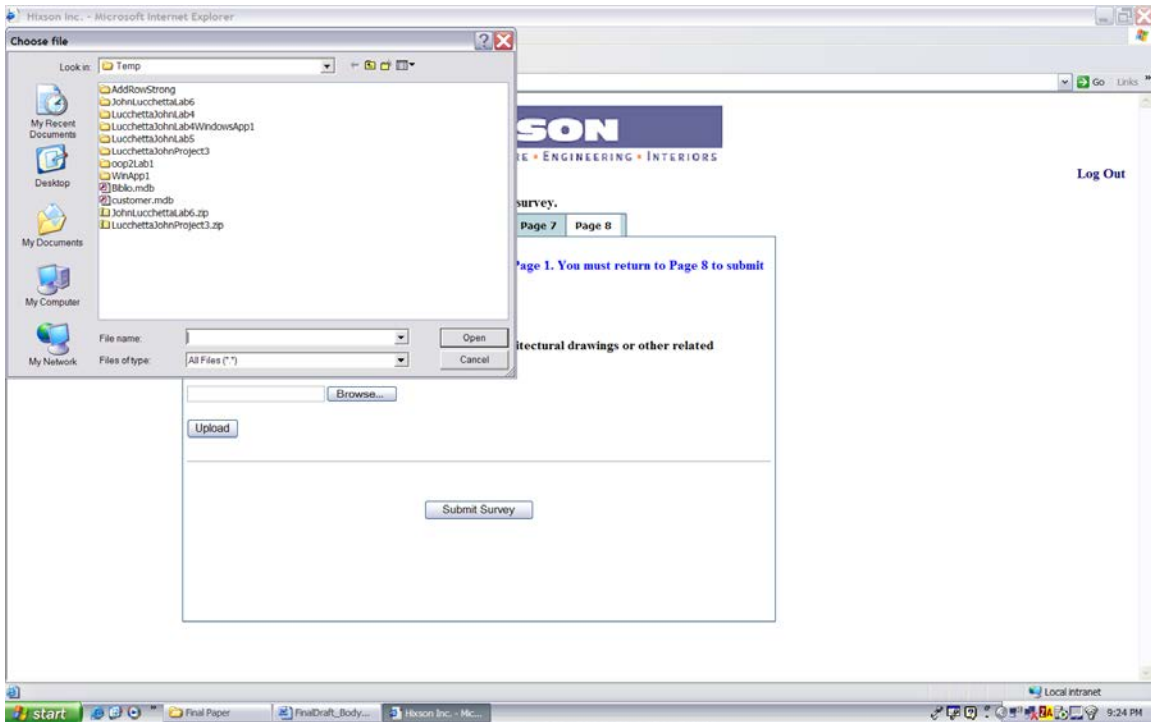


Figure 21 – Browse For A Document

Once the client has successfully located and selected his or her document to upload, the client will press the “Open” button in the print dialog box to select the document. Figure 22 shows a selected document which is ready to be uploaded.

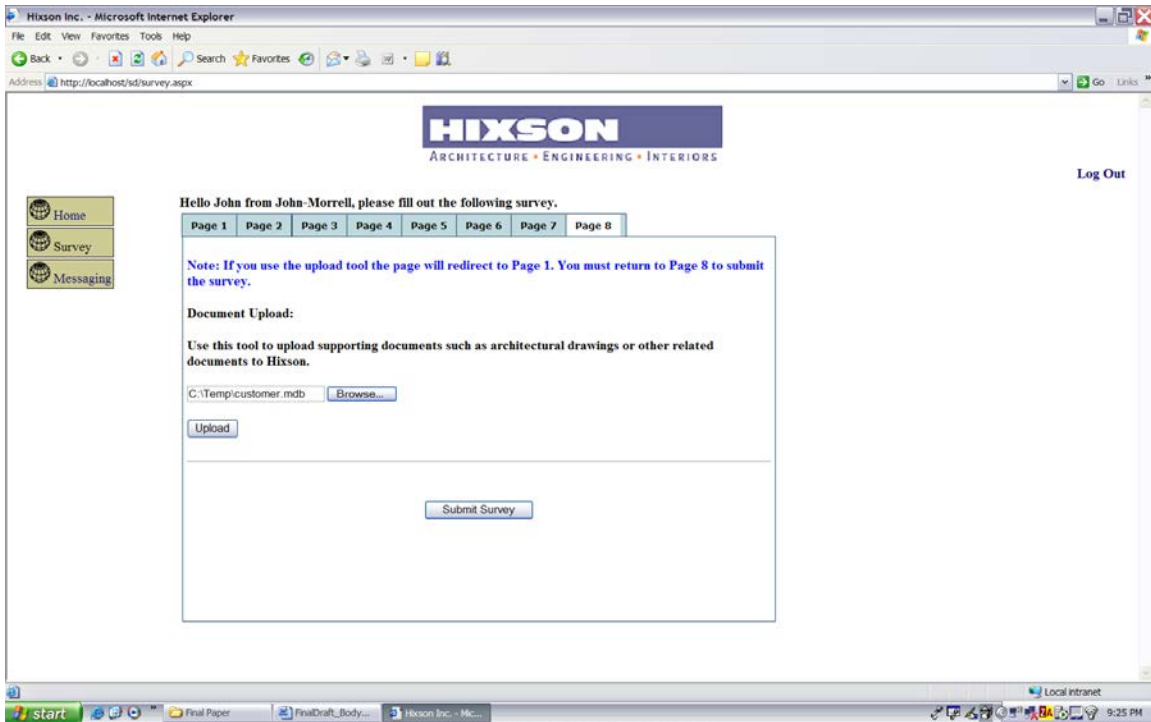


Figure 22 – File Selected

To confirm to the client that the document has been uploaded, Figure 23 shows that after the client presses the “Upload” button blue text appears below and confirms the upload by saying, “The file has been uploaded. The survey has not yet been submitted”.

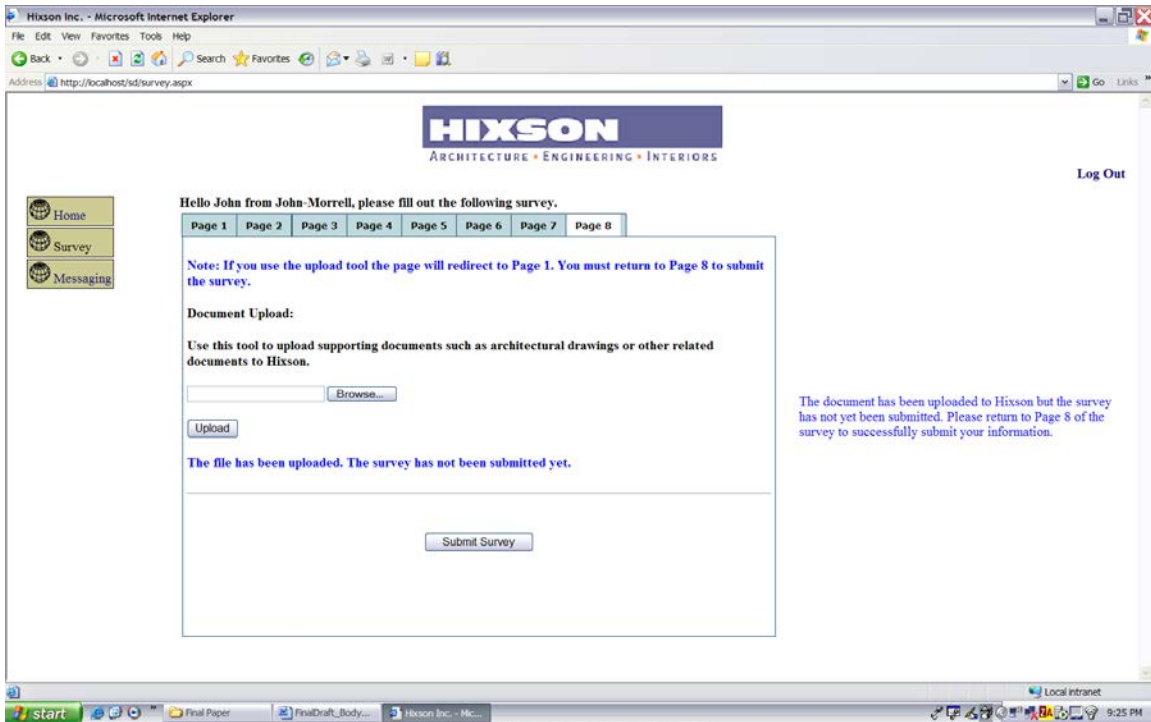


Figure 23 – File Uploaded

5.2 Quality Assurance Department

The main purpose of the Quality Assurance Department in this application is to review the submitted client surveys, notify Hixson departments, make/view comments and contact the client if need be.

After login, the Quality Assurance Department is redirected to the “QA” section of the application. This section is built primarily for this department to use. The navigation on the left hand side of the screen has changed and is customized directly for the Quality Assurance Department offering “View Contacts” and “View Surveys”.

Figure 24 below shows the “View Surveys” page. The Quality Assurance user can view submitted company surveys from this page by selecting a company.

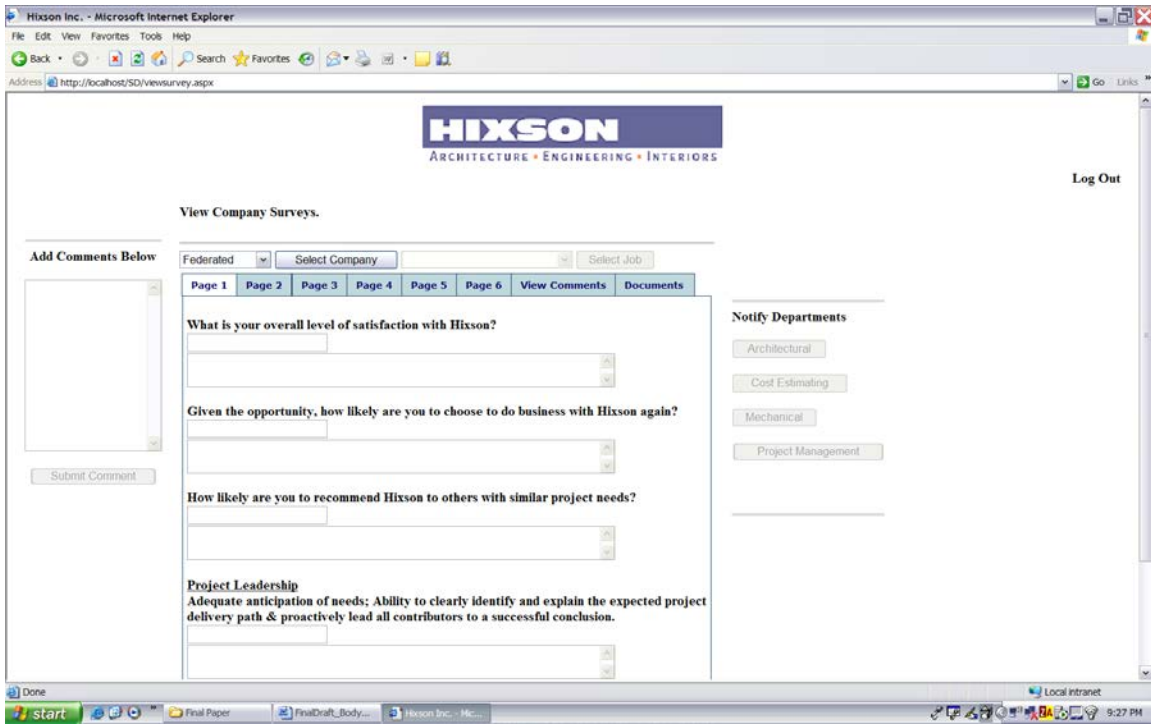


Figure 24 – View Survey

Figure 25, on the next page, displays a drop-down list which is populated with company names. Figure 25 shows that the company John-Morrell is selected in the list. After the user selects the company he or she will press the button “Select Company”.

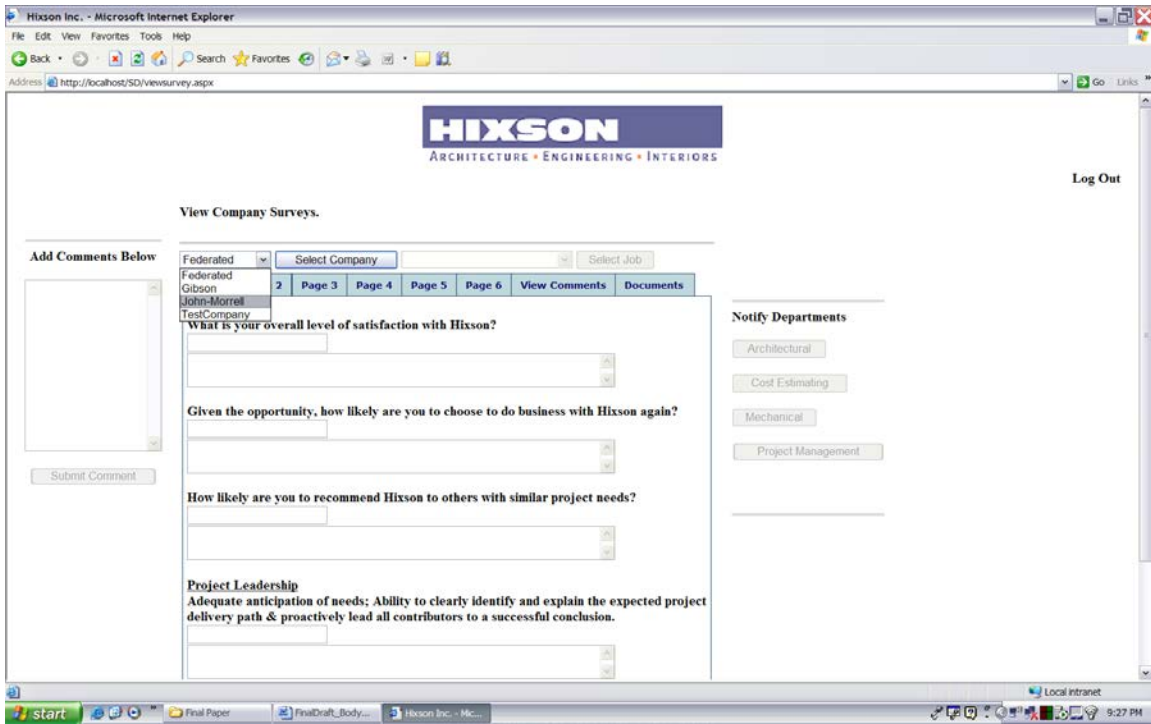


Figure 25 – Display Companies

By pressing “Select Company” with John-Morrell selected the next drop down list will populate with the specific jobs that pertain to that company. As you can see in Figure 26, the drop down list is populated with job titles. The user then selects the job and then presses the “Select Job” button. The form is then populated with the job specific data and all comments left by users.

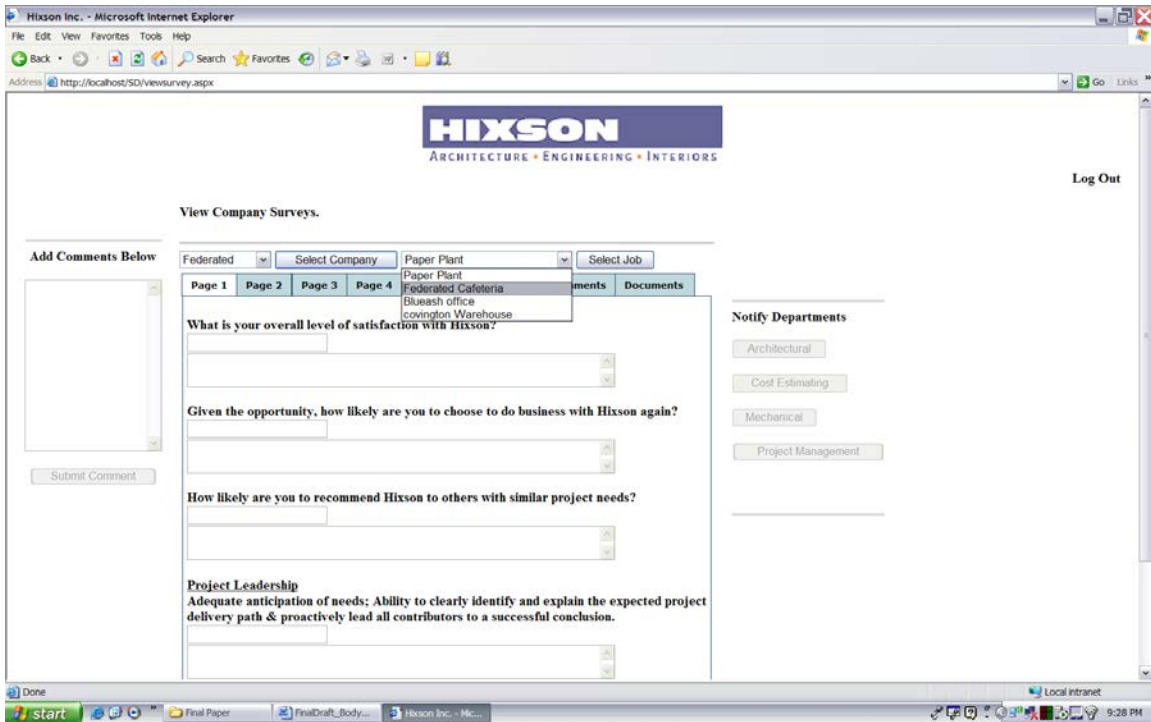


Figure 26 – Job Description

All information that John-Morrell has previously entered is now displayed in the “View Survey” page and cannot be changed; all of the text boxes are read-only and cannot be edited to ensure the integrity of the data.

When the page loads there is some functionality that is unavailable to the user. “Comments” and “Notify Departments” are grayed out as shown in Figure 27 and not available to the user. Only after the user selects the company and the job and presses “Select Job” will the “Comments” and “Notify Departments” be available as shown in Figure 27 below.

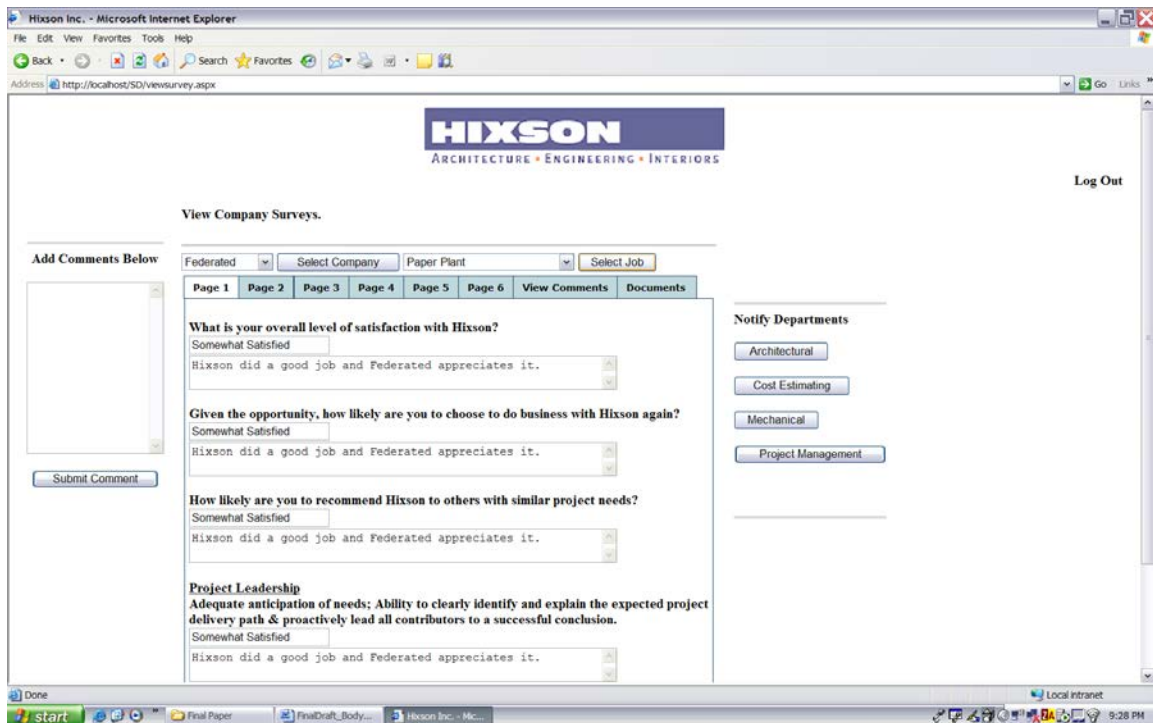


Figure 27 - Functionality

As the Quality Assurance Department review the company surveys they can also make comments about the survey that can be stored in the database. When the comments are saved they are saved with the survey ID, the company name, and the job title, which means that if the John-Morrell job survey is selected pertaining to the “Retail Design” any comments that are submitted will be stored as John-Morrell comments and are also linked to the Retail Design as shown below in Figure 28.

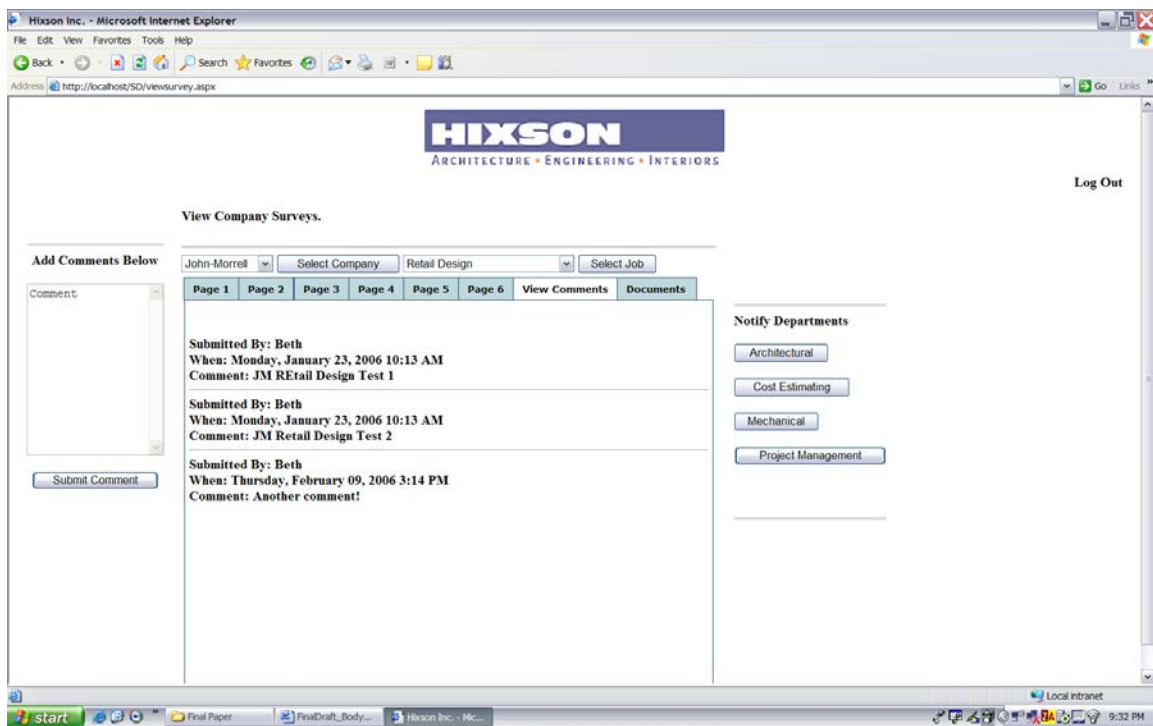


Figure 28 – Job Specific Comments

When comments are submitted to the database the users name and the date and time are stored with the comment. This offers the rest of the Hixson teams to know who submitted what and when.

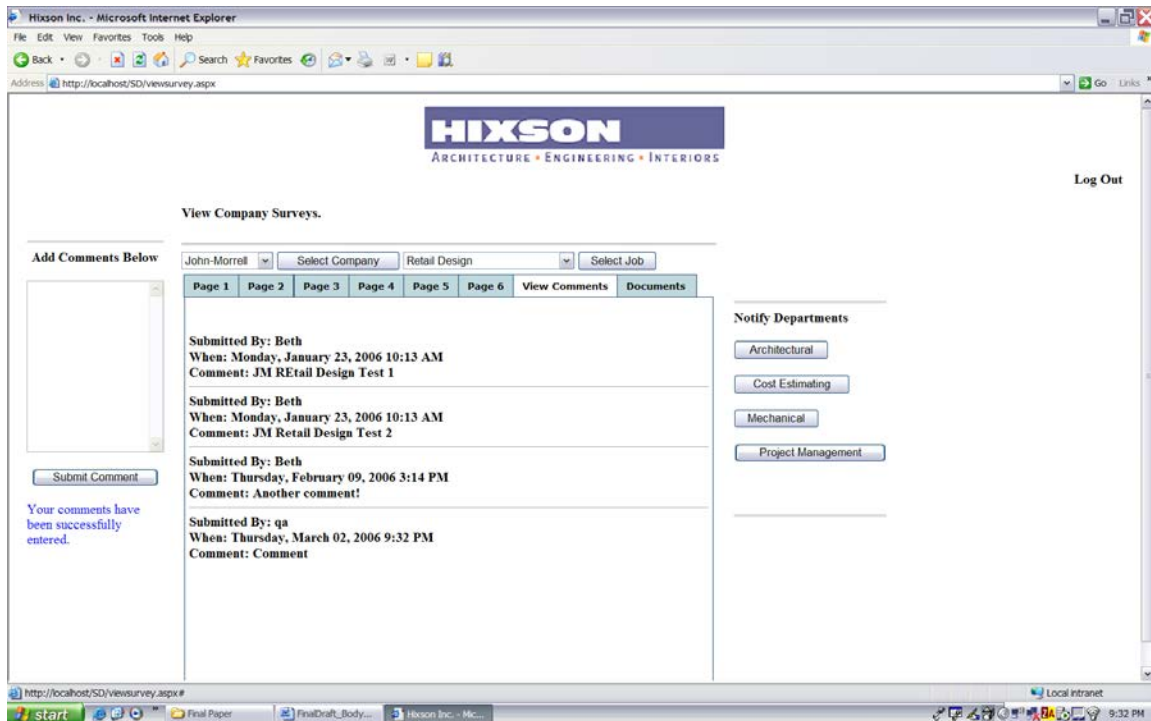


Figure 29 – Entered Comments

In Figure 29 above, the “Comments” section has text in the textbox. This is where the Quality Assurance department or other departments will be entering comments and then will use the “Submit Comment” button below to enter the information.

After the comment is submitted about the survey, a confirmation message displays below the “Submit Comment” button as shown below in Figure 30. The confirmation message keeps its uniform look by displaying as blue text with the message, “Your comments have been successfully entered”.

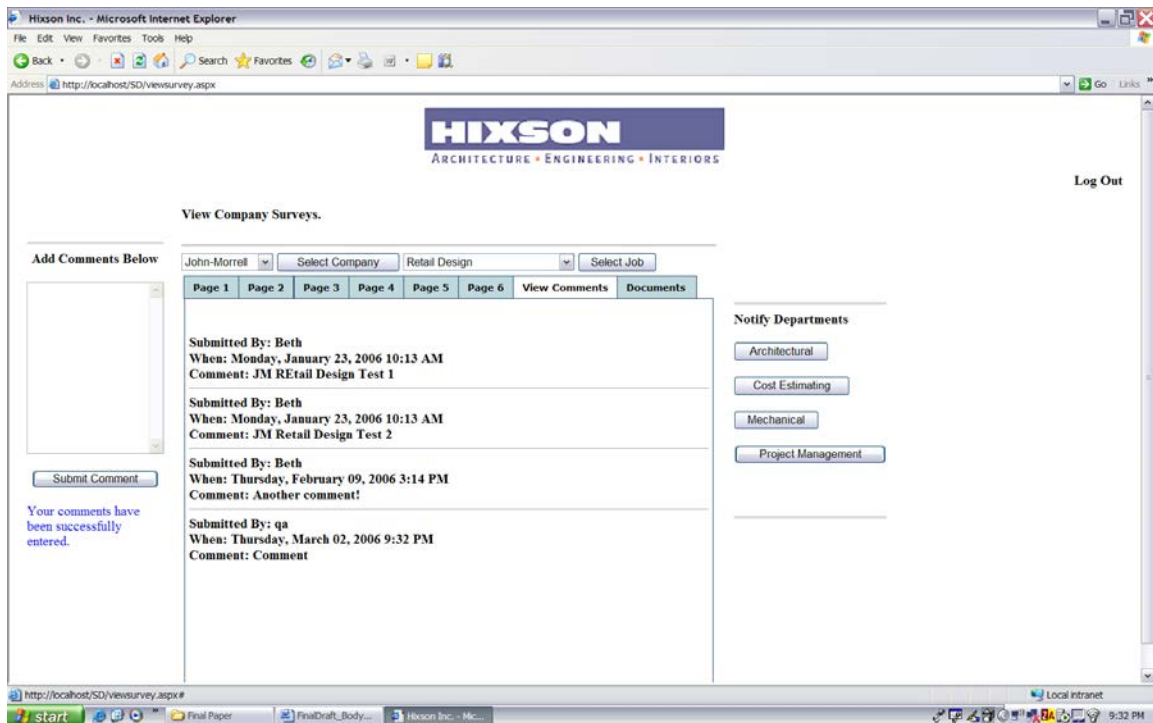


Figure 30 – Comment Confirmation

Figure 31 shows the comment that was just added in the last line of the example. After the comment is submitted to the database, the area where comments are displayed is repopulated with any new information which makes comment entry and display almost immediate.

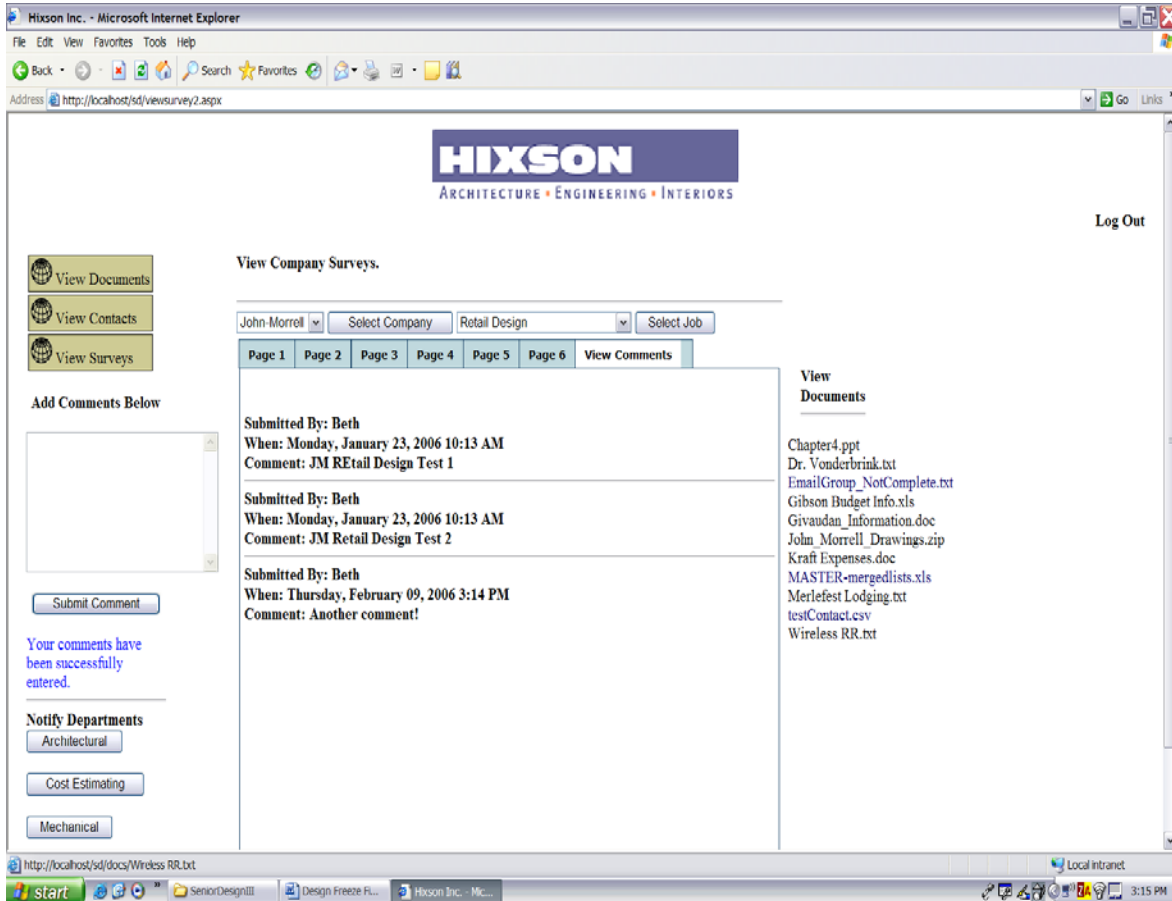


Figure 31 – Comment Display

After the Quality Assurance Department has reviewed the company surveys they can then notify different departments within Hixson of the new information. This is done on the left hand side of the page in the “Notify Departments” section. As shown in Figure 32, the button labeled “Architectural” has been pressed and a blue confirmation message is displayed at the bottom of the section.

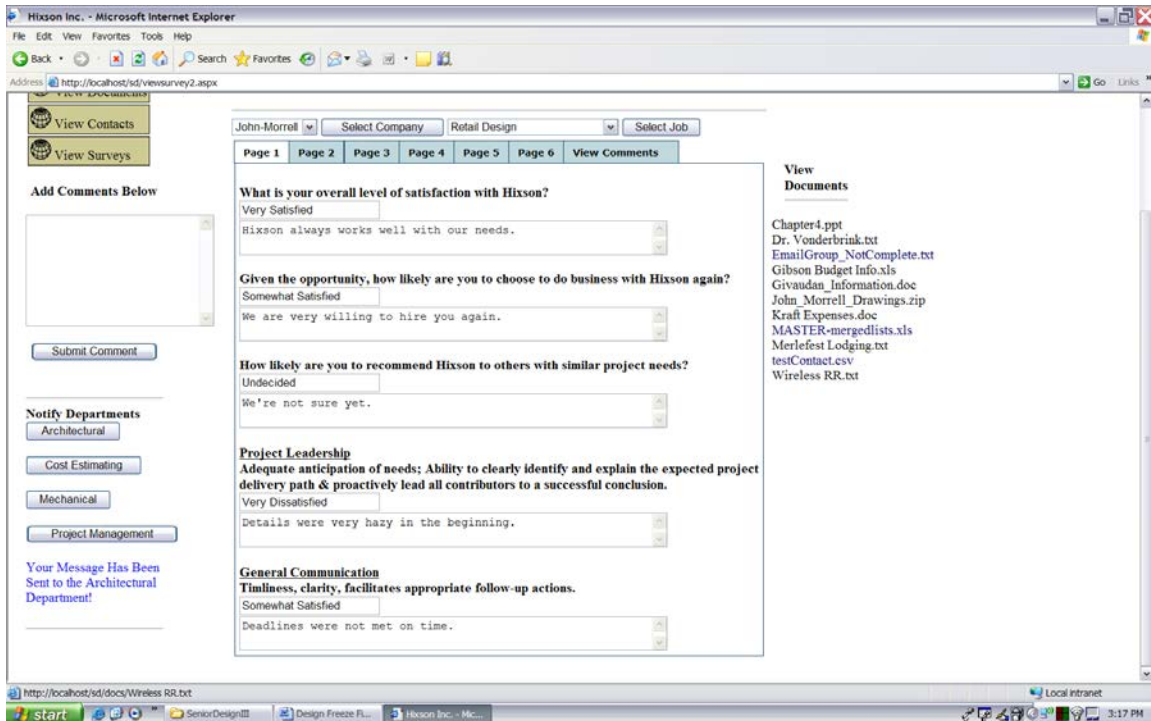


Figure 32 – Notify Departments

As a button is pressed, an E-Mail is sent to that departments Department Head in a customized manner. The E-Mail that is sent which is shown in Figure 33 is a customized message that pertains to the company survey. The E-Mail is from the Quality Assurance Department, the subject is “Survey Notification for the Architectural Department”, if the department was different the subject would fit the department. In the body of the message a Hixson logo is used mainly for design but also to keep with Hixson standards of logo and also the questions and answers that pertain to the company survey are inserted into the E-Mail.

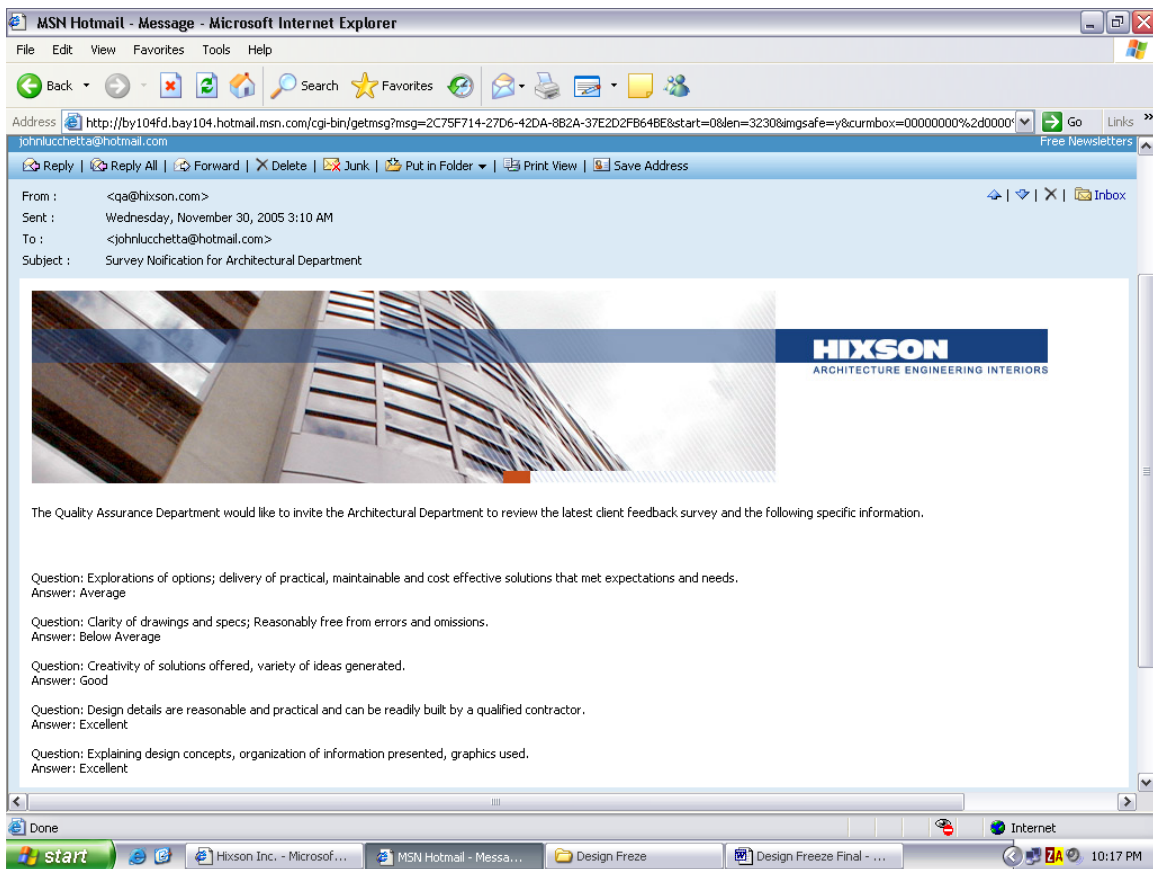


Figure 33 – E-mail Notification

This way the department doesn't have to look through all the questions and answers searching for their specific section for the information that interests them most, of course they can always login to the application, view their specific department data, add/view comments, and logout.

The next option that the Quality Assurance Department has in the site navigation is "View Contacts". Each company that submits a survey has one person that is considered a contact to Hixson. That person's contact information such as company name, client name, and E-Mail address are stored in the database. When the page loads a drop-down list is populated with all the names of the companies that have submitted a survey which is shown on the next page in Figure 34.

Also on the next page, Figure 35 shows the Quality Assurance user expanding the drop-down list, viewing all the company names and selecting the company name "John-Morrell".

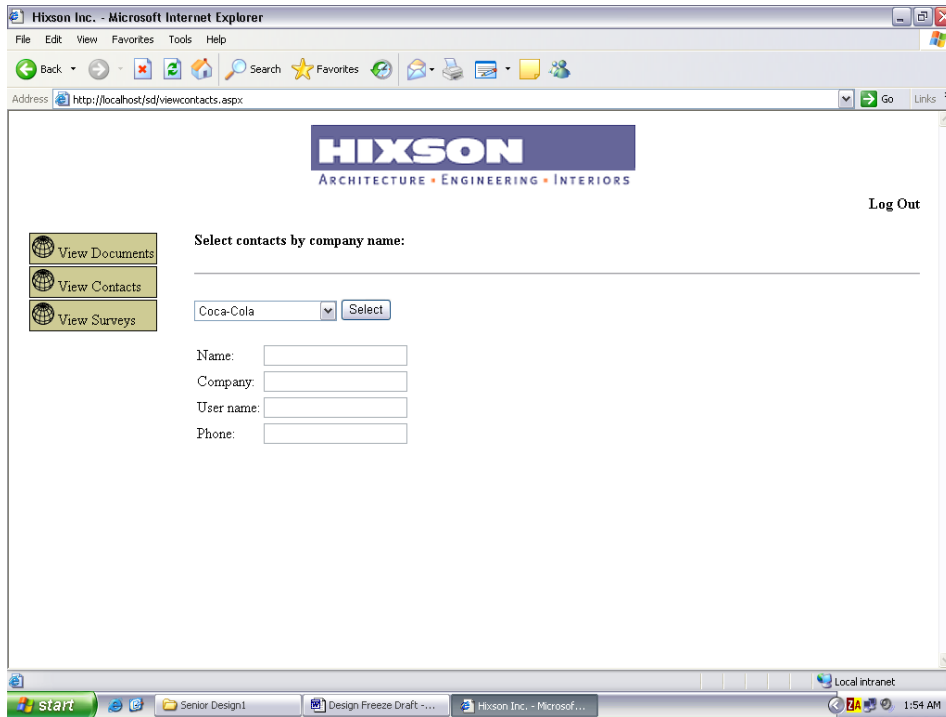


Figure 34 – Viewing Contacts

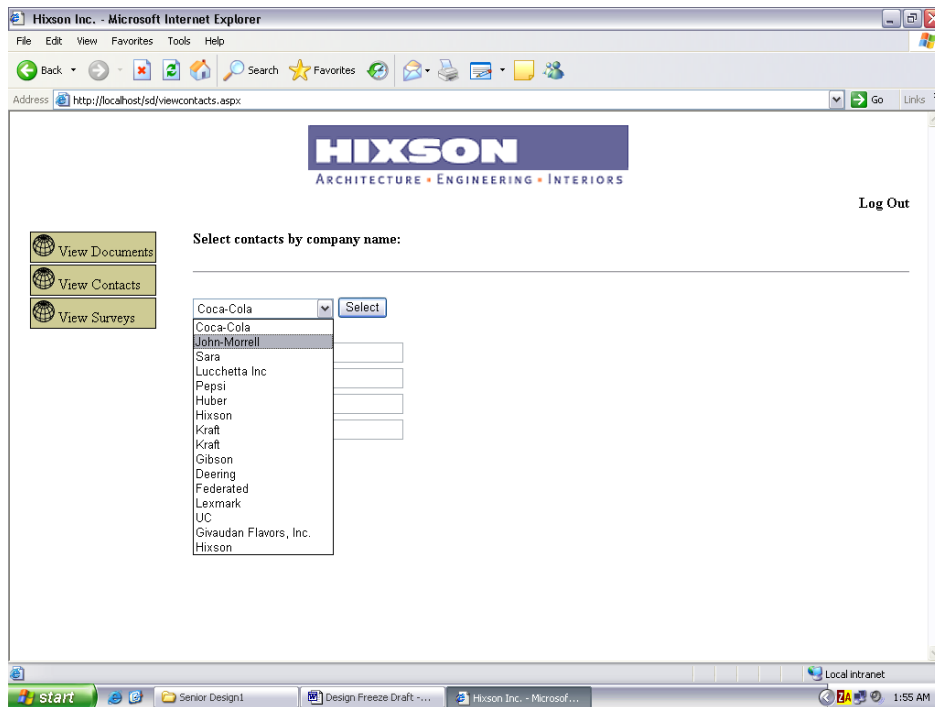


Figure 35 – Selecting the Company

After selecting the company name and pressing the “Select” button, the Name, Company, User Name, and Phone fields are populated with the client’s contact information as shown in Figure 36.

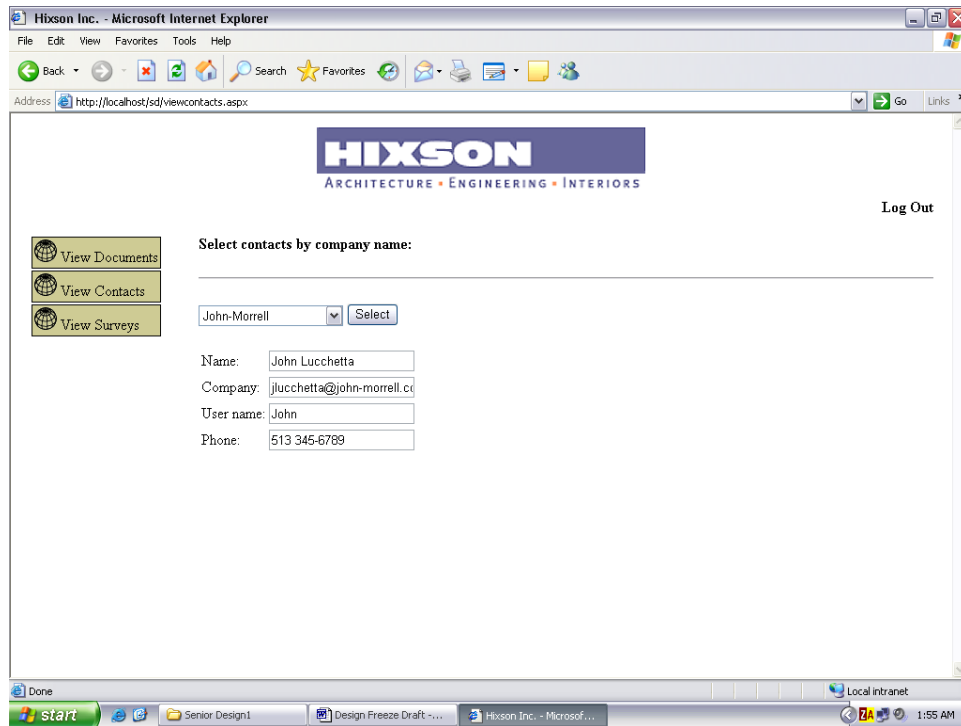


Figure 36 – Client Contact Information

5.3 Department Heads

After login, department heads are redirected to their own specific page that relates to their specific department. The layout is very similar to the page that the Quality Assurance Department is offered to view survey information. One major difference is that the department head section will not offer the user functionality to notify other internal departments through E-mail. The department heads can use the comment section of the application the same way as all other Hixson users. Another major difference is

that the amount of data displayed will be greatly reduced than the full amount that the quality assurance department receives. The information displayed in the department section is specifically related to the department. Figure 37 below shows the “Cost Estimating” department page. The information displayed is most closely related to this department. Information such as projected cost and budget management is very important to both the Hixson and the client.

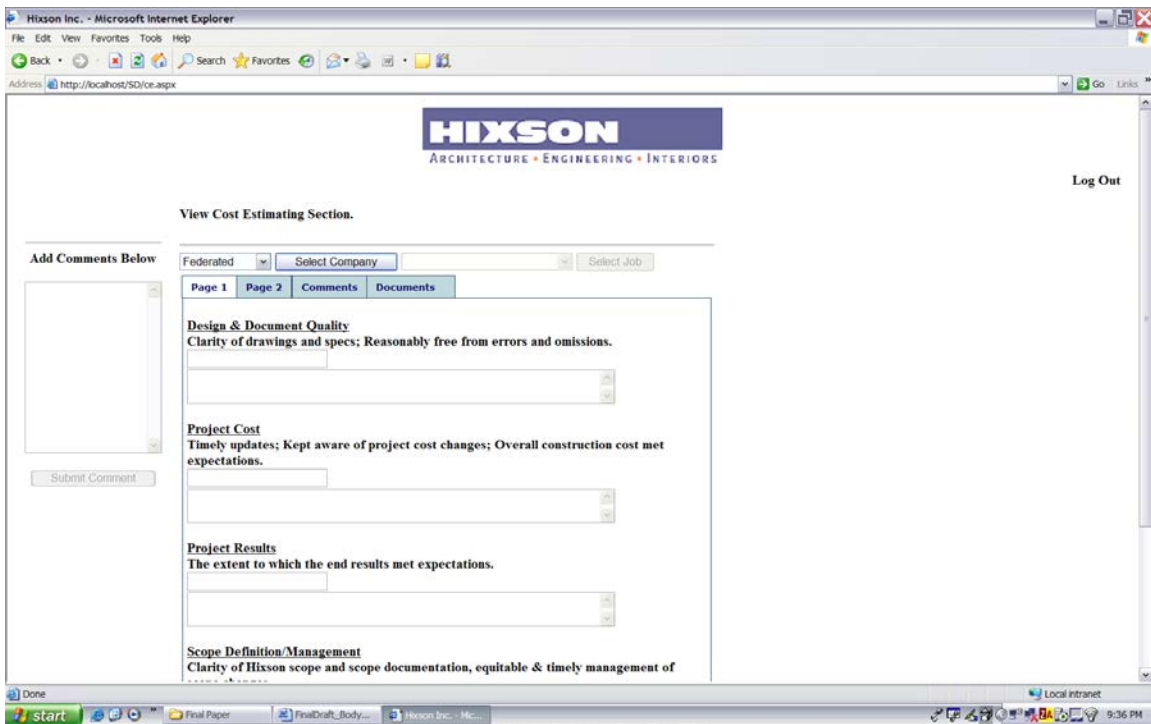


Figure 37 – Department Section

5.4 Administrator

After login, users with Administrator rights will be redirected the “Admin” section. This section is customized just for the Administrator by only having access to maintaining user profiles. As shown in Figure 38, the administrator navigation is displayed and has fewer options than the rest of the user groups. The options for Administrators are “Update Profile” and “Create Profile”. Figure 38 shows the “Create Profile” page empty. The Administrator will have company contact information for a new user and will enter that information as shown in Figure 39 on the next page. The fields are Company, Full Name, Username, Password, E-Mail, and Phone.

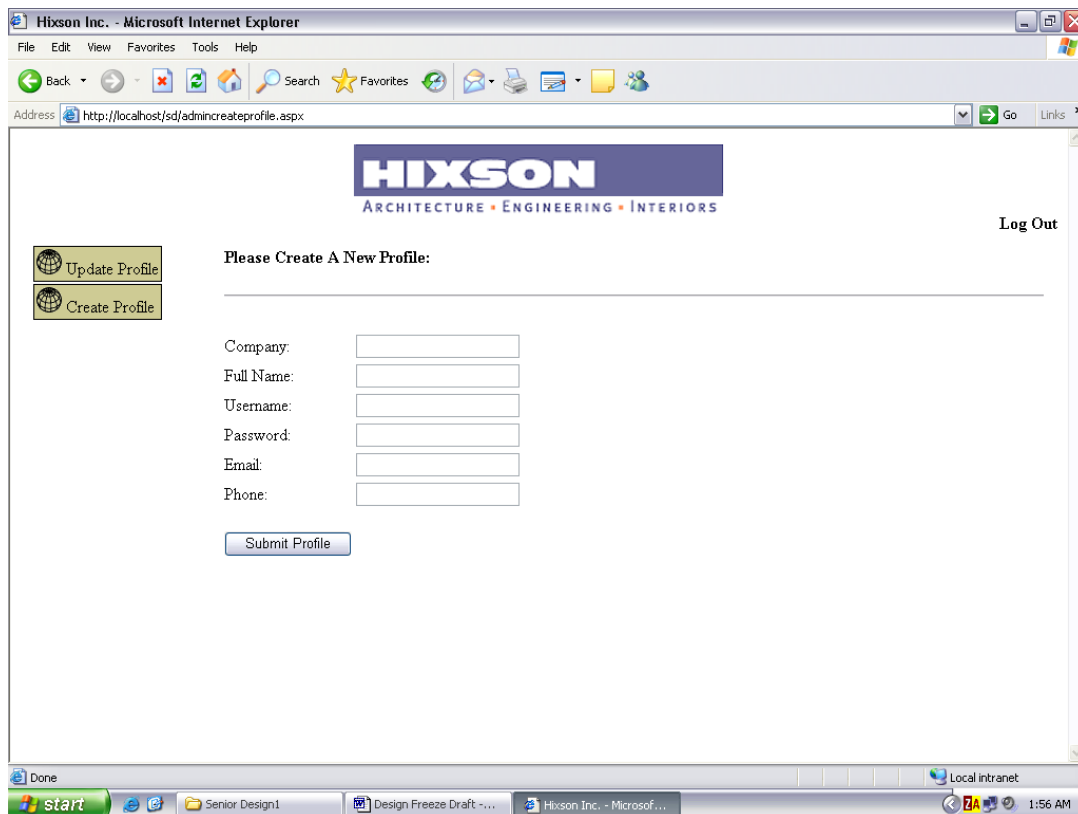


Figure 38 – Create Profile

After the contact information is entered into the fields the Administrator presses the “Submit Profile” button. This will insert the contact information of the client into the database to be stored and used by the client at a later date. A blue confirmation message message tells the Administrator that “the new profile has been successfully entered” into the database as shown on the next page in Figure 40. Also, the client can login to the application immediately after the information is entered into the database.

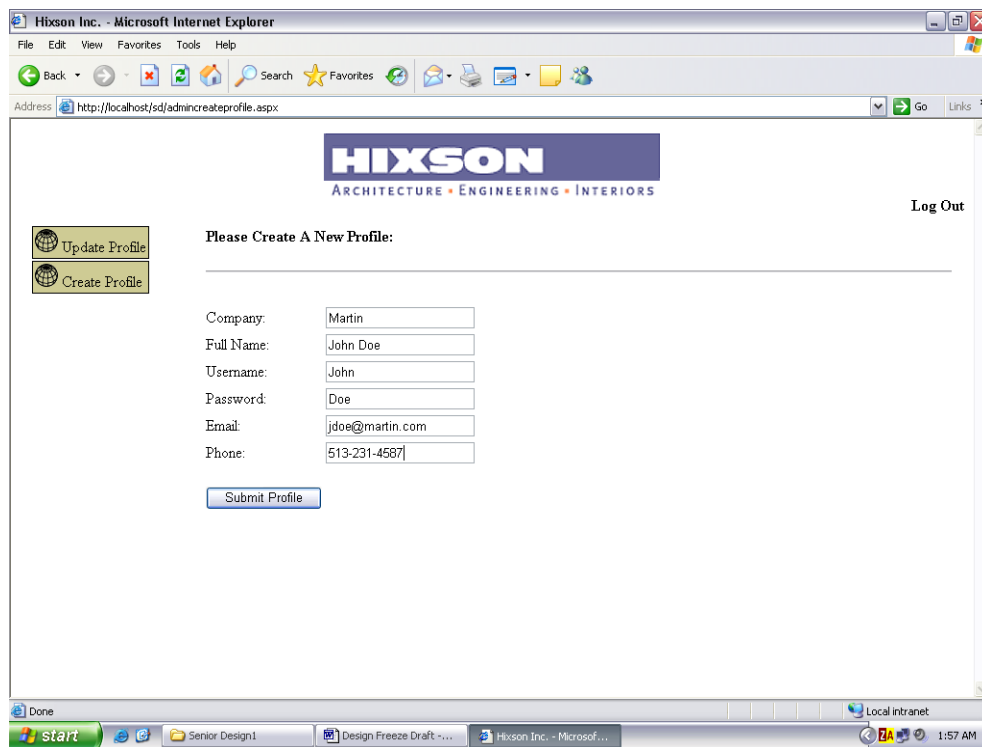


Figure 39 – Display Profile

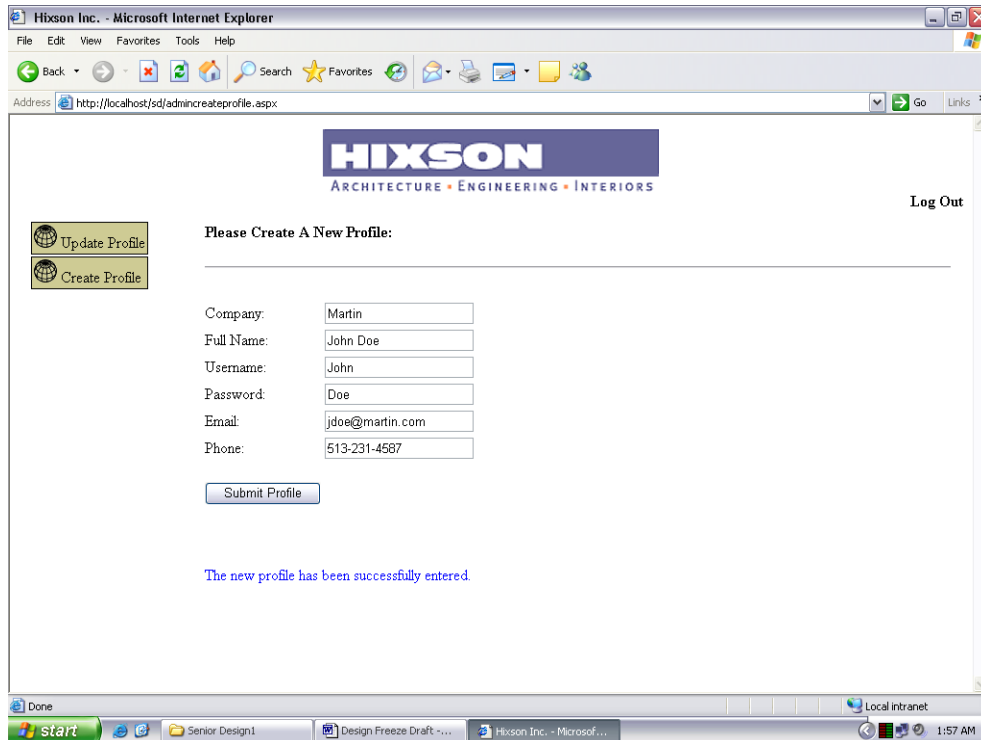


Figure 40 – Submit Profile

The last option the Administrator has is to update company contact information. The “Update Profile” page is shown on the next page in Figure 41. When the page loads a drop-down list box is used to display all of the names of the company contacts and Hixson employees. The Administrator will expand the drop-down box and view all of the names and select the one that needs to be updated. The name “John Doe” is selected and shown on the next page in Figure 42. After selecting the contact name the Administrator will press the “Select” button. The Name, Company, User Name, and Phone text fields will be populated with the users contact information as shown in Figure 43. The Administrator can then make the necessary changes to the contact information and press the “Update Contacts” button which will then update the information in the database.

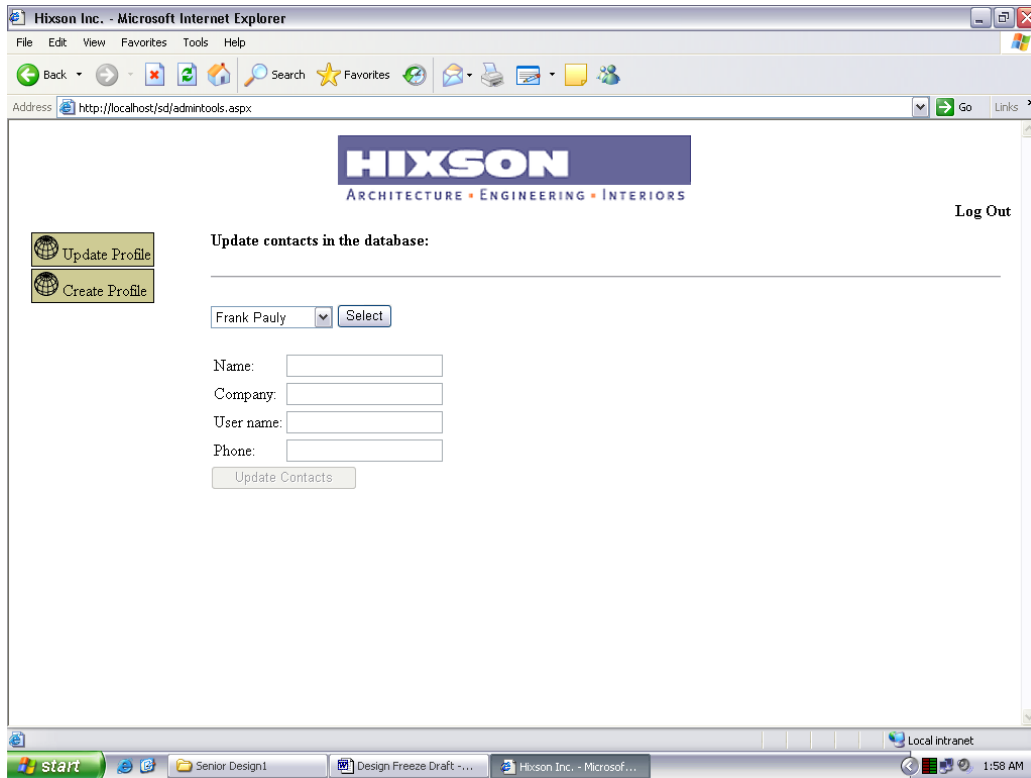


Figure 41 – Update Profile

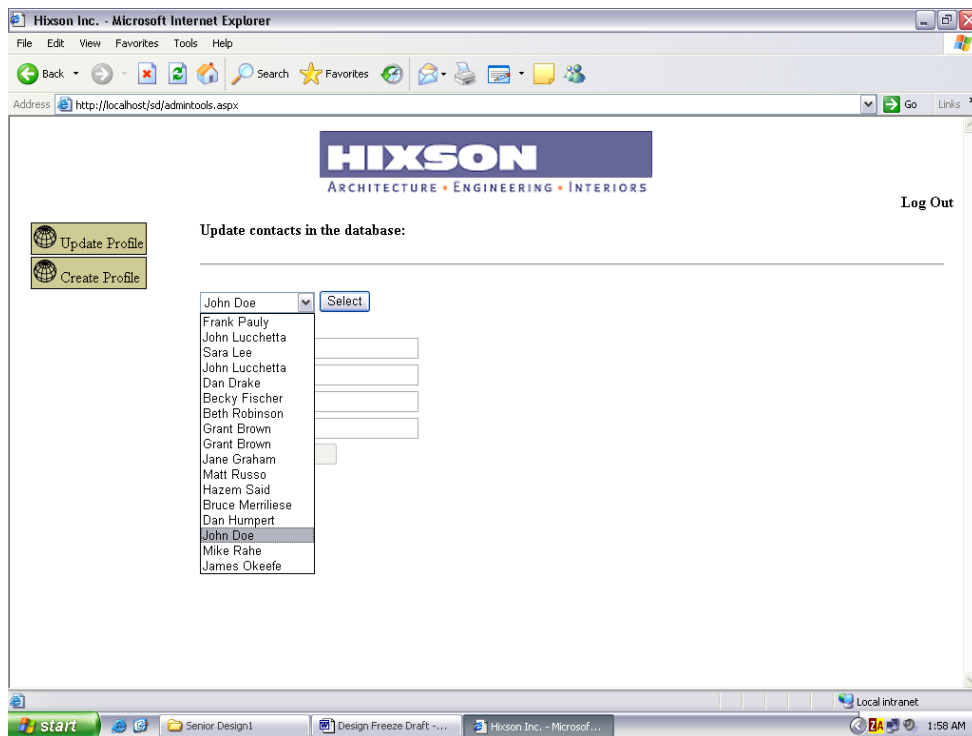


Figure 42 – Select Contact

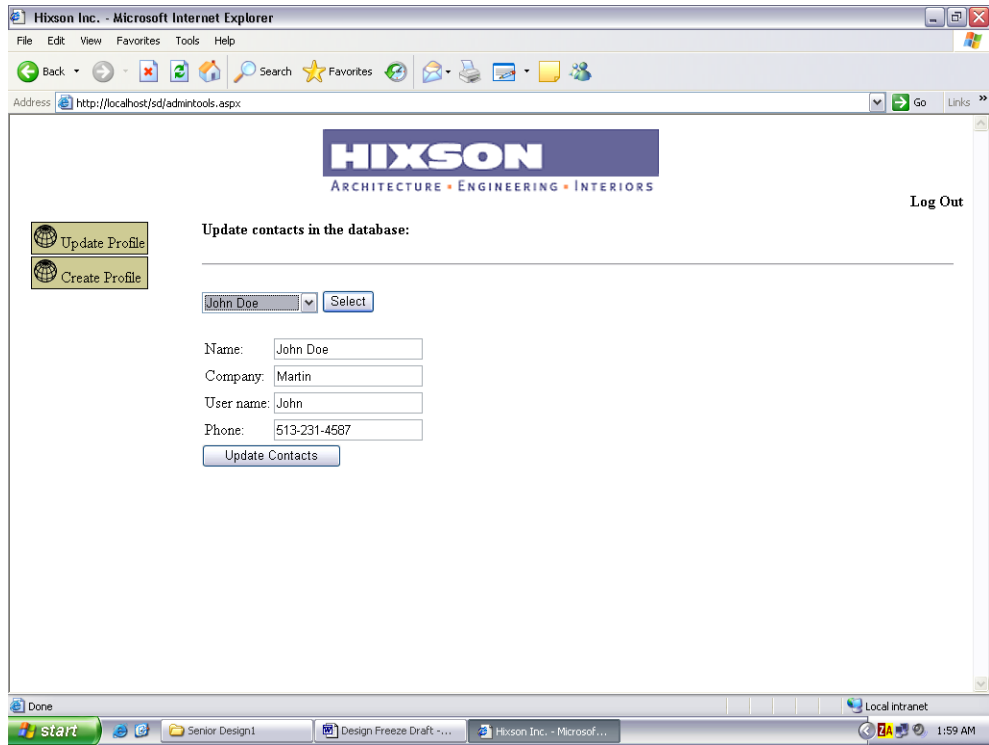


Figure 43 – Display Information

6 Conclusion

In conclusion, this report has covered the many aspects of the Hixson Quality Assurance Application. In Section 1 the description and intended use of the application was stated by offering the reader the problem statement which gave clear evidence that the current system of quality assurance feedback lacks efficiency and is poor.

The problem was accompanied by a strong solution in Section 2 that was explained in detail to help the user understand the benefit of the application being able to read and write information to a database via a high-tech medium with a simple and user friendly interface. The User Profiles were defined into four sections, the Client, the Quality Assurance Department, Hixson Department Heads, and the Administrator.

Section 2 also covered the design protocols such as the application style and layout which remains uniform throughout. The page structure and the color scheme never strays to give the user a simple navigation and with a manageable amount of content on each page. Also covered was the database design, and application logic such as the programming language, how the pages were built, with code examples.

Section 3 stated the expected deliverables for the application. All deliverables have been met and the application is fully functional.

Section 4 displayed an accurate description of the Budget requirements for this application. All costs were included, such as licensing, software, hardware, and all cost is covered by Hixson Inc. This section also gave a quick overview of the hardware/software requirements needed to develop and host this application and the timelines associated to the inception, development, testing, and roll-out phases of the

application. The different types of testing procedures used to test the application were covered in the last part of this section.

Section 5 covered the proof of concept with related screen shots, all named by Figure # - and accompanied by a short description, of all functionality within the application. It was also broken down further into the four sub-sections to illustrate the different functionality that each user profile is offered. This application will help Hixson better understand their clients.

Appendix A: Inside the Functionality

Section 2 lightly touched on the coding of the project. It mainly showed the separation of the C# scripting in the header of the document and the HTML. The following text and code snippets will explain the methodology behind the comments that can be added by the Quality Assurance Department and also other internal departments at Hixson.

The following code snippet is taken from the `viewsurvey.aspx` page. It will not show both the C# scripting and the HTML, it will only show the C# code. This code inserts comments from the page that are specific to the survey by extracting the company title from the `ddlCompany` drop down list. Also, the specific job is extracted from the `ddlJob` drop down list. Tying this extracted data to the comment is essential in keeping comments specific to the survey.

```
void SubmitComments(Object s, EventArgs e) {
    objCmd = new OleDbCommand("INSERT INTO [comments] ([Company], [Job],
[Comment], [DateTime], [Who]) VALUES (@Company, @Job, @Comment,
@DateTime, @Who)", objConn);
    objCmd.Parameters.Add("@Company", ddlCompany.SelectedItem.Text);
    objCmd.Parameters.Add("Job", ddlJob.SelectedItem.Text);
    objCmd.Parameters.Add("@Comment", txtComments.Text);
    objCmd.Parameters.Add("@DateTime", DateTime.Now.ToString("f"));
    objCmd.Parameters.Add("@Who", User.Identity.Name);
    objConn.Open();
    objCmd.ExecuteNonQuery();
    objConn.Close();

    lblCommentsSubmitted.Text = "Your comments have been successfully
entered.";

    BindComments();
    txtComments.Text="";
}
```

Figure 44 – Adding Comments

Another important feature of the insertion of the comment is saving the specific date and time that the comment is submitted by calling `DateTime.Now.ToString("f")`. Obviously, this allows other employees to determine when comments from other departments or their own departments were submitted.

The last major function of the comment submission is saving the username of who submitted the comment. The profiles are setup so that department usernames are shortened versions of the department name itself so a department such as Cost Estimating would simply be "ce". When the comment is submitted "ce" is saved as the username. There could be a problem with this username naming convention if multiple users in each department were using the application but since only the department head will be the only user it will not confuse any other users who submitted the comment from the Cost Estimating department.

Notes

The Hixson Quality Assurance Application will be implemented into the future business plan at Hixson Inc starting in late 2006. This solution will greatly increase the return rate of surveys and also increase the level of communication between Hixson and the client. The amount of client interaction and Hixson employee interaction may stress the storage capacity of the MS Access database. Before the application is implemented the current MS Access database will be converted to a SQL Server 2000 database to utilize the scalability.

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