

NASA Career Information System

User Interface Design

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Team F

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I. Introduction

The general purpose for the redesign of the current NASA site is to make tasks much simpler for the four main types of users of this site. One of the common users is the employee updating the job listings. This user needs to be able to quickly, efficiently, and securely log in, add/modify/delete listings, and sort listings. It is also important to be able to set active dates or dates when the job listing goes live to the web. Another typical user is a student looking for information on courses that may help to get them a position within NASA. The student can browse different plans that may gear them towards a particular position. Students can then take NASA's list of subjects and bring them to a counselor for an adaptation to the program at the student's school. The third typical user is a person in search of a job. This user can search through listings using certain criteria such as location, salary, and degree requirements. It is also possible to sort the results that do meet requirements either in order of deadlines or by any of the previously mentioned criteria. The fourth scenario for a user is to create a profile with in the NASA website. Creating a profile will allow a user to store their resume and other information through NASA. This will allow them to easily upload or email their resume for certain job openings.

This redesign makes the site much more navigable for everyone but especially these four users. The redesign of this site will benefit NASA by making it easier for users to search for jobs and hopefully bring the most qualified and prepared applicants to NASA.

The prototype is available at <http://www.gorbsky.com/nasa>

II. Metaphor and Technology Exploration

1. Metaphor Exploration

NASA Activity	Real World Metaphor	Implications for NASA Site
Using the Job Posting System is like....	Using a file cabinet	Employees may add, remove, and modify files in the cabinet.
Using the User Authentication system is like....	Knowing a secret knock to get in a club	Both visitors and employees may log in upon receiving membership and are then given access to special areas.
Searching for open positions is like....	Shopping	A user may search for words found in one of the fields and may also read through descriptions and find a position suitable to them.
Reading the preparation information is like....	Making a shopping list	The preparation information gives potential employees a chance to see what they need to accomplish in order to gain employment at NASA.

2. Technology Exploration

NASA Activity	NASA CIS	Ideas about information design
Using the Job Posting System is like....	Web Pages Interactive hyperbolic browser	View a list of available job postings A visual representation of the search results showing various aspects of the listing
Using the User Authentication system is like....	Login screen	Enter user ID and password to log in
Searching for open positions is like....	Search box	Enter a search term and results are displayed
Reading the preparation information is like....	Web pages	View one page containing information about requirements for jobs

III. Scenarios

1. Educational Resources

1.1 Original Problem Scenario

Character: Jacqueline Stokes

Stakeholder group: Students

Jacqueline is a high school sophomore who is interested in working for an aerospace firm later in her life. She has a few weeks before she has to pick her junior courses, and doesn't know exactly what courses to take.

One morning in school, she hears over the announcements about a website for NASA that her guidance counselor has participated in, specifically designed for students at her school. She is told that many opportunities in the aerospace field exist, and to visit the website.

During study hall, she logs onto the computer lab and goes to the NASA website. There, she sees an area for high school students, and decides to explore. An interactive page loads where Jacqueline explores different careers at NASA, with video tours of a day at work.

Excited by what she has seen, Jacqueline decides to head to the 'advising' section of the website. When she picks her high school from the list shown, she reads a greeting written by her own guidance counselor, and is shown what junior and senior year courses she should take so that she will be in a good position to get into a college program that NASA recommends. She views the different course tracks and takes a note of the advanced mathematics track that offers two calculus courses.

Later that week, she submits her junior year schedule with courses that were recommended from the NASA website.

1.2 Original Claims

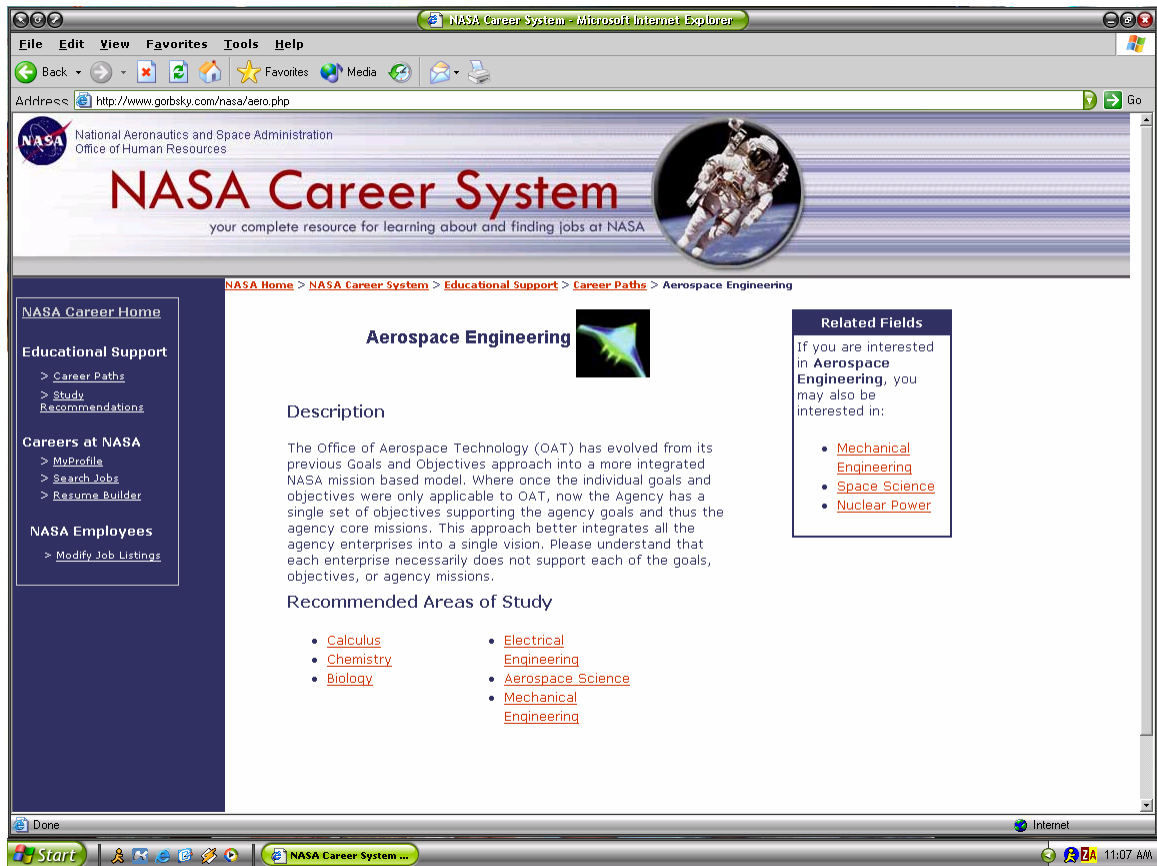
Claim	Positives, Negatives
School official creates a customized version of site for a high school	+) Students have a feeling of connection with website +) Course list is accurate and can be used to schedule -) Requires maintenance from school officials, without which the site is less usable
Video tours of a day in the life of NASA	+) Provides a looking glass into the exciting aspects of NASA +) Entertains prospective students -) Long load times could deter dial-up users
Advising section with course list	+) Students can plan out their high school course load leading to better educated prospects

1.3 Design Scenario

Being a freshman in college, Bob was curious about what types of courses he should be taking in order to prepare him for his job search he will be facing after graduation. He decided to study aerospace engineering. His dream of being an astronaut didn't fade after elementary school. He knew he wanted to in some way explore space and the unknown.



The most obvious place to start in his research of good courses he thought would be NASA. Since he did not know the different courses that were available to him through his university, he decided he would look through the website with his adviser, Professor Smith. Together, they started exploring the NASA sight. Conveniently on the career opening page for NASA, there was a section for educational support. They decided these links were a good start. The career paths link provided them with a selection of various jobs at NASA. They clicked the link that most closely matched Bob's major.



This took them to the next page that contained a list of information and recommended subjects that they would most likely need in applying for a job like this. Each subject was a link to a description of that subject and what it entails. Prof. Smith was able to tell Bob which courses that the university offers best covers the information or closely matches the suggested courses. Bob then wrote down a list of these courses and was now ready to fully prepare himself in college in hopes of working for NASA after graduation.

1.4 Claims

Claim	Positives, Negatives
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Opening page supplied link for educational support	(+) Easy navigation (+) Not a lot of searching needed (-) May add clutter to the NASA page
Job opportunities at NASA	(+) It allows user to focus on jobs (+) Provides a list of jobs at NASA (-) User may want to view all courses for all jobs at one time

2. Potential Employee Searching for Job

2.1 Original Problem Scenario

Character: Sarah

Stakeholder group: Current Workforce Employee

Sarah is a mechanical engineer that just graduated college and is looking for a job. She spends much of her time looking at online repositories of job listings. Her most recent search took her through MonsterTrak.com where the jobs are categorized by field. After finding comparing a few possibilities, she looks over at her TV and sees that NASA is planning on going to the moon again. “NASA!” she thought, remembering her childhood dream of building a space shuttle.

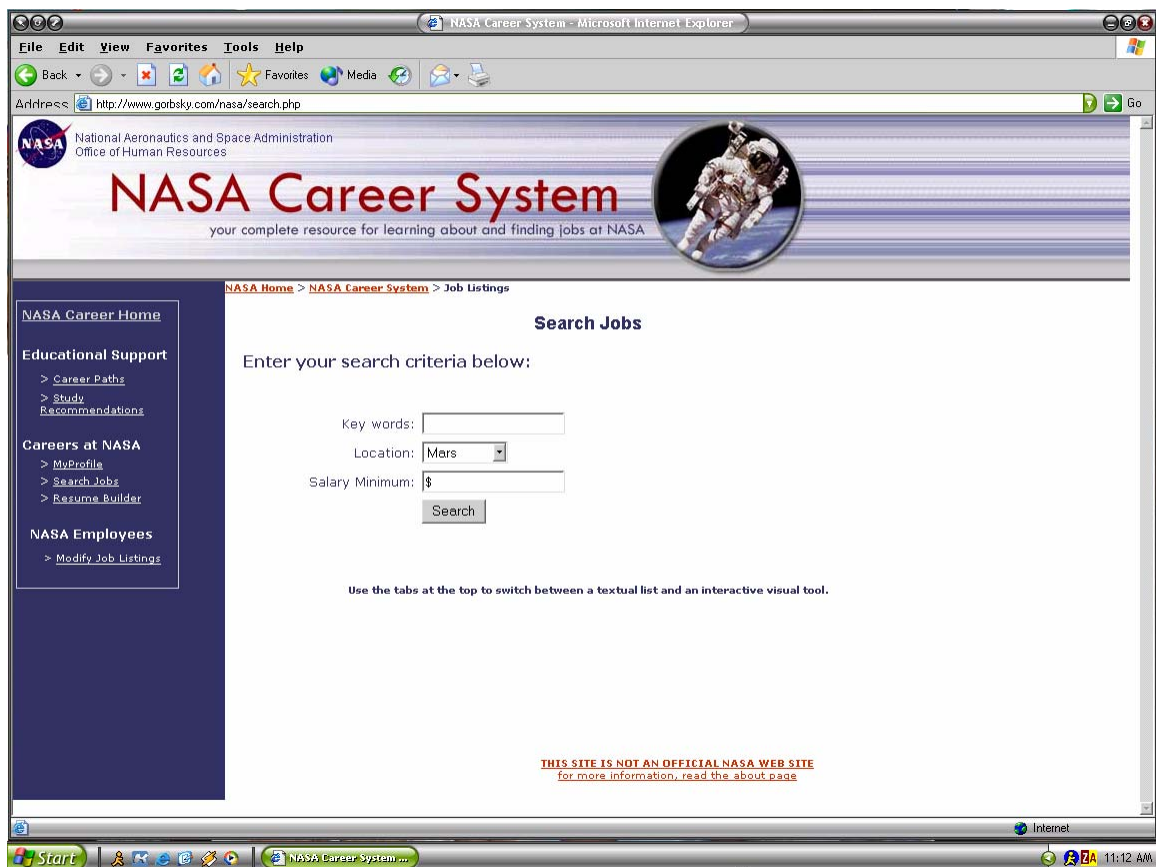
As she heads over to NASA.gov, she looks for their job postings in mechanical engineering. After much searching, she finds a few different areas of the site that offer different jobs. Some have descriptions on the same page as the posting. For others, she must go to the department web site and look for the information herself. After getting frustrated, she decides to turn back to MonsterTrak because it has almost everything she needs in one place.

2.2 Claims

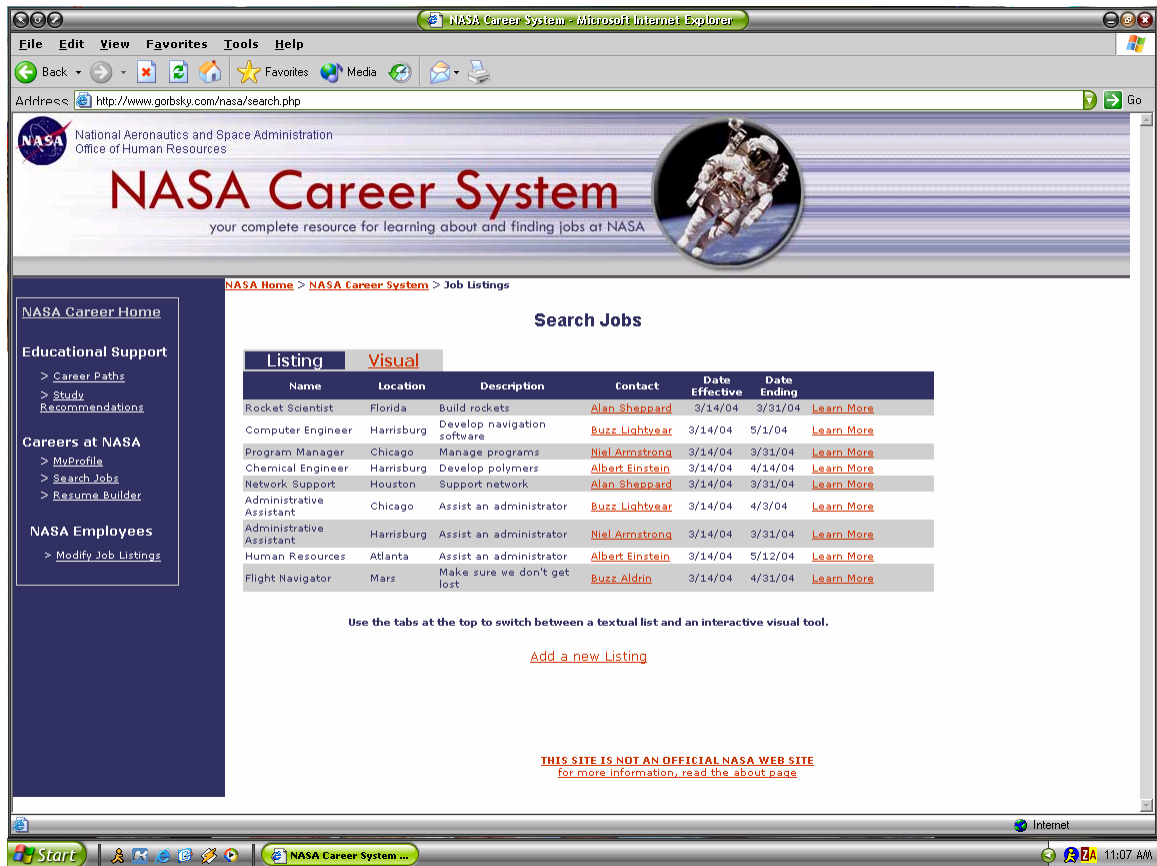
Claim	Positives, Negatives
Collection of job postings in single location	+) allows for one-stop searching -) may not be complete -) may be specialized for a certain area
Categorized job postings	+) faster search ability +) postings are grouped logically +) allows comparison

2.3 Design Scenario

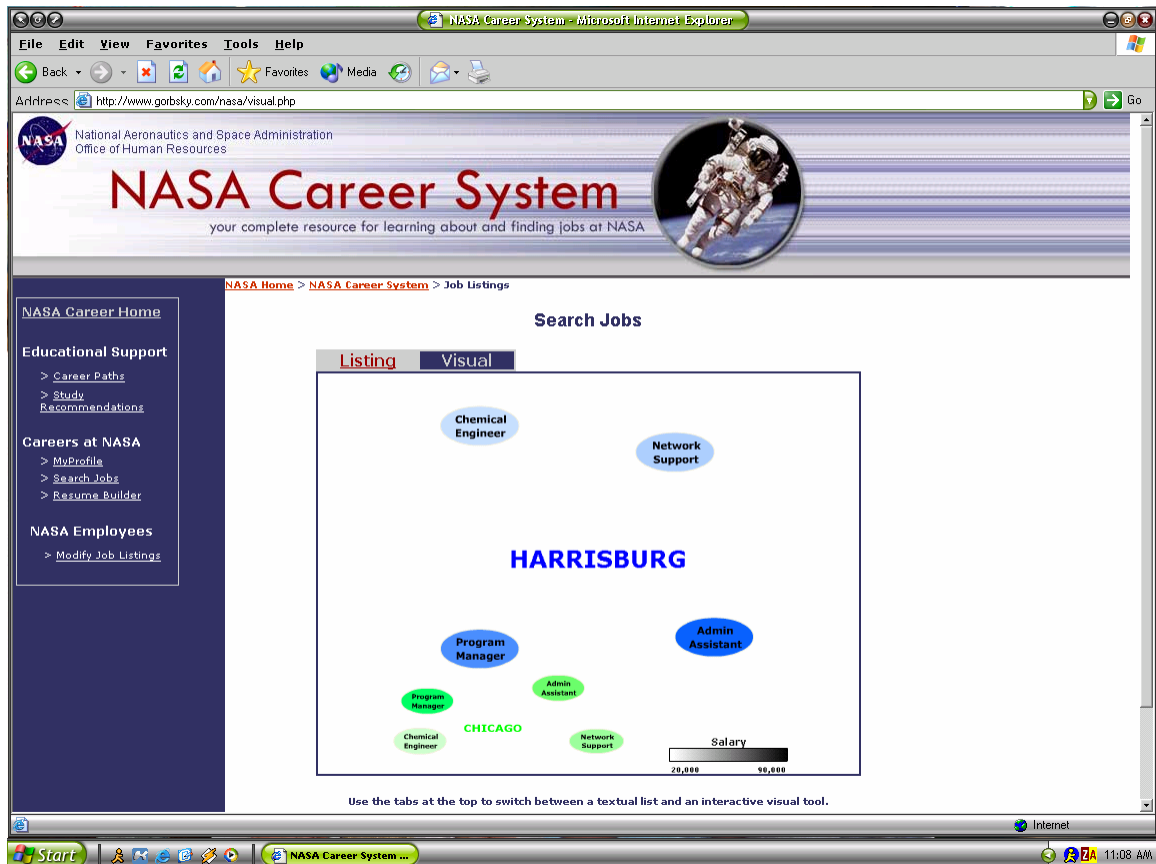
After logging in and navigating to the job posting section of the NASA website, Jack finds an interface that will let him search for a job. Jack has specific needs for a potential job, including salary minimum, location from his current residence, and degrees required. Some of these criteria are immutable (degree requirements), and some can vary (salary, distance). He begins by entering all criteria into the search field, being as specific as possible. When he submits the job search form, a tabbed window is displayed. The first tab is a spreadsheet-type informational layout of jobs that match his search. The second tab is a connected-node browser of jobs that match his criteria and closely related jobs.



The first tab is selected by default, and shows four listings, none that Jack likes. A descriptive text explains that by switching to the second tab he can find similar jobs that might match his requirements.



After selecting the second tab, an interactive node-based job browser is displayed in place of the job listing from before. The four returned jobs are spread around the screen and are the largest, with tens of related jobs connected to each of the original search results. By clicking related jobs, the search criteria is updated, and new node maps are displayed, showing relevance and search classifications by color and line weight.



When Jack selects a job, he is returned to the detailed display tab with that job selected. Finding a job for slightly less money than he had first requested, Jack submits his resume and a cover letter and is emailed a confirmation of his job application.

2.4 Claims

Claim	Pros	Cons
Node-based job browser	<ul style="list-style-type: none"> +) Allows for more jobs to be discovered +) Faster navigation of large job sets +) Quick visual overview of available jobs based on colors and line weights 	<ul style="list-style-type: none"> -) Requires an applet or macromedia flash (incompatibilities) -) Will be slow on older computers -) Not accessible to the blind
Tab between two display styles	<ul style="list-style-type: none"> +) Allows quick flipping between related data sets +) Hides content to 	<ul style="list-style-type: none"> -) May hide second tab content from unadventurous viewers

allow for greater
screen usage

3. Potential Employee Applying for Jobs

3.1 Original Problem Scenario

Character: Bob

Stakeholder group: Current Workforce Employee

Bob is married and a father of two. He graduated college with excellent grades. After college, he was instantly hired full time by a very respectable company. For him alone, the benefits were perfect as was the income. Eventually he got married to Mary. His income was still acceptable because Mary worked as well. Two incomes were working out wonderfully. Before they knew it, they were having twins. That meant that Mary needed to quit her job. She needed to take care of the twins. Bob understood completely and agreed that she should stay home with them. Bob's only worry was money. He would not be able to comfortably support his family. He needed to find a new, better paying job preferably with excellent family health benefits. He decided that he would only apply to a new job if it appealed to him in every way.

Bob decided to do a search online. There were a couple of companies that were the result of his search. The one job that instantly caught his eye was NASA. At some point, every guys dream is to be an astronaut. He wanted to be practical though and think of his family's needs. He figured he'd look over NASA's website in search of information. He also decided that he would submit an application as well. Bob had a hard time finding information on job openings and job descriptions. After searching the website for possible positions to apply for, he submitted a general application and hoped for the best.

3.2 Claims

Claim	Positives, Negatives
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Application	<p>+) Allows for submission of information to company</p> <p>-) takes time to complete</p> <p>-) feedback is not fast</p>
Search	<p>+) Allows users to find specific content</p> <p>-) requires additional resources</p> <p>-) not always accurate</p>

3.3 Design Scenario

Jane is a recent college graduate looking to work for NASA. When she reaches the NASA career system, she searches for jobs that interest her. When she realizes that there are a few different options for her, she decides to create a profile where she can maintain her personal information, resumes, and job interests. The profile, she learns, will allow her to store interests, allowing her to be notified of new job openings of interest to Jane as they are entered. She also learns that she can maintain multiple resumes to help target a specific job.



Once Jane has created the profile, she logs into the system by entering her userid and password and clicking the submit button. She is then taken to her profile page. From here, she sees the jobs she has applied for, new jobs that may be of interest to her, her personal information, and her resumes. Jane decides to update her resume, so she clicks the ‘Add new resume’ link. Here, she can upload a resume or create a new one from scratch. She also assigns a name to the resume to help her identify it in the future.

After saving her new resume, she returns to her profile page. Here, she checks the button that allows her to be notified of new job postings. Jane is now set to apply for different jobs at NASA and has an edge over other applicants who do not utilize the profile.

3.4. Claims

Claim	Positives, Negatives
maintain multiple resumes	+) Allows applicants to choose from available resumes when applying for a job +) allows applicants to tailor a resume for a specific job while maintaining a generic resume -) Could be confusing to have more than one resume choice -) user needs to remember which resume is which
assigns a name to the resume	+) Allows users to give their resume a descriptive name to help them identify it from available resumes in the future -) users could forget what the name means

<p>checks the button that allows her to be notified of new job postings</p>	<ul style="list-style-type: none">+) Allows users to turn off the notifications if they no longer want to receive any new job postings+) helps applicants find jobs relevant to them as the jobs are posted -) could provide unnecessary email notifications-) checkbox may not be the best way to represent the on/off modes
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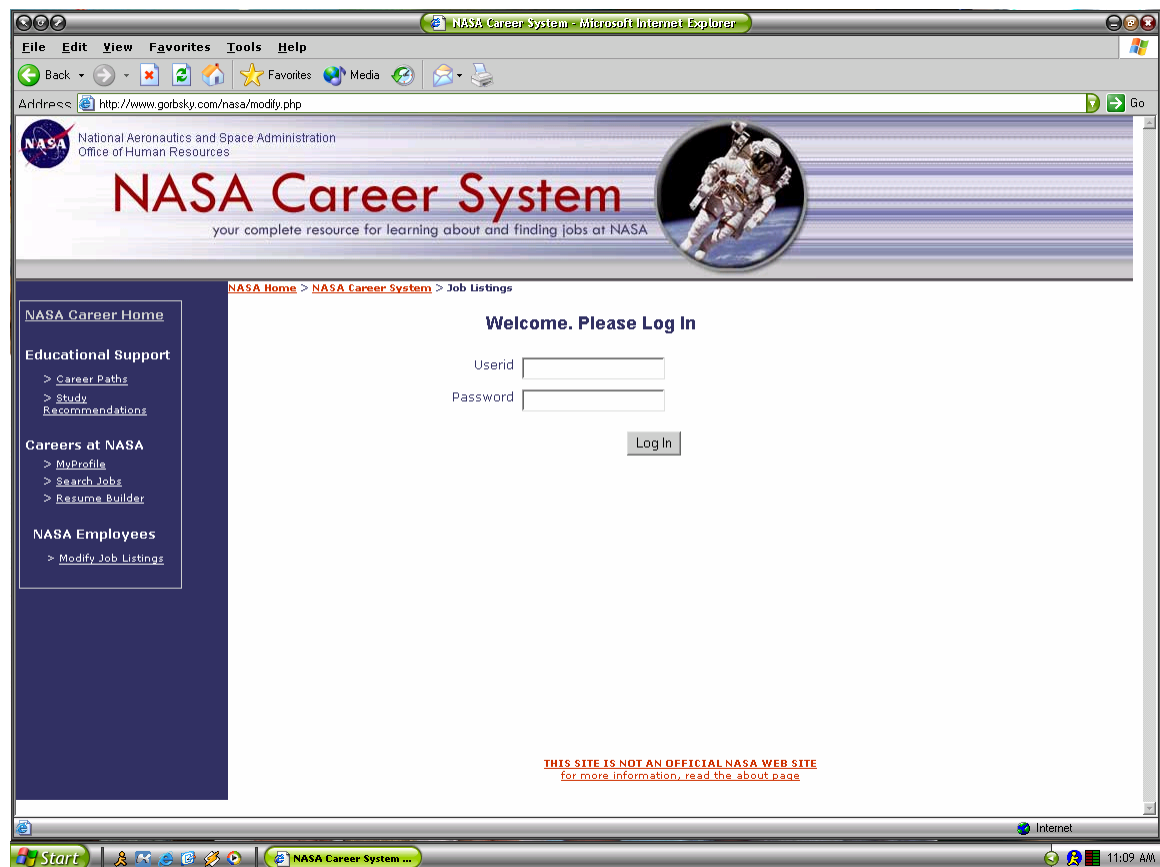
4. NASA Employees Maintain Job Postings

4.1 Original Problem Scenario

Character: Robert

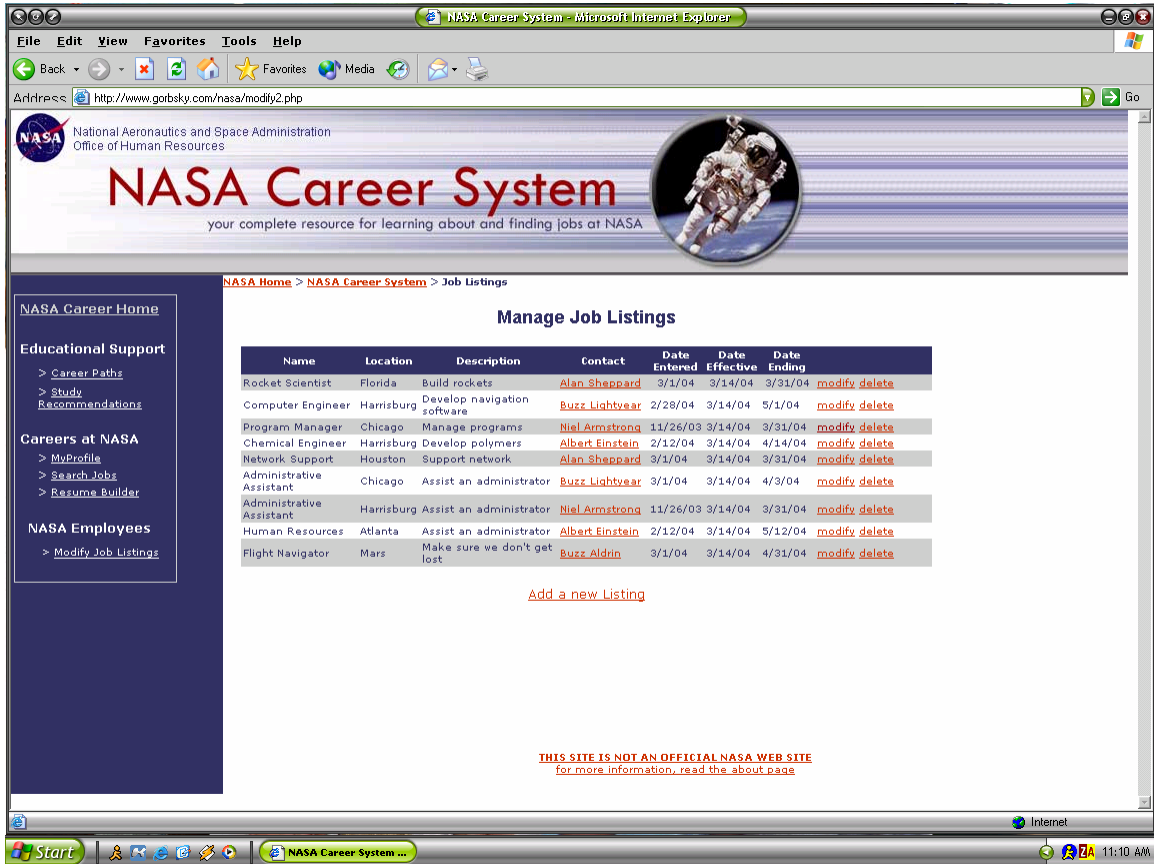
Stakeholder group: NASA Employee

Robert, a hiring manager at NASA believes his department is understaffed, underpaid, and overworked. He is beginning his work day and is very worried about analyzing and preparing all of the job listings that need to be posted to the NASA career site.



He logs onto his new system and is able to type up the new openings given to him by all of the separate five departments. In the hopes of getting home in time to see his son's baseball game he gets to work and begins to examine the new list of openings. He worries at first when he sees that the emails have come in completely out of order. They are not arranged by department or by need basis. Robert then remembers that the new system allows him to input all of the jobs in any given order and then, using

the fields as a reference, sorts them to fit his needs. He posts the new openings, sorts them, and even has the time to send out a weekly email to the departments alerting them to the next due date for new position notifications.



As the day is drawing to an end Robert realizes how the new technology implemented in the NASA career service system alleviates the need for more staff and allows him to keep his budget for expanding his service capabilities.

4.2 Claims

Claim	Positives, Negatives
Online Posting	+) Easier to Use +) More manageable +) Easier to track -) More likelihood of error

Sorting	+) Quicker analysis +) Quicker addition and removal of positions and applicants +) More likelihood of error +) More manageable -) Less Personal -) More likelihood of error
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4.3 Design Scenario

Bob, a NASA employee in charge of updating and maintaining job listings, is looking to update the NASA site. He decides that this site should definitely be database driven which will hopefully end some headaches for him. Bob believes this because he will then be able to sort all positions and using different fields will be able to filter outdated job postings. He wants to have a system that is web-driven and would like to use buttons placed underneath each position to indicate an addition / deletion / modification. The modification and addition options would bring him to a form containing seven fields. Those fields are: Name, Description, Contact Person, Location, Date Entered, Date Effective, and Date Ending. The Date Active field allows Bob to work ahead and enter job postings into the database prior to the date they may be viewed on the website. For security, the site will be guarded by a password authentication system that few other employees will be able to access. Bob would really enjoy having the ability not only to filter outdated positions but also choose for example by department in a particular table as a way to narrow the large positioning pool.

4.4 Claims

Claim	Positives, Negatives
Using a Database to enable sorting	+) Quick sorting of jobs +) Ease of creating reports -) Requires Database maintenance

Password Authentication	<ul style="list-style-type: none">+) Secures the site+) Allows different access levels -) Takes time-) Takes database space
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IV. Demonstration Scripts

1. Student

- 1.) User enters NASA career home page.
- 2.) User then clicks on Career Paths which is located on the left side of the page under the title Educational Support.
- 3.) User is able to view all jobs areas at NASA.
- 4.) User then selects Aerospace Engineering.
- 5.) User is able to view the description of that type of job followed by a recommendation of areas of study.
- 6.) User then clicks on Calculus to find out what Calculus is..
- 7.) User then can view description of that course and what it entails.
- 8.) User can then click the Return to Aerospace Engineering link.

2. Job Seeker

- 1.) User enters NASA career home page.
- 2.) User then clicks on Search Jobs which is located on the left side of the page under the title Careers at NASA
- 3.) User enters search terms, including location and salary minimum
- 4.) User then clicks search
- 5.) User is able to view the jobs that match the query
- 6.) User then clicks on the Visual tab
- 7.) User then can view graphical representation of available jobs
- 8.) User can then click the Chicago label and focus the jobs from the Chicago area (**Note – in prototype, right click the visual display and choose PLAY from the dropdown menu if movie does not play when clicked**).

3. Applicant

1. Click 'My Profile' Link under Careers at NASA heading in the main navigation bar.
2. Your profile page loads with your recent applications and their status, your available resumes, and recent job postings.
3. Click 'Add New Resume' link to upload a new resume
4. Upload screen appears
5. Enter 'Chemistry' in the NAME field
6. Click 'Upload' button to submit the new resume
7. Profile page loads again with new resume in the list

4. NASA Personnel

- 1.) User enters NASA career home page.
- 2.) User then clicks on Modify Job Listings link on the left hand side under NASA employees.
- 3.) User logs in using user ID and password (any name and password will work in the prototype).
- 4.) User is able to view all job listings.
- 5.) User chooses to modify the PROGRAM MANAGER in CHICAGO listing by clicking the modify button to the right of the entry.
- 6.) A form is brought up.
- 7.) The date effective field is changed to 4/31/04.
- 8.) The user clicks save.
- 9.) The user is brought back to the page viewing all job listings with the newly modified listing.

V. References

Images used in the prototype are from the following sources:

Cracow University of Technology. Online, available 3/14/04.

<http://www.pk.edu.pl/rozrywka/galeria/misc.html>

NASA Jobs. National Aeronautics and Space Administration. Online, available 3/16/04.

<http://nasajobs.nasa.gov>

The National Aeronautics and Space Administration. Online, available 3/13/04.

<http://www.nasa.gov>