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Gusty.Bike Usability Study

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CPSC 430: Software Development

Contents

1. Overview of System Functionality

The system that this usability study will focus on is a website created for the client, Gusty Cooper, who is a Computer Science professor at the University of Mary Washington. The website serves a dual purpose. First, it provides Gusty with a personal blog in which he can post about his love for bikes, programming, and other stories he wants to share. This will include an ability for him to post, edit, and remove blog posts, in addition to managing a tagging system and multiple blog pages to sort his content. He will be able to use a picture slider to add images to the front page and embed images in any of his posts. This blog will be publicly accessible to any user and will be implemented using Wordpress on Amazon Web Services. The second feature involves the client hosting a programming contest using the Mooshak 2 software, for him to post programming challenges for his students. He will give out login accounts to students, who will be the only ones allowed to see the contest site and submit solutions. These students will be able to login, and view the available problems, submit their solutions, and receive feedback from the system to see if their solution was correct.

There are three types of users for the system: the site administrator, who is the client Gusty Cooper, any viewer of the site, and students with login accounts. The administrator is assumed to have significant and advanced technical background as a computer science professor and will be able to maintain and update the site upon its completion. The viewer is any anonymous user who will be able to view the public blog and search for posts there. They are assumed to have no to minimal technical background, and could have little experience viewing blogs. A student is a user that is given a login account to Mooshak 2 for uploading solutions to programming contest problems. These are computer science students in professor Cooper's class, so they are

assumed to have at least minimal technical experience, and at most advanced technical experience.

When typically using the site, the administrator will login to the administrative Wordpress portal to view the GUI and interact with posting, editing or deleting blog posts, and publish these to the site. Then, he might follow a link to the Mooshak portion of the site, where he will be able to upload programming problems and their test cases. Alternately, an anonymous viewer might visit the site and view the client's posts about bikes and programming. They can navigate the sites pages and tags, and they can use the search bar to search for specific keywords. If this viewer is a student with an account, they can click a link on the site to enter the Mooshak portion, login to the site with their credentials given to them by professor Cooper, and be able to view the programming contest problems. Then, they will be able to submit solutions to these problems and the system will determine a Boolean answer, if they are correct or if they are not.

2. Imaginary Users

Carrie is a student in Professor Cooper's CPSC 220 class. She has some basic experience with coding in Python from her introductory class, and she is competent with basic technical interfaces and concepts beyond the average users. She is not yet ready to install her own software and she is still learning to adapt to new technical challenges, and she does not know how to perform command line operations. It will be important to her that the programming contest is easily usable and dependable, since she is depending on it for her grade in professor Cooper's class. She might be able to navigate a more complex GUI as compared to someone who isn't a computer science student, but she doesn't want to spend lots of time understanding how to use the programming contest portion of the site; she'd rather spend her time figuring out the problems she must solve and submit. It is important to her that the site gives her quick and accurate feedback on her solutions, too, so she can solve them correctly.

Jimmy is an avid biking fan, who is a friend of Gusty and a fan of his stories about bikes. He doesn't know anything about programming, and his technical experience is highly limited. In fact, he doesn't like to use the internet often, as he would prefer to read something in print instead. It is important to him that the site is very simple and easy to use, and he would like to be able to know how to navigate the blog just by looking at it. He only wants to look at the blog posts about bikes, so he'd like to easily click on an obvious 'bike' category or use a search bar that is easy to find and operate. It isn't as important to him that the blog is attractive as long as he can see Gusty's stories and pictures of his bikes.

Arthur is an advanced computer science student in professor Cooper's high-level computer science class. He has advanced technical knowledge and he want to be hired as a web developer in the near future. Whenever he visits websites, he always imagines what it would be like to develop them, and how he might make them better. When he visits Gusty's blog, he wants it to be visually appealing though not too complex, as a perfect balance. Even more

important to him is the programming contest portion of the site. As a programmer, he's more interested in the technical aspect of the site and how the problem submission works, and he would likely be able to figure out how to submit problems for grading easier than a beginning student. It's most important to him that he can submit his programming problems for grading, however, he would also like the design of the contest site to be attractive and interesting.

3. User Model

A. Focus Group Paragraph Overview

The following paragraph was shown individually to each member of the focus group, giving an overview of the website's functionality:

> Professor Gusty Cooper in the Computer Science department would like a website, Gusty.Bike, to be created so that he may host his personal blog and a programming contest for his students. First, with his blog, Gusty will be able to create blog posts about programming, bikes, and stories, to share them with the world. Anyone visiting the site can view these blog posts, which will be sorted with a tagging system, and multiple blog pages for different topics. They may also look for specific posts by sorting through these tags and pages or using a search functionality. Second, with the programming contest feature, Gusty will be able to post programming challenge problems to this website for his students. He will give his students login accounts, and only these students will be able to view this programming contest and submit their answers to the contest, receiving feedback on whether or not their solution was correct.

B. Focus Group Feedback

For this study, I interviewed four different people, all of whom were not computer science students, with varying degrees of technical competence. I asked each of them to describe in detail their answer to the following:

> "One functionality of the website is that anyone will be able to **search** for posts on the blog. For example, you are visiting Gusty's blog and you want to find posts about 'bikes'. **Describe how you think this feature would work**."

I asked additional follow up questions depending on their answers, specifically asking what was important to them about this searching feature on the blog. My notes from these participants can be seen below.

Participant 1

- There would be a search bar (in the tools) – type keyword there
- Would show posts with keywords in tags & post both
- Functionality is important – don't want it to be hard to use the website
- Search bar should be in top right/top left

Participant 2

- Want a search bar at the top of the page
- Search box is clear and easy to find on the first page
- Type in bikes to search box
- Different articles about bikes appear – subdivided into stories about bikes/types of bikes
- What's important? – it's clear and easy
- Don't know what hashtags mean, search bar only picks up article text

Participant 3

- Search bar is at the top of the screen – use it to search
- Search hashtags & bikes
- What's important? – it searches for the right posts

Participant 4

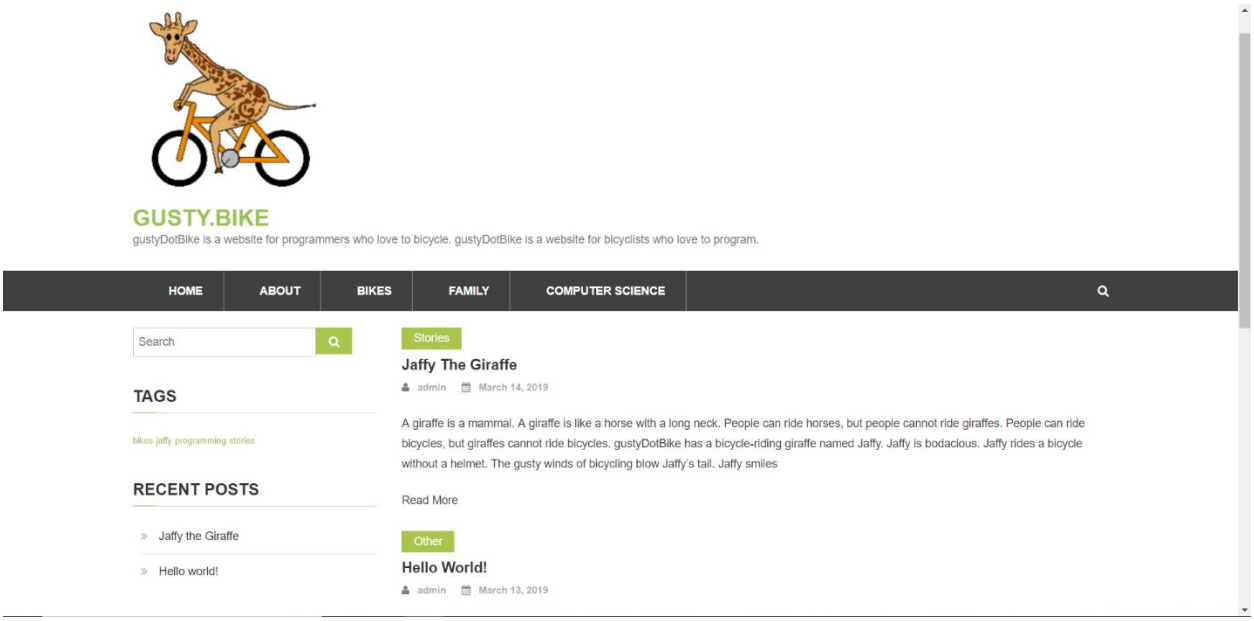
- You are looking for the keyword bikes
- Across the top of the website it will say bikes, stories, whatever other categories. You will click the 'bikes' and get bikes

C. User Model Paragraph

The overall design of the blog should be simple and easy to use above all else, valuing functionality and ease of us over an attractive or complex design. There should be a search box at the top of the screen that is easily visible to the user. In order to use the search bar, the user should type in their keyword and will be able to see posts related to the topic that they have searched for. The keyword typed in should be able to be recognized both in the blog post text and the tagging system, in case the user understands one or the other. There should also be blog categories listed on the screen that the user can click on in order to view posts about the particular categories, like a 'bikes' category for example.

4. Prototype Image

The following image was shown to the focus group as a prototype of the user model. It was created using Wordpress and was designed to showcase the blog and searching feature. I designed this image to be simple and hoped that it would be easy to for the participants to imagine using it.



5. Focus Group Feedback

A. Feedback Comments

The same four participants were used in providing feedback on the prototype of the website. They were shown the image and then were asked the following questions:

- **Imagine that you are visiting this blog, and you want to view posts about 'bikes' on Gusty's blog.**
- Describe in detail how you would 'use' the site to do this.
- Do you like the design of this site?
- Do you imagine it is easy to use?
- Is anything about the design confusing?

Below are the notes I took when interviewing the four participants.

Participant 1

- I would click on bikes at the top
- You might as well click on the bikes category rather then use the search bar
- It looks easy to use with the search ar and the categories, not overwhelming in design
- It's not confusing, it's functional
- It's simple, simple is better

Participant 2

- Put 'bikes' in the left search bar to get bike posts

- It has a cute design
- You think it's about giraffes from looking at it
- I don't know what the site is about just from looking at it, it looks like a site for children
- It is easy to use – I know how to use it from looking at it

Participant 3

- Use left search bar to type bikes then enter
- See bike posts
- Like the design
- Yes, it's easy to use
- Not confusing, but could use more pictures to make it interesting
- Bike posts should have bike pictures too

Participant 4

- Click on 'bikes' at the top to get posts about bikes
- You could also use the search bar – but I wouldn't
- I like the design
- It's clear what you should do – the direction is clear
- The giraffe is whimsical and nice
- Nothing is confusing

B. Feedback Reflection

When I was creating the user design, I sought to figure out how many people would use the search bar to search for 'bikes' versus how many people would click on the 'bike' category that is displayed on the top of the screen. In the study, this was split 50-50 as two of the people wanted to use the search bar and two wanted to just click on the 'bike' category at the top of the screen. Interestingly, participant 4 even predicted the categories at the top of the screen would exist before I showed the prototype image to him, so that portion lined up with his intuition exactly. This divide between using the search bar and the categories appears to be a personal preference depending on the familiarity of the users with various other similar websites they may have visited, so it will be important to keep including both options, as was expected by the user model.

It appears that when using the search bar feature, most people knew to just type the keyword there to receive relevant posts. It was interesting, however, that few people mentioned tags, unless I asked them if they wanted the search bar to also search through the blog tags. Additionally, no one wanted to click on 'bikes' in the tag list on the left of the page. Tags are far less popular of a feature then I had thought when creating the model.

As for the design of the model, many people found it simple and easy to use, which was the intent of its design and aligns well with the user model. At least half of the participants

preferred it being easy to use versus being physically attractive, and many did like the simple design. Some did find the design too simple though, and would prefer there to be more pictures on the site relevant to biking, to aide them in understanding its purpose. Particularly, participant 2 focused more on the website's appearance rather than functionality as she wanted the user to be able to tell what the site was about just by looking at it.

6. Changes

Based on this feedback, I would like to make some changes to my design. First, since none of the users recognized the 'tags' section of the page in the right to realize they might click on the 'bikes' tag there, I would make the font of those tags slightly larger. This would give the users another option and help them understand what the tags are used for more easily. However, I won't make these so large that they distract the users from the search bar or header categories, which seem to be preferred by them.

Additionally, I would like to modify the overall appearance of the site. When I created the prototype, I focused on simplicity. I would still like simplicity to be the most important feature, since it was praised most by the participants. However, I would like to strike a balance between simplicity and adding some more visual complexity to make the site more interesting. I would like to add more pictures about bikes to the page to give the user an idea of what the blog will be about when they first visit it. In addition to informing the user of the blog's content, adding more images will make the site more attractive and users will be more willing to search and explore the blog.