Katy Roose

Evaluation Assignment #2: Heuristic Evaluation

Team 4: Calm B4 The Storm
App: Wet/Dry Mapping

Current App Design

The current app design is an online website (offline will be implemented later) intended on being accessed on mobile devices. The current design has three major parts. All three parts are made up of both forms and buttons. Part 1 of the application includes forms which the user inputs team, river segment, river direction, and the GPS Unit Number information. Once this information has been inputted and is stored on the server/site, the user moves to the main surveying view (part 2). Part 2 contains the most important data of the application: Waypoint information, water state (starts + stops), any notes to be made, and the opportunity to edit and review the data. Part 3 is mostly used for the staff who are quality checking the data; in this view, users have the opportunity to review and edit the data, as well as send the data.

UI Domain

General System:

Web-based UI

- As the system will be used on a mobile device, and will need cellular service at some point (in order to initially access the page and send the data), it is considered a web-based user interface.

System Design:

Graphical User Interface

- The system incorporates graphical icons and symbols instead of being purely test based. For example, the "edit" button looks like a pencil, and the "delete" button may look like a red "X" or a garbage can.

Form Based User Interface

- The major data collection method of this app is via forms. Most (if not all of the forms involve the user having to type in the responses into text boxes.

Heuristic Evaluation (Application)

Utilizing Jakob Nielson's 1995 10 Usability Heuristics for User Interface Design

Visibility of system status: the user interface shows important and pertinent information and provides timely feedback

Match between system and the real world: the system should "speak the users' language" and use concepts that are familiar; information should appear in a natural and intuitive order

User control and freedom: users should be in control and have the freedom to navigate the environment; when they make mistakes, they will need help navigating back or undoing their actions

Consistency and standards: users should not be confused if certain words or actions mean/do the same thing

Error prevention: eliminate error-prone conditions or actions that may result in inadvertent actuation; present users with a confirmation before they commit to an important action

Recognition rather than recall: reduce the user's memory load at all costs, so they do not have to remember everything; provide reminders or additional information to prevent forgetting

Flexibility and efficiency of use: provide options that can allow expert users to "accelerate" and minimize unnecessary actions, however, maintain the opportunity for novice users to navigate efficiently

Aesthetic and minimalist design: pages should not have irrelevant information, and design should be simplistic and any aesthetics should support the user's functionality in some way

Help users recognize, diagnose, and recover from errors: errors should be: clear to the user and articulate the problem; solutions should be provided

Help and documentation: the users may need to refer to some help documentation or need a refresher on the task process; any information like this should be accessible

Heuristic Evaluation (Data Analysis View)

Utilizing Jill Gerhardt-Powals Cognitive Engineering Principles

*Note that not all of the principals are being referenced here

Automate unwanted workload: eliminate the need to rearrange, recode, estimate, compare, or calculate any data through unnecessary actions; ensure the data is easy to analyze and that the user does not have to completely restructure the data in order to interpret it.

Reduce uncertainty: display the data from the application in a way that is apparent and comprehensible and does not introduce confusion.

Usability Problems

Error Prevention:
Issue: Data input may be invalid, and is not able to be checked (potentially until the quality control stage). If multiple data points are incorrect or invalid, this makes for an inefficient correction process.

Example: Ian is a new user and incorrectly inputs the GPS coordinates as: 412*2'12.2"N 2*102'6.5"E and the form does not correct him (as the text box for coordinates is just one box with no symbols separating the units). He also makes a mistake on inputting accuracy as: 0.64 instead of 64. Ian does not know how exactly to input the data from then on, and makes inconsistent mistakes.

Solution: Implement data "validity" checks. Articulate how the data should be formatted in the text box.

Recognition rather than recall + Help and documentation + Reduce uncertainty:
Issue: People may not recall what they are supposed to put in the different text boxes or what the criteria for data input are.

Example: Shelia has medium experience with the process, but was in and out of the bathroom during the procedure instruction and only received bits and pieces of the protocol. She tries to remember the procedures from memory, but gets the criteria for when to start and stop wet/dry spots mixed up. She does not remember the difference between ponded and flowing (brief memory lapse).

Solution: Provide help pop ups for different terms or text boxes in case people forget what they are supposed to do or what the criteria is. I'm not sure how difficult this would be to implement or if it would work online, but a "?" icon would be next to the boxes and data options and users would press it to see a pop up with a short description. Another potential solution is using small icons to remind people what the different text boxes represent (i.e. ponded vs flowing).

Other Suggestions based on the Heuristic Evaluation:
- Use drop downs for data with categories/lists (i.e. River segment, team members) → Error prevention + Aesthetic and Minimalist design

- Due to the comment character restrictions, adding a drop down for some "common" notations or issues may be more intuitive → Automate unwanted workload + Flexibility and efficiency of use
- In case of data loss, a warning sign for the user (i.e. low phone battery, or temperature gets too high) that they might need to screenshot their current data or make a note of when data was lost.