Evaluator:

Pipe Portal Prototype Evaluation

July 10th, 2025

Overview

Hello! Thank you for participating in the evaluation of the pipe inspection project's portal redesign. This handout details **the procedure/evaluation heuristics in the user study, a list of known issues in the prototype, and a section for performing the evaluation**. The results of this study will help assess the user experience of the redesign, specifically what's working well and what needs to be improved before the design is implemented into code.

This portal is targeted towards potential **business professionals (asset owners, civil engineers, inspectors, etc.) using the pipe inspection project's robot/sensor and data**. It allows them to visualize the inspection data **post-deployment in an office**, which includes 1) geolocated data about the pipes the robot/sensor was deployed in, 2) info about the robot/sensor itself, and 3) detailed multi-modal inspection data collected in the deployment jobs. Users can also annotate the synced multi-sensor data by adding observations at selected timestamps. The annotated data can be used for inspection report generation for pipe asset quality assurance/control.

Procedure

This type of user evaluation is a type of heuristic evaluation. You will be given a list of 7 heuristics/guidelines that the prototype's design should follow. **For each heuristic, you will be asked to rate (1 to 5) how good you think the design follows the heuristic (1 = this is a big problem, 5 = this looks good)**, describe what specifically about the design breaks it, and provide recommendations on how the design can follow the heuristic better. **This will first be done independently**. During this time, feel free to explore the design while taking notes to complete the table at the end of this handout. **We ask for complete honesty, we want all your criticisms. After that, all participants will gather to discuss and consolidate their findings.**

The 7 heuristics are as follows:

1. **Consistency**: Similar features across the design should look/behave similarly. There should be standardized interaction behaviors for similar elements (e.g. buttons, dropdown menus, etc.), similar design elements should be similarly styled (e.g. all headers being bold and similarly sized on a page), and there should be a consistent layout and typography across the page (e.g. similarly sized margins and padding, similar font styles, etc.)
2. **Aesthetics & Perceptual Load**: The design is pleasing to the eye, and not overly cluttered or overwhelming.
3. **Clarity**: Each component should communicate its function clearly and immediately, and information should be presented clearly with strong readability. Users should not need to recall/remember anything as they use the design.
4. **Visual hierarchy**: Components are structured/grouped/emphasized in a way that's obvious, and it's easy to understand their purpose, functionality, and importance. More commonly used buttons, for example, are larger and easier to find than less-used ones.
5. **Responsiveness/Feedback**: The design provides information about what is going on as fast as possible, communicating the system's response to the user's interaction.
6. **Language Use**: Language in the design communicates what they mean clearly and is appropriate to the target customers.
7. **Ease of Navigation**: Navigating the design feels intuitive. It's easy to understand and follow the flow of the pages and how to reach a page with the user's desired functionality from their current page.

Tips:

These 3 buttons on the left menu bar stand for
Site/Pipe page, **Robot** page, and **Job** page, respectively. We'll add a tooltip later

If you're not sure what tasks to perform in the portal prototype, **here's a brief list of things you can try**:

1. Add a manhole on the map
2. Select a pipe
3. Open the tab for the pipe segment with ID pipeID1
4. Open the tab for the pipe segment with ID pipeID2
5. View the summary of the robot with ID PipeBlaser1
6. View all jobs associated with robot with ID PipeBlaser1
7. Add an observation to the job with ID Job 3
8. Edit the location of the job with ID Job 3
9. Select all observations associated with Job 3
10. View all observations associated with Job 3
11. Edit an observation in the gallery tab

Known Issues

The prototype's purpose is to visualize the portal's design and how it will be navigated, not necessarily to have the final product's full functionality/refined appearance. Thus, some functionality is not fully implemented, but they will be when implemented into code. Provided is a list of most/all known issues. If you encounter one that's not listed here, feel free to let me know, or make note of it in the provided notes section at the end of this handout. **Here's the list of known issues:**

- Input boxes can't be typed in
- Search bars can't be typed in
- Selecting an option in a dropdown input doesn't change it
- Sections with a scroll bar can't be scrolled
- Not all buttons have full functionality (Download report/Search/Apply/Check/X/Clear/Cancel/Map Zoom In/Map Zoom Out/etc.)
- Can't add observations
- Can't add manholes in the map
- Can't filter search results - unless you click the See Associated Jobs Button
- Can't sort search results
- Can't upload images
- No actual video/synced data playing functionality
- Work orders not expandable/collapsible except for Work Order 6
- Can only open Job 3 page

- Can only go to the timestamp for the first annotation in job 3
- Only the Dent observation in the Data tab has full functionality
- The 3D tab design is still work-in-progress

Heuristic Evaluation (Please refer to Page 2 for the definition of each heuristic.)

Heuristic	Rating	Issues	Recommendations
Consistency			
Aesthetics & Perceptual Load			

Clarity			
Visual hierarchy			
Responsiveness /Feedback			

Language Use			
Ease of Navigation			

Additional Notes: