Usability Report: Software Engineering

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1 Revision History

Date	Version	Notes
10/03/2025	1.0	
03/04/2025	2.0	

Contents

2 Preliminary Survey

As a first look into the usability of OrbitWatch, we have conducted a preliminary survey of potential users. The objective of this test is to determine areas for improvement between the Rev0 version of the website and Rev1.

2.1 Materials

The following survey was presented to five usability testers.

McMaster 4G06 OrbitWatch - Usability Survey

Please visit the OrbitWatch website found at https://orbitwatch.xyz/ and complete the following tasks. It is recommended that a computer is used for the best experience.

- Login to the application with the credentials email:"2", password:"2" under the Labeller login
- Select the "Usability Project"
- Draw labels on the 6 photos from that project, utilizing all tools, tooltips, and help

Then fill out the following survey

* Indicates required question

Rate the readability of all the text across the site *

	1	2	3	4	5	
Unreadable	○	○	○	○	○	Very clear

Rate how clear the visual feedback of buttons and interactive elements was *

	1	2	3	4	5	
No visual feedback	○	○	○	○	○	Very clear feedback when interacting with elements

Rate how consistent the visual design is across the application (colours, font sizes, components) *

	1	2	3	4	5	
Very inconsistent	○	○	○	○	○	Very consistent

Rate how intuitive it was to navigate through the website *

	1	2	3	4	5	
Could not find anything	○	○	○	○	○	Easily found everything

Did you notice the contextual help pop ups and tool tips providing contextual help * as you completed your task?

○ Yes

○ No

If yes, How helpful did you find the contextual help popups?

	1	2	3	4	5	
Not helpful	○	○	○	○	○	Very helpful

Rate how easy it was to access the platform through your web browser

1	2	3	4	5
○	○	○	○	○

Did you utilize the help tool to get a better understanding of the labeling tool? *

○ Yes

○ No

If yes, rate how useful it was in helping you accomplish your task

	1	2	3	4	5	
Not useful	○	○	○	○	○	Very useful

Rate your experience with the labeling tasks provided *

	1	2	3	4	5	
Complex to understand	○	○	○	○	○	Very simple to complete

Were there any parts of the app that were unclear or confusing?

Your answer

What are some improvements you would suggest?

Your answer

Any other overall thoughts?

Your answer

Each of the testers is aged 20-26, university educated, and familiar with technology. We understand this to be a limitation of our experiment, as ideally we would have access to testers from a wider range of ages, backgrounds, and expertise. However, we believe the result from this survey remain valuable to identify areas for improvement for our website's usability.

2.2 Results

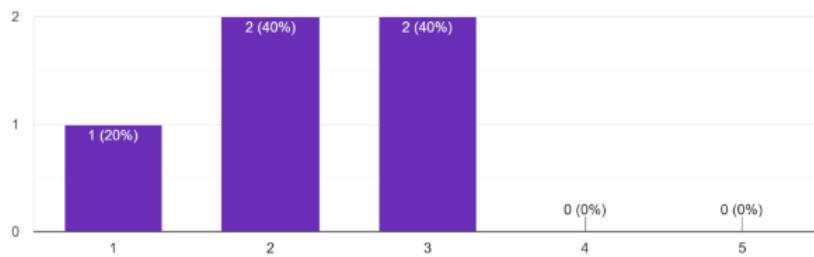After conducting the survey, we have received the following results.
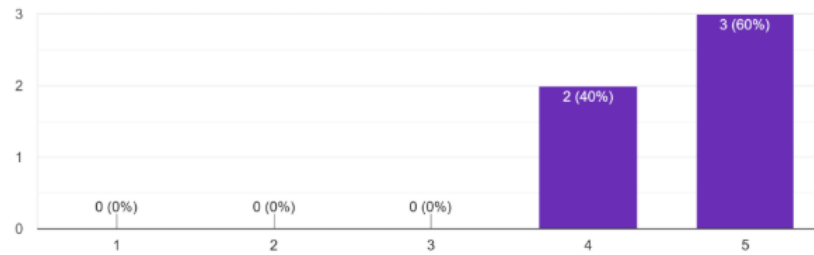
Rate the readability of all the text across the site
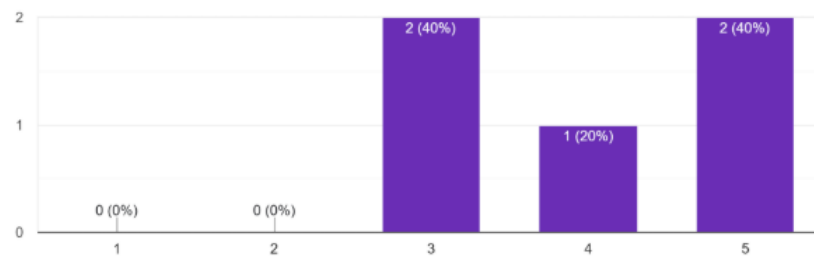5 responses

Rate how clear the visual feedback of buttons and interactive elements was
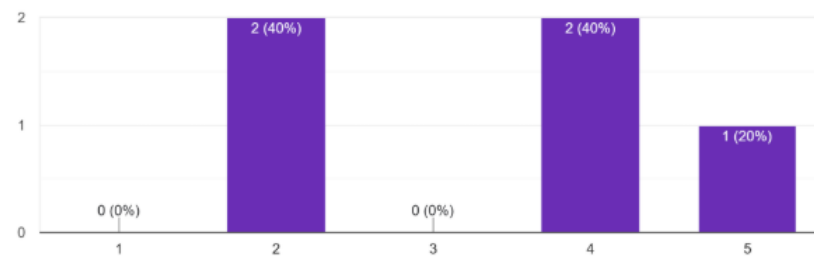5 responses

Rate how consistent the visual design is across the application (colours, font sizes, components)
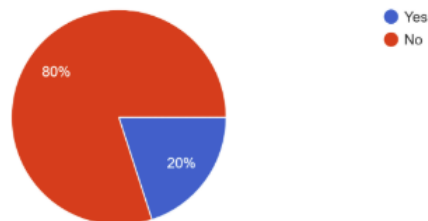5 responses

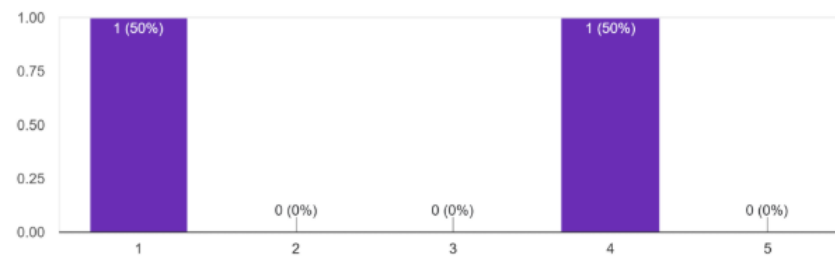**Rate how intuitive it was to navigate through the website**
5 responses

Did you notice the contextual help pop ups and tool tips providing contextual help as you completed your task?
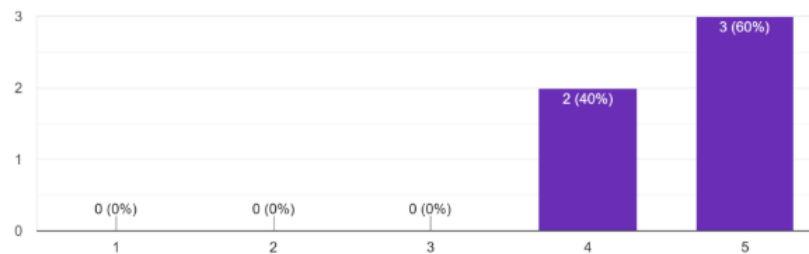
5 responses

- Yes
- No

80%

20%

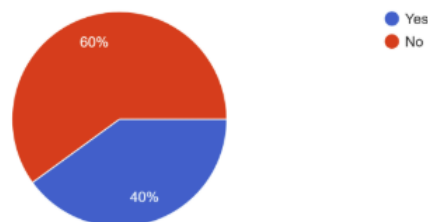If yes, How helpful did you find the contextual help popups?

2 responses

	1 (50%)	0 (0%)	0 (0%)	1 (50%)	0 (0%)
1.00					
0.75					
0.50					
0.25					
0.00	1	2	3	4	5

Rate how easy it was to access the platform through your web browser

5 responses

	0 (0%)	0 (0%)	0 (0%)	2 (40%)	3 (60%)
3					
2					
1					
0	1	2	3	4	5

Did you utilize the help tool to get a better understanding of the labeling tool?

5 responses

- Yes
- No

60%

40%

If yes, rate how useful it was in helping you accomplish your task

2 responses

Rate your experience with the labeling tasks provided

5 responses

We also obtained qualitative feedback, which will be discussed in the analysis section.

2.3 Analysis

From these results, some obvious trends emerge. First, readability and design are the current strong points. Most people agree that the text is readable, and the design is consistent. This is critical for improving the discoverability of the site. Unfortunately, there are quite a few more areas for improvement. Several of the respondents reported that it was challenging to know what to do. They were unaware of the purpose of the website and of the features available to them. One user commented 'The overall concept of the application was slightly confusing, the help button did aid in learning what to do. I thought I was only allowed to label once, before realizing I have to select the same label button multiple times.' It is very important that we ensure new users are able to complete tasks easily. Otherwise, we may lose users to frustration. One user suggested including a '3-second gif' of someone labeling a similar image before a user labels for the first time. This would likely be enough to eliminate a lot of confusion from the users. Another area for improvement is related to feedback when labelling. Several users were

unsure when a label was submitted, or what buttons like 'skip' or 'next' do. This will again lead to frustration and confusion, alienating users.

2.4 Next Steps

We will implement the feedback collected in this first survey to improve the site for Rev1. After changes have been implemented, we will redistribute the survey to the same testers. We are hoping to see an improvement in the rating collected between the first and second survey.

3 Follow-up Survey

After making improvements to the user interface, we were interested to see if the changes satisfactorily addressed the concerns from the original design. We are very proud to report that there was a significant improvement in our usability metrics. This section will describe the materials, results, and analysis of the follow-up survey.

3.1 Materials

A copy of the original survey was resent to the same usability testers. This was done to understand the relative improvement over original scores, instead of introducing potential variability in 'user-rating baselines'. By using the same people, we can more accurately conclude if the UI improved, instead of if the new set of participants rates things more highly on average.

3.2 Results

In the follow-up survey, we obtained the following results:
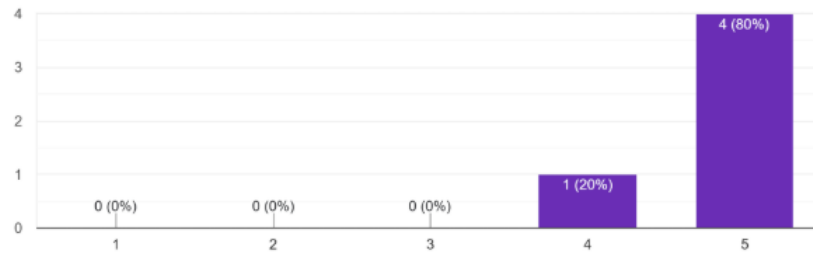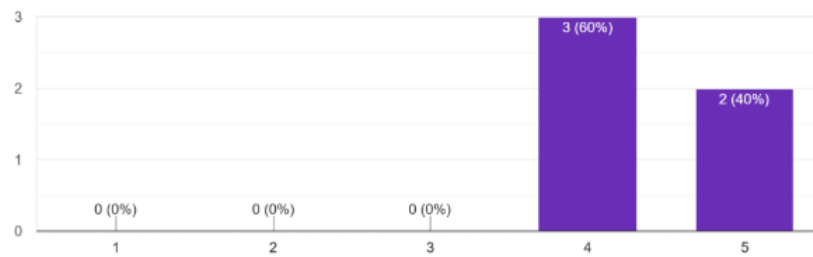
Rate the readability of all the text across the site
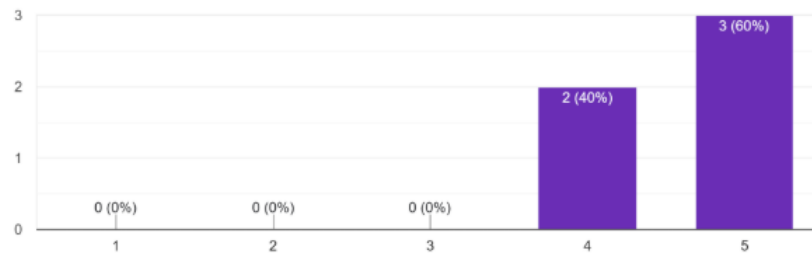5 responses

Rate how clear the visual feedback of buttons and interactive elements was
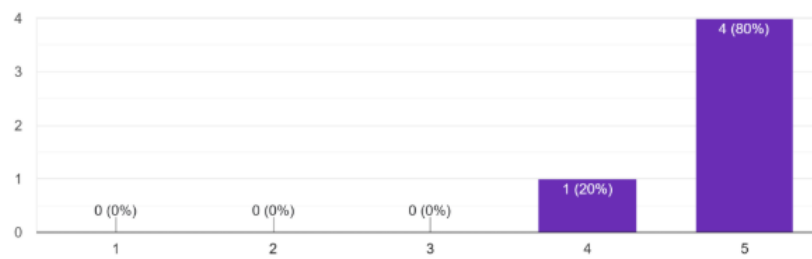5 responses

Rate how consistent the visual design is across the application (colours, font sizes, components)
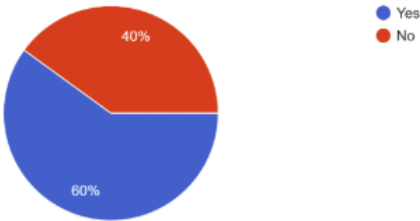
5 responses

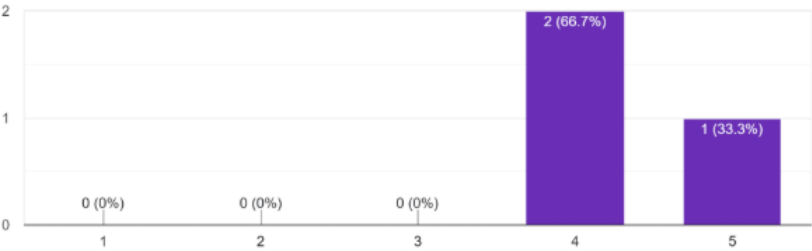Rate how intuitive it was to navigate through the website

5 responses

Did you notice the contextual help pop ups and tool tips providing contextual help as you completed your task?
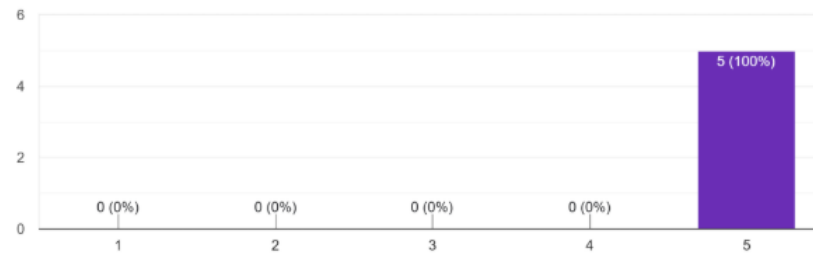
5 responses

- Yes
- No

40%

60%

If yes, How helpful did you find the contextual help popups?

3 responses

0 (0%)   0 (0%)   0 (0%)   2 (66.7%)   1 (33.3%)
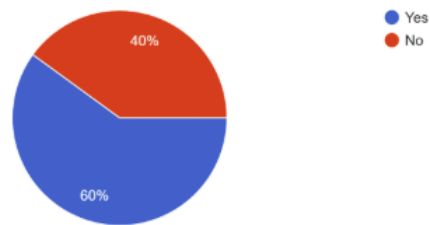
1   2   3   4   5

Rate how easy it was to access the platform through your web browser
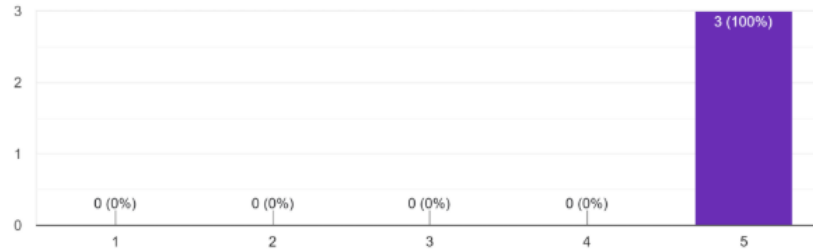5 responses

Did you utilize the help tool to get a better understanding of the labeling tool?
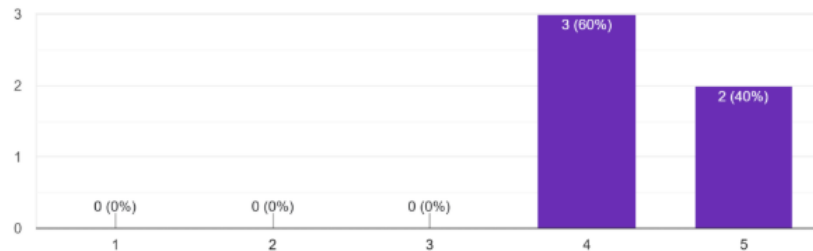5 responses

If yes, rate how useful it was in helping you accomplish your task
3 responses

Rate your experience with the labeling tasks provided
5 responses

Again, the qualitative results will be discussed in the analysis section.

3.3 Analysis

These results provide strong evidence that the changes made to the front end improved the usability of the website. In each survey question, the average score increased. One area of focus was on the labelling experience. In contrast to the first iteration, each tester reported a positive experience with the labelling tasks. This is likely attributed to the new, in-house labelling library we developed to address user concerns. One tester commented that "It is much easier to draw multiple labels now. I don't have to reselect the box each time anymore". We also noticed an improvement in our help tools. On the last survey, two testers used the help tool, and reported an average score of 4/5. In the new design, the help tool was used 3 times with everyone reporting its usefulness to be 5/5. In the redesign, we made the help tool more apparent, and made the features it contains more useful. In the last survey, a tester recommended we include a short gif of someone completing

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a labelling task at the start of the help screen. This, among other changes, are likely the reason for the improved score.

One limitation of the study to consider is that each of the testers have had one prior experience with the tool before completing the second survey. This means that they have some knowledge of what to expect, and therefore certain results should not be expected to translate to new users. For example, we would expect the navigation scores to increase, even without changes to the UI as testers become more familiar with the task at hand. In the future, similar studies should be done on a larger pool of first-time users to the site.