

Heuristic Evaluation of the O!N Library of Open Source Hardware



WIKIMEDIA
DEUTSCHLAND

Method Description

Heuristic Evaluation

Problem	Heuristik(en)	Problemgrad
When filtering by on organization the value can be selected by typing and then pressing enter, but can't be delted by deleting the text; The button on the right needs to be pressed. In via text but not deletable via text	User control and freedom	Effort to cope with
When I type in the Organization box, the label dissapears making it easy to assume it is a general search box	Recognition rather than recall	Minor inconvenience

A Heuristic Evaluation is a process where someone trained in usability principles reviews an application: this person compares the application against a set of guidelines called Heuristics that tend to make for more usable experiences.

An effective Heuristic Evaluation is performed by multiple evaluators and not just one, because different evaluators tend to find different problems.

We used the well established Nielsen Guidelines in our Analysis:

<https://www.nngroup.com/articles/ten-usability-heuristics/>

Tested Scenario

1. go to losh.opennext.eu in a web browser (desktop or mobile client)
2. type the technology of interest into the search bar (default: "loom" to find different looms)
3. Compare results by their values in the columns; you can also filter for specific licensing schemes (default: Look for a project with permissive licenses)
...
4. Select your favourite result and click on its name to enter its project detail page (Default: OHLOOM)
5. Review the information on the project detail page (specifically the functional description on the top of the page)
6. click on "download bundle" to download files available for this version of the OSH project; click on "To XXX repo" to view the project repository for further information

Results

Executive Summary

Two UX experts evaluated the LOSH UI according to the 10 Nielsen guidelines for Heuristic Evaluation of Interfaces. A usage scenario was used which covered the core use cases for the product.

Major Problems that need fixing:

- The filtering for exploring data gets users stuck in seemingly unusable states
- Parts of the content still contain placeholder text
- Some bundle downloads do not work or demand a login.

Opportunities

- Possibilities for participation in projects could be highlighted to help people to contribute

Infos on the Project



Ecosystem text is incomplete

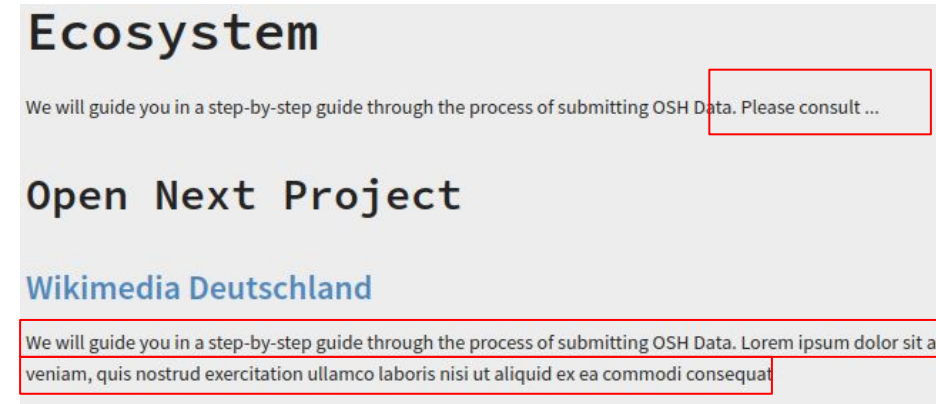
The text on the page

<https://losh.opennext.eu/ecosystem>

is not complete and contains parts from the contribution guidelines and a “lorem ipsum” placeholder

Severity: 3

Heuristic:
Help and Documentation



Recommendation: Add a meaningful text about the ecosystem and project partners

Get involved text is incomplete

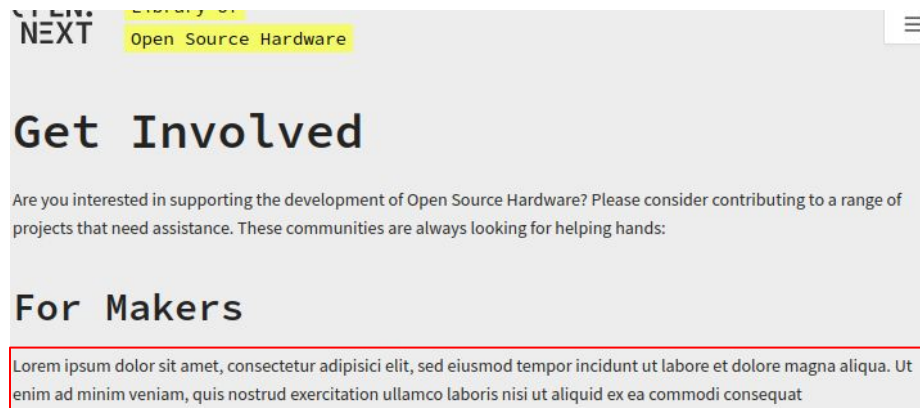
The text on the page

<https://losh.opennext.eu/get-involved>

is not complete and contains parts from the contribution guidelines and a “lorem ipsum” placeholder

Severity: 3


Heuristic:
Help and Documentation



Recommendation: Add a meaningful text about possibilities to get involved or delete the page

About text could be more informative

The about text gives the essential information but is not very precise in how the organizations work together and how the open-source way of the org is visible



Severity: 2

Heuristic:
Help and Documentation

About our project

The Library of Open Source Hardware was created by the [OPEN!NEXT](#) working group. They are a team of institutions and organizations that support the growth of Open Source hardware. Tasked by the [European Commission](#) to create a consolidated database for Open Source Hardware specifications, the OPEN!NEXT working group created this library for use by the maker community.

These organizations are part of the working group:

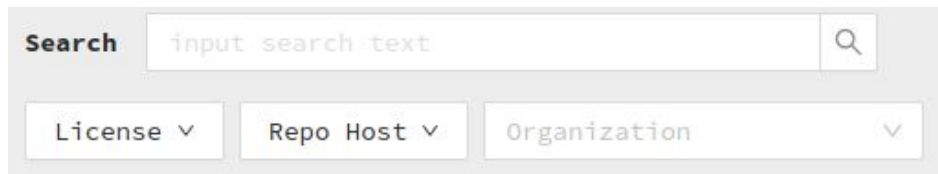
- [Wikimedia Germany](#)
- [Fraunhofer IPA](#)

Recommendation: Show more clearly what you do and why, also for people who do not know open source hardware principles well already. Possibly link to projects repositories to visibly show how to get involved.

UI States and User Control

General use of the filters

The filters to explore projects have several issues. Most of them are problematic enough on their own, but together they will get the interface stuck in an – from the user's point of view – unusable state. See the following slides for the single problems



A screenshot of a search interface. At the top, there is a search bar with the placeholder text "input search text" and a magnifying glass icon. Below the search bar, there are three filter buttons: "License" with a downward arrow, "Repo Host" with a downward arrow, and "Organization" with a downward arrow. The interface is light gray with white text.

Severity: 4

Heuristic:
Visibility of System Status,
User control and freedom

Recommendation: Rework the filters so that people know which filters apply and how to get to the initial, unfiltered state

Input box seems disabled

In its normal state, the organization search box looks disabled



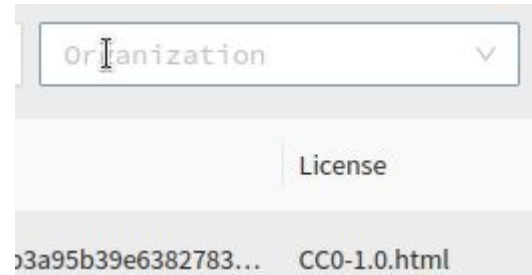
Severity: 2

Heuristic:
Visibility of System Status

Recommendation: Add the darker “search” icon like in the search field or use a darker border.

Filter: Typing Text, but not being able to delete it

When I filter by organizations, the value can be selected by typing and then pressing enter, but can't be deleted by deleting the text; The “x” button on the right needs to be pressed.



Severity: 3

Heuristic:
User Control and
Freedom/Consistency and
standards

Recommendation: When a value is selected it should be in the box and be deletable without clicking. A “pill” would be a common solution.

Disappearing value

I can't see the selected value in the License and Repo-Dropdown after the dropdown is closed.

This easily leads to situations where it seems that I can't find any items, although they are just filtered away.



Recommendation:

Add a label outside of the dropdown.

When a value is selected it should be in the dropdown.

Consider a “reset” button that can be used instead of reloading the page when users get stuck.

Severity: 3

Heuristic:
Visibility of System Status

Disappearing label

When I type in the Organization box, the label disappears, making it easy to assume it is a general search box



Severity: 3

Heuristic:
Visibility of System Status

Recommendation: Add a label before or on top

Residual state

After clicking “download bundle” or “to repository”, the button gets stuck in activated or clicked style and only resets when clicking on the page again



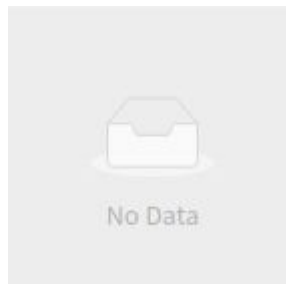
Severity: 1

Heuristic:
Visibility of System Status

Recommendation: Fix to show correct state

Loading states are not clear

When the list of results is loading, “no data” is shown, just like if not data is available at all. This can lead to the assumption that there are no matching projects while, in fact, the results are not delivered yet



Severity: 4

Heuristic:
Visibility of System Status


Recommendation: Provide a loading indicator

Item Information

Version shows the git commit hash

Many items show a long, seemingly random letter/number text instead of a version number.

pl Laser Mini	d8ad0b9e8daa01582037b...	CC-BY
pl Laser Mini	d8ad0b9e8daa01582037b...	CC-BY



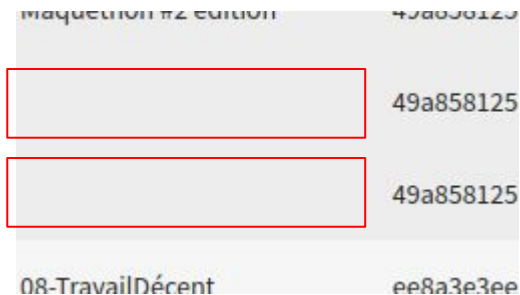
Severity: 3

Heuristic:
Match between system
and Real world

Recommendation: Leave free or show placeholder

Empty name fields

If names are not there, it is very difficult to actually find out what one would click on



Severity: 3

Heuristic:
Visibility of System Status

Recommendation: Don't permit nameless items or, at least, show a placeholder

Design Possibility: Highlight ways to participate

Lack of data could be framed as an opportunity to participate.

Currently, fields are just empty – what if the platform would show unobtrusively that an item can be improved and link to ways of doing so?

Name: <not available>

Version: <not available>

This item lacks name and version number.


Can you add the infos?

[Learn more about contributing](#)

Labels

Language mismatches

Repos can be in any language, while the UI will usually be in English. For people who do not know this, the language mix is surprising.



Severity: 3

Heuristic:
Match between system
and the real world

Recommendation: Maybe improvement is possible by
allowing multilingual descriptions

“Torepo” label

If no name is present in a repo, the label of the button lacks a space, reading “norepo”. Since there are multiple languages the projects can be in this can easily be seen as a foreign word that was left untranslated.



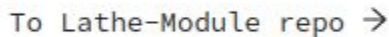
Severity: 3

Heuristic:
Match between system
and the real world

Recommendation: Fix the label to read “To repo” even if no name of the project is present

Check if “repo” could be “repository”

While for experienced users the use of “repo” might be clear, it is nevertheless an expert jargon. Even github seems to use “repository” where possible.



To Lathe-Module repo →

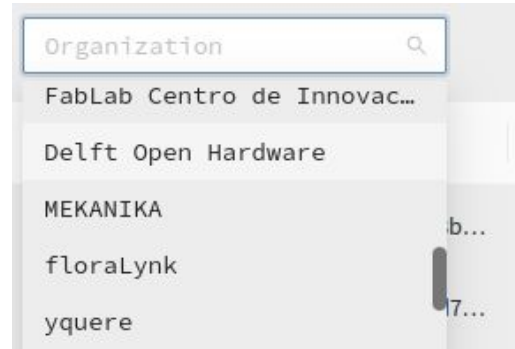
Severity: 2

Heuristic:
Match between system
and the real world

Recommendation: Check if “repo” could be “repository” or consider only using repo on that button if no name is present.

Order of Organization Labels in Filter

In the organization filter, we allow selection by scrolling and clicking. However, this amounts to a manually scanning for the label, as items are not ordered in an obvious way



Severity: 2

Heuristic:
Match between system
and the real world

Recommendation: Order items in the menu
alphabetically.

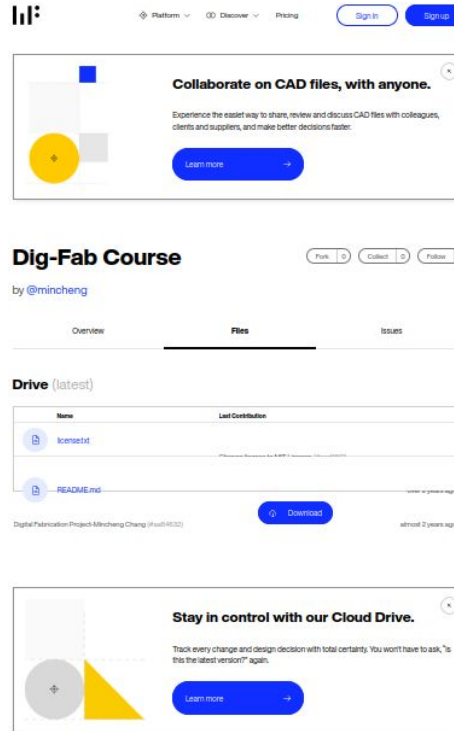
Project downloads

Wikifactory download page is confusing

Many projects can be downloaded via Wikifactory. The pages users land on have a lot of interactive elements; there are 3 primary buttons in dark blue, only one of them moves the user forward to the download.

Severity: 2

Heuristic:
Recognition rather than recall




Recommendation: Always offer one highlighted, primary action

Some downloads demand a login

Projects hosted on Gitlab seem to require login for Bundle Downloads

⚠ You need to sign in or sign up before continuing.



Severity: 4

Heuristic:

Help users recognize, diagnose, and recover from errors

Recommendation: Explore a way to offer downloads without login or show that a login will be needed next to the “download bundle” button for these projects.

Downloads form en.oho.wiki do not work at all

Downloads of bundles hosted on *en.oho.wiki* do not work at all.



Severity: 4

Heuristic:
Help users recognize,
diagnose, and recover
from errors

Recommendation: Always offer one highlighted,
primary action

Appendix

Why Heuristic Analysis?

The heuristic method performs well in finding problems.

It finds (partly) different problems than a user test and can find classes of problems that user tests usually can't: For example, it can uncover issues of interface inconsistency which are hard to find with a usability test (Nielsen 1995).

It also has been shown to be a very cost effective evaluation method measured by time investment by experts to use the method (Jeffries et.al. 1991).

A possible weakness is that experts to do the heuristic evaluation might not have domain knowledge as compared to user testers that have the domain knowledge (Nielsen 1995). This, obviously, does not mean that usability testing with non-experts in the domain is superior to evaluation with non-experts in the domain.

As a heuristic evaluation finds partly different problems than a usability test, the best practice in terms of both cost and coverage is to start with a heuristic evaluation and then run usability tests and heuristic evaluations with small samples regularly and iteratively (Nielsen 1995)

- “Characteristics of Usability Problems Found by Heuristic Evaluation”, Nielsen 1995
- User interface evaluation in the real world: a comparison of four techniques“, Jeffries et.al. 1991