NIELSEN HEURISTICS

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Agenda

- Background
- The 10 Heuristics and Examples
- Case Study with popular summer

course Protopaja/Protocamp Website

Background

- We all very often say that some of our prototype level applications are "easy to use". In other words, we claim that they have a good Usability.
- Usability is one of the most common non-functional requirements and Usability is also typically called simply as "quality attribute".
- However, saying that our prototype is easy to use and verifying this scientifically are two different things altogether.
- Traditional research methods to do this verification include semi-structered interviews, studies where the interviewees 'think aloud' or questionnaires. This takes time (money) and is very slow.
- But is there a cheaper and a faster method available to improve Usability?



Definition of Heuristic



Nielsen Heuristics

Easy to apply broad rules of thumb proposed by Jakob Nielsen to help develop better UIs.

Used for more than 25 years already and still very popular.

Nielsen's heuristics are general principles based on human behaviour, meaning that they do not determine specific usability rules.

Just follow these helpful tips to create more accessible, user-friendly, and way more intuitive digital products.

https://www.youtube.com/watch?v=6Bw0n6Jvwxk (Nielsen himself)

https://www.nngroup.com/articles/ten-usability-heuristics/ (10 rules)

#1: Visibility of system status

The design should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time.









#2: Match between system and the real world

The design should speak the users' language. Use words, phrases, and concepts familiar to the user, rather than internal jargon. Follow real-world conventions, making information appear in a natural and logical order.

Real World

System





Protopaja / Protocamp

Protopaja/Protocamp <u>ELEC-D0301</u> is a 10 ECTS summer course, where students in teams of 3-4 work in projects proposed by companies. Helvar, Saab, Savox and Solita will be the company partners in 2022.

Students, companies and Aalto University will make a contract in the beginning of the course to ensure that all materials can be made public after the course. More information on the MyCourses page.



Search Results for: saab

Saab

Objective SAAB recently developed the passive 'Sirius Compact' radar system for Electronic warfare. Now SAAB wants to develop a tool to test the limits and potential of the system. The tool is a handheld device that emits microwaves in a focused area and with a focused power. The device consists of a circuit board, ... Continue reading \rightarrow

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#3: User Control and Freedom

Users often perform actions by mistake. They need a clearly marked "emergency exit" to leave the unwanted action without having to go through an extended process.





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Protopaja ELEC-D0301

Protopaja / Protocamp
Protopaja 2022
Protopaja 2021
Protopaja 2020
Ensto: Bluetooth controlled electric desk

Futurice-1

- atarroo

Futurice-2

Helvar

Savox: Advanced vision face shield for public safety workers

Surrogate.tv

THT Control: Bluetooth Sensor Visualizer App

Protopaja 2019

Protopaja 2018

Futurice-2

futurice

Project Goals

Our objective is to capture and preprocess EEG signals, build learning models that can detect epileptic seizures with an accuracy greater than 80%, and build a software architecture around it to showcase our results.

Hardware

Emotiv Insight is a consumer graded product, designed for Brain Computer Interface (BCI) [1]. The device can measure EEG signals from 5 different channels – AF3, AF4, T7, T8 and Pz. Besides having an adequate number of channels, this headset gives us a better signal quality compared to other alternatives.



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META

Log in

#4: Consistency and Standards

A system or a product should never ever confuse the users by using different words, actions, design, or situations to derive the same meaning.

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Topper

ELEC-D0301 Protopaja

2018 Ryhmä 16 Alvar de Wit Harri Aaltonen Tuukka Uimonen Yami Verducci

Topper/Hylje – Paikanninlaite

Tiivistelmä

Ryhmän 16 projektina oli toteuttaa turvallisuutta edistävä ratkaisu Suomalaisen Topper- vaatevalmistajan Hylje-tuoteperheeseen. Hylje-tuoteperhe koostuu pääosin erilaisista haalareista. Käyttäjäryhmäanalyysissa selvisi, että vuosittain joitain turisteja eksyy omatoimisilla moottorikelkkasafareilla. Ongelmana eksymisten kohdalla on ollut se, että eksynyt turisti ei ole kyennyt antamaan selvitystä omasta olinpaikastaan, edes summittaisesti. Lisähaasteen pohjoisen olosuhteisiin antaa kylmä ja märkä ympäristö, joka vaikuttaa elektroniikan toimintaan, etenkin akun osalta.

Konseptin toiminnallinen idea pääpiirteittäin oli, että eksyttyään käyttäjä kiinnittää hihassaan olevaan laitteeseen kuulokemikrofonin, jotka löytyvät laiteen kotelosta ja painaa hälytyspainiketta. Hälytyspainike aktivoi gps-paikannuksen ja hakee sijainnin. Sijainnin saatuaan laite lähettää gpspaikkatiedon sekä soittaa vastuuhenkilöille. Näin käyttäjälle annettava laite ja siihen liittyvä koulutus on mahdollisimman yksinkertainen, mikä on tärkeää turvallisuutta edistävässä laitteessa, etenkin jos on kielimuurin mahdollisuus.

Kotelo on kiinnitettynä haalarin hihaan velcrolla ja neppareilla, jolloin laitteen ja haalarin huolto eivät vaadi suuria ponnisteluja (vrt. haalarin sisään ommeltu laite). Koteloa voidaan pitää haalarin toimintavmpäristössä ihonmvötäisenä, iolloin se ei häiritse päivittäistä toimintaa.

Granlund

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The goal of this project

The goal of the project was to monitor the usage of rooms and reduce energy consumption via changing the habits of people using them. One way of accomplishing this is by collecting data on how often people leave the lights on after they leave a room. We were assigned to develop a module that measures room occupancy and sends that information to the person leaving the room if helshe has left the lights on. This project is a part of a EU-wide project called eTeacher. As the EU project aims for decreasing the energy wasted on lights, we aim for energy consumption less than a standard office room consumes within working hours.

Team



Oskari Luostarinen



Severi Tikka





Tommi Penttilä

Project manager Ch

Chassis design

Software

Hardware

#5: Error Prevention

Good error messages are important, but the best designs carefully prevent problems from occurring in the first place. Either eliminate error-prone conditions, or check for them and present users with a confirmation option before they commit to the action.

Bewakoof°

Signed as

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	Securely save this card for faster payments.	
	PAY NOW This transaction you make is totally secure. We don't save your CVV number.	





#6: Recognition Rather than Recall.

Minimize the user's memory load by making elements, actions, and options visible. The user should not have to remember information from one part of the interface to another. Information required to use the design (e.g. field labels or menu items) should be visible or easily retrievable when needed.

Example of a good design solution	https://www.apple.com/	Example of a Usability problem	https://www.art.yale.edu/
Title and description of the observation	Screenshot	Title and description of the observation	Screenshot



#7: Flexibility and Efficiency of Use.

Shortcuts — hidden from novice users — may speed up the interaction for the expert user so

that the design can cater to both inexperienced and experienced users. Allow users to tailor

frequent actions.

Example of a good design solution	Visual Studio	Example of a Usability problem	https://dallas.craigslist.org/
Title and description of the observation	Screenshot	Title and description of the observation	Screenshot



#8: Aesthetic and Minimalist Design.

Interfaces should not contain information that is irrelevant or rarely needed. Every extra unit of information in an interface competes with the relevant units of information and diminishes their relative visibility.

Example of a good design solution	https://www.uber.com/fi/en/	Example of a Usability problem	https://www.bellads.info/
Title and description of the observation	Screenshot	Title and description of the observation	Screenshot



#9: Help Users Recognize, Diagnose, and Recover from Errors.

Error messages should be expressed in plain language (no error codes),

precisely indicate the problem, and constructively suggest a solution.

Example of a good design solution	https://www.onlinegdb.com/o nline_c++_compiler	Example of a Usability problem	https://www.programiz.com/c pp-programming/online-com piler/
Title and description of the observation	Screenshot	Title and description of the observation	Screenshot



#10: Help and Documentation.

It's best if the system doesn't need any additional explanation. However, it may be

necessary to provide documentation to help users understand how to complete their

tasks.

Example of a good design solution	https://migri.fi/en/home	Example of a Usability problem	https://www.mit.edu/
Title and description of the observation	Screenshot	Title and description of the observation	Screenshot



SMALL GROUP EXERCISE NEXT

- 1.) GOTO WEBSITE <u>http://protopaja.aalto.fi/</u>
- 2.) Find Usability problems
- 3.) Describe the problems with the correct Usability Heuristic number.
- 4.) Return the feedback form to Salu.

Thank You