

Design Thinking and Advanced Prototyping

ELEC-C9821 –Visual Design



Aalto University
School of Electrical
Engineering

Salu Ylirisku

22.3.2023

Today's agenda

09:15 - 10 Lecture

1. Visual design for a design concept poster
2. Visual design for the web app

10:15 - 12 Workshop

3. Project work

Design concept poster

What is the purpose of a design concept poster?

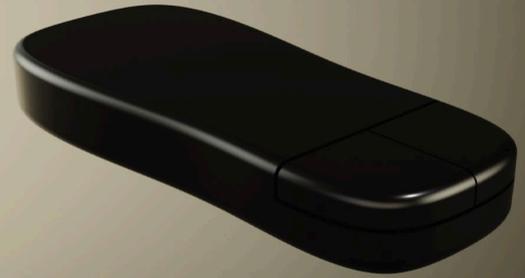
1. To catch attention – “What is that?!”
2. To communicate the key value – “Aha! It does that for us.”
3. To highlight technical advances – “Wow! So smart.”
4. To make an impact – “Oh, these are the guys to contact.”

What the poster is not

- **A poster is not a complete explanation of your design concept**
- **A poster is not a reading exercise for the visitor**

How to catch attention?

1. Be big
2. Be visual
3. Stand out



How to communicate the key value?

1. Show, rather than tell
2. Less is more – one point instead of many
3. Avoid jargon

Take back control

Cloud-based remote control for all your dynamic decks

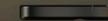


How to highlight technical advances?

1. Use symbols
2. Use charts
3. Use diagrams

Take back control

Cloud-based remote control for all your dynamic decks



Control



MQTT



WebSocket



Dynamic
Decks

How to make an impact?

1. Get all the above right
2. Listen for feedback
3. Provide a next step

Take back control

Cloud-based remote control for all your dynamic decks

Salu Ylirisku, Carl Pelija, Shahram Baraj, Aleksii Zubkovski



Control



MQTT



WebSocket



Dynamic
Decks

Poster grading

- 1. The name and the main purpose of the design concept are shown, +1pt**
- 2. The unique quality/value of the design is communicated, + 1pt**
- 3. An image of the 'IoT product concept' is shown, +1pt**
- 4. An image of the overall product architecture is shown (e.g. in Cloud, App, Physical, Embedded style), +1pt**
- 5. The poster follows (i.e. does not conflict) with the visual design principles given in the 'visual design' lecture, +1pt**



Web App Graphical User Interface (GUI) design

What is the purpose of a GUI?

- 1. Enable users to get their things done**
 1. Useful design / utilitarian goodness
- 2. Enable users to get their things done in an optimized manner**
 1. Usable design / instrumental goodness
- 3. Enable users to enjoy what they are doing with your app**
 1. Enjoyable design / hedonic goodness



Enable users to get their things done

1. Know what your users want to do
2. Provide means to get it done

Enable users to get their things done in an optimized manner

- 1. Know what your users want to do**
 1. Prioritise the important goals over the less important ones
- 2. Provide means to get it done**
 1. Make the more important tasks clearer, easier, less effortful, and quick
- 3. Prevent confusion, errors, extra steps and burden**



Enable users to enjoy what they are doing with your app

0. Make it usable
1. Beauty and harmony
2. Style and identity
3. Playfulness and control

Beauty and harmony

- **Sizing and proportions**
- **Colours and contrast**
- **Alignment and flow**

Sizing and Proportions

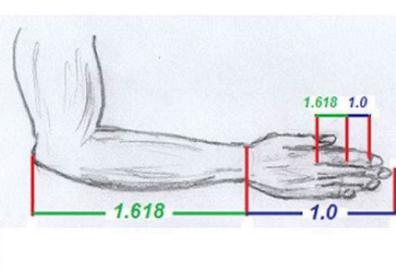
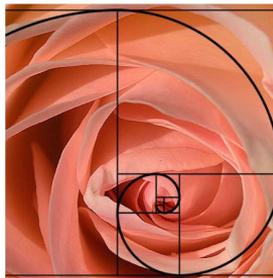
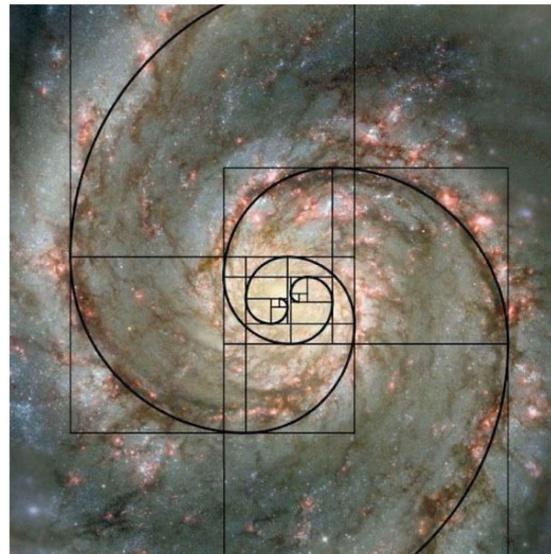
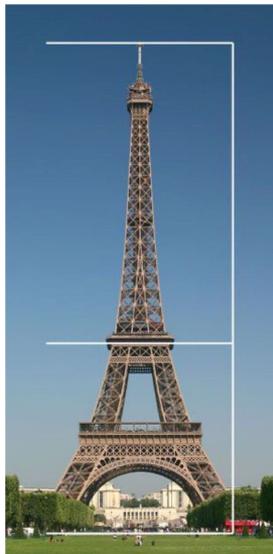
- Text
- Layout

Text sizes

- **How many text sizes should you need for an app?**
- **Challenging as display sizes vary a lot**
- **A systematic approach is needed**

Text sizes - Systematic approach

- **Golden ratio ~ 1.61803**
- **Challenging for web app design**
 - You end up with fractional values.
 - Using a 16px base and golden ratio, your scale will end up with lots of sizes that don't land right on the pixel, like 31.25px, 39.063px, 48.828px, etc.
 - How to define your size set?



Just make a list

Here is one proposed by the creators of the TailwindUI

Use either px or rem values to keep the whole system functionable!

12px The quick brown fox jumps over the lazy dog

14px The quick brown fox jumps over the lazy dog

16px The quick brown fox jumps over the lazy dog

18px The quick brown fox jumps over the lazy dog

20px The quick brown fox jumps over the lazy dog

24px The quick brown fox jumps over the lazy dog

30px The quick brown fox jumps over the lazy dog

36px The quick brown fox jumps over the lazy dog

48px The quick brown fox jumps over the lazy dog

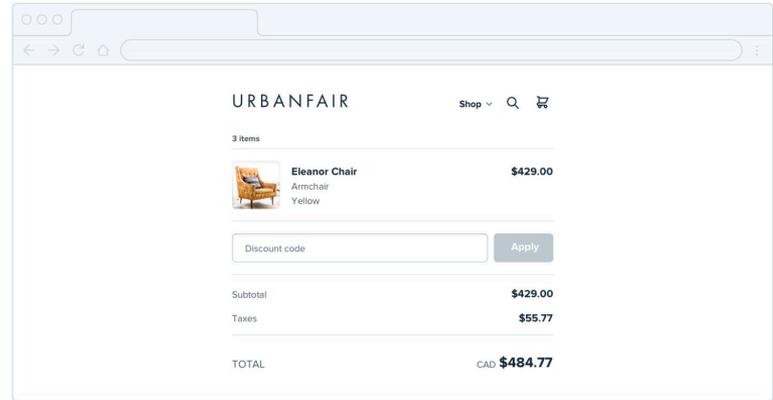
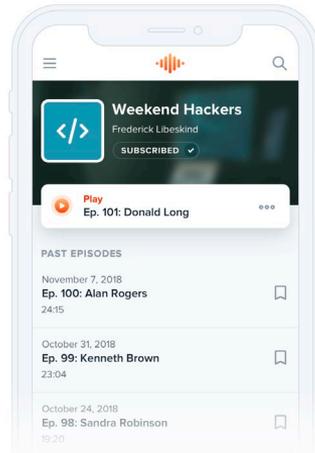
60px The quick brown fox jumps over the lazy dog

72px The quick brown fox jumps over the lazy dog

Size and Layout

Start with too much white space!

Mobile first



Colours and contrast

Primary

Secondary

Neutral

Supporting



Sähkötekniikan korkeakoulu

Pantone

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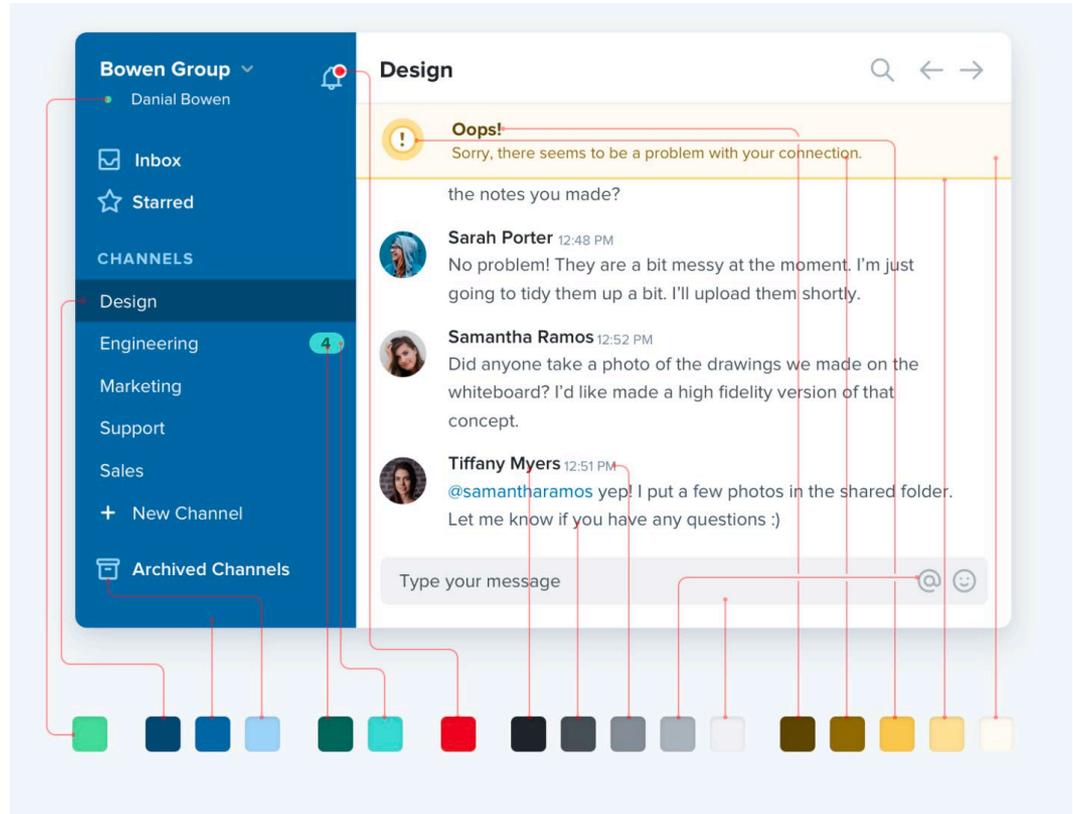
Colours and contrast

Primary

Secondary

Neutral

Supporting



Colours and contrast

Primary

Secondary

Neutral

Supporting



#004440 hsl(176, 100%, 13%)	#2DCCA7 hsl(166, 64%, 49%)	#8D2B0B hsl(15, 86%, 30%)	#F7C948 hsl(44, 92%, 63%)
#016457 hsl(172, 98%, 20%)	#5FE3C0 hsl(164, 70%, 63%)	#B44D12 hsl(22, 82%, 39%)	#FADB5F hsl(48, 94%, 68%)
#048271 hsl(172, 94%, 26%)	#8EEDD1 hsl(162, 73%, 74%)	#C86E17 hsl(29, 80%, 44%)	#FCE588 hsl(48, 95%, 76%)
#079A82 hsl(170, 91%, 32%)	#C6F7E9 hsl(163, 75%, 87%)	#DE911D hsl(36, 77%, 49%)	#FFF3C4 hsl(48, 100%, 88%)
#178897 hsl(168, 78%, 41%)	#F0FCF9 hsl(165, 67%, 96%)	#F0B429 hsl(42, 87%, 55%)	#FFFBEA hsl(49, 100%, 96%)

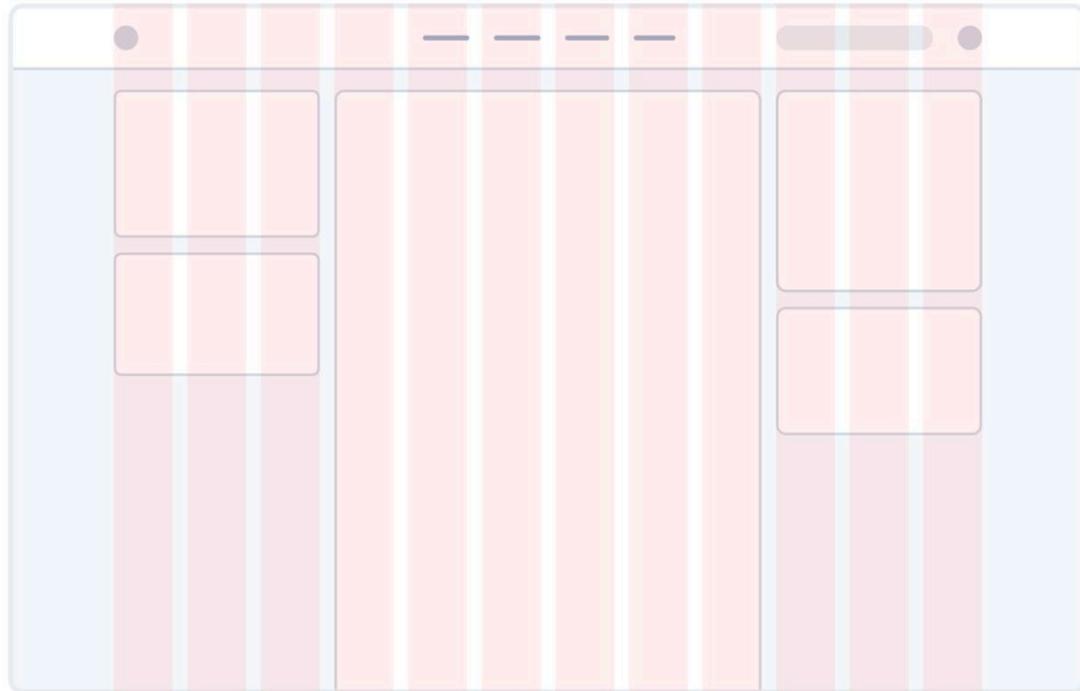
Generate a palette

Search online for web palette



Alignment and flow

Grids help in alignment



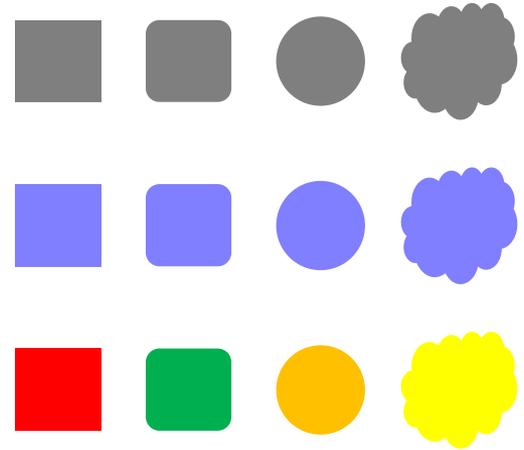
Style and Identity

- **Personality**
- **Associations**



Personality

- Secure and professional
- Calm and easy
- **Playful and curious**
- Luxurious and exclusive



Associations

- **Specific brand**
- **Nature**
- **Sci-fi**
- **Cartoons**
- **Tradition**
- **1980s**



Prototype V2 goals and requirements

- The assignment deadline had a mistake in MyCourses – although most teams delivered it.
- The rest, please, submit the V2 document by Friday night

-- Presence Check --

Project work

Prototype V2

Learning Goals and Requirements

Due this Friday!

Circuit Shop Schedule

We have a scheduler on MyCourses to help you to distribute across the week so that the small space does not get too full.

Circuit Shop (piiripaja) is located in front of the Electronics Workshop (Sähköpaja).

Available times are during the regular exercise times (may be adjusted if needed)

This week

- **Project: Build your Proto V2**
- **Keep writing your diary**
- **Exercises (mini project) (Fri 14-16, Mon 14-16, Tue 10-12)**
 - **VOLUNTARY!**