

# Design Ethics and Prototyping Experiences

Mattias Arvola

# Today

- My last lecture
  - A few more supervision sessions before presentations
  - Guest lectures:
    - Jon Manker, Video prototypes, storyboards and dramatic structure. On 10/10 **10:30** – 12:00.
    - Dipak Surie, Ubiquitous computing, Th 13:15 – 15:00.
  - Today
    - Design ethics
    - Experience prototyping

# Design and ethics

## Susanne Bødker (1989)

- To design an artifact means not only to design the artifacts for a specific kind of activity. Because the use of artifacts is part of social activity, we design new conditions for collective activity (e.g., new divisions of labor and other ways of coordination, control, and communication).

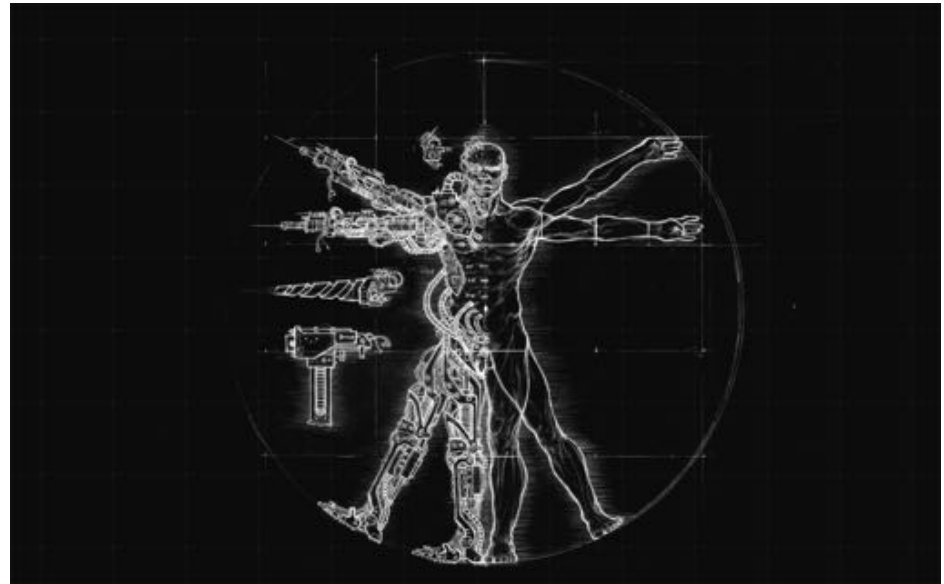
# Design and ethics

Susanne Bødker (1989)

- To design an artifact means not only to design the artifacts for a specific kind of activity. Because the use of artifacts is part of social activity, we design new conditions for collective activity (e.g., **new divisions of labor and other ways of coordination, control, and communication**).

# Design and ethics

- Technology (n) is inseparable from the human
  - Our lives are mediated
- Transhumanism



<http://www.igyaan.in/wp-content/uploads/2015/10/Transhumanism.png>

# Design and ethics

- Do artefacts have morality?
  - "technologies mediate the experiences and practices of their users" (Verbeek, 2008, p.92)
- Do artifacts have politics?
  - Cars and busses in New York (Winner, 1986)



- What technologies (artefacts) are ethical?

*"Annoying, but in a Nice Way": An Inquiry into the Experience of Frictional Feedback*

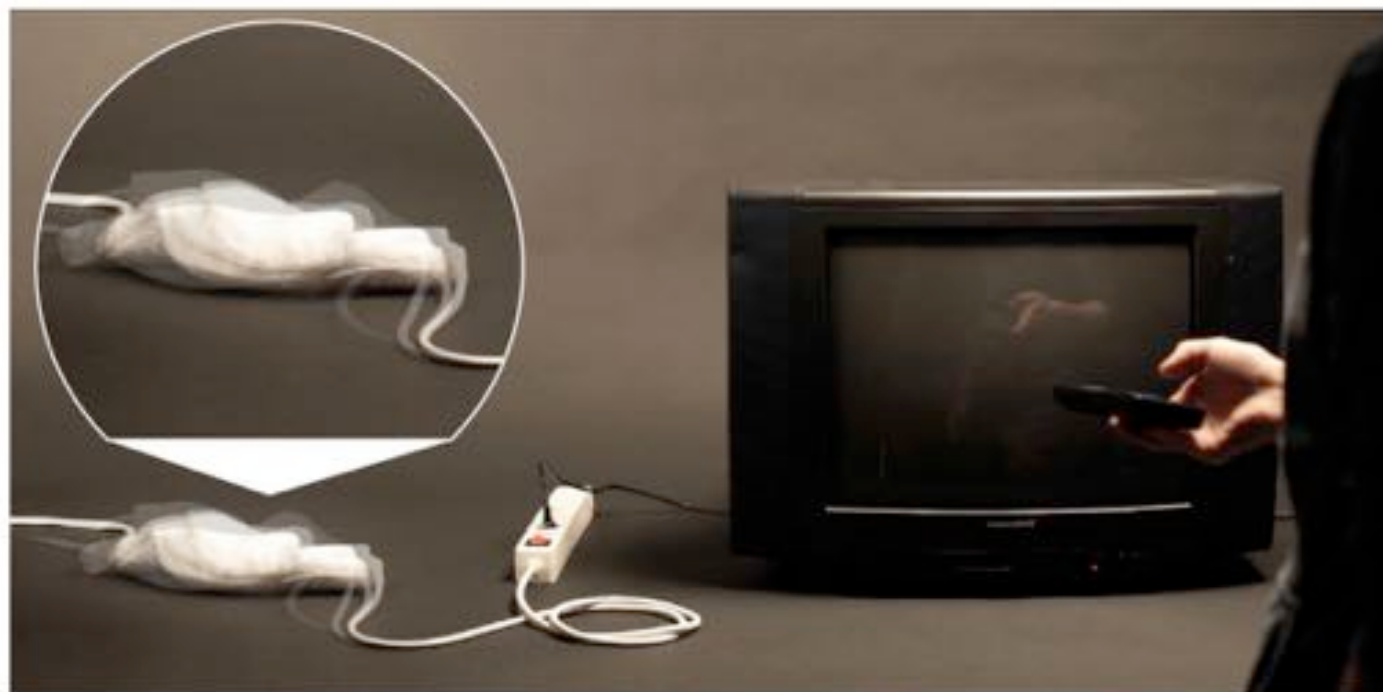


Figure 4. The Never Hungry Caterpillar.

(Laschke, Diefenbach, & Hassenzahl, 2015)

# Design and ethics

- What technologies (artefacts) are ethical?
  - Interactive artefacts can
    - Shape our intentions
      - Form our understanding
      - Limit our possibilities



# Design and ethics

- What technologies (artefacts) are ethical?

- Vilka technologies  
are moral?  
(Verbeek, 2008)



- What technologies (artefacts) are ethical?
- - Vilka technologies are moral?
  - Ultra sound
  - Thermometer
  - Speedometer
  - Glasses
- (Interactive) products are never neutral
- In contrast to humans, the products cannot be held accountable



- What ethical implications do your design solution potentially have?
  - In what way is it sustainable?
    - ecologically
    - economically
    - socially

# The Varieties of Good Design

(Ylirisku & Arvola, 2010)

- Design Ethics
  - To what world do you want to contribute?

<b>Goodness</b>	<b>Relative to</b>	<b>Context</b>	<b>What is 'good'</b>
Utilitarian	Desired end of action	Task	Useful (yes/no)
Instrumental	Desired end of action	Task	Serving well
Technical	Requirements, competition	Activity	Excelling
Medical	Health, normalcy	Activity	Beneficial, not harmful
Hedonic	Pleasure, pain	Experience	Pleasure
Good of Human	Welfare	Life	Happiness and wellbeing

# The Varieties of Good Design

(Ylirisku & Arvola, 2010)

- Design traditions

<b>Tradition</b>	<b>Dominant Goodness</b>	<b>Focus</b>
Conceptual Design	Utilitarian Goodness	Finding new goals and exploring new ways to attain these.
Usability Design	Instrumental Goodness	Optimising the cost and effort in attaining goals.
Engineering Design	Technical Goodness	Specifying solutions that perform excellently.
Ergonomics Design	Medical Goodness	Developing products that are not harmful for people.
Experience Design	Hedonic Goodness	Creating pleasurable and meaningful products.
Sustainability Design	Good of Human	Focus on a long perspective with a broad and ecological view.

- **Prototype (ISO 9241-210:2010)**
  - Representation of all or part of an interactive system, that, although limited in some way, can be used for analysis, design and evaluation

- ” 1) prototypes are for traversing a design space, leading to the creation of meaningful knowledge about the final design as envisioned in the process of design, and
- 2) prototypes are purposefully formed manifestations of design ideas.” (Lim & Stolterman, 2008)
- Or, a manifestation of the future

- The fundamental principal

*“Prototyping is an activity with the purpose of creating a manifestation that, in its simplest form, filters the qualities in which designers are interested, without distorting the understanding of the whole.”* (Lim & Stolterman, 2008)

- Economical princple (Lim & Stolterman, 2008)

- Do as little as possible to understand the qualities of the idea

- explore, test, communicate

- ... also an approach and a stance



# Experience prototyping

- Definition of experience prototyping
  - “any kind of representation, in any medium, that is designed to understand, explore or communicate what it might be like to engage with the product, space or system we are designing”  
(Buchenau & Fulton Suri, 2000)

# Experience prototyping



# Experience prototyping

- Means: what is it like to be a user in this situation?
  - Pacemaker patients
    - timing matters
    - Message when people get an infarct and ask them to write down the context
- Suits that simulate old age

<http://mlkshk.com/p/5G2A>



# Experience prototyping

- Understand the whole
  - Evaluation is difficult
- The place matters



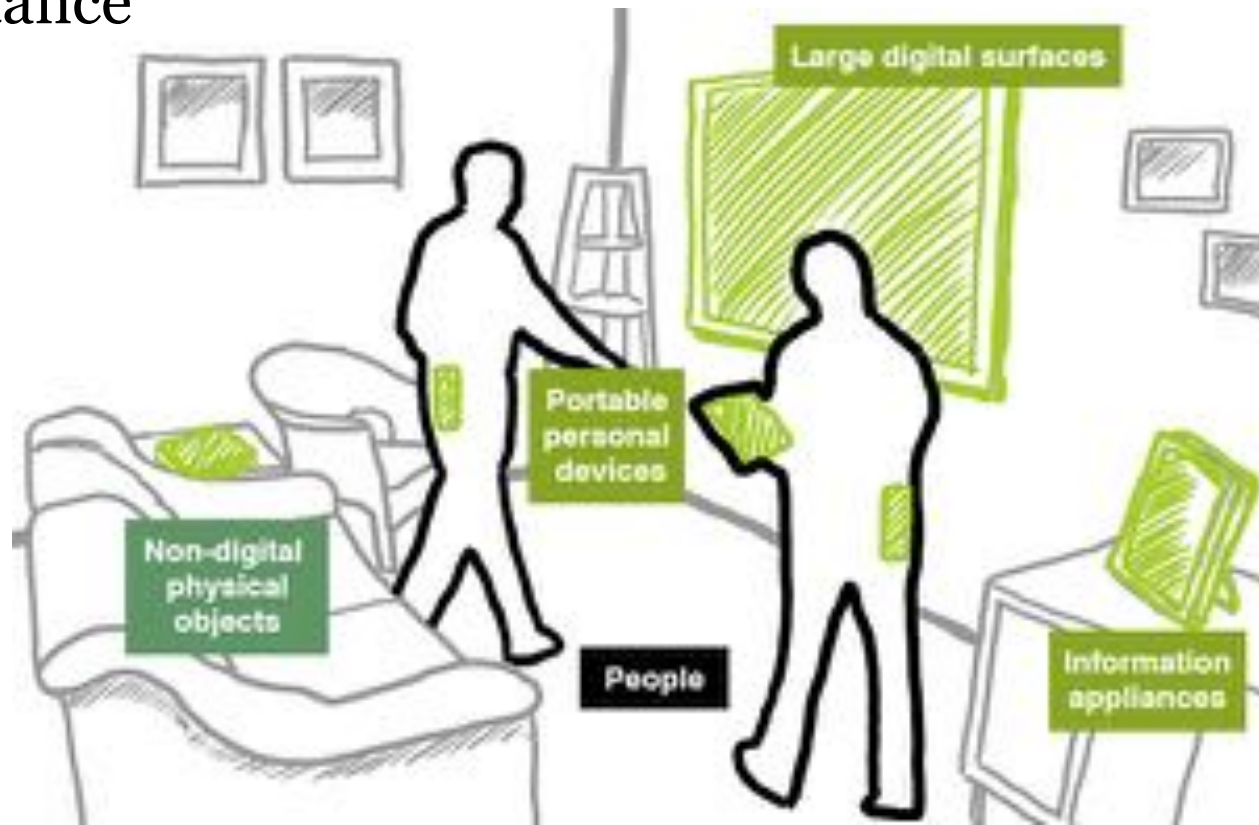
# Prototyping

- imaginative spaces
  - Creating completely different places
  - Elements for
    - Grounding in the the present situation, and for
    - transcendence.



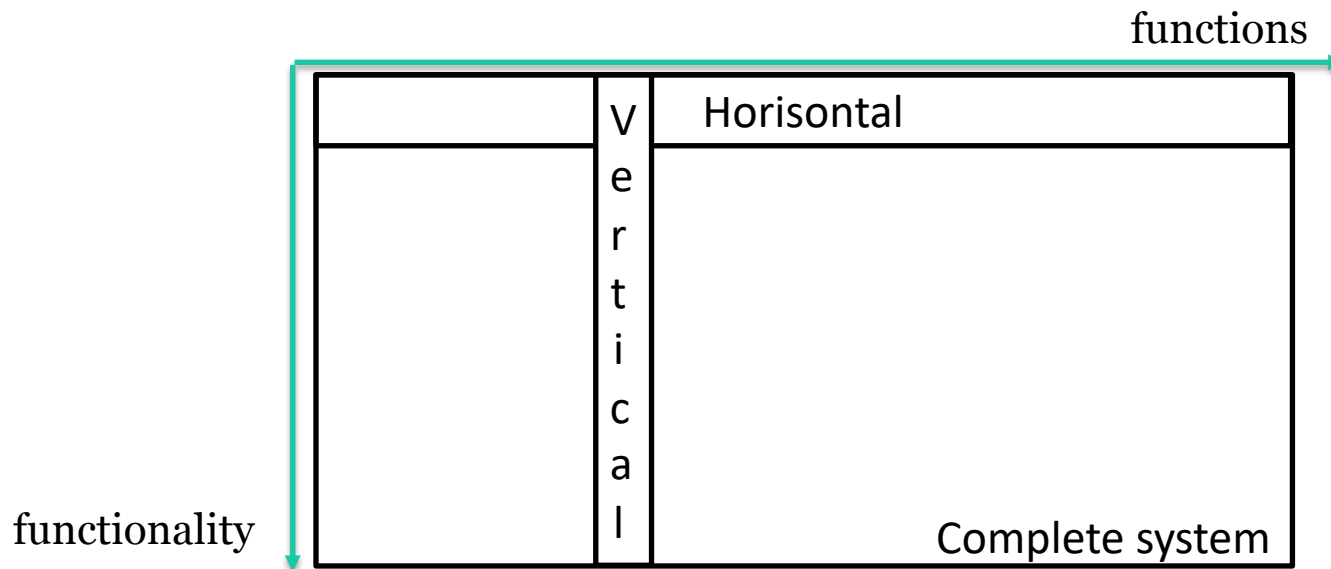
# Prototyping

- Place and distance matters
  - relations
    - social
    - spatial



# Prototyping

- Type of prototype
- T-shaped









Sketch-A-Move: Behind the scenes



██████████ 5 years ago

fake. More like it's controlled by magnets under the table.

**Superflux** 6 years ago

Thanks all for the comments and interest. This was an 'experience prototype' video made to visualise the interactions. Some time we also built a larger-scale 'working prototype'. Designing and sketching concepts in video help understand the experience of using the product.

██████████ 5 years ago

I feel so deceived, so betrayed, knowing nothing about programming you really tricked into thinking there was such an awesome toy. I was willing to pay anything! Now I just feel hatred in my heart.

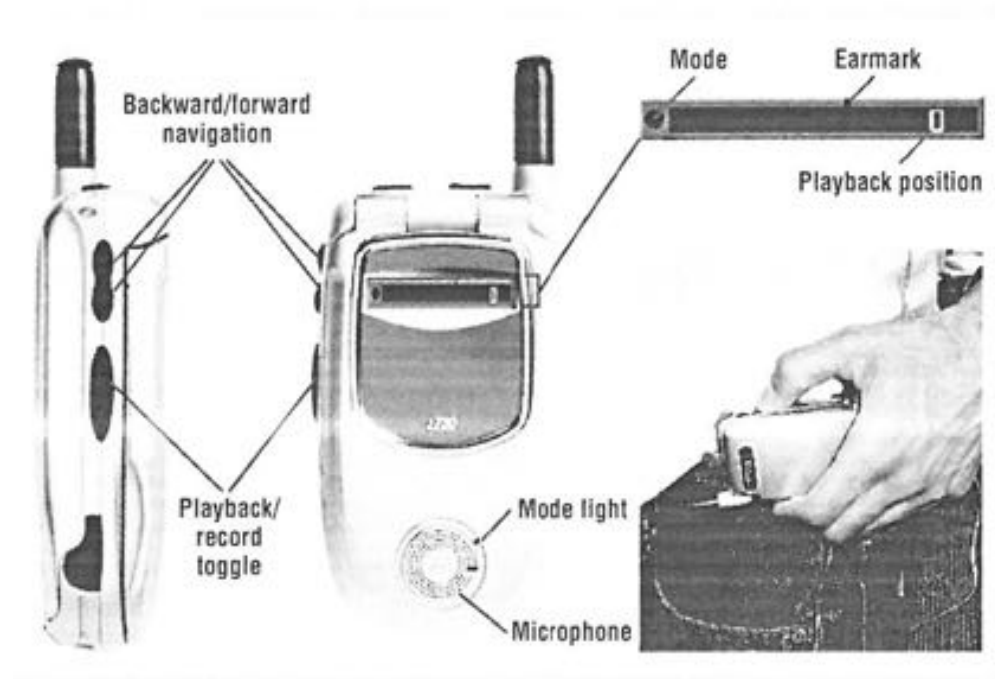
# Prototyping

- Wizard of Oz



# Prototyping

- PAL: personal audio loop



(Abowd et al., 2005)

# Prototyping

- PAL: personal audio loop
- compound prototypes
  - ”driveable” UI but on wrong device/platform in combination with physical representation of the intended device/platform
    - Physical prototype of a phone UI but on a PC
- paratypes
  - situated experience prototypes
    - Real situations where the function of the technology is simulated (or fantasized)

(Abowd et al., 2005)

### APP:

- 10-15 items
- find an item label
- Add to shopping basket
- Remove from shopping basket
- Add up
- Illustrate payment
- City Gross style

### Capacitiv input:

- Portable to phone



x 10-15

### Dynamic labels:

- Capacitive coupling
- Working for "shopping" funktion
- LCD screen for price (does not need to be able to change)
- Payment surface (put your hand on it the phone reacts for payment)

### Screen wall

- Simulates store
- For peice items and weigh items (1 st)
- Portable
- Stiffness in the material
- With shelf strips
- Takes Bfo front



# Prototyping

- As approach and stance
  - Accept no half-finished thoughts
  - question
  - be curious
  - Explore with materials



# Prototyping

- The importance of alternatives
  - Design Performance, Learning, and Self-Efficacy  
(Dow et al., 2009)
  - Sharing Multiple Designs Improves Exploration, Group Rapport, and Results  
(Dow et al., 2011)

# Prototyping

- The importance of doing
  - Making is a prerequisite for explorative design of non-ideomatic interaction
  - Doing leads to responsive exploration of material
  - (co-production as uniting activity)
  - Making is knowledge creation



Jonas Löwgren

# Prototyping

- Non-ideomatic interaction
  - When there are no pre-existing models
- exploration central
  - We can only understand experiences by creating something
- Also the creation of something metaphorical and ambiguous can drive design

# Prototyping

- Every idea opens up a conceptual space or metaphorical room (Gaver, 2011)
- Openness



**Figure 1. The Objective View proposal from the first, in-house Alternatives workbook.**

# Assignement

- Create an experience prototype
  - Will be different for all
  - Test within the group first
- Prototype the experience
  - Attitude and stance
- Create final prototype slutprototyp
  - test with users
- Wizard of Oz

# Assigment

- Possible materials
  - Arduino
    - dioder
    - kablar
    - Et cetera
  - Cardboard
  - Projector
  - Sensors
  - ?

The screenshot shows the Arduino Project Hub interface. At the top, there is the Arduino logo and the text 'PROJECT HUB'. To the right, there are buttons for 'ADD PROJECT' and a search bar labeled 'SEARCH PROJECTS'. Below this, there is an announcement banner: 'Announcement: ARTIK Contest: Now with Arduino'. Underneath the banner, there are filter tabs: 'All projects', 'Trending', 'Any difficulty', and 'Any type'. The main content area displays a grid of project thumbnails. Each thumbnail includes an image of the project, a title, the author's name, and view/comment/like statistics.

Project Title	Author	Views	Comments	Respects
BT Mobile Ctrl Trunk Robotic Arm Using String	jegatheesan	31	0	0
Height Measure using VL53L0X	HomeMadeGarbage	5	0	0
ReSpeaker Home Automation	Krishnaraj Varma	3,400	0	16

Other visible project thumbnails include 'Arduino Mega w/ 3DPrint' with a '12V NiMH Battery', 'Turret Joint', and 'Linear Actuator'; a project with a glowing blue display; and a project with a red and black LED matrix.

# Assignement

- Start and stop?
  - Where does the expserience start and where does it end?
  - What happens before?
  - What happens afterwards?
- Be prepared to adjust your idea based on the prototyping.

- Add juice!







- <http://dl.acm.org/citation.cfm?id=766132>
- <http://dl.acm.org/citation.cfm?id=2047238>
- <http://ieeexplore.ieee.org/document/1541970/>
- [http://link.springer.com/chapter/10.1007%2F11748625\\_22](http://link.springer.com/chapter/10.1007%2F11748625_22)
- Löwgren – importance of doing





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