User Experience Design I
(Interaction Design)
Day 7 - (16.12.2021 + 13.01.2022 9-12 a.m.)

Prototyping User Experiences
• Prototyping Values and Dimensions
• Low vs. High Fidelity
• Sketching-in-Hardware
• Video-Prototyping
Prototyping User Experiences

• Prototyping values and dimensions

• Examples: Physical Experience Prototypes

• UX Video Prototyping
“It’s really hard to design products by focus groups. A lot of times, people don’t know what they want until you show it to them.”

Steve Jobs
Double Diamond

DEFINE STAGE

- The generation of initial ideas and project development
- Ongoing project management
- Corporate objectives agreed and project sign-off

At the Define stage, a combination of the ideas or directions identified during the Discover stage are analysed and synthesised into a brief with actionable tasks related to new and existing product or service development. The Define stage ends with a clear definition of the problem(s) and a plan for how to address this through a design-led product or service. In practice, the Define stage ends in a project go-ahead through corporate level sign-off.

source: [8]
We define prototypes as any representation of a design idea, regardless of medium.

Houde and Hill

An original type, form, or instance that serves as a model on which later stages are based and judged.

American Heritage Dictionary
Three main design contexts in the UX domain which can be expressed through prototypes:

1.) Screen based interactions
2.) Interactive products
3.) Technology enabled services
Creating Experience Prototypes during the design process pursues different goals: (Purpose)

1.) Exploring a context / research
2.) Examining design problems / testing
3.) Evaluating solutions / presentation
In summary:

Prototypes are design-thinking enablers deeply embedded and immersed in UX design practice.

Prototypes are learning and discovery tools for generating and refining UX design ideas.

source: [6,8]
A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.

source: [7]
Horizontal vs. Vertical Prototypes

80/20 rule
Questions:

Role

Look’n’feel

Implementation

Stakeholders:

For the Designer:
- Exploration
- Visualisation
- Feasibly
- Inspiration
- Collaboration

For the End User:
- Effectiveness / Usefulness
- A change of viewpoint
- Usability
- Desirability

For the Producer:
- Conviction
- Specification
- Benchmarking

source: [5]
To design well, (UX) designers must be willing to use different tools for different prototyping tasks; and to team up with other people with complementary skills.

Houde and Hill
Fidelity v. Resolution

low resolution  
low fidelity

high resolution  
low fidelity

high resolution  
high fidelity

resolution = amount of detail
fidelity = closeness to the eventual design (product/service)

source: [5,8]
Low Fidelity

Open Discussion
Prompting Required
Quick and Dirty
Early Validation

High Fidelity

Sharp Opinions
Self Explanatory
Deliberate and Refined
Concrete Ideas

source: [5,8]
Low Resolution

- Less Details
- Focus on core interactions
- Quick and Dirty
- Early Validation

High Resolution

- More Details
- Focus on the whole
- Deliberate and Refined
- Concrete Ideas

source: [5, 8]
Prototyping User Experiences from scratch

- Sketches and Wireframes
- Paper Prototypes
- Storyboards
Prototyping User Experiences from scratch

- Design drafts and mock-ups
- Functional prototypes
- 3D Printing
Sketching in Hardware...

...is an annual summit on the design and use of physical computing toolkits. Participants from a wide variety of disciplines and backgrounds discuss tools for creating digital products, environments, and experiences: how to make them, why to make them (and why not), how to use them, how to teach with them, and how to understand their impact.

http://sketching-in-hardware.com/
Force Sensor

Potentiometer

Magnet Switch

photo credits © wikimedia
Distance IR Sensor  Touch QT Sensor  Ultrasound Sensor
MINIMUM VAILABLE PRODUCT

Crappy products

MINIMUM

VAILABLE

BEST PRODUCTS TO STARTUPS

Better-financed products
Prototyping User Experiences for products using
• Embedded Platforms
• Off-the-shelf-components
• Customised hardware
Prototyping User Experiences

• Prototyping values and dimensions

• Examples: Physical Experience Prototypes

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Design Workshop II
Design Workshop II
...to Prototype!
Design Workshop II
In conjunction with B/S/H (Neff)
Home Appliances

• 12 MA Media Informatics Students
• Duration: One semester
• Topic: Tactile Feedback
Prototypes
Prototypes
Prototypes
Design Workshop II
In conjunction with Acelik
Home Appliances

• 16 MA Industrial Design Students
• 14 MA Human-Computer Interaction Students
• Duration: One semester
Reminding Water Dispenser
Pure Air
Dirt Buster

Recipe Printer
HoverMeasure
Prototyping User Experiences

- Prototyping values and dimensions
- Examples: Physical Experience Prototypes

- UX Video Prototyping
“Why prototype with video?”

Representing complex relationships, new behaviours and attitudes are an integral part of UX design. These can be represented through many means including sketching and making physical prototypes. However, capturing a journey over time requires a linear medium like video.
“Just enough Prototyping”

Understand your audience and choose the right level of resolution and fidelity. Judge the time and resources available. Go for the easiest and **simplest track**, don’t overdo your prototype for a given context.
Example

low resolution
high fidelity
(crossing on demand)
The Smoke & Mirror Approach
StreetView Game
StreetView Game
Tutorials

Keyboard Hacking Tutorials

Physical Computing Intro
https://itp.nyu.edu/physcomp/

Arduino Tutorials

Physical Computing w. Raspberry PI

Adafruit Hacking Tutorials
https://learn.adafruit.com/
References: