

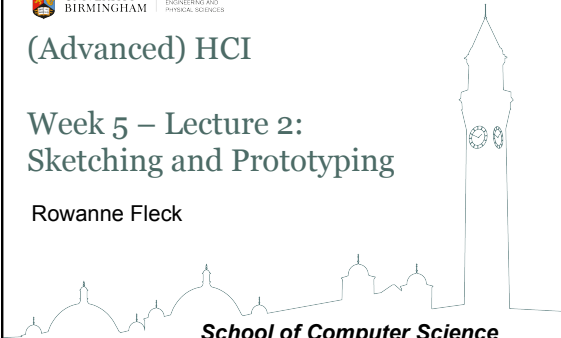
UNIVERSITY OF
BIRMINGHAM

COLLEGE OF
ENGINEERING AND
PHYSICAL SCIENCES

(Advanced) HCI

Week 5 – Lecture 2: Sketching and Prototyping

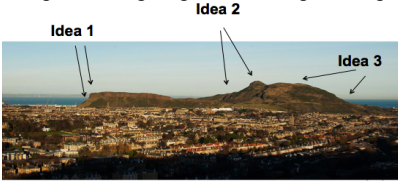
Rowanne Fleck



**School of Computer Science
University of Birmingham 2016/17**

Last time...


- ☐ Visual Search
- ☐ Designing
 - generating alternatives
 - getting the design right vs. the right design



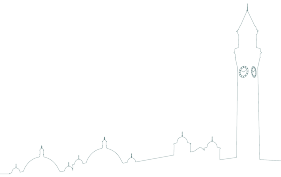
CC share alike Magnus Hagdorn

Sketching ideas

“Early in the design process it would not be unusual for a designer to generate 30 or so sketches a day. Each might explore a different concept.” p106 Buxton ‘Sketching User Experiences’



Prototyping



Sketches vs. prototyping

- Sketching
 - for exploring ideas
 - used earlier in the design process
- Prototypes
 - for *testing* ideas



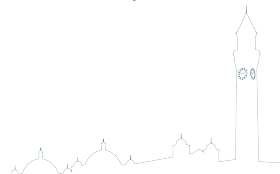
What IS a prototype?

<https://www.youtube.com/embed/zFBa7URT654>



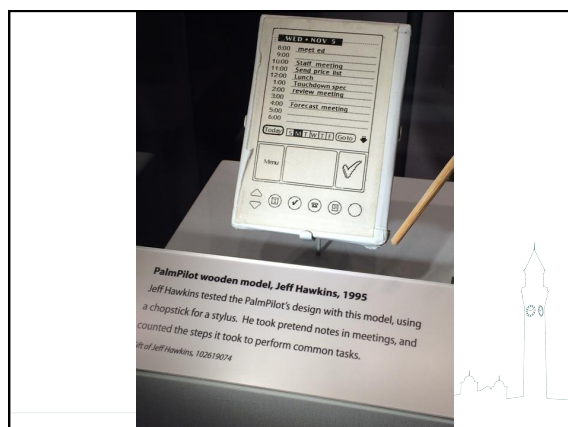
What IS a prototype?

- A representation of how an application and interactions with it will work.
- "one manifestation of a design that allows stakeholders to interact with it and explore its suitability"
 - Preece et al. (2015)









Different kinds of prototypes

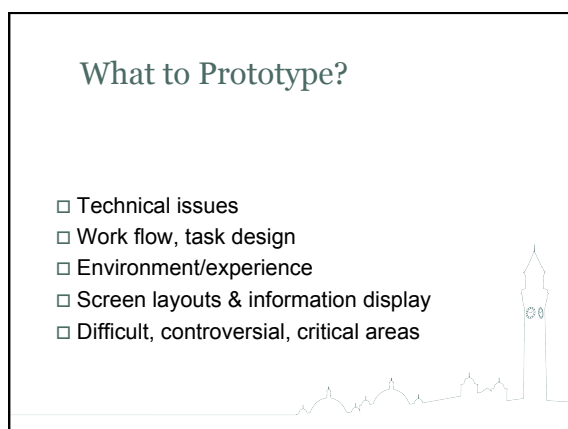
- ☐ a series of screen sketches
- ☐ a storyboard, i.e. a cartoon-like series of scenes
- ☐ a Powerpoint slide show
- ☐ a video simulating the use of a system
- ☐ a lump of wood (e.g. PalmPilot)
- ☐ a cardboard mock-up
- ☐ a piece of software with limited functionality written in the target language or in another language
- ☐ some electronics

Why Prototype?

- Evaluation & feedback
- Helps with cross team communication
- You can test out ideas for yourself
- Encourages reflection
- Helps choose between alternatives

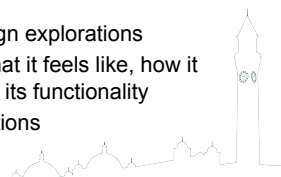






Looks-Like/Works-Like Prototypes

- Works-like prototypes
 - Focus on functionality
 - Technological proof of concept
- Looks-like prototypes
 - Industrial/visual design explorations
 - What it looks like, what it feels like, how it well it communicates its functionality
- Sample content simulations



Buchenau and Suri (2009)

- works-like prototype of the inside of an aeroplane

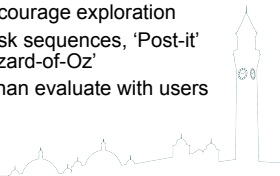


Sketching Exercise?



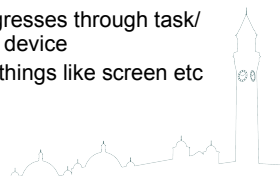
Lo-Fi Prototyping

- Uses a medium which is unlike the final medium
e.g. paper, cardboard
- Quick, cheap & easy to modify
- Should be flexible & encourage exploration
- sketches of screens, task sequences, 'Post-it' notes, storyboards, 'Wizard-of-Oz'
- Used more to explore than evaluate with users

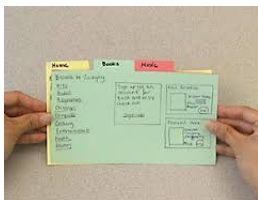


Storyboards

- Often used with scenarios
 - bringing more detail
 - chance to role play
- Series of sketches
 - shows how user progresses through task/ experience using the device
 - No need to focus on things like screen etc
- Used early in design



Paper prototyping



<http://hci.stanford.edu/courses/cs247/2009/handouts/paper-2009-exercise.html>

http://courses.csail.mit.edu/6.831/wiki/index.php?title=Projects/Hierarchical_Spreadsheet



Card-based prototypes

Index cards (3 X 5 inches)

Each card represents screen

Often used in web dev

User can go through cards doing a task

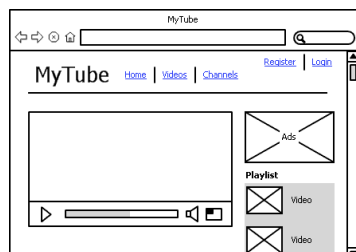
Paper and card based prototyping

- ☐ Some-one acts as the 'computer'
- ☐ Practice!!
- ☐ To explore ideas and carry out early user evaluations

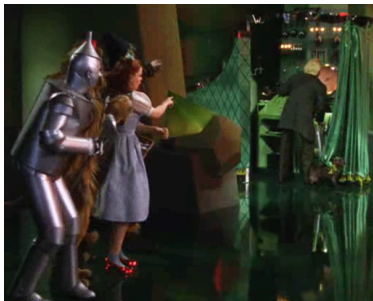


Wire-framing

- ☐ E.g. Balsamiq



Wizard of Oz



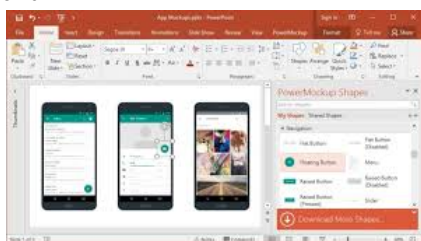
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Video Prototyping

- Hi-Fi: High-quality cinematic experiences of future visions
- Lo-fi: rapid video prototypes
 - Exploration of user experience issues
 - Ignore technical details
 - communicate the experience
 - requires thinking through details for the experience so interaction is believable.
- [Example video](#)

Can use other tools

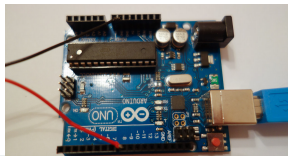
- Powerpoint
- Flash
- html



<http://tech.co/5-prototyping-tools-web-mobile-apps-2016-03>

Physical Prototyping

- Low-fi/paper
- Technology toolkits
 - E.g. arduino



Which prototype method to choose?

- What are you designing?
- What are the important aspects of your design you want to convey/ try out?
 - Appearance e.g. size, colour, weight, shape feel, sound
 - Functionality e.g. how the system functions and the users needs
 - Interactivity e.g. input behaviour, output behaviour, feedback, information
 - Spatial structure e.g. the arrangement of the interface or information and the relationships between
 - Data e.g. size, type, privacy, use, organization.
- Depends on your time, resources and skills!

Examples – with thanks to Daniel Harrison

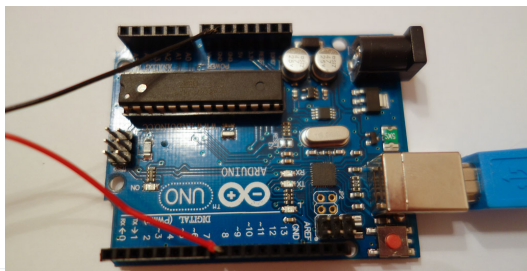
1: Paper Prototype and Wizard of Oz



Wizard of OZ



Danny's Prototype 2:
Using Arduino toolkit



Vibrating Handlebar: Iteration 1



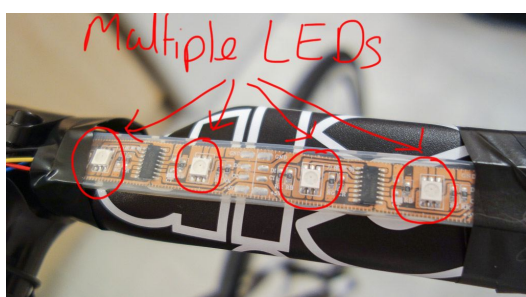
Vibrating Handlebar: Iteration 2



Flashing Lights: Iteration 1



Flashing Lights: Iteration 2



Summary

- Sketching is important early on to explore ideas – try to find the 'right design'
- Prototypes to test ideas
 - Interactive
 - low-fi vs. hi-fi
 - different stages of process, different purposes
 - Select what to represent and 'simulate' with your prototype. Can't do everything!

