HUMAN-COMPUTER INTERACTION

Lecture 5
THE POWER OF PROTOTYPING

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Good Design

http://www.alamgirhossain.com/cse5503

Bad Design costs lives, money, & time

Prototyping is a strategy for efficiently dealing with things that are hard to predict

Focus on Goals
Evolve the Designs

"The best way to have a good idea is to have lots of ideas."

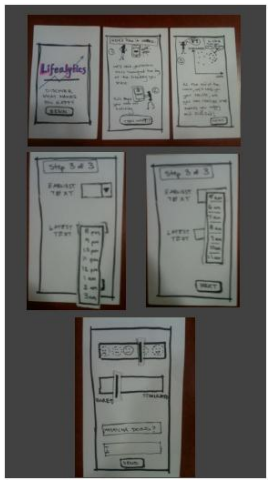
-Linus Pauling

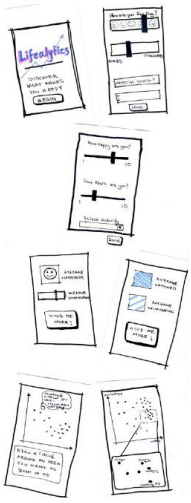
The rights of a prototype

- Should not be *required to be* complete
- Should be easy to change

PAPER PROTOTYPES

Paper prototyping

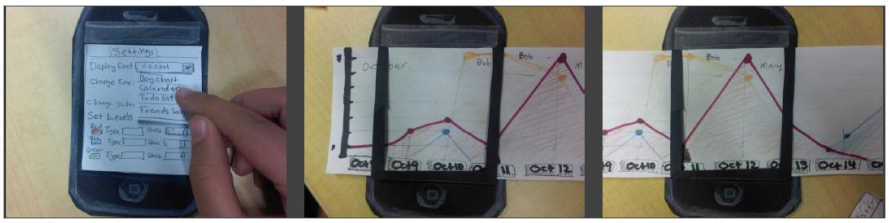




Try Prototypes with People

- Need a picture
- Test multiple
- Emphasis on conversation

Test multiple prototypes simultaneously to get most value



- http://speckyboy.com/2010/06/24/10-effective-video-examples-of-paper-prototyping/

WIZARD-OF-OZ PROTOTYPING

Wizard-Of-Oz Prototyping...

- ...simulates machine behavior
- with human operators

Wizard of Oz Technique

- Make an interactive application without
- (much) code
  - Front end interface
  - (Remote) wizard controls user interface
  - Makes sense when it's faster/cheaper/easier
- than making real thing
  - Get feedback from users people
  - Hi-fidelity: users think it's more real
  - Low-fidelity: more license to suggest changes

Advantages of Wizards

- Fast (faster) and thus, cheaper and more iterative prototypes
- Creating multiple variations is easy
- More "real" than paper prototyping
- Identifies bugs and problems with current design
- Places the user at the centre of development
- Can envision challenging-to-build applications
- Designers learn by playing wizard

Disadvantages of Wizards

- Simulations may misrepresent otherwise imperfect tech
- May simulate technologies that do not exist (and may never)
- Wizards require training and can be inconsistent
- Playing the wizard can be exhausting
- Some features (and limitations) are difficult/ impossible to simulate effectively
- May be inappropriate in some venues (e.g., home)

VIDEO PROTOTYPING

Benefits of Video Prototyping

- Cheap and fast
- Great communication tools
  - Helps achieve common ground
  - Ideally, portable and self-explanatory
- Can serve as a 'spec' for developers
- Ties interface designs to tasks
  - Aligns and orients interface choices
  - Makes sure you have a complete interface
  - And that there's nothing extra

What should the video show?

- Like a storyboard, the *whole* task, including motivation and success
  - Establishing shots and narrative help
- Draw on tasks you've observed
- Illustrate important tasks your system enables
- Can help scope a minimum-viable product
- Changes what design teams argue about (in a good way)

What are the steps?

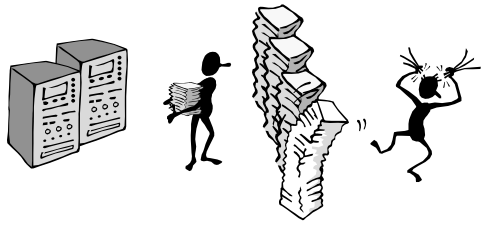
- Like anything, start with an outline (or your storyboards)
- Fine to extemporize
- Equipment
  - a camera. Nothing fancy. Could be a phone, built-in laptop camera...
  - people
  - and a realistic location
- In general, focus on message more than production values

Considerations

- Can use audio or a silent movie with title cards (audio can be finicky)
- Interface can be paper, mock-ups, code, or invisible (just showing the task)
- Can show both success and failure (of your interfaces and others)
- Edit as little as possible because editing is hugely time-consuming. (In-camera/pause editing is most efficient)

The initial paradigm

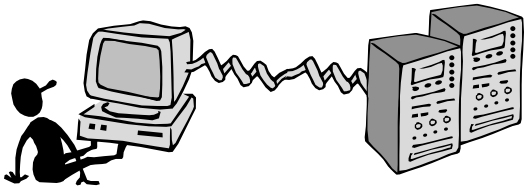
- Batch processing



Impersonal computing

Example Paradigm Shifts

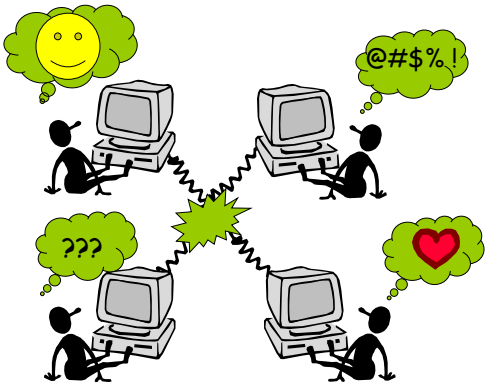
- Batch processing
- Time-sharing



Interactive computing

Example Paradigm Shifts

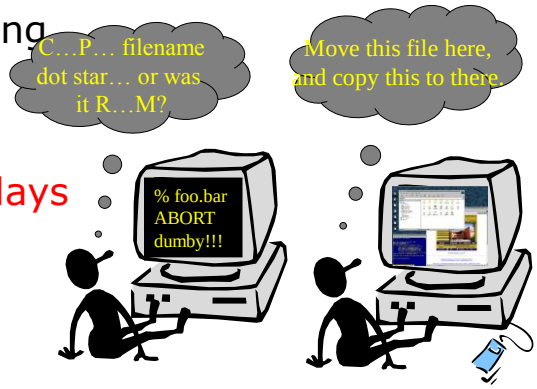
- Batch processing
- Timesharing
- Networking



Community computing

Example Paradigm Shifts

- Batch processing
- Timesharing
- Networking
- Graphical displays



Direct manipulation

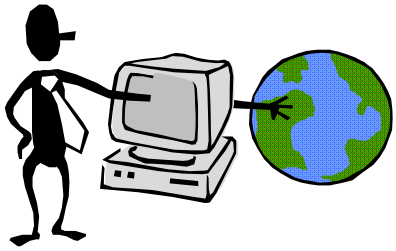
Example Paradigm Shifts

- Batch processing
- Timesharing
- Networking
- Graphical display
- Microprocessor

Personal computing

Example Paradigm Shifts

- Batch processing
- Timesharing
- Networking
- Graphical display
- Microprocessor
- WWW

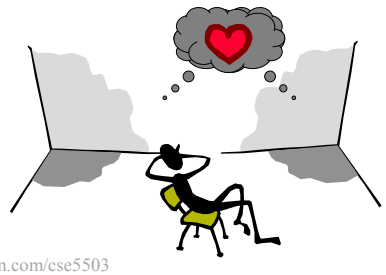


Global information

Example Paradigm Shifts

- Batch processing
- Timesharing
- Networking
- Graphical display
- Microprocessor
- WWW
- Ubiquitous Computing

- A symbiosis of physical and electronic worlds in service of everyday activities.



"The best way to predict the future is to invent it"