

Human-Computer Interaction

Week 3 Lecture 3C

Prototypes in HCI

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Duncan Stevenson

Australian National University

Prototypes in HCI

You can create and evaluate a prototype in your HCI design and implementation work at any stage where you want to get user feedback on your work.

Tools for creating prototypes include:

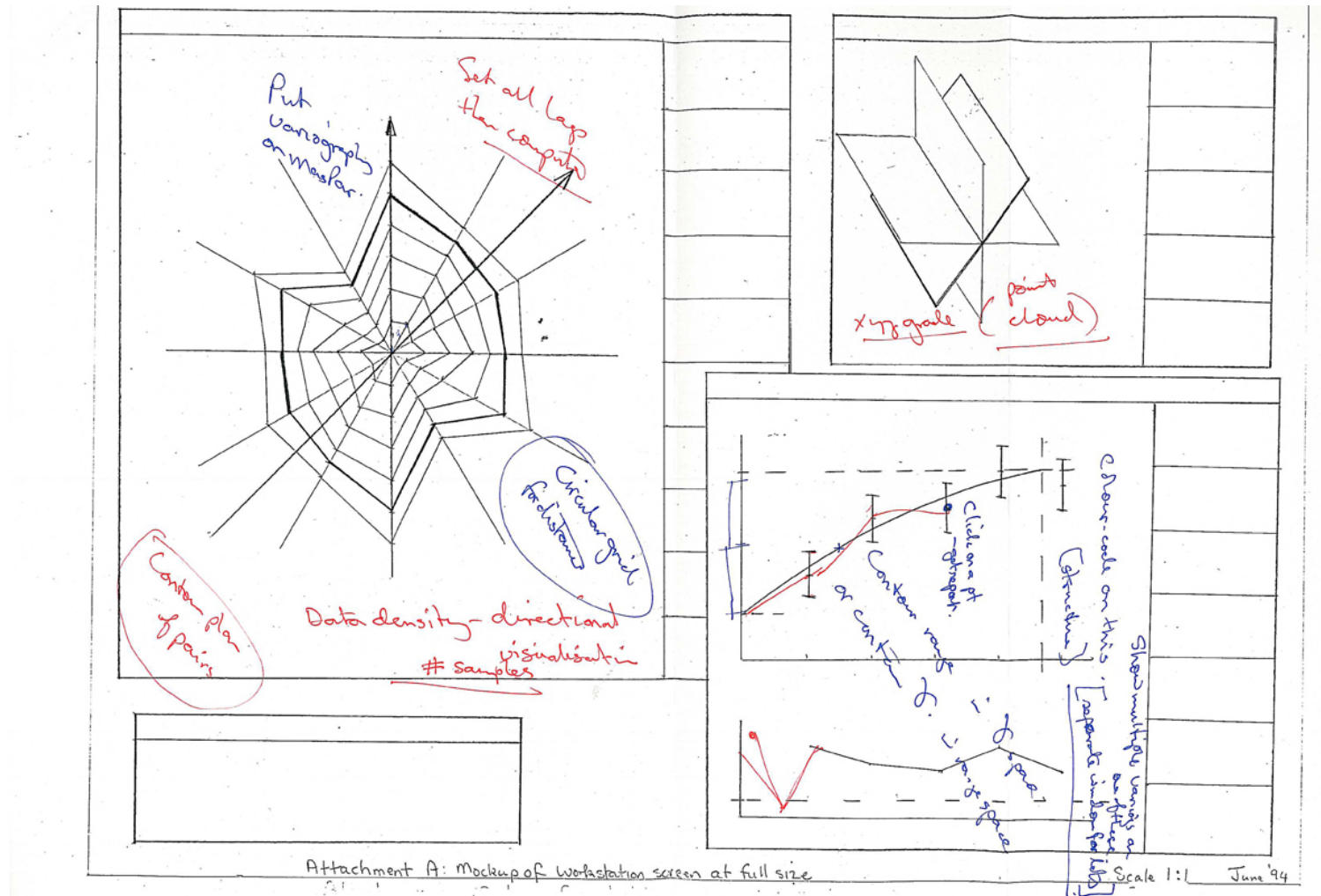
- Paper prototypes (sketches on actual sheets of paper)
- Story-board: sequences of small sketches showing a proposed set of actions
- Digital sketches (like sketches on paper)
- “Wire frame” sketches
- Animations: PowerPoint, HTML, video, stop-motion video

Prototypes for gathering requirements

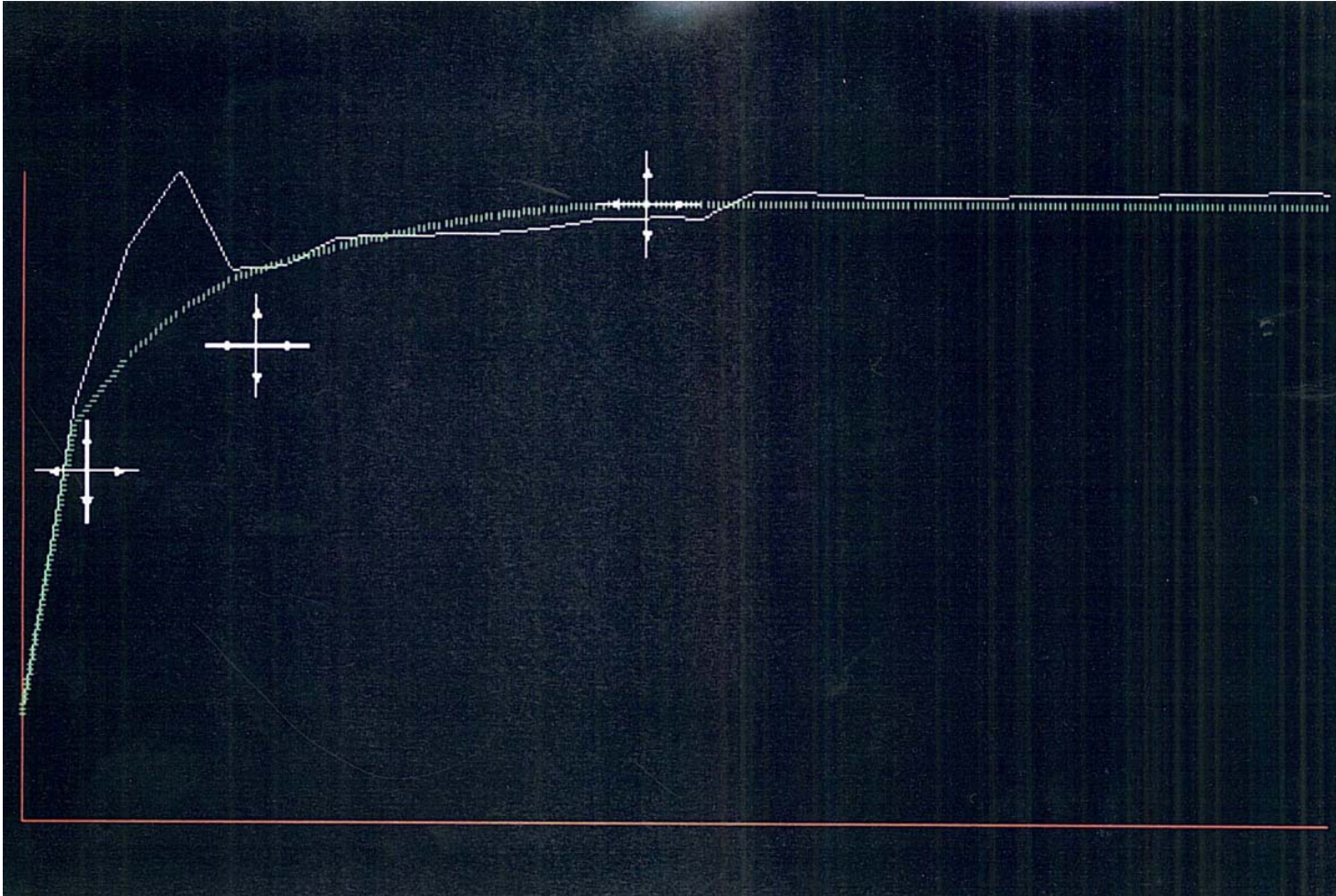
Gathering requirements is usually an iterative process:

- Interviews and observations lead you to write a set of requirements
Then repeat:
 - You create early-stage prototypes to illustrate your understanding
 - You present your understanding of the requirements to your users
 - Your users correct your understanding, then add more requirements
- You use early-stage prototypes to illustrate your ideas

Example of prototypes for gathering requirements



Example of prototypes for gathering requirements



Prototypes for reviewing the design of an interaction component

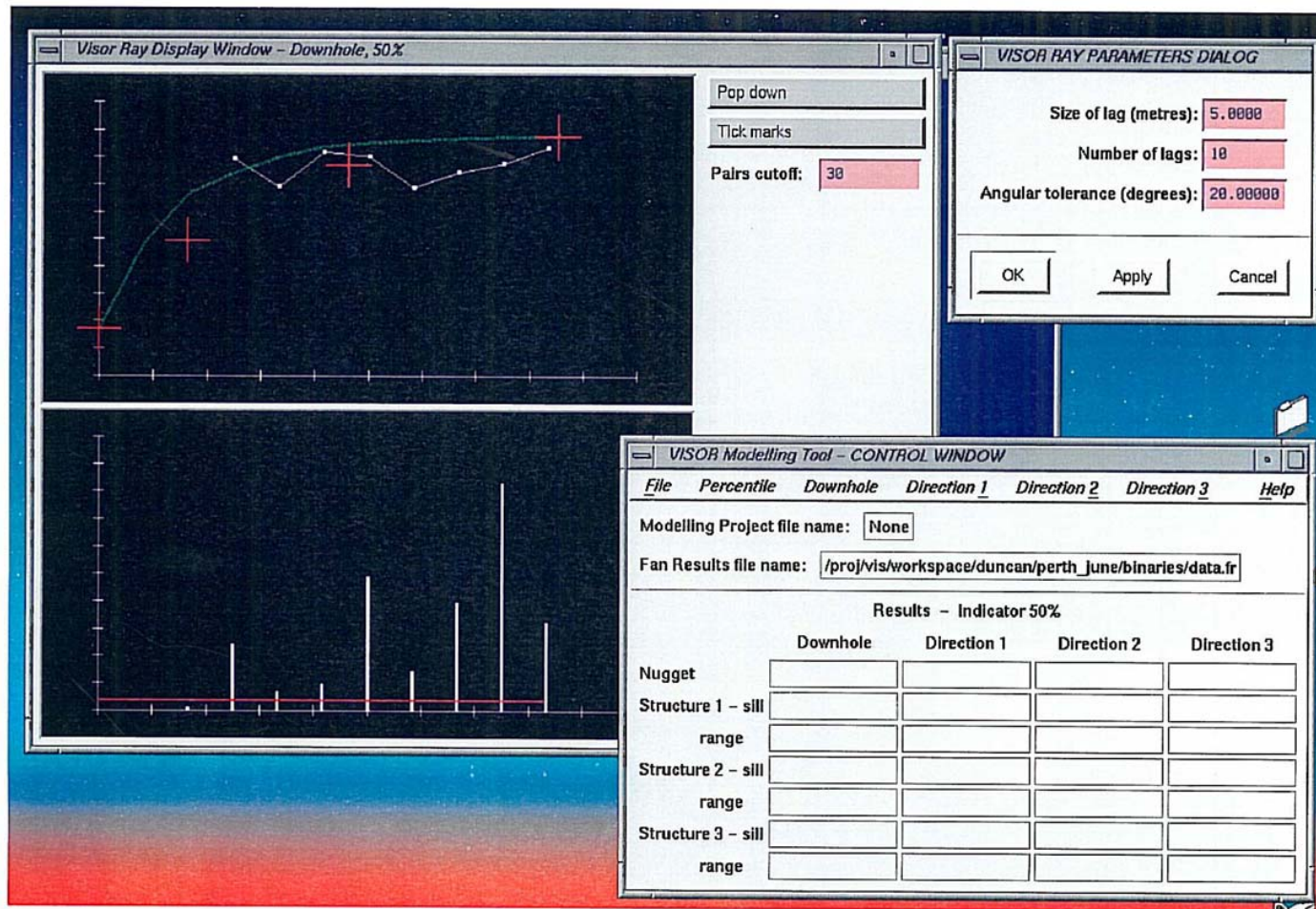
When you develop an idea for an interaction component you can build a “working” prototype and ask your clients/users to review it.

You are not asking “Does the prototype work?” because you should have already made sure that it does work [debug it properly].

You are asking “Is this the interaction that you want for the particular component I am developing?”

Example of reviewing how a component would behave

Visor Prototype - June 1995

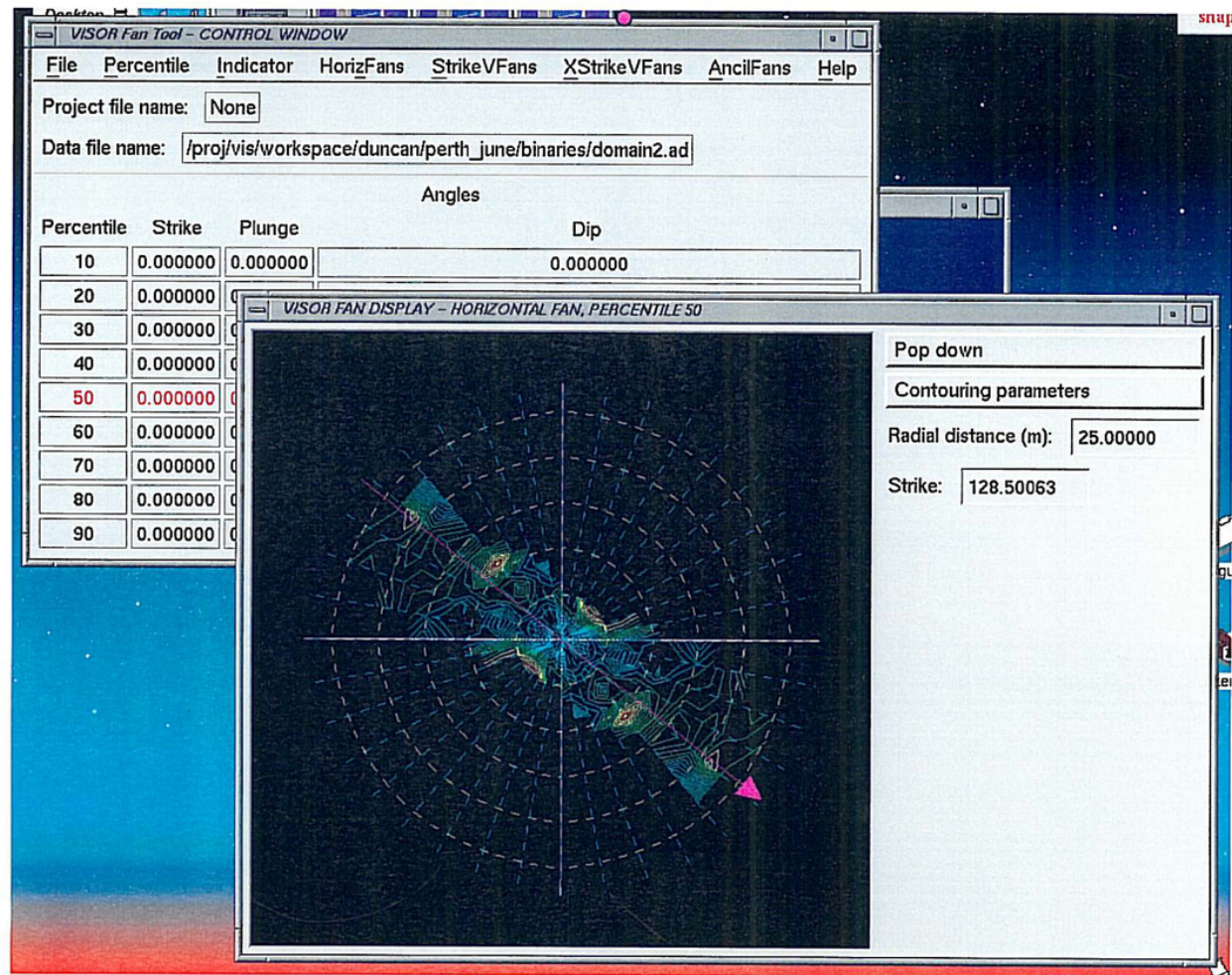


Prototypes for reviewing working interactive sub-systems

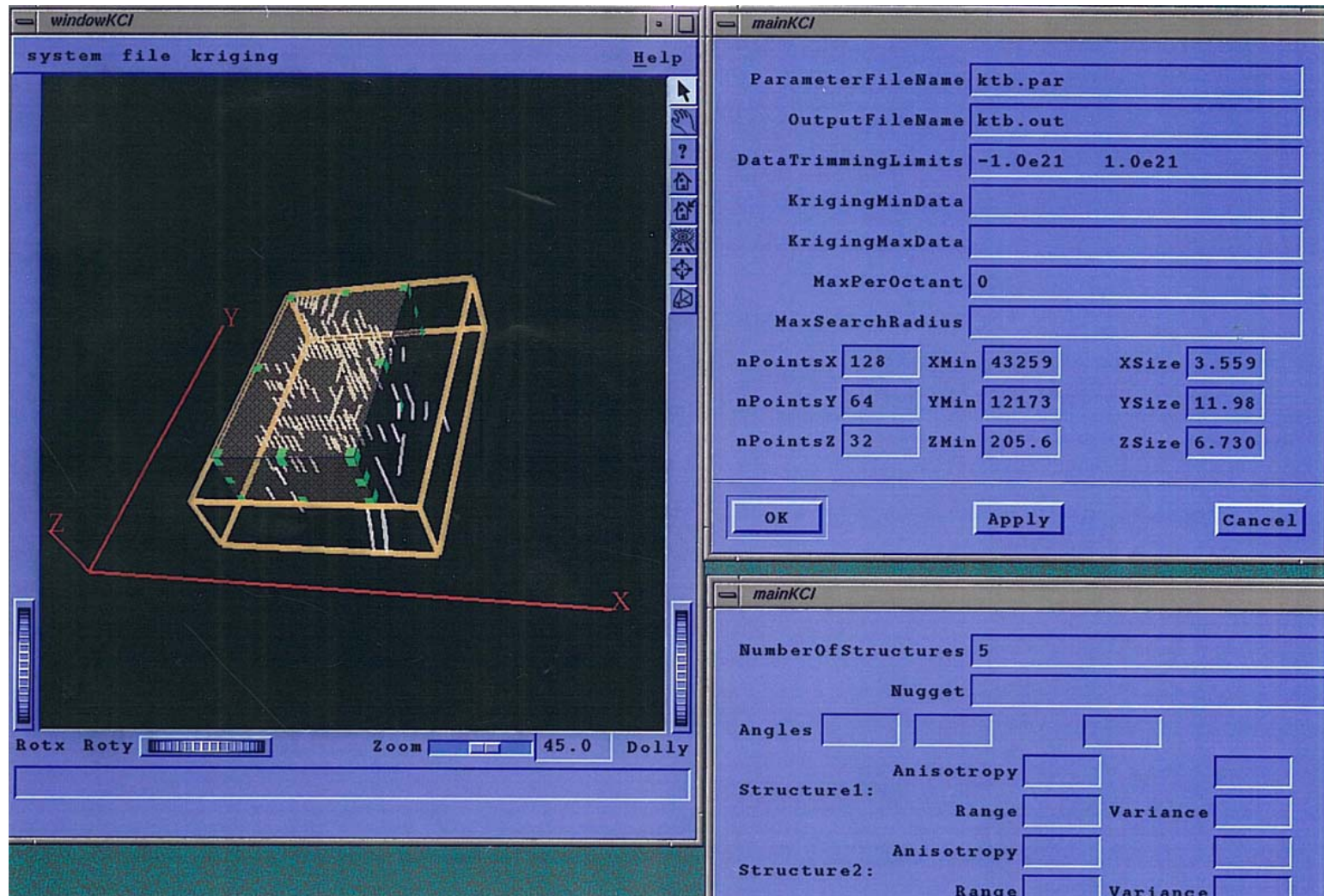
At some stage in your developments the prototypes will need to be able to use real data.

Example of a working interactive sub-system

Visor Prototype - June 1995



Example of a “failed” prototype



User evaluation of prototypes

You will reach the point where your prototype performs a meaningful task for the users. At this stage you can run user-based evaluations of your prototype.

You need to decide what you want your user to focus on:

- Paper prototypes: Are the sequences of actions appropriate? Are the components that the user expects actually there? Are there parts of the prototype that the user does not understand?
- Working prototypes: As for paper prototypes, plus: Are the actual interactions meaningful/usable? Would these interactions fit into the intended actual tasks?

First example

As part of our overall tele-health project with the Royal Children's Hospital we wanted to study whether the three video sub-systems gave the users enough visual information that they could understand what was happening in the whole of the other room.

We created activities that relied on visual understanding of what was happening in the other room and we observed what the participants did.

First example



Second example

We had most of our components of the telehealth system working and we wanted to show our prototype in action.

We prepared a scenario with a sequence of use-cases, each showing how part of the telehealth system would work. We connected these use-cases into a smoothly flowing story.

Short video.

Third example

We had a fully working prototype tele-health system designed for surgical outpatient consultations with children as patients

We ran actual outpatient consultations to find out how well our prototype handled the real needs of the surgeons, patients and patients' families.

Second example



Some important issues with prototypes

- You decide the scope of a prototype so that it shows just the features you want to show and nothing else
- A prototype succeeds if it creates communication between the interaction designer and the users/clients
- You need to explain the context and purpose of your prototype to the users/clients so that they do not think that it is an almost-ready product [surgical training example]
- You need to make judgements about the level of “reality” that your users/clients will accept when discussing a prototype
- Investigate appropriate tools for making your prototypes
- Your prototype is not a product