Ubiwise Ubicomp ~~Simulator~~

Conceptualizer

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Ubiwise Ubicomp Simulator:
Problems with Physical prototypes

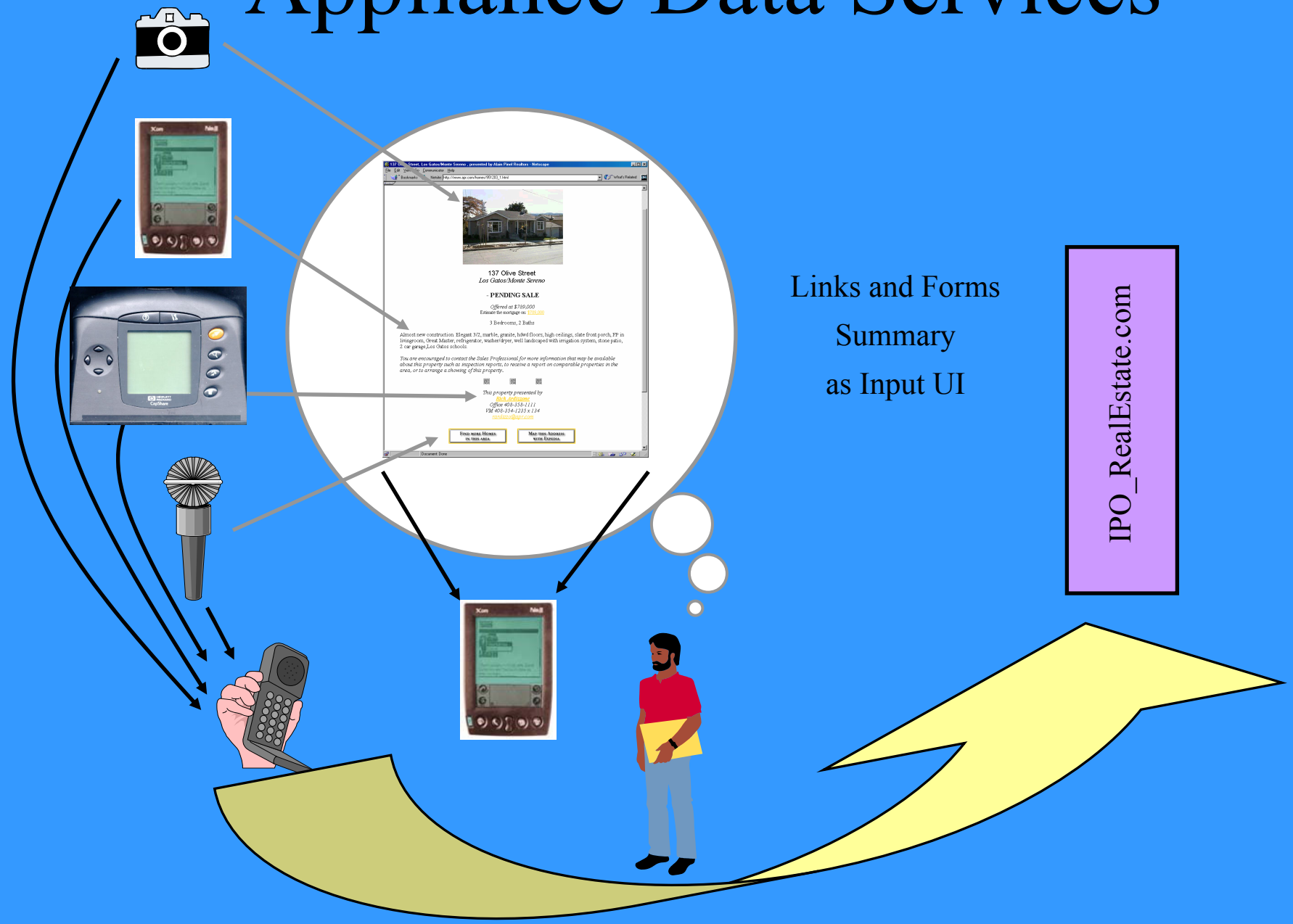
- Construction Difficult
  - 1 Device per on research group per year
  - Rarely iterate on design
- Little work on communications
  - Device/device or device/service
- Irreproducible
  - Demo hardware vanishes.
- Many issues ignored or poorly studied
  - Context, services, environment, etc

hp invent

Services for wireless handheld appliances …but you don't have any…

- Plan A: whine about it
  - Work on services; wait for appliances

Appliance Data Services



Links and Forms

Summary

as Input UI

IPO_RealEstate.com

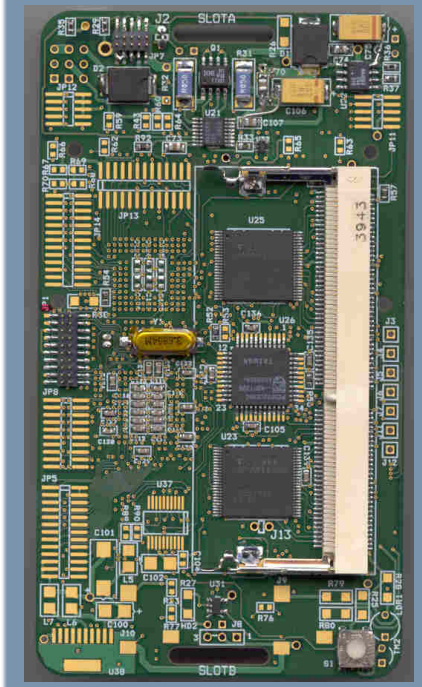
But there are no wireless handheld devices

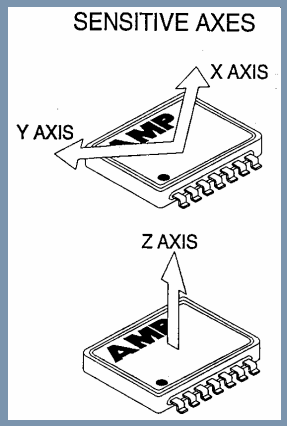
- Plan A: whine about it
  - Work on services; wait for appliances
- Plan B: Hack one
  - Hardware, device drivers, …

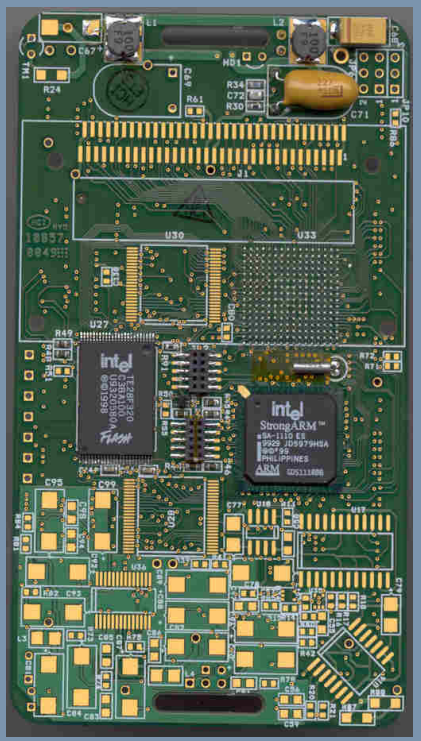
BadgePAD4

Newest Context Aware Platform

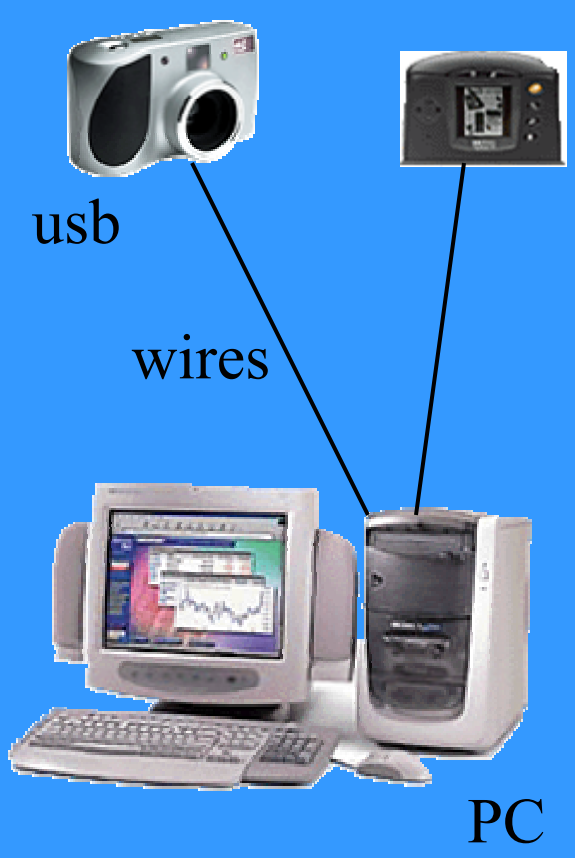
- Biometrics, esp imaging sensors
- Diverse Context Sensors
- Audio Processing, esp speech, noise cancellation and streaming audio
- Video Streaming, esp wireless
- Wireless Systems, can support 4G and new comm modalities ie VoIP
- Power optimization, supports measurements, core scaling and adaptive power policy generation

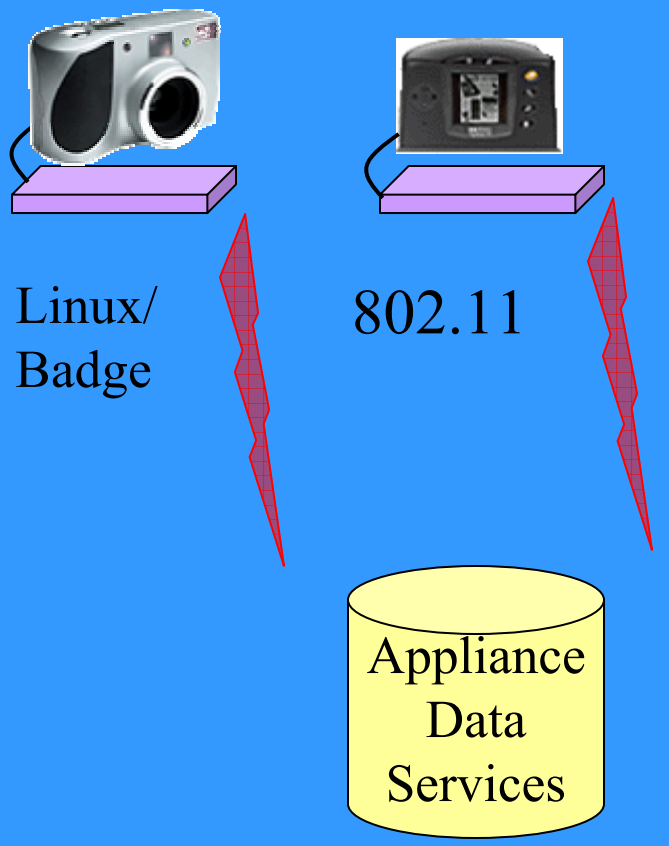






GLAD: Glimmer/Linux Access Device





But there are no wireless handheld devices

- Plan A: whine about it
  - Work on services; wait for appliances
- Plan B: Hack one
  - Hardware, device drivers, …
- Plan C: Build one
  - See Plan B.
- Plan D: Fake one
  - Gee this is easy….Ubiwise is born!

Two window virtual world

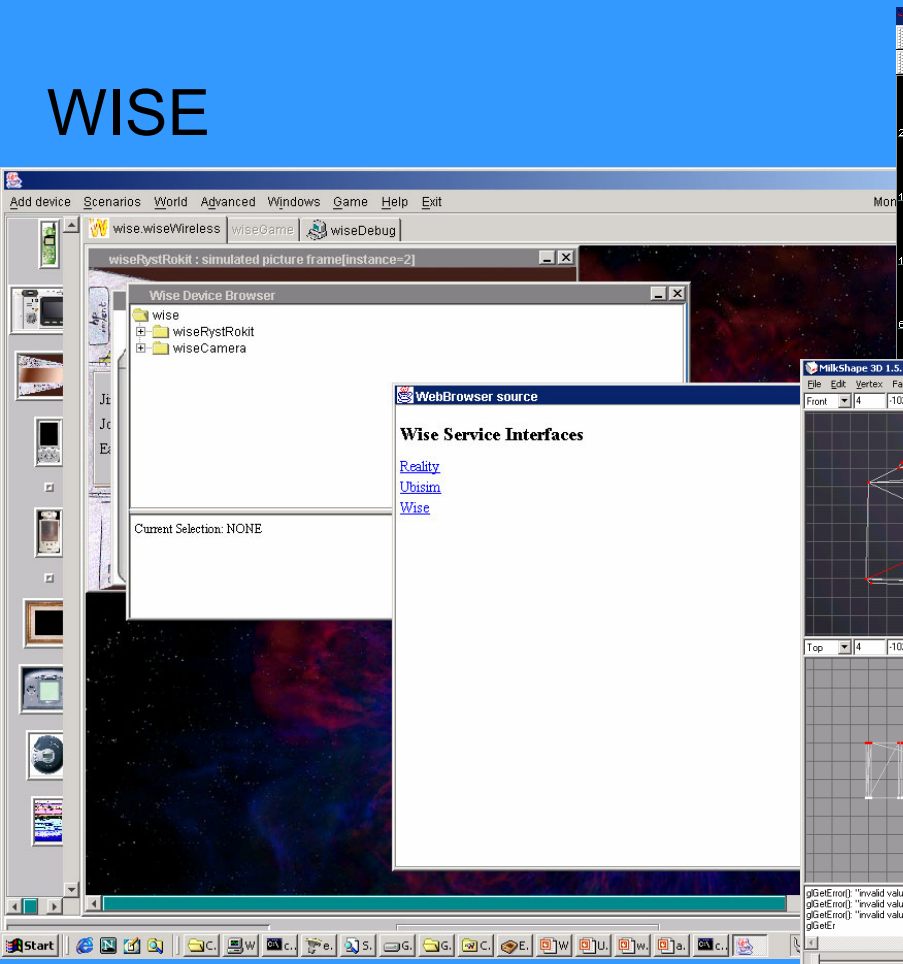
Close-up Device View

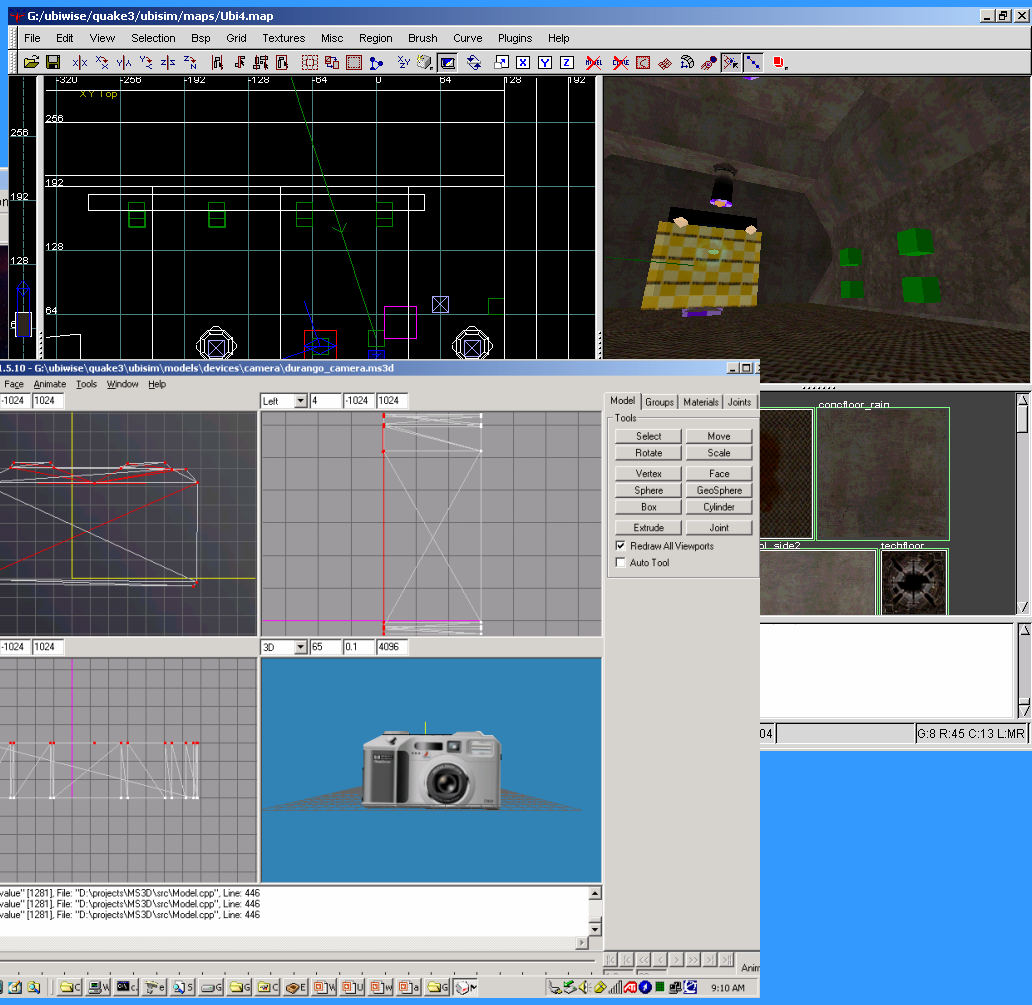
Physical Environment View

And a suite of design tools

GTKRadiant

WISE

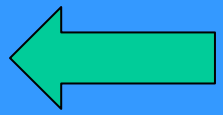




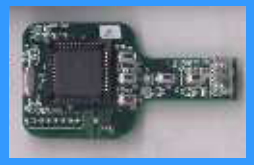
Milkshape3D

Ubiwise Design Goals

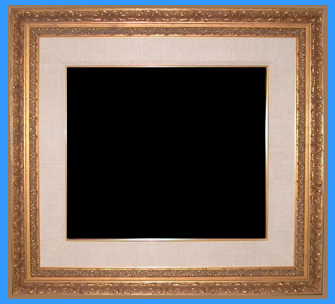
- Ease of Design
  - Java Toolkit, Scenario Editors ← *progress*
- Communications focus
  - Protocol development framework ← *idea*
- Reproducible
  - Record/playback; update strategy ← *some*
- Open research tool
  - Available, open source (LGPL) ← *progress*
  - http://devnet.hp.com/projects/ubiwise



Build up a library of devices



Handheld



Fixed

Build up a library of Places

Downtown

Museum ✓

Bus

Conference room

Classroom Home Store

Build up a library of communications protocols

✓ 802.11

Physical Media.

3G

Bluetooth

Build up a library of ubicomp services

✓ ✓

- Web Presence, WebID, CC/PP,…
- Event Heap, Icrafter,…
- Gaia, Context Toolkit, …

Explore the combinations

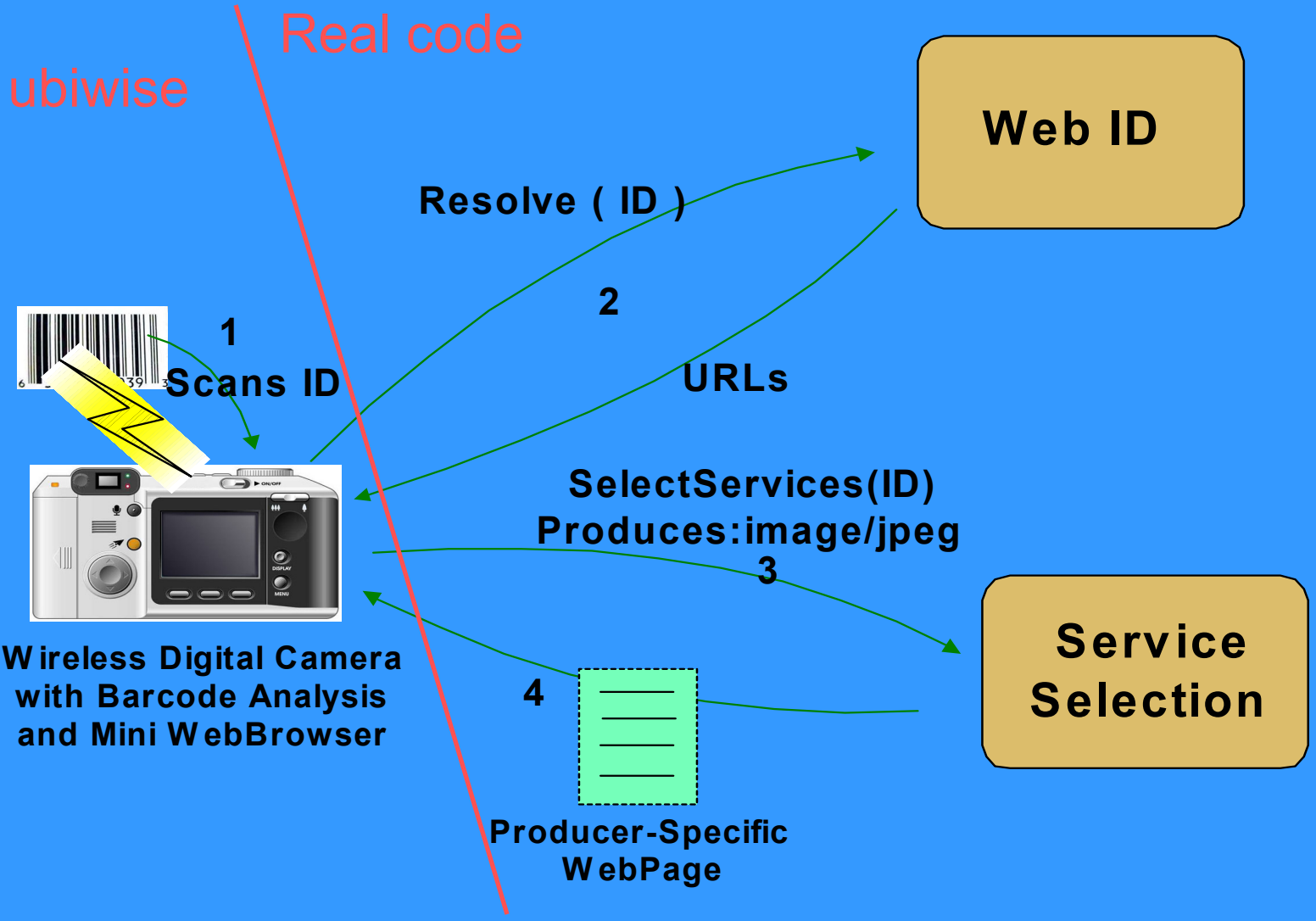
- Combine devices
  - Camera+barcode+rfid+compass+gps+802.11a+
- Combine a prototype device+world simulated
  - Wireless camera prototype, fake digiframe
- Combine two ubicomp systems
  - *iroom* and *cooltown*
  - *Gaia* and *oxygen*
- Combine subsystems
  - RADAR+Websign+WebId= ?

Ubiwise Evaluation

- Use it in our own work
  - *Glimmer Project*
- Help others use it; adapt it.
  - *Agile Web browser*
- Offer it; “market” it
  - *http://handhelds.org*

If Ubicomp Folk Use It, It’s Useful

Glimmer Project With UbiWise



Insert Demo Here…

Project Information - Netscape 6
File Edit View Search Go Bookmarks Tasks Help
https://admin.handhelds.org/view_proj.php?id=ubiwise
Home Search Bookmarks Google.com

handhelds.org

Not logged in. Login

Home
Projects
Hosts
Users
My Account
Edit

Project Information

Attribute	Value
Name	Ubiwise Simulator for Ubiquitous Computing
Id	ubiwise
Description	Ubiwise is a desktop-computer based simulator for learning about the interaction of people in places with many computing and communications devices as well as other physical objects. Ubiwise is an extensible multi-client/multi-server system. Three projects form its core: Ubiwise: a documentation, installation, and integration project. Wise: a Java client/server project Ubisim: a 3D graphics client/server project.
Home page	http://www.hpl.hp.com/personal/John_Barton/ur/ubiwise/
CVS subdirectories	/cvs/ubiwise
Mailing list	yes
Owners	James Hicks John Barton
Members	James Hicks John Barton Vikram Vijayaraghavan

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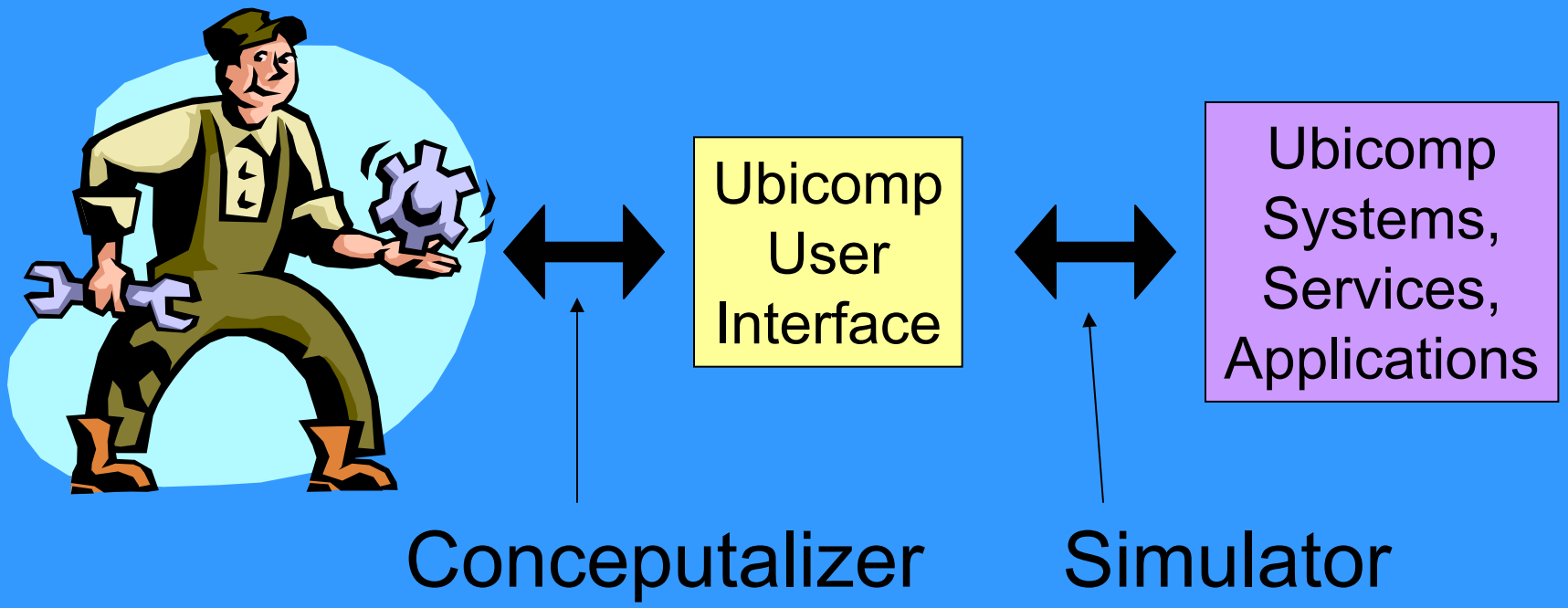
Ubiwise:
A Simulator or a Conceputalizer?



http://www.cooltown.com

http://handhelds.org

http://www.exploratorium.edu/guidebook