Ubiwise Uubicomp 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
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
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

WISE

Milkshape3D

GTKRadiant
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
Build up a library of devices

Handheld

Fixed
Build up a library of Places

- Downtown
- Conference room
- Museum
- Bus
- Classroom
- Home
- Store
Build up a library of communications protocols.
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

1. Scans ID

2. Resolve (ID)

3. SelectServices(ID)
   Produces: image/jpeg

4. Producer-Specific WebPage

Web ID

Service Selection

ubiwise

Real code

Wireless Digital Camera with Barcode Analysis and Mini WebBrowser
Insert Demo Here…
# Project Information

## Attribute

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<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
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<td>Description</td>
<td>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.</td>
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<tr>
<td>Owners</td>
<td>James Hicks, John Barton</td>
</tr>
<tr>
<td>Members</td>
<td>James Hicks, John Barton, Vikram Vijayaghavan</td>
</tr>
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Ubiwise: A Simulator or a Conceputalizer?
http://www.cooltown.com

http://handhelds.org

http://www.exploratorium.edu/guidebook