Kiosks
and more kiosks

Intelligent Environments

- Pervasive computing deals with:
  - human-centric input modalities
  - hand-held devices
  - intelligent environments

- Intelligent environments often have kiosks
  - commercial -- very big market
  - academic -- some (but not many) projects
What is a “Kiosk”

Word History: The word kiosk was originally taken into English from Turkish, in which its source kök meant “pavilion.” The open structures referred to by the Turkish word were used as summerhouses in Turkey and Persia. The first recorded use of kiosk in English (1625) refers to these Middle Eastern pavilions, which Europeans imitated in their own gardens and parks. In France and Belgium, where the Turkish word had also been borrowed, their word kiosque was applied to something lower on the scale, structures resembling these pavilions but used as places to sell newspapers or as bandstands. England borrowed this lowly structure from France and reborrowed the word, which is first recorded in 1865 with reference to a place where newspapers are sold.

What is a “kiosk”?

A stall set up in a public place where one can obtain information, e.g. tourist information. The information may be provided by a human or by a computer. In the latter case, the data may be stored locally (e.g. on CD-ROM) or accessed via a network using some kind of distributed information retrieval system such as Gopher or World-Wide Web.
Ultra compact kiosk delivers dynamic self-service at the point of decision

IBM Anyplace Kiosk

**Highlights**
- **Powerful computing capability**: Flat panel touchscreen, IBM and IBM SB, ideal for any environment.
- **17” touchscreen modes**: Upper surface area and ultra compact form factor.
- **Flexible platform**: A dynamic, dynamic kiosk experience.
- **Versatile**: Perfect for any environment.
- **Simple to install and manage**: Cost-effective, easy to install, and manage.

**Bring the kiosk to the customer**
- **IBM server**: IBM virtual server.
- **IBM SB**: IBM server.
- **IBM PEB**: IBM processor.
- **IBM MRA**: IBM memory.
- **IBM CD player**: IBM CD player.
- **IBM printer**: IBM printer.
- **IBM scanner**: IBM scanner.
- **IBM keyboard**: IBM keyboard.
- **IBM mouse**: IBM mouse.
- **IBM ergonomic**: IBM ergonomic.
- **IBM power supply**: IBM power supply.

**Kiosk dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**Specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM Anyplace Kiosk**

**Interactive display**: IBM Power 5. IBM touchscreen display and IBM LCD display.

**Font size**: IBM Power 5.

**IBM server**

**IBM Power 5**

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.

**IBM virtual server**

**IBM processor**

**IBM MRA**

**IBM PEB**

**IBM CD player**

**IBM printer**

**IBM scanner**

**IBM keyboard**

**IBM mouse**

**IBM ergonomic**

**IBM power supply**

**IBM dimensions**
- **Width**: 17”
- **Height**: 32”
- **Depth**: 12”

**IBM server specifications**
- **Operating system**: IBM AIX.
- **Processor**: IBM Power 5.
- **Memory**: IBM Power 5.
- **Hard disk**: IBM Power 5.
- **Video**: IBM Power 5.
- **Network**: IBM Power 5.
- **Printer**: IBM Power 5.
- **Scanner**: IBM Power 5.
- **Keyboard**: IBM Power 5.
- **Mouse**: IBM Power 5.
Commercial

- Huge market in Kiosks (in $billions)
  - Point of Sales (POS), without human salesperson
- Informational display
  - subtle (and not subtle) form of advertisement
  - replace human agent, e.g. guidance
- Whole focus on current customer interaction
  - Real focus is on reducing cost of doing business

Usual Kiosk Features

- Users should
  - not be allowed to exit browser
  - have no access to os or other apps
  - cannot change settings & privacy protected
- After period of inactivity, kiosk resets
- A different mode of web browser
  - Mozilla, Opera, Explorer, Safari: Kiosk modes
- Sounds like an information appliance
Academic

- Emphasis is on richer interaction
- Collaboration is the key concept
  - between people
  - between objects (physical and virtual)
  - between places
- Let’s look at some examples

IBM BlueBoard

Fast & Simple...
A BlueBoard is supposed to be fast. Badge in, see your information, badge out — all in less time than it takes to just open your laptop. We want to be able to show your calendar in less than 5 seconds from the time you walk up.

Sharing...
Although we’re flooded in information, it’s often hard to share meaningful pieces of content. With BlueBoard acting as a go-between, it’s simple to share a drawing, a single slide, a URL or a note. Just show the item, and drag it to your friend’s personal icon. When they badge-out, it’s sent to them automatically as email.
BlueBoard

- Details
  - Year began: 2000
  - 1.3 Meter Plasma Display (touchscreen)
  - Badge reader (RFID)
  - No keyboard or mouse
  - Laptop PC hidden
  - Thin client software

- Fast Personal Use

Personal vs Communal Uses

- P-con: image of person representing their content
- Personalize by linking content beforehand (at some web site)
- Share info:
  - drag-n-drop info to p-con
  - email gets sent when badge-out
- www.almaden.ibm.com/software/BlueBoard/index.shtml
Community Wall

- Ambient display gives sense of community
- Work teams more distributed
- Content Selection
  - Choose which 10 items to present
  - Re-evaluate every 10 min
- Backstage rules
  - Relevance of item at specific time
- User Interaction
  - Touching item increases its space and value
  - Touching item can cause action (email)

Dynamic Profile based on Context Sensing

<table>
<thead>
<tr>
<th>Location-orientied</th>
<th>Infrared sensors</th>
<th>Image analysis</th>
<th>Sound/Speech analysis</th>
<th>Active badges</th>
<th>Pressure mats</th>
<th>PDAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons (#) in room</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Persons (#) in screen area</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Persons (#) in sub-areas (near/far, left/right)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Person-oriented</td>
<td>Face-orientation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Movement</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Identity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 2. Sensor types and situation data they can provide.
Notification Collage

- Motivation
  - Aware of many things: people, events, stuff
  - Too much info in our environment
  - Info is static and dynamic
  - Relevance depends on time
  - Sometimes act on info when aware of it
  - Information awareness is a result of gossiping

- People post stuff by dragging it to Collage

- Potential extension:
  - only my friends see stuff I look at
  - their friends will see it, if they look at it also
iCom (MIT Media Lab)

- A multipoint awareness and communication portal for connecting remote social spaces

---

iCom

- Open 24 hours a day
- Background mode is low bandwidth
- Can transform into foreground, tele-meetings
- Screen projections sync’d at each site
  - nothing is recorded
- Bulletin board for messages
  - ordered by popularity and age
Dummbo

- Normal white board; no special training
- Everything captured (audio & writing)
  - like SMARTBoard a commercial product or Mimo
  - Detects which pen is picked up and writing

Figure 1: (Left) The front of DUMMBO. Notice the lack of any buttons, computer screens, or cameras. (Right) Rear-view of DUMMBO. The computational power of the whiteboard is hidden under the board behind a curtain.

Dummbo (Georgia Tech)

Figure 2: DUMMBO access interface. The user selects filter values corresponding to when, who, and where. DUMMBO then displays all days containing whiteboard activity. Selecting a day will highlight all the sessions recording in that day. Playback controls allow for live playback of the meeting.
A Wallable Macro Device
(CRL -- DEC, COMPAQ, HP)

- Message Panel (on the wall)
  - audio/visual messages to visitors or members
  - an elaborate info kiosk
    - presented here for the cool technology (scary faces)

![Diagram of the Wallable Macro Device](image)

**Figure 3.** Two views of the video sensor. On the left there are six kernels evenly spaced, while on the right only four. On the right is a view of an individual being detected. The white horizontal bar indicating the activity within the kernel itself.

![Message Panel](image)

**Figure 4.** Three example poses of the synthetic face created by FaceWorks: (1) Static, (2) rotate ¼ view and (3) smiling and talking. The face is the principal feedback mechanism in the Wallable macro device.
Public Ambient Displays

AMBIENT DISPLAYS AND MOBILE DEVICES FOR THE CREATION OF SOCIAL ARCHITECTURAL SPACES

Supporting informal communication and social awareness in organisations
Norbert Streitz, Thorsten Prante, Carsten Röcker, Daniel Van Alphen, Carsten Magerkurth, Richard Stenzel, Daniela Plewe
AMDIENT research division, Fraunhofer IPSI
Darmstadt, Germany (streitz, prante, roecker, magerkur, stenzel)@ipsi.fraunhofer.de

Chapter 16

First, the better the atmosphere, the bigger the amount of light in the waving patterns. Second, a low activity level is represented in only a few light "tails" ascending, whereas a higher level of activity results in more light "tails" ascending.

Media Spaces (Xerox 1987)

Figure 3.2 A typical configuration for an analog media space node, with a video camera, microphone, video monitor and workstation.
Media Spaces

Benefit of kiosks

- context aware -- know what you want
- limited functionality; makes interface easier
- dialog with kiosk
MIT Dome Stuff

• Next week, more details
• https://domeview.mit.edu

Hello Larry Rudolph, Welcome to DomeView v.0.9.5!
We have detected that you are new to the DomeView system. Please request to join a group by clicking on the Join Group link on the left navigation bar.

Questions or Comments — email domeview@mit.edu