Mobile Devices

CMSC 434
Intro to HCI
Ben Bederson

Why Mobile Devices Matter

• Phones : PCs sold in 2008? (10: 1)
• 2X more mobiles than landlines (2007) (2.7 B vs. 1.3 B)
• 2x more SMS-ers than emailers (2007) (1.8 B vs. 800 M)
• In 2007, more users will access the internet via phone than PC
Key Challenges

• Limited I/O
• Limited resources (CPU, memory, battery, bandwidth)
• Diversified context of use
• Different activities
• Limited attention

Wide Range of Forms & Styles
Diversified Context of Use

- More room for specialized interaction

Different Activities

- Activities are different
- Not just in different places
Limited Attention

• Mobile scenarios vie for our resources
  – Mental
  – Physical

Personal

• We don’t share our phones much
  (even among family)
• 7/10 people sleep with their phones [Nokia]
Affordances

Easy to hold in one hand
– Leaves other hand for manipulation

Easy to carry
– Lightweight
– Small
– Rotate, squeeze, drop, etc.

Speech input
– Primary use of phone

Alphanumeric input (NOT)

Other Input
– Buttons, dials, etc.
– Touchscreen

Small screen/Varying resolution
– Can only show most important information
– Higher resolution make some tasks easier (reading, …)
  iPhone (163 dpi)

Wide range of prices
– Cheap phones treated as throwaways
– Expensive phones handled with care

Alphanumeric Input
Alphanumeric Input

www.lumio.com

Selection

- D-Pad
- Dial
- Touch screen
  - resistive
  - capacitive
- Roller ball
Other Sensing

[QR Code]

Back of device

Accelerometer

Context Detection

Walking

Running

[From Cavis & Cortez – 2008]
**Small Display**

The plasma membrane is the edge of life, the boundary that separates the living cell from the nonliving surroundings.

Summary Thumbnails
[Baudisch et al., 2002]

Resources

http://mobilewebbook.com/

http://www.sitepoint.com/article/designing-for-mobile-web/