Mobile Devices

CMSC 434
Intro to HCI
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Questions?

• Course evaluation now open: www.courseevalum.umd.edu
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

10% drive while phoning
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, …)

Wide range of price-points
– Cheap phones treated as throwaways
– Expensive phones handled with care

iPhone (163 dpi)
Alphanumeric Input
Alphanumeric Input

www.lumio.com
Selection

D-Pad

Touch screen
  - resistive
  - capacitive

Dial

Roller ball
Other Sensing

QR Code

Back of device

Accelerometer
Context Detection

[From Cavis & Cortez – 2008]
The plasma membrane is the edge of life, the boundary that separates the living cell from the nonliving surroundings.

Automatic Text Reduction
[Baudisch et al., 2002]

Summary Thumbnails
[Lam et al., 2005]