MOBILE TOUCHSCREEN UI

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TOUCHSCREEN MOBILE

• Input device: mobile phone
• Layered with special type of glass on top
• User interact directly on the glass
• Interaction through finger or stylus
HAPTIC FEEDBACK

• Touch sensation through vibration created by an actuator or motor
• Controlled by embedded software
• Integrated into a mobile’s user interface via control software APIs.
• Enhance user experience: provide physical and realistic feel
• Confirmation response to user’s touch
• Reduce errors and increase speed

Immersion’s building blocks of a Haptic system
TOUCH FEEDBACK

Other types of touch feedback:

- Audio: confirms touch through sound feedback
  - Example: Piano app
  - Less effective for usage in quiet environment

- Visual: confirms touch through visual transition
  - Example: Icon’s target edge glow upon tap
  - Needs user’s concentration, finger can occlude visual feedback

- Multi-modal experience: Incorporate audio and/or visual feedback with haptic feedback
  - Very popular
  - Customizable
  - Example: Piano app (again!)
HAPTIC DESIGN FOR GESTURES

- Tap
  - One-finger press, lift
  - Single haptic effect
  - Example: Select

- Double Tap
  - One-finger press, lift, one-finger press, lift
  - Graphical followed by haptic transition
  - Example: Zoom in

- Long Press
  - One-finger press, wait for haptic, lift
  - Longer haptic effect
  - Example: Select a link to open in new tab
  - Eliminate early lift

- Swipe
  - One-finger press, move, lift
  - Visual transition
  - Example: Scroll
HAPTIC DESIGN FOR GESTURES

- **Pinch**
  - Two-finger press, move inwards, lift
  - Multiple effects
  - Example: Zoom out

- **Expand**
  - Two-finger press, move outwards, lift
  - Multi-touch gesture
  - Example: Zoom in

- **Drag**
  - One-finger press, wait, move, lift
  - Haptic followed by visual effect
  - Example: Pick & move
USER MOBILE INTERACTION BEHAVIOR

• Users hold their phone mostly with one hand keeping other hand free
• Mostly use right hand to interact on touch screen device
• User point directly on screen using their thumb
• User behavior define fundamental & best touch UI design patterns

• **Challenge**: Small screen size
• “Thumb Zone”: termed by Steven Hoober in his book- “Designing Mobile Interfaces”,
• **Thumb Zone**: most comfortable area for touch navigation reachable from user’s thumb
BEST TOUCH UI PRACTICES

Follow the Thumb Rule

• Place the most of the important navigation elements within the Thumb Zone
  • Identify target user
  • Comfortable and natural UX

Overlaying Thumb Zone over the Facebook Android application
BEST TOUCH UI PRACTICES

Make larger touch target

- Fitt’s Law: Time to reach a target is longer if the target is smaller
- Larger space for user to hit: lesser error rate

iPhone’s recommended target size
BEST TOUCH UI PRACTICES

Larger touch element

• Tap on element easily and effortlessly
• High success rate
• Eye catcher and feel important
• Senior citizen-friendly UI
BEST TOUCH UI PRACTICES

Touch feedback

• Reconfirmation of a successful action
• Time and intensity of vibrations: mild, short or rhythmic
• Customizing option: freedom of user to choose the type, duration and integration of feedbacks
BEST TOUCH UI PRACTICES

Avoid touch congestion and elimination

- Do not cram too many Uis in a single space
  - Increase the risk of touching the next wrong key
- Do not eliminate important Uis to accommodate
- Don’t waste resources through UI (battery, mobile data)
- Shape UI elements to provide enough swipe space
- Remove unnecessary Uis/options for a clearer view
BEST TOUCH UI PRACTICES

Aesthetic and consistent design elements

• Make design aesthetically pleasing: combine beauty, simplicity
• Adjust touch key pixels and color for better resolution and attention
• If it acts the same then it should look the same
  • Visually distinctive
  • Avoids confusion
• Do not mimic the same design when changing platform
  • Create new design depending on the platform
ADVANTAGES OF TOUCH UIs

• Simple, easy and intuitive
  • Everyone is an expert!

• Fast
  • Direct finger pointing: no mouse pointer adjustment
  • Reduced response time

• Readily accessible
  • Handy and Uis designed for single-handed grip

• Realistic physical feeling
  • Direct finger interaction
  • Elimination of mouse and keyboard

• Customizable inputs, and flexible use of screen space
  • Users freedom of rearranging elements and attributes

• Suitable for visually impaired users
  • UI’s haptic and audio feedback
ADVANCED FEATURES

• Privacy & security
  • Fingerprint sensor to unlock phone
  • iphone, Samsung, HTC, LG, Xiaomi …

• Games
  • Interactive experience
  • Sense of realism
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