MOBILE TOUCHSCREEN UI

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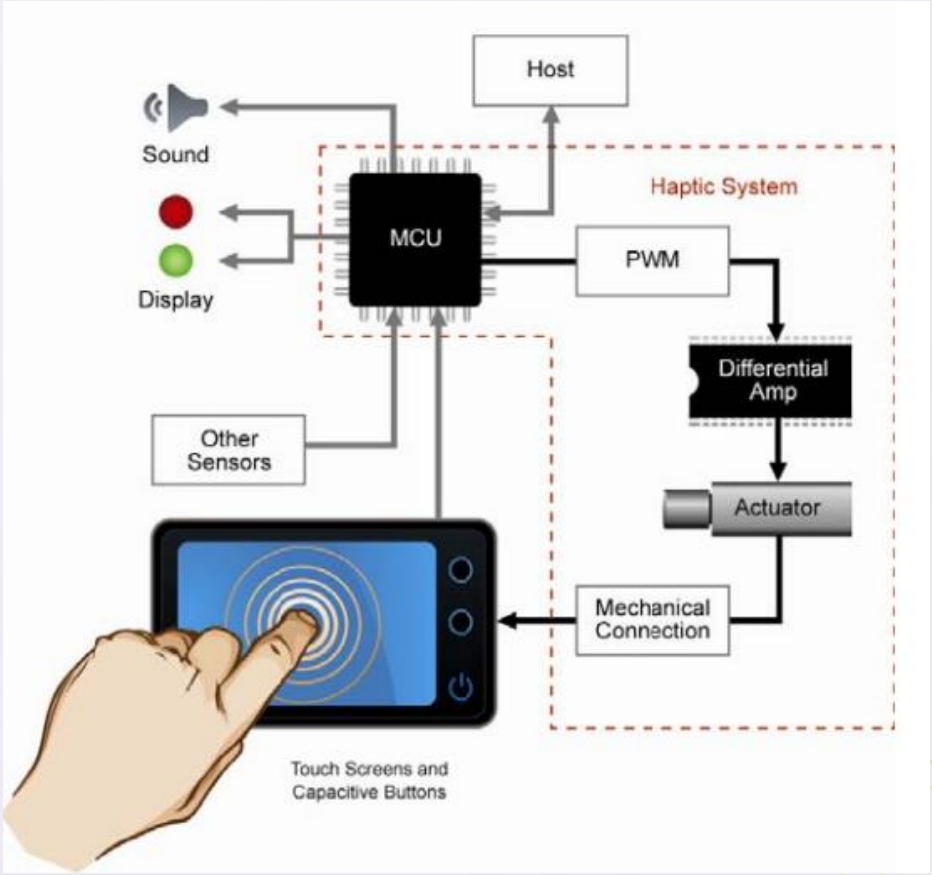
TOUCHSCREEN MOBILE

- 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

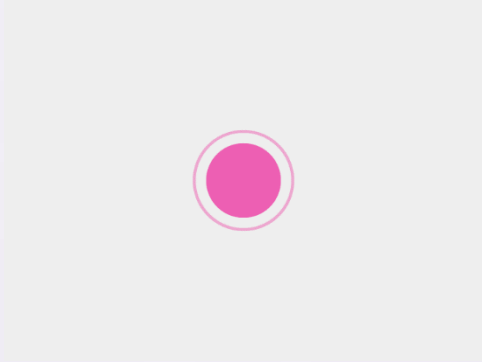
Other types of touch feedback:

- 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

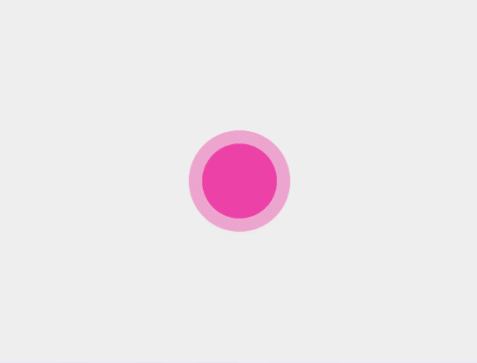
- One-finger press, lift
- Single haptic effect
- Example: Select

Tap



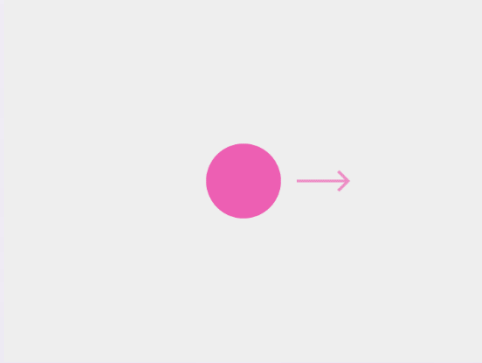
- One-finger press, lift, one-finger press, lift
- Graphical followed by haptic transition
- Example: Zoom in

Double Tap



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

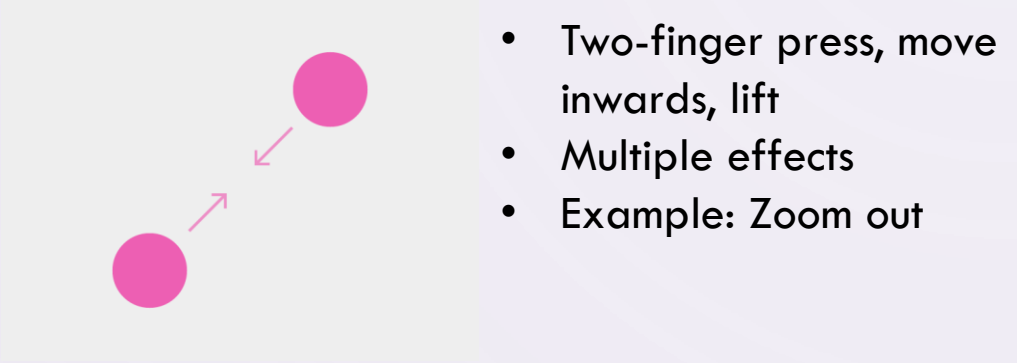
Long Press



- One-finger press, move, lift
- Visual transition
- Example: Scroll

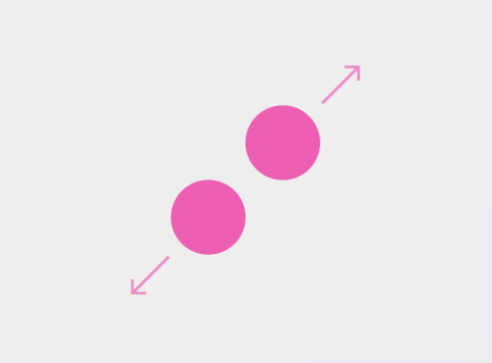
Swipe

HAPTIC DESIGN FOR GESTURES



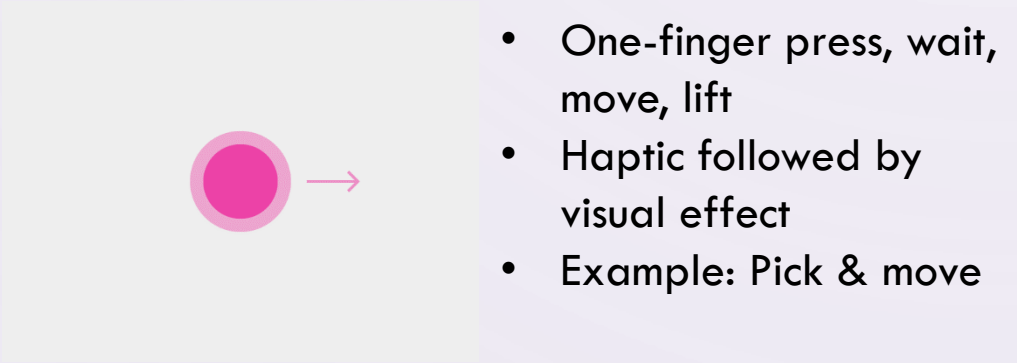
- Two-finger press, move inwards, lift
- Multiple effects
- Example: Zoom out

Pinch



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

Expand



- One-finger press, wait, move, lift
- Haptic followed by visual effect
- Example: Pick & move

Drag

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

- **“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

Right Thumb Zone

Neutral Thumb Zone

BEST TOUCH UI PRACTICES

Follow the Thumb Rule

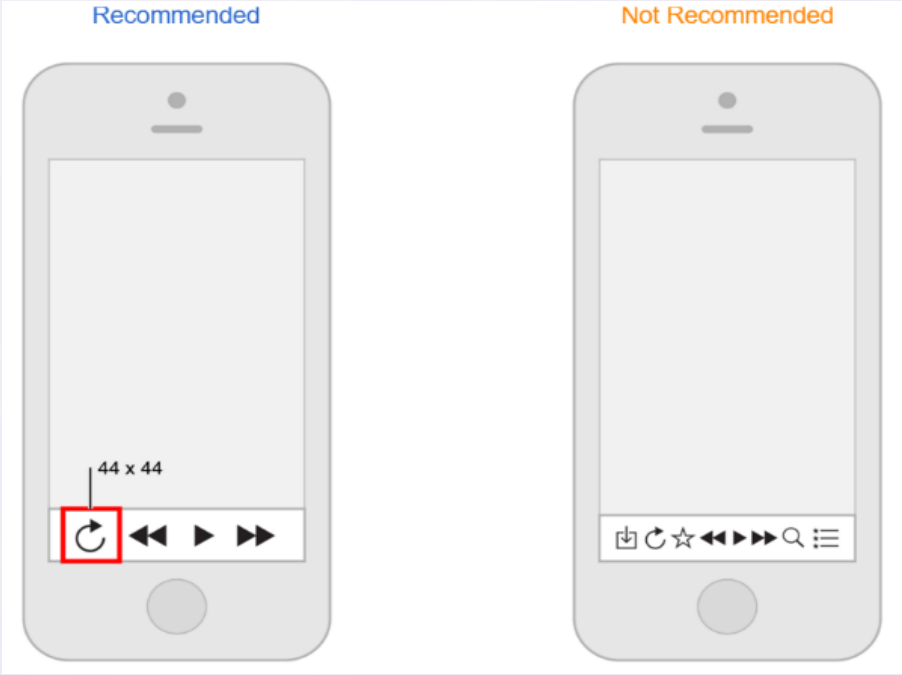
- Place the most of the important navigation elements within the Thumb Zone
  - Identify target user
- Comfortable and natural UX

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

Wiser Launcher

BEST TOUCH UI PRACTICES

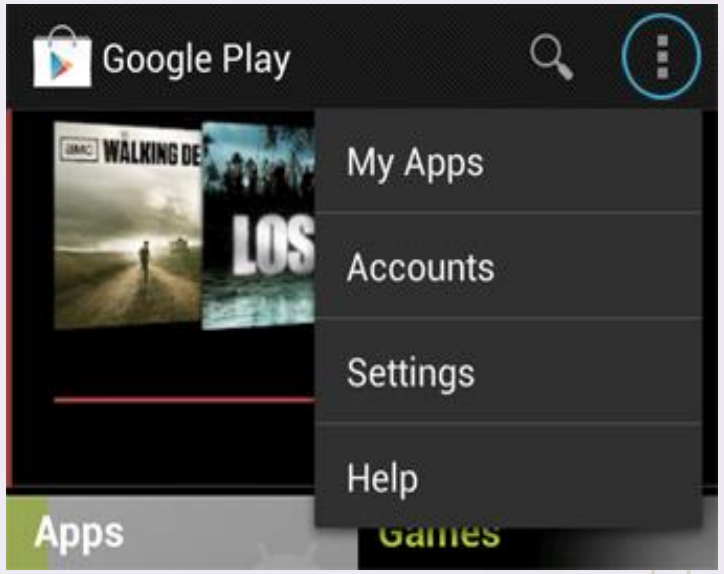
Touch feedback

- 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

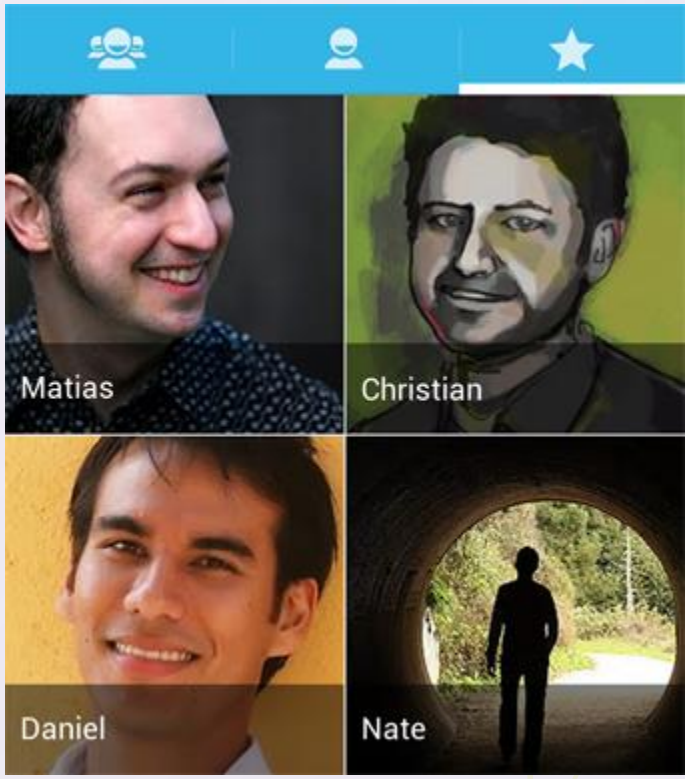
- Do not cram too many Uis in a single space
  - Increase the risk of touching the next wrong key
- Do not eliminate important Uis to accommodate
- Don’t waste resources through UI (battery, mobile data)
- Shape UI elements to provide enough swipe space
- Remove unnecessary Uis/options for a clearer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



BEST TOUCH UI PRACTICES

Aesthetic and consistent design elements

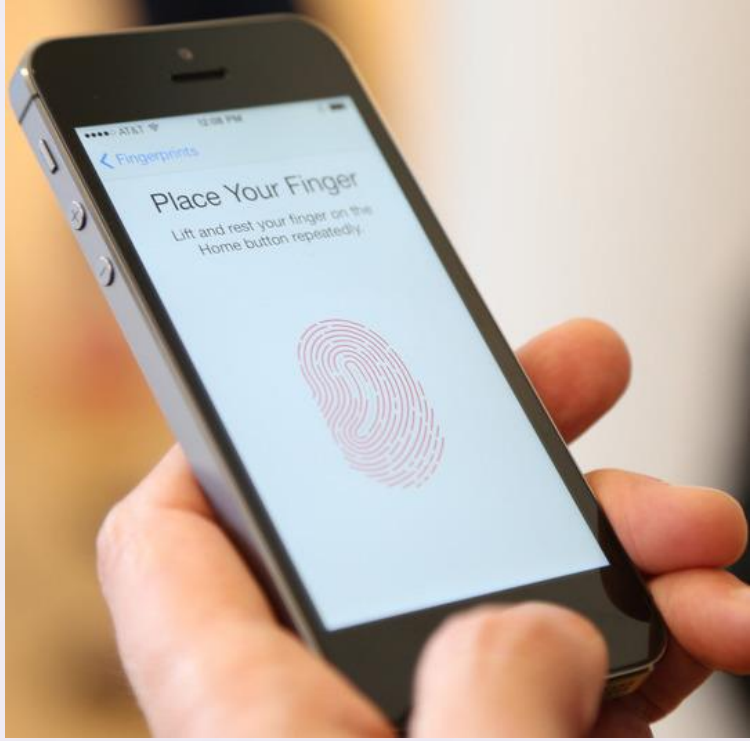
- Make design aesthetically pleasing: combine beauty, simplicity
- Adjust touch key pixels and color for better resolution and attention
- If it acts the same then it should look the same
  - Visually distinctive
  - Avoids confusion
- Do not mimic the same design when changing platform
  - Create new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