

User Input in a multi-touch, accelerometer driven, location aware world

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Agenda

- (Quick) Background
- Multi-Touch
- Accelerometer
- Location
- Q&A

Background









Touch Input

Single Touch

- Way better than everything else
 - For mobile at least
- Natural
- Gestures
- Direct manipulation

Multi-Touch

- If one is good more is better!
- Interact with multiple elements at once
- Complex gestures impossible with other input

Hands are Big

Problem with Hands

- Can't touch the top of the screen
- Anything below and away is covered

Fixes for Hands

- UI
 - Move drop downs to popups
 - Buttons on the bottom
- Gameplay / Content
 - Be aware of screen blocking
 - Timing matters - it may not be a problem

Fingers are Big

The Problem with Fingers

- Fingers are much bigger than cursors
- Cover hit states
- Block things being drug

Solving the Finger Problem

- Float content and show where it's going
- Magnifying glass ala Apple
- Don't require drag placement

Fingers aren't Perfect

Finger precision Problems

- Touches are near, but not exact
- Touches move around a lot

Making Fingers Perfect

- 40+ pixel hit areas
- Select nearest game element
- Handle touch movement near end of drag

Accelerometer

Where'd the Screen Go?

Wii-like motion issues

- Feel great
- Can't see the screen
- Users throw their phone?

Solving the Wii Problem

- Slow down or eliminate the action
- Provide audio feedback
- Rethink the input mechanism

The Screen Moves

The NES problem

- Tilting the device, tilts the screen
- Users don't know to be subtle

My iPhone beat up your NES

- Rotate the game world accordingly
- Allow small movements, with visual indicators
- Message the user!

These Controls Suck

Calibration Matters

- Required
 - Yes really, it s required!
- Timing of calibration is huge
- Message the user?

Some Good Things

Touch Rocks!

Touch is Awesome

- Touching and dragging feels great!
- Better proficiency than other input styles
- New gameplay becomes possible

Accelerometers don't Suck

Subtle Accelerometer tricks

- Add lots of perceived depth
- Adjust camera slightly
- Vibrate
- Do something on shake

Location

I Know Where You Are

Use the Power Wisely

- Local high scoreboards
- Nearby recommendations
- Maps, Apps, and more
- Compass is untapped!

Recap

- Hands are big
- Fingers are big
- Fingers are inaccurate
- Big accelerometer movement not so good
- Small accelerometer movement is tough
- Calibration matters
- Touch input is very natural
- Accelerometers don't completely suck
- Location is largely untapped

Final Thought

There is no right way to do it

Q & A

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