

MULTI-TOUCH UI: A TOUCHY SUBJECT

Alan Boykiw SMART Technologies

SOFTWARE DEVELOPMENT

CONFERENCE

gotocon.com

Background

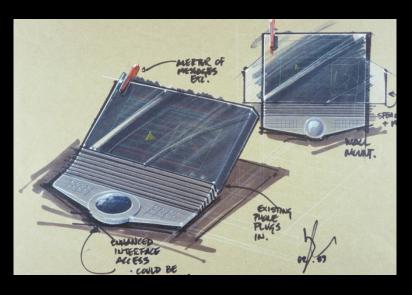
Landscape

Challenges

UX methods

From - To

Discussion







Academic and industry background

Multi-touch "multiple points of contact" * enables:



Multi-touch gestures

"the user is not required [to] point with some manually held device"*

Multiple tools to be detected

Multiple users to interact simultaneously



Hardware

+

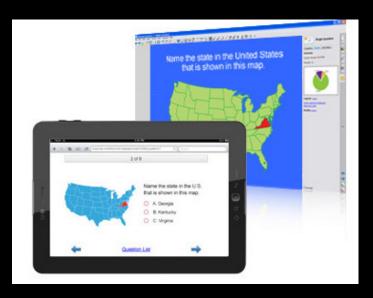
Software



User Experience

SMART



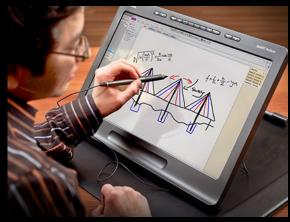






Rich learning environments demand consistency









Challenges



Context and scale variance









Multi-touch technology and OS variance



OSX

WP7

Win 7

Surface

Kinect

Basic

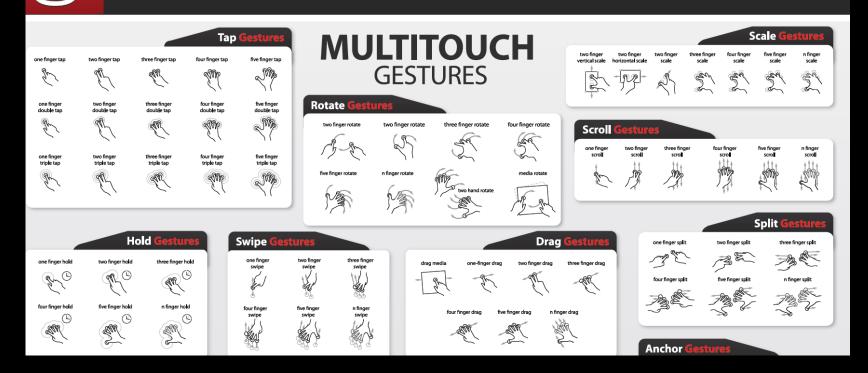
Add On

iOS

Android

Web OS

Gestures included in the open source gesture library



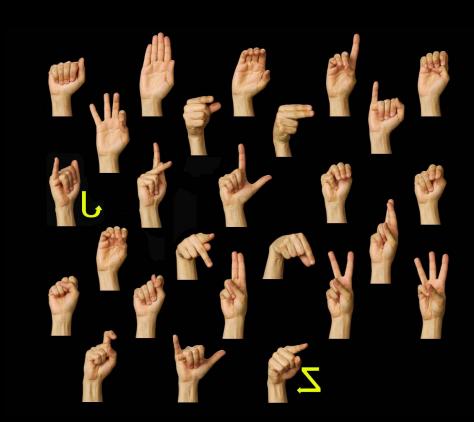
System centric

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| Feature | Gesture | Lib | NB 10.8 | NB 11 | MP 3.0 | SMART Table | Gesture | Interaction Notes | |
| | Tap (1touch) | | | | | | Tap (1 or 2 touches) | Works with 3, 4, and 5 touches on desktop selection but not reliable. | |
| | | Briefly touch surface | Briefly touch surface with | Briefly touch surface with | Briefly touch surface | Briefly touch surface | (Tor 2 todories) | Works only with 1 and 2 touches in | |
| Belect | \ / | , | · · | fingertip | with fingertip | with fingertip | | PPT | |
| | Marquee select | | | | | | Marquee select | | |
| | (1touch) (\(\pi^\max_\max_\max_\max_\max_\max_\max_\max_ | | | | | | (1touch) [[] | | |
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| | | | | | | | | | |
| Multi Select | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| | Drag | IVIM | INIE | IVIN | INIA | | Drag | IWA | |
| | (Itouch) | | | | | | (1 or 2 touches) | | |
| | | Move fingertip over | | | Move fingertip over | Works with many | 0-16 | | |
| | 777 | surface without losing | Move fingertip over surface | Move fingertip over surface | surface without losing | touches (what's the | 9 my 6 m | Move fingertip over surface without | |
| Move object | \circ | contact | without losing contact | without losing contact | contact | limit?) | | losing contact | |
| | Double tap | | | | | | Double tap | | |
| | (1touch) | | | | | | (1touch) | Works with 2+ touches when fingers are | |
| L | 6 1 | | , , | Rapidly touch surface twice | l ' ' | Rapidly touch surface | 27 | close, sometimes could open right- | |
| Double click | | twice with fingertip | with fingertip | with fingertip | twice with fingertip | twice with fingertip | | click menu | |
| | Press and hold | | | | | | Press and hold | 1. Press and wait for the blue ring | |
| | (1touch) Ph | Context menu | | | Context menu appears | | (1 or 2 touches n | animation to complete, then release, | |
| | 7] | appears after holding | Context menu appears after | Context menu appears after | after holding for # | | 27 | and the context menu appears. | |
| <u> </u> | | for 1 second | holding for 1 second | holding for 1 second | seconds | N/A | | 2. Can't be triggered by 3+ touches. | |

User intent

Gestures are a language.



They require learning.

Natural User Interface



That sounds nice.

Deflection point: CLI>GUI / WIMP> NUI

From

the "missionary position" of HCI thinking: one user and one computer interacting face-to-face.*

To

rich interface concepts and patterns enabling engaging collaboration, sharing and connection

UX methods Constantine

user intention ← system responsibility

Stage of interaction Affordance

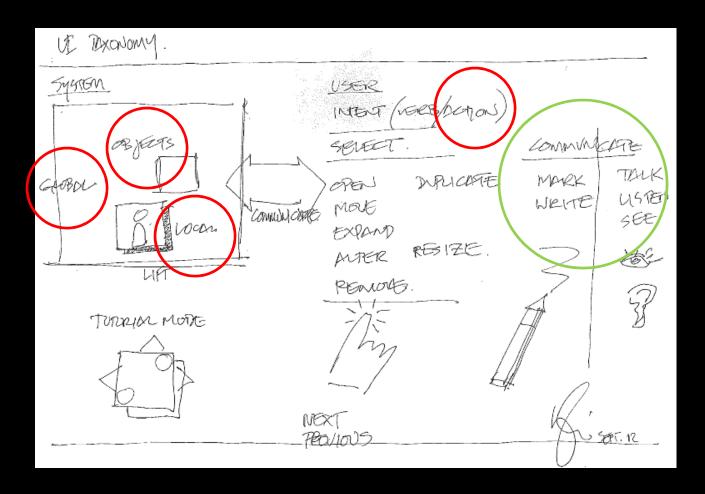
Out of range

Touch show object selected

Move system response

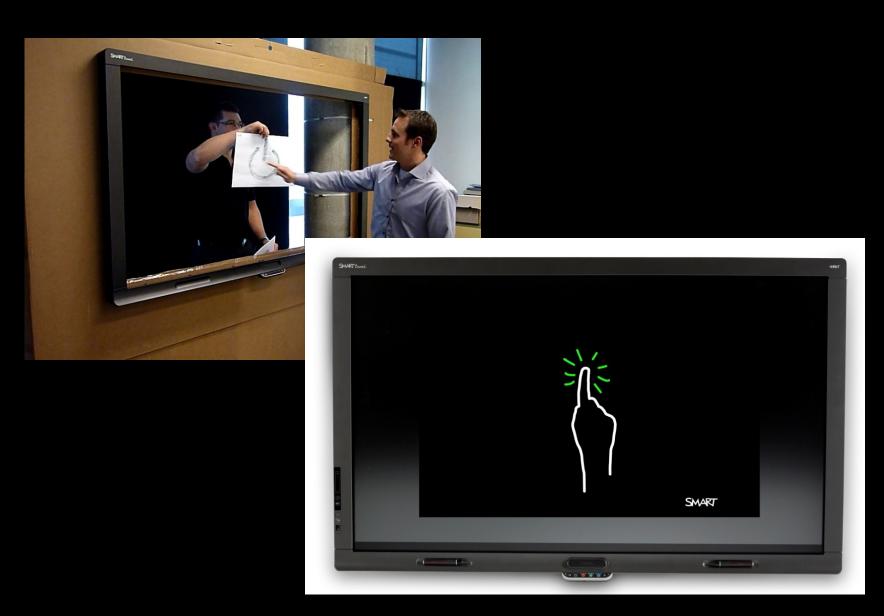
Reset steady state

Grammar

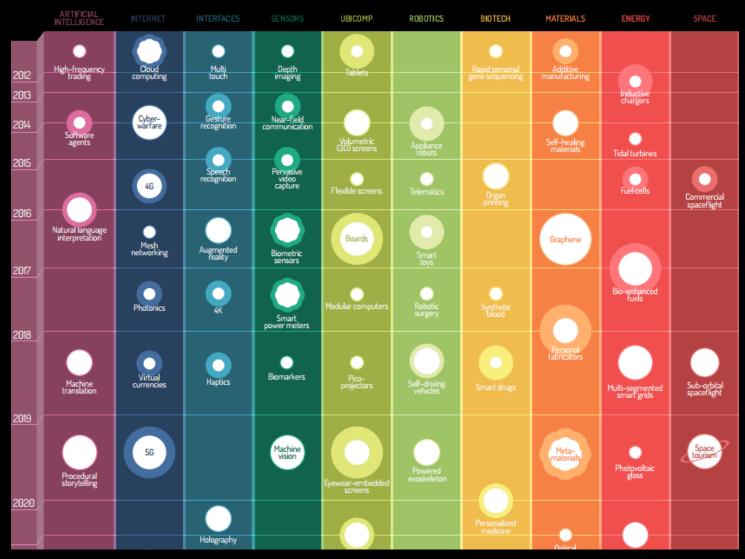


And other secret approaches...

Informance Informative Performance



What's next...



UX evolution

From

Clickable to Touchable

Self Evident to Discoverable, Learnable and Memorable

Responsive to Sensing

Here to Everywhere

Usability to Personality

From

Hyped to Useful

Cool to Valued

Ad Hoc to Standards

Possible?

Thank-you