MOBILE INPUT

@lukew

LUKE WROBLEWSKI  UX IMMERSION
WHY INPUT?
NEW INPUT METHODS

“Each new input method led to not just a disruption but new platforms and new business models.”

Share of Personal Computing

- COMMODORE
- TRS-80
- ATARI

Mobile Phone Profits

Q2/2007  Q1/2008

WHY MOBILE?
The rule of thumb is to limit the use of forms in the mobile context.
Mobile Web Design & Development, O’Reilly 2009

Filling out forms for web based services on mobile devices is a very time consuming and frustrating task for users.
ACM Pervasive and Mobile Computing, 2008

In general, using input elements is difficult for users. Avoid text input where possible.
Sprint Web Style Guide, 2005
SMS Messaging

4.1 B
4.1 B text messages sent per day in US in 2009

73%
73% of US mobile phone use SMS messaging

92%
92% of smartphone users sent SMS message

109.5
109.5 average number of messages/day (18-24 US)

41.5
41.5 average number of messages/day (adults US)

Source: http://www.techcentral.co.za/the-next-10-years-in-mobile/27622/
During a typical day...
84% at home
80% during misc. times throughout the day
74% waiting in lines
64% at work
Input Matters

- **12M** users in 12 months
- **30M** users in 16 months
- **1M** users in 12 hours
- **1B** acquisition by Facebook

Input Matters

• **1M** downloads in 9 days
• **35M** downloads in 6 weeks
• **50M** downloads in 50 days
• **210M** acquisition by Zynga

EMBRACE INPUT

- Despite challenges, people use mobile for input
- Anywhere, anytime inspiration strikes
- Encourage, don’t limit input
YOUR TURN

What one question do you most want answered today?

and what phone do you carry?
Questions to Answer

1. Add...
SMARTPHONES

Don’t most people just use native mobile applications to access the Internet?
TWITTER

- 55% of users on mobile
- 40% of tweets from mobile
- 16% of new users start on mobile

boonerang
Welcome to another episode of 'That which cannot be unseen: Orange Line edition.' Sigh. mbta

lukew
@paularmstrong fixed -thanks!

KISSmetrics
Conversions vs. Traffic: Have Your Cake and Eat it Too!
http://kiss.ly/aE2CQ0 #measure

unruthless
Tag along with my bike ride across America this summer: follow @cyclingcoder! My journey starts Wednesday.
FACEBOOK

50% of users on mobile

50% of mobile web traffic

2X more desktop use if also use mobile

## Facebook Usage

**425 MILLION**

“We see more people accessing Facebook on the mobile web than from our top native apps combined”

<table>
<thead>
<tr>
<th>Palm</th>
<th>Android</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sony Ericsson</td>
<td>Windows Phone</td>
</tr>
<tr>
<td>INQ</td>
<td>Sidekick</td>
</tr>
<tr>
<td>Blackberry</td>
<td></td>
</tr>
</tbody>
</table>

Jon Sweet
Anyone know if there's a good online collection of stats on which charitable investments are yielding the best return, e.g. $ per life saved?
$258M Bill Gates project eliminates 100k HIV infections from 2003-2008
medicalxpress.com
47 minutes ago near Santa Clara

Jon Sweet
If you can’t stomach looking at your portfolio balance for a week, you probably need to dial back the risk knob a bit, raising my head.

Luke Wroblewski
Senior Principal, Product Ideation & Design at Yahoo!

Luke Wroblewski
Studied Interface Design at University of Illinois at Urbana-Champaign

Luke Wroblewski
Data Monday: iPhone 4S Pre-Orders
Yesterday at 4:27am
Browser & App Usage

- 78% of browser users also used apps
- 82% apps users also used browser

Source: Comscore US, 3 month avg ending Dec 2010 (MobiLens)
Browser & App Usage

- Across all smartphone platforms
- Q3 2011 in US

Source: Nielsen US, Q3 2011
Native App

- Deeper hardware access
- Multi-tasking (background)
- App & in-app sales
- Integrated placement: app stores & home screens
Native Mobile Applications

68% of adults with apps on their phones reported actually using them

31% use more than 6 different apps a week

38% iOS & Android users stick with an app after one month

14% iOS & Android users stick with an app after six months

Native Mobile Applications

26% of all apps downloaded are opened only once and then never used again

26% of mobile apps are used 11 times or more

2.5 new apps added by average smartphone user per month

80,000 downloads required to make it into iOS top app charts

Source: http://mobilephonedevelopment.com/archives/1233
Native Application Strategies

From Suzanne Ginsburg

• **One trick pony**
  Build for one native platform if your user base is mostly on that platform or your must-have features are only on that platform

• **OK Corral**
  Design your app for 2-3 flagship platforms. Use this approach if your users are on a few platforms and you want the best experience possible on each.

• **Trojan Horse**
  Create Web apps with native app capabilities by wrapping Web apps within native application code.

Native Application Platforms

- Symbian OS
- Android
- Maemo.org
- BlackBerry
- Windows Phone
- palmwebOS
Native Application Platforms

Mobile Ecosystem Life Spans

Native Application Platforms

- Apple iPhone
- Android
- BlackBerry
- Palm
- iPad
Discover, capture and share places and events with your friends.

Download the Application

Apple iPhone
Touch 2G, 3G, 3GS.
Mobile Strategy

@jamespearce
James Pearce

2008: "We must have an iPhone app"
2010: "We must have an Android app"
2011: "We must have a... whoa: wait a minute"

7 hours ago via Nambu  Favorite  Undo Retweet  Reply
## YouTube Mobile Strategy

### 400M views/day 15% of daily views on YouTube mobile (up 3x year)

<table>
<thead>
<tr>
<th>Access Choice</th>
<th>Android</th>
<th>Blackberry</th>
<th>iPhone</th>
<th>Nokia S60</th>
<th>Windows</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-installed YouTube application</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Download from m.youtube.com/app</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Web-based version on m.youtube.com</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</table>
# Mobile Strategy

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<tr>
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</thead>
<tbody>
<tr>
<td>Native Application</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Take advantage of capabilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web-based version</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Access across all platforms</strong></td>
<td></td>
<td></td>
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</tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>
Mobile Strategy

Of course you need to know what your **core value** is!

Make core value faster or easier
1. technology
2. home screen access
3. payments
4. high-value customers

Integrate non-core content & actions

<table>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web-based version</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

Access across all platforms
THINK CROSS CHANNEL

“All channels should support each other: SMS grows apps, Web grows mobile, stores grow SMS.” -Walgreens
CROSS CHANNEL

Walgreens

2M SMS opt-ins
18% SMS opt-in rates
40% of online RX from mobile scanning
50% of Web visitors go to store next
3X more value from cross channel user
SOFTWARE
1. Constraints
2. Input fields, types, masks...
3. Mobile forms

HARDWARE
1. Capabilities
2. Rethinking forms
Coffee Mug

- Big Screen
- Power Supply
- Consistent Network
- Keyboard
- Mouse
- Chair
- Desk
INTENSELY PERSONAL

Small Screen

Battery

Fingers

Sensors
Partial attention requires focused design
CONSTRAINTS

• Are good for design & business
• Screen size: severely limited space
• Speed: performance matters
• Usage: used anywhere & anytime
SOFTWARE
1. Constraints
2. Input fields, types, & more
3. Mobile forms

HARDWARE
1. Capabilities
2. Rethinking forms
<table>
<thead>
<tr>
<th>Input Type</th>
<th>HTML</th>
</tr>
</thead>
<tbody>
<tr>
<td>checkbox</td>
<td><code>&lt;input type=&quot;checkbox&quot;</code></td>
</tr>
<tr>
<td>radio button</td>
<td><code>&lt;input type=&quot;radio&quot;</code></td>
</tr>
<tr>
<td>password field</td>
<td><code>&lt;input type=&quot;password&quot;</code></td>
</tr>
<tr>
<td>drop-down lists</td>
<td><code>&lt;select&gt;</code>&lt;option&gt;...</td>
</tr>
<tr>
<td>file picker</td>
<td><code>&lt;input type=&quot;file&quot;</code></td>
</tr>
<tr>
<td>submit button</td>
<td><code>&lt;input type=&quot;submit&quot;</code></td>
</tr>
<tr>
<td>plain text</td>
<td><code>&lt;input type=&quot;text&quot;</code></td>
</tr>
</tbody>
</table>
select on iPhone

Device Optimized UI Control
select on Android

Device Optimized UI Control
Steppers

Touch Target Sizes
Location Detection

Touch Target Sizes
Touch Alternative to Typing
### Touch Target Sizes

![Calendar app on an iPhone](image)

- **Calendar:**
  - **Mar 8 - Mon, Mar 12**
  - **5 days**
  - **Mar 4:** $304

- **Lowest fares**

---

**Note:**
- The image shows a calendar with dates from Mar 8 to Mar 12, highlighting Mar 4 with a price of $304.
Bellevue, WA

55°F | 13°C
Humidity: 64%
Wind: 4 mph

Overcast

<table>
<thead>
<tr>
<th>11 AM</th>
<th>2 PM</th>
<th>5 PM</th>
<th>8 PM</th>
<th>11 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tue  61°  Wed  61°  Thu  61°  Fri  61°
72°  61°  61°  61°
46°  45°  43°  41°
NATIVE COMPONENTS
Text Field

- accepts a single line of user input
- labels & placeholder text can be included within
- custom images on left (indicate purpose) or right (additional actions)
**CONTROLS**

**edit box**

- **Edit box group label**
  This is an example of an edit field that has two lines of text.

- **Edit box group label**
  This is an example of an edit field that has three lines of text. This is an example of an edit field.

- **Edit box group label**
  This is an example of an edit field that has four lines of text. This is an example of an edit field.
Text View

• accepts & displays multiple lines of text
• any height & supports scrolling when the content doesn’t fit
• font, color, and alignment can be set only for all text

iOS

numbers meh

numbers yah!

types!
Virtual Keyboard Access
Search Bar

• accepts text to use as search input

• options: placeholder, bookmarks, clear button, results button, and prompt

• can set custom background image or tint color
- SearchView widget “iconified” by default
- voice search option
- recent query suggestions
- custom query suggestions

icon, placeholder, voice search, recent query suggestions
Scope Bar

- used to define scope of search
- only in conjunction with search
- use for clearly defined categories to narrow results
- customize: background, dividers, active/inactive states

Picker Menu

- display set of values to select from
- best when values are known as they are hidden by default
- consider using a table if you have lots of or long values
Set data usage warning

1499
1500 MB
1501
Set

List picker expanded/focus
- None
- 15 minutes
- 30 minutes
- 1 hour
- 2 hours

List picker button rest state
- List picker item

List picker button disabled state
- List picker item
Multiple Picker Menu

- allow users to pick values consisting of multiple parts
- up to four independent wheels
- final value is composed of content in all wheels
- values should have small range & be commonly known
- date & time, date, time, countdown

iOS

Picker Multi column 1

Make a move

Bananas  red
Strawberries  green
Mangos  blue
Slider

- make adjustments to a value throughout a range of allowed values
- use for fine-grained control
- customize with: images on sides, vertical/horizontal, width, different track and/or thumb

Stepper

- increase or decrease value by a constant amount
- to make small adjustments to a value
- by default does not display values

Switch

- two simple, diametrically opposed choices
- two mutually exclusive states
- customize: tint for on-state
## Controls

### Check Box

<table>
<thead>
<tr>
<th>State</th>
<th>Normal</th>
<th>Focused</th>
<th>Pressed</th>
<th>Disabled</th>
<th>Disabled Focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unchecked</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checked</td>
<td></td>
<td></td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

- **Rest state**: ✔️
- **Finger down**: ✔️
- **Finger up**: ✔️
- **Disabled checked**: ✔️
- **Disabled unchecked**: ✔️

Table View

- data in a single column of rows
- can be divided into sections or groups
- use checkmark to select options
- can limit the selection to one row or allow multiple selections
- use disclosure indicator for input (separate screen)
Segmented Control

- closely related, but mutually exclusive choices
- 5 or fewer segments
- can contain text or images
- customize with images or tints
Buttons

- initiate an application-specific action
- iOS provides numerous standard buttons for use in navigation bars and toolbars
- customize: iOS styles, custom images

default buttons

Normal
Pressed

Normal
Pressed

Normal
Pressed

Normal
Pressed

small buttons

borderless buttons

CONTROLs

command buttons

primary text
Lorem ipsum dolor sit amet, consectetur elit

primary text
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod.

CONTROLs

push button

Push button rest state
button

Push button finger down
button

Push button finger up
button

Push button disabled state
button
Alerts

- provides important information
- for critical information: frequently used for input error messaging
- customize: title, message, buttons, up to text fields
- keep it short
Unfortunately, the process com.android.phone has stopped.

Report | OK

Playlist name

<table>
<thead>
<tr>
<th>Playlist 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancel</td>
<td>OK</td>
</tr>
</tbody>
</table>

Lorem ipsum dolor

Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Don’t show again

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit...
Action Sheets

- displays a set of choices related to a task the user initiates
- provide alternate ways a task can be completed
- get confirmation before completing a potentially dangerous task
- include cancel actions
- customize: black/blue style, red button color
Action Sheets

- label
- custom styling
Action Bar

1. Reply
2. Forward
3. Mark as unread
4. More options

<table>
<thead>
<tr>
<th>Android</th>
<th>iOS</th>
<th>Windows Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>ButtonView</td>
<td>Rounded Rectangle Button</td>
<td>Button</td>
</tr>
<tr>
<td>CheckBox</td>
<td>Table/Switch</td>
<td>CheckBox</td>
</tr>
<tr>
<td>EditText</td>
<td>Text Field/Label</td>
<td>TextBlock</td>
</tr>
<tr>
<td>EditText</td>
<td>Text Field/Text View</td>
<td>Edit Box</td>
</tr>
<tr>
<td>EditText</td>
<td>Text Field</td>
<td>PasswordBox</td>
</tr>
<tr>
<td>SeekBar</td>
<td>Slider</td>
<td>Slider</td>
</tr>
<tr>
<td>Picker</td>
<td>Picker</td>
<td>ListPicker/Box</td>
</tr>
<tr>
<td>TimePicker</td>
<td>Time Picker</td>
<td>Timepicker</td>
</tr>
<tr>
<td>RatingBar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toggle button</td>
<td>Switch</td>
<td>ToggleSwitch</td>
</tr>
<tr>
<td>DatePicker</td>
<td>Date Picker</td>
<td>Datepicker</td>
</tr>
<tr>
<td>RadioButton, RadioGroup</td>
<td>Table/Segmented Control</td>
<td>RadioButton</td>
</tr>
</tbody>
</table>
Text Fields

Instantly Jump Into Input Mode

• **Touch First**: consider text fields your last option

• **Stay on Keypad**: condense UI where appropriate

• **Micro Tasks**: manage input in small pieces

• **Skip Steps**: get people into input mode asap
Touch First

I like coffee.
Touch First
Type or select the tags that best describe your current status, skills, and experience.

My design skills:
- Web Design
- Graphic Design
- UI Design
- Interaction Design
- Design Strategy
- Information Architecture
- Type tag


My engineering skills:
- CSS
- HTML
- UI Design
- Type tag

HTML, CSS, UI Design, Javascript, Ruby, Rails, Python, Django, PHP, iOS, Android

My business skills:
- Metrics / Analytics
- Business Models
- Marketing
- Metrics / Analytics

Business Models, Marketing, Advertising, Metrics / Analytics

How to install

You can make a guide on anything. Here are some suggestions.
MECHANICAL CONTROLS

Spinners

Tapes

ON

OFF

Switches

Dials

Source: http://oreil.ly/w1Nmt
Mechanical

Congratulations! Your Readability account has been created. You’re moments away from saving anything you find on the web to your iPhone for reading on your terms—anytime, anywhere.

**Readability Everywhere**

To get the most of Readability you can add it to all your devices and computers. Once installed, you’ll be able to access or add to your reading list from anywhere. It’s available for iPhone, iPad, Android, mobile Web, your favorite Web browser, Kindle, Twitter, and Facebook.
Weightbot
1. Select a Date.

Scroll the dates horizontally to select the date you want to record a weight on.

3. Shake to Delete an Entry.

Select a date and shake your device to delete a weight entry.
Convertbot

“Our primary goal wasn’t to be the most efficient unit conversion app.” - Tapbots

Efficiency
Custom Controls
<table>
<thead>
<tr>
<th>Native</th>
<th>HTML</th>
</tr>
</thead>
<tbody>
<tr>
<td>🍌 text field</td>
<td><code>&lt;input type=&quot;text&quot;&gt;</code></td>
</tr>
<tr>
<td>🍉 text box</td>
<td></td>
</tr>
<tr>
<td>🍌 checkbox/switch</td>
<td><code>&lt;input type=&quot;checkbox&quot;&gt;</code></td>
</tr>
<tr>
<td>🍉 checkbox/toggle</td>
<td></td>
</tr>
<tr>
<td>🍌 switch/table</td>
<td></td>
</tr>
<tr>
<td>🍌 radio button</td>
<td><code>&lt;input type=&quot;radio&quot;&gt;</code></td>
</tr>
<tr>
<td>🍉 radio button</td>
<td></td>
</tr>
<tr>
<td>🍌 segmented control/table</td>
<td></td>
</tr>
<tr>
<td>🍌 picker</td>
<td><code>&lt;select&gt;&lt;option&gt;...&lt;/option&gt;</code></td>
</tr>
<tr>
<td>🍉 list picker/box</td>
<td></td>
</tr>
</tbody>
</table>
Multi-Field Picker Menus
In the Browser
<table>
<thead>
<tr>
<th>Input Type</th>
<th>HTML</th>
</tr>
</thead>
<tbody>
<tr>
<td>number</td>
<td><code>&lt;input type=&quot;number&quot; min=&quot;2&quot; max=&quot;10&quot; step=&quot;2&quot; value=&quot;6&quot;&gt;</code></td>
</tr>
<tr>
<td>email</td>
<td><code>&lt;input type=&quot;email&quot;&gt;</code></td>
</tr>
<tr>
<td>url</td>
<td><code>&lt;input type=&quot;url&quot;&gt;</code></td>
</tr>
<tr>
<td>date</td>
<td><code>&lt;input type=&quot;date&quot;&gt;</code></td>
</tr>
<tr>
<td>range</td>
<td><code>&lt;input type=&quot;range&quot; min=&quot;2&quot; max=&quot;10&quot; step=&quot;2&quot; value=&quot;6&quot;&gt;</code></td>
</tr>
</tbody>
</table>
<form>
<input type="number">
</form>
<form>
<input type="email">
</form>
<form>
<input type="url">
</form>
<form>
<input type="month">
</form>

Available in iOS 5
<form>
<input type="date">
</form>

Available in iOS 5
<form>
<input type="time">
</form>
<form>
<input type="datetime">
</form>
<form>
<input type="range">
</form>

webkit-appearance:
slider-vertical;
slide to unlock

text Inputs

**auto-capitalize**

- Turn off on email, password, URL, and other case-sensitive inputs

**auto-correct**

- Turn off on email, password, URL, and other non-alpha inputs
- Trim trailing spaces that may come from auto-correct

**Language, Mode, Format**

- Specify if supported by devices
Numerical Inputs

Number Declarations

- Define input types using HTML5, Wireless CSS, or CSS-MP
- On devices without virtual keyboards, people will not have to switch into number mode

Common Numerical Inputs

- Use a single line field for phone numbers
- Don’t split up price fields (period is present on keyboards)
Input Masks
Input Masks

Email Address

steve@me.com
Welcome to Nexus One

Sign in with your Google Account:

luke@gmail.com

Password

By signing in, you agree to the Google and Additional Privacy Policies.
Set Correct Expectations

Avoid the Gradual Reveal

Phone Number
(217) 354-6XXX

Phone Number
XXX-XXX-XXXX
Maintain Format

Don’t Look Like an Answer
Smart Defaults
## Average Input Times

<table>
<thead>
<tr>
<th></th>
<th>Empty Forms</th>
<th>Pre-filled Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>240 seconds</td>
<td>60 seconds</td>
</tr>
<tr>
<td>Test 2</td>
<td>170 seconds</td>
<td>37 seconds</td>
</tr>
<tr>
<td>Test 3</td>
<td>115 seconds</td>
<td>33 seconds</td>
</tr>
</tbody>
</table>

Source: Automatic Form Filling on Mobile Devices Enrico Rukzio, Chie Noda, etc.
INPUTS

• Take advantage of standard input types
• Specify input types & attributes
• Consider input masks for formatting/accuracy
• Smart defaults!
SOFTWARE
1. Constraints
2. Input fields, types, & more
3. Mobile forms

HARDWARE
1. Capabilities
2. Rethinking forms
What’s the Question?

e.g. myname@example.com

on for Google account

used to sign-in to your a

Previous Next AutoFill Done

Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M

.?123 space Go
Top Aligned Labels

- Minimize time to completion
- Flexibility for localization and complex inputs
- Easier to code: no floats or tables
- Accessibility: label, field in order
- Better format for mobile
- Support multiple screen resolutions
- Require more vertical space
Sign-up today and get free access to this special report, Sponsored by SAS: Business Analytics Enables a Confident Enterprise

Please complete the form below and click submit. If you have submitted your information previously, enter an e-mail address only and click Submit.

* Required
* Email Address
* First Name  * Last Name
* Job Title  * Company
* City  * State
* Zip/Postal Code  Province/Region
* Country  Please select one
* Phone

Yes, I would like e-mail updates from SAS when new articles and white papers are available.

For our privacy statement click here

Submit
* Country

* Phone

Yes, I would like e-mail updates available.
<meta name="viewport" content="width=device-width">

Default width

980 pixels
Get Online Now

Unlimited access for 24 hours is $6.95 for all boingo locations. No monthly fees apply.

Billing Information

First Name

Last Name

Previous  Next  AutoFill  Done

Q W E R T Y U I O P

A S D F G H J K L

Z X C V B N M

.123  space  Go

2:41 PM

Carrier  

boingo
PLACEHOLDER
Updated in iOS5
Labels Within Inputs

Write a personal note to all the recipients you have selected.

Send Invitations

**Inbox**

**Invitations**

*Join my network on LinkedIn*

**From:** Eckart Walther  
**Date:** February 28, 2008  
**To:** Luke Wroblewski  
**Status:** Accepted, Archived

Eckart Walther has indicated you are a Colleague at Yahoo!

Write a personal note to all the recipients you have selected.
Labels Within Inputs

“If you include hint text inside your form’s text boxes, many users—quite likely, the majority—will interpret the hint text as a default.”
Labels Within Inputs

- Should never become part of someone’s answer
- Should not be confused with an actual answer in an input field
- Are usually absent when someone starts answering a question and when they finish answering
getting tacos
with maybe an explanation of why.

labels
• display static text
• name or describe parts of UI
### Value 1 Cell Style

<table>
<thead>
<tr>
<th>Text Label</th>
<th>Detail text label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dahlia</td>
<td>This is a dahlia</td>
</tr>
<tr>
<td>Daisies</td>
<td>These are daisies</td>
</tr>
</tbody>
</table>

### Value 2 Cell Style

<table>
<thead>
<tr>
<th>Text Label</th>
<th>Detail text label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dahlia</td>
<td>This is a dahlia</td>
</tr>
<tr>
<td>Daisies</td>
<td>These are daisies</td>
</tr>
</tbody>
</table>

SINGLE LINE LIST

List item number one

Second list item

This is the third item

2 LINE LIST

2-Line List
Austin mixtape cosby sweater butcher. Fixie ad vice, brooklyn...

Second list item
Assumenda commodo laborum accusamu

3 LINE LIST

Three line list title
Put a bird on it qui fanny pack, portland irony nisi fap irure. Donec hendrerit elit nec ligula dapibus

Second row in list
Vinyl laboris lo-fi ethical, adipiscing assumenda beard. Curabitur gravida quam id orci sodales

Form Structures

1. Sequential
2. Non-linear
3. In-context
Sequential

- Group(s) of questions that have to be asked together in order to complete a task
- Anything that requires answers before accomplishing a goal
- Examples: registration, checkout
Non-Linear

- Only some inputs (in a bigger set) need to be updated or adjusted.
- Exposing input fields for every possible answer makes it hard to find the one or two inputs you need.
- Each possible input can be tapped and edited in a separate screen.
In-Context

- Provide a way for people to quickly contribute or create without a lot of effort.
- Show up directly inline where people can contribute
- Usually only consists of a single input field
- Enables immediate contributions and aligns with the short bursty way people use mobile
MOBILE FORMS

• Use top-aligned labels & single column layouts
• Labels within input fields need more care
• Apply appropriate structures: sequential, non-linear, in-context
FORMS

Me: Log In
Us: Checkout
You: Exercise
LOGIN

15 authentications per day

82% have forgotten a site password

5-10% request password

#1 request to intranet help desk

sign in

Windows Live ID:

Password:

Can't access your account?

Keep me signed in

Sign in

Not your computer?
Get a single use code to sign in with

Use enhanced security (SSL) | Help Center | Feedback
I forgot my user ID or password
Forgot password?
If you don’t have an account, please visit the Walmart.com full site to create one.
“Mobile must never be a dumbed-down, limited experience.” -Steven Hoober

Interfaces

O’REILLY®

Steven Hoober
& Eric Berkman

Source: http://oreil.ly/wllNmt
LOGIN

- Don’t remove critical features
- Use input types & attributes
- Show passwords by default
- Use input masks, if needed
- If possible, save passwords
- Consider single sign-on
Input Types & Attributes

- `type=email`
- `autocapitalize=off`
- `autocomplete=off`

- `type=password`
- `autocapitalize=off`
- `autocomplete=off`
Show Passwords

“Masking passwords doesn’t even increase security, but it does cost you business due to login failures.” - Jakob Nielsen

“...and it’s worse on mobile.”
Show Passwords

Smart Defaults

Hide password
Hey Luke,

You recently requested to use the easy login feature on your mobile device.

Please click the link below to easily login into your Facebook account:

https://m.facebook.com/login.php?m=m&next=https%3A%2F%2Fwww.facebook.com%2Fdialog%2Fpermissions.request%3F_path%3Dpermissions.request%26app_id%3D131469826869039%26redirect_uri%3Dhttt
Input Masks

Username  @lukew
Input Masks
Avoiding Errors

No account found for this email address. To create an account, sign up for Quora.
Saving Passwords

Let me login without a password on this browser.
Single Sign-On

- **845M** active users
- **50%** log in daily
- **500M** use platform

Sign In

![Sign In](facebook.com/press/info.php?statistics)
Sign In to Bagcheck

Enter Your Name (or email)

Can't find your name or new here? Join Now
Sign in to Votizen

Enter your name (or email address)

Luke Wroblewski

Welcome back Luke, you can sign in with Twitter

Twitter
Sign in to Votizen

Enter your name (or email address)

Luke

Luke Fazio
Luke Bornheimer
Luke Burns

Previous Next
Done

Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123 space return
Jon Skivenes: I never leave the house without these. Over the years I have tried literally hundreds of digital tools for ideation and early-phase prototyping. Nothing beats the immediacy, modelessness and non-linearity of pen and paper. Here is my set of fine lines.

11 MONTHS

Show 2 earlier comments...

Ross Belmont: suggests Behance Dot Grid Graph Paper Notebook: Call me an "inside the box" thinker, I find the light dots helpful (as opposed to full gridlines).
Be flexible in what you accept

Use input types & attributes

If possible, save passwords

Show password by default

Don’t remove critical features

Email or Full Name

Password

Remember Me

New Here? Sign Up
Email or Full Name
luke@taco.com
Password
mypassword
Remember Me
Luke, Sign In
**Tools for UX sketching**

**Jon Skivenes** I never leave the house without these. Over the years I have tried literally hundreds of digital tools for ideation and early-phase prototyping. Nothing beats the immediacy, modelessness and non-linearity of pen and paper. Here is my set of fine lines.

11 MONTHS

Show 2 earlier comments...

**Ross Belmont** suggests Behance Dot Grid Graph Paper Notebook: Call me an "inside the box" thinker, I find the light dots helpful (as opposed to full gridlines).
FORMS

Me: Log In
Us: Checkout
You: Exercise
CHECKOUT

75%  2011 shopping cart abandonment rate

71%  2010 shopping cart abandonment rate

## Set Up Your Account

**Your Information**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name</td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td></td>
</tr>
<tr>
<td>Username</td>
<td>Your username must be in lowercase letters, between 4 and 16 characters in length. Numbers and periods can be included in your username.</td>
</tr>
<tr>
<td>Password</td>
<td>Your password must contain at least 6 characters.</td>
</tr>
<tr>
<td>Confirm Password</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Confirm Email</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
</tr>
</tbody>
</table>

**Billing Name and Address**

Enter exactly as it appears on your credit card statement

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing Name</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
</tbody>
</table>
Mobile Checkout

Boingo Mobile

Enjoy unlimited Wi-Fi access on your smartphone at Boingo hotspots worldwide for only $7.95 USD each month. Please note, this is a recurring subscription, but Boingo is flexible, so you can change your plan at any time.

Change Currency

USD

Change Language

English Intl.

Promotional Code

NEXT
Boingo Mobile

Enjoy unlimited Wi-Fi access on your smartphone at Boingo hotspots worldwide for only $7.95 USD each month. Please note, this

Top Aligned Labels

Change Currency

USD ▼

Change Language

English Int. ▼

Promotional Code

NEXT

Set Up Your Account

Contact Information

*First Name

*Last Name

*Username

Your username must be in lowercase letters, between 4 and 16 characters in length. Numbers and periods can be included in your

Inline Help Text

Your password must contain at least 6 characters.

*Confirm Password

*Email

Fields marked with an * are required.

Unnecessary Inputs

We accept ▼

*Number

*Expiration

Smart Defaults

*Country

United States of America ▼

*ZIP/Postal Code

Required for US addresses only

*CVV2 What is CVV2?

Required for addresses outside of the US

Fields marked with an * are required.

Input Types

*Mobile Number

NEXT
Mobile Checkout

Fields marked with an * are required.
Phone Numbers

*Daytime Phone Number
(   )   -   
Ext.

Home Phone Number
(   )   -   
Ext.

Mobile Phone Number
(   )   -   
Ext.
Phone Numbers

input type=tel

hide irrelevant controls
Phone Numbers

- input type=tel

Daytime Phone Number

Another Number
Phone Number

Daytime Phone Number

input type=tel

Another Number
Phone Numbers

Daytime Phone Number

(555)-123-____

input mask
Unlimited access for **24 hours is $6.95** for all boingo locations. No monthly fees apply.

**Billing Information**

**First Name**

**Last Name**

**Credit Card Number**

**Expiration Date**

**CVV Code**

**Receipt**

Email Address (optional)

if you’d like us to send you a receipt

By selecting “Get Online” I agree to terms of use.

Get Online
title: user goal
concise info
minimum requirements

5145 4356 1234 8787
unnecessary input

type=number

type=number
optional labeled

type=email
autocapitalize=off
autocomplete=off

inline help text
streamline terms
primary action

205


Unlimited access for 24 hours is $6.95 for all boingo locations. No monthly fees apply.

Billing Information

First Name

Last Name

Expiration Date

09 2010

CVV Code

Receipt

Email Address (optional)

if you’d like us to send you a receipt

By selecting “Get Online” I agree to terms of use.

Get Online

Cancel

“Can we do better?”
Name

as it appears on credit card
type=month
Progressive Enhancement

type=month

2011-01

desktop browsers?

javascript

Expiration Date

2 number fields?

default

07

2011
### Billing Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name</td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td></td>
</tr>
<tr>
<td>Credit Card Number</td>
<td></td>
</tr>
</tbody>
</table>

### Credit Card Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>As it appears on your credit card</td>
</tr>
<tr>
<td>Credit Card Number</td>
<td></td>
</tr>
<tr>
<td>Expiration Date</td>
<td>June 2011</td>
</tr>
<tr>
<td>CVV Code</td>
<td></td>
</tr>
</tbody>
</table>

### Receipt

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email Address (optional)</td>
<td>If you'd like us to send you a receipt</td>
</tr>
</tbody>
</table>

By selecting “Get Online” I agree to the [terms of use](#).
Unlimited access for 24 hours is $6.95 for all boingo locations. No monthly fees apply.

Billing Information

Name

as it appears on your credit card

Credit Card Number

“Can we do better?”

CVV Code

Receipt

Email Address (optional)

if you’d like us to send you a receipt

By selecting “Get Online” I agree to terms of use.

Get Online
Get Online Now

Unlimited access for **24 hours is $6.95** for all boingo locations. No monthly fees apply.

**Billing Information**

Name

as it appears on your credit card

**Credit or Debit Card**

5123 4356 1234 1905

Enter card number, expiration date & CVV code

if you’d like us to send you a receipt

By selecting “Get Online” I agree to [terms of use](#).

[Get Online]
Get Online Now

Unlimited access for 24 hours is $6.95 for all boingo locations. No monthly fees apply.

Billing Information

Name

as it appears on your credit card

Credit or Debit Card

5123 4356 12 912

Enter card number, expiration date & CVV code

Stay on the keys

Reduced number of controls/inputs

Stay on the keys

Credits by LukeW
Ideation + Design
Get Online Now

Unlimited access for 24 hours is $6.95 for all boingo locations. No monthly fees apply.

Credit or Debit Card

![Credit card icon] 1234 5678 9012 3456

enter card number, expiration date, & CVV code

Name on Credit Card


Email Address (optional)


if you'd like us to send you a receipt

By selecting “Get Online” I agree to terms of use.

Get Online
Digital Content

WHY BOTHER?

1. Permanently carried
2. Always on
3. Available at point of inspiration

stay on keys

reduced controls

Enter card number, expiration date & CVV code

Cardholder Name

Pay with Gift Certificate or Promo

Purchase & read your book now!
One-Click

130% more spent
20% of all US sales

1-Click Buying

Source: http://bit.ly/pSWtGT
• All four versions delivered 100% pass rate

• Using a one page, multiple pages, or an inline multi-step form does not inherently impact completion

• So what does?
• Compared: 11-field vs. 4-field Contact Us form

• **160%** increase in number of forms submitted

• **120%** increase in conversion ratio

• In addition, the quality of the submissions remained the same
• Clicked **Buy Now** but did not complete transaction

• Form had an optional field under Name titled Company

• **$12M** of profit a year overnight

• Found 50 or 60 of these kinds of issues
• Checkout form with 2 actions: Login or Register
• Changed Register to Continue with “you do not need an account to buy” message.

• 45% increase in number of purchasing customers
• $1.5M increase in first month
• $300M increase in first year

Source: http://www.imagescape.com/clients-like-you/contact-form/
• 6-field Contact form
• Added “optional” indicator on phone number field

• 2x increase in conversion
• 42% conversion rate jumped to 80% conversion rate
• Required phone number field had 37% drop off rate
Addresses

Remove optional fields
Addresses

4 tap operation
Addresses

still 4 taps
Addresses

cut down 2 fields

stepper
Addresses

Stay on the keys

Address

ZIP Code

Enter ZIP for City & State
After entering your zip code above, you must select (click to highlight) your city/state combination from the display on the left. After selection, the city/state will auto-fill in the appropriate category.

Enter Contact Information for this order.

- E-mail Address:
- Re-enter E-mail Address: (for confirmation)
One-Touch® Gold 18.5

GET CLOSE  SPECS  ACCESSORIES  LINKS
38% of US consumers have used smartphones to buy content or services

70% of Internet users have purchased content or services online

Source: http://read.bi/GFBGsi
METRICS

MOBILE PURCHASES

$4B  2011 mobile GMV

3  purchases on mobile per sec

700K  listings added on mobile per week
FORMS

Me: Log In
Us: Checkout
You: Exercise
SOFTWARE
1. Constraints
2. Input fields, types, & more
3. Mobile forms

HARDWARE
1. Capabilities
2. Rethinking forms
Discussion

What have you been most amazed that your mobile device can do?

- Organize into groups of 3-4
- Discuss amongst yourselves
- Collaborate on a list of 5 answers
Mobile Device Capabilities

- Location detection
- Multi-touch sensors
- Device positioning & motion: from an accelerometer
- Gyroscope: 360 Degrees of motion
- Orientation: direction from a digital compass
- Video & image: capture/input from a camera
- Dual cameras: front and back
- Audio: input from a microphone; output to speaker
- Ambient Light: light/dark environment awareness
- Proximity: device closeness to physical objects
- NFC: Near Field Communications through RFID readers
- Device connections: through Bluetooth between devices
Location Detection
## Location Systems

<table>
<thead>
<tr>
<th></th>
<th>Accuracy</th>
<th>Positioning Time</th>
<th>Battery Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS</td>
<td>10m</td>
<td>2-10 minutes (only outdoors)</td>
<td>5-6 hours on most phones</td>
</tr>
<tr>
<td>WiFi</td>
<td>50m (improves with density)</td>
<td>Almost instant (server connect &amp; lookup)</td>
<td>No additional effect</td>
</tr>
<tr>
<td>Cell tower triangulation</td>
<td>100-1400m (based on density)</td>
<td>Almost instant (server connect &amp; lookup)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Single Cell Tower</td>
<td>500-2500m (based on density)</td>
<td>Almost instant (server connect &amp; lookup)</td>
<td>Negligible</td>
</tr>
<tr>
<td>IP</td>
<td>Country: 99%</td>
<td>Almost instant (server connect &amp; lookup)</td>
<td>Negligible</td>
</tr>
<tr>
<td></td>
<td>City: 46% US, 53% Intl</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ZIP: 0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Smartphones: hybrid of GPS, Wifi, and cell tower triangulation  
Laptops/desktops: WiFi, IP, rarely GPS
<table>
<thead>
<tr>
<th>Providers</th>
<th>GPS</th>
<th>Wi-Fi</th>
<th>Cell-ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEM (device + app)</td>
<td>GPS</td>
<td>Wi-Fi</td>
<td>GSM/CDMA</td>
</tr>
<tr>
<td>Skyhook</td>
<td>Requires clear line of sight</td>
<td>Within range of Wi-Fi networks&lt;sup&gt;1&lt;/sup&gt; and cellular network&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Within coverage of cellular network</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location Requirements</th>
<th>Coverage</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Corridors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Urban Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoors</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accuracy/Precision (when in coverage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time to Locate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to First Fix</td>
<td></td>
</tr>
<tr>
<td>Time to Recalculate</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery Drain</th>
<th></th>
</tr>
</thead>
</table>
Location Detection
Location Detection

arrange list based on location
Multi-Touch Sensors
Touch Target Sizes

44px/pt

44px/pt
Touch Targets

Bigger than you’re comfortable with
Touch Targets

- Boeing bests EADS with aerial tanker win
  - 09:25 PM EST
- Wisconsin police sent to search for Democratic senators
  - 06:42 PM EST
- U.S. seeks immediate steps on Libya crisis
Target Size Influences Error Rate

% OF MISSED TAPS

- 25%
- 20%
- 15%
- 10%
- 5%

Target size  3 mm  5 mm  7 mm  9 mm  11 mm  13 mm

1 in 30 taps (3%) will miss the target
1 in 100 (1%)
1 in 200 (0.5%)

Login to Quora

Email Address:
Luke@lukew.com

Forgot your password?

☑ Let me login without a password on this browser

Cancel or Login
Recommended touch target size is **9mm/34px**

Minimum touch target size is **7mm/26px**

Minimum spacing between elements is **2mm/8px**

Visual size is **60-100%** of the touch target size

Fat Fingers

- Baby

Average index finger width

- Basketball player

Steppers

Touch Target Sizes
80-90% of people are right handed
TOUCH TARGETS

• Mobile devices moving to touch UI
• Use appropriately sized targets
• Maintain spacing between targets
• Place important actions in easy to reach locations (ergonomics)
<table>
<thead>
<tr>
<th>Touch Gestures</th>
<th>Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap</td>
<td>iPhone OS</td>
</tr>
<tr>
<td>Double Tap</td>
<td>Android</td>
</tr>
<tr>
<td>Drag</td>
<td>Web OS</td>
</tr>
<tr>
<td>Flick</td>
<td>Windows Phone 7</td>
</tr>
<tr>
<td>Pinch</td>
<td>OS X</td>
</tr>
<tr>
<td>Spread</td>
<td>Windows 7</td>
</tr>
<tr>
<td>Press</td>
<td>RIM 6.0</td>
</tr>
<tr>
<td>Press &amp; Tap</td>
<td>Ubuntu</td>
</tr>
<tr>
<td>Press &amp; Drag</td>
<td>And more...</td>
</tr>
<tr>
<td>Rotate</td>
<td></td>
</tr>
</tbody>
</table>
Tap
Briefly touch surface with fingertip.

Double Tap
Rapidly touch surface twice with fingertip.
Drag
Move fingertip over surface without losing contact.

Flick
Quickly brush surface with fingertip.
Pinch
Touch surface with two fingers and bring them closer together.

Spread
Touch surface with two fingers and move them apart.
Press
Touch surface for extended period of time.

Press & Tap
Press surface with one finger and briefly touch surface with second finger.

Press & Drag
Press surface with one finger and move second finger over surface without losing contact.

OR
Rotate
Touch surface with two fingers and move them in a clockwise or counterclockwise direction.
<table>
<thead>
<tr>
<th>user action</th>
<th>gesture</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change mode</td>
<td>press</td>
<td>Touch surface for extended period of time</td>
</tr>
<tr>
<td>Open</td>
<td>double tap</td>
<td>Rapidly touch surface twice with fingertip</td>
</tr>
<tr>
<td>Select</td>
<td>tap</td>
<td>Briefly touch surface with fingertip</td>
</tr>
<tr>
<td>user action</td>
<td>gesture</td>
<td>description</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>Delete</td>
<td>drag (across item or off-screen)</td>
<td>Move fingertip over surface without losing contact</td>
</tr>
<tr>
<td>Duplicate</td>
<td>tap (source and destination)</td>
<td>Touch object, then touch elsewhere on surface</td>
</tr>
<tr>
<td>Move</td>
<td>drag (and drop)</td>
<td>Move fingertip over surface without losing contact</td>
</tr>
<tr>
<td></td>
<td>multi-finger drag</td>
<td>Move two to five fingertips over surface without losing contact</td>
</tr>
<tr>
<td>user action</td>
<td>gesture</td>
<td>description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Pan</td>
<td>drag hand</td>
<td>Move fingers and palm of one hand over surface without losing contact</td>
</tr>
<tr>
<td>Scroll</td>
<td>drag</td>
<td>Move fingertip over scrollbar without losing contact</td>
</tr>
<tr>
<td></td>
<td>two-finger drag</td>
<td>Move two fingers up or down across surface</td>
</tr>
<tr>
<td></td>
<td>press</td>
<td>Touch scrollbar for extended period of time</td>
</tr>
<tr>
<td>Scroll (fast)</td>
<td>flick</td>
<td>Quickly brush surface with fingertip in the direction you want to scroll</td>
</tr>
</tbody>
</table>
www.lukew.com/touch
Sketch a Search
Gesture Search
<table>
<thead>
<tr>
<th>Gesture</th>
<th>Used by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap</td>
<td>Mobile Web</td>
</tr>
<tr>
<td>Drag</td>
<td>Mobile Web</td>
</tr>
<tr>
<td>Flick</td>
<td>Harder</td>
</tr>
<tr>
<td>Rotate</td>
<td>Harder</td>
</tr>
<tr>
<td>Pinch/Spread</td>
<td>Used by Browser</td>
</tr>
<tr>
<td>Double Tap</td>
<td>Used by Browser</td>
</tr>
<tr>
<td>Press Gestures</td>
<td>Used by Browser</td>
</tr>
</tbody>
</table>
Drag to Reveal
Yahoo! Ordering
[Flickr] Your Pro Account purchase receipt
Thanks for buying Flickr Pro! This is your receipt from Yahoo! billing to let you know that your payment has been processed. Flickr will send you a confirmation email shortly. If you purchased a gift account, it will contain a link with instructions to redeem the gift.
Drag to Reveal

Yahoo! Mail
m.msg.mail.yahoo.com/... Google

Inbox (61)

Bath & Body Works
Our Top 10 for Spring + Free Shipping!
See Our Top 10 Faves for the Spring Season!
View on Mobile Device | Web Browser Don't miss

Bath & Body Works
Monday
Introducing New Carried Away! + $10 Minis to ...
New! Carried Away - The Full Collection is Now Available! View on Mobile Device | Web Browser

Bath & Body Works
Saturday
Today Only! $1 Ship + New! I Love PocketBac
Surprise Your Valentines! 5 for $5.1 Love
Taliban attacks US embassies in Kabul

Insurgents fired rockets at the US Embassy and NATO headquarters. No embassy casualties were reported.

- Photos: Scenes from the attack

JOAN VENNOCHI

A grim night for Perry, but one for Romney

Things got less funny for Texas Governor Rick Perry as last night's Republican presidential debate went on.

- Rivals put Perry on defensive in debate
- Latest GOP debate affirms clear split in field
- Scot Lehigh: No retreat, no surrender for Perry? Not last night
Discovering Gestures

1. Just-in-time Education
2. Content Teases
3. Animation Cues
4. Removal of other Options
Just-in-Time Education

We learn best in the moment, by demonstration and practice. Interfaces should teach (coach!) in context. Just-in-time education. #bdconf

Axe

Grab a website and axe pieces you don't like

lukew.com

Axe It!

Watch our 83-second introduction to Axe, or learn more about Axe.

Axe is made by ZURB. ZURB is a close-knit team that helps companies design better websites, services and products online.

Check out some of our other fine apps that help you design better products.

Pro Suite: Notable, Verify, Resolve
Free Apps: Axe, Bounce, Chop, Clue, Reel, Spur, Strike

ZURB is hiring:
Designer
Lead Editor

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Learn more about Axe
Follow Axe on Twitter
Preparing the chopping block
Hang tight for just a few seconds as we get your screenshot ready.

Scribble to Axe
Tap & Hold to Comment
Scroll With Two Fingers

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Pro Suite: Notable, Verify, Resolve
Free Apps: Axe, Bounce, Chop, Clue, Reel, Spur, Strike

ZURB is hiring:
Designer
Lead Editor

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Looking for a great online interface for projects? Try using the AXE platform. It's a powerful tool for creating professional-looking designs. AXE is designed to be easy to use, with a user-friendly interface that allows you to quickly create and edit your designs. Whether you're a designer, developer, or manager, AXE has everything you need to create stunning digital products.

Key Features:
- Unlimited project storage
- Collaboration tools
- A vast library of design elements
- Mobile-friendly design options
- Integration with popular design software
- Real-time feedback and approvals
- Customizable branding options

Get started with AXE today and take your projects to the next level!
Just In Time

Getting started with Readability for iPhone

Congratulations! Your Readability account has been created. You’re moments away from saving anythi...
Discovering Gestures

1. Just-in-time Education
2. Content Teases
3. Animation Cues
4. Removal of other Options
Content Teases

people

recent

Amy Alberts

"Heading to the gym now"

Dave Alexander

Luis Alverca

what's new

Victor Stehmann

Upgraded his status 23 minutes ago

"Taking the kids to the zoo."

Sheli Bassli

Facebook

Written on Luis Alverca's wall

"Thank you for showing me around town yesterday. I really like the new downtown area and that wine bar."

Alli Kerry

Facebook

Written on Alex Thromber's wall

"Me and waves  today! I cannot believe how many people were at the beach!"

LUKEW

 ideation + design

280
Teases

Top News
Sports
Vancouver 2010
Showbiz
U.S. News
World
Wacky

Technology
Business
Lifestyle
Discovering Gestures

1. Just-in-time Education
2. Content Teases
3. Animation Cues
4. Removal of other Options
Open a Pack

Packs
Reading made for mobile.

Content First
by Jeffrey Zeldman
$4

Buttons are a Hack
by Josh Clark
$4

Rethinking the Mobile Web
by Bryan & Stephanie Rieger
$5

Evolving E-Commerce Checkout
by Luke Wroblewski
Digital shopping shows no sign of letting up. Americans spent $142.5 billion online in 2010 and e-commerce in the United States has seen double digit growth every quarter since. While an increase in total e-commerce buyers is one of the biggest reasons why, recent innovations in personal computing are poised to drive digital spending even higher.
Digital shopping shows no sign of letting up. Americans spent $142.5 billion online in 2010 and e-commerce in the United States has seen double digit growth every quarter since. While an increase in total e-commerce buyers is one of the biggest reasons why, recent innovations in personal computing are poised to drive digital spending even higher.

<table>
<thead>
<tr>
<th>Y/Y E-COMMERCE GROWTH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010</strong></td>
</tr>
<tr>
<td>Q1</td>
</tr>
<tr>
<td>Q2</td>
</tr>
<tr>
<td>Q3</td>
</tr>
</tbody>
</table>

The first wave of e-commerce was driven by the ability to purchase physical goods digitally. Growth of the desktop Internet and dropping costs of personal computers put the ability to buy online in many people's hands and gave rise to online retail giants like Amazon, eBay, and Walmart.

Since then, an increasing amount of media and services are being created, distributed, and consumed digitally. Less than four years after introducing their digital Kindle book format, Amazon customers are now purchasing more Kindle books than print books - hardcover and paperback combined. Apple's iTunes is the number one music store in the world with 16 billion songs downloaded and 20 million songs available.
Discovering Gestures

1. Just-in-time Education
2. Content Teases
3. Animation Cues
4. Removal of other Options
Increasing E-commerce

Checkout Design

Evolving Checkout

Saved Account

Free Shipping

Psychological Motivators

Real-Time Feedback

Accordion Forms

One-Click

Mobile Input

Shopping Devices

Physical Meets Digital

What's Next
Fundamentally, there are two ways to boost checkout conversion: increasing desire (persuasion) and reducing effort (efficiency).
Increasing E-commerce

Checkout Design

Evolving Checkout

Saved Account

Free Shipping

Psychological Motivators

Real-Time Feedback

Accordion Forms

One-Click

Mobile Input

Shopping Devices

Physical Meets Digital

What’s Next
Help as Content

- Swipe to the right to complete!
- Swipe to the left to delete
- Tap and hold to pick me up
- Pull down to create an item
- Try pinching two rows apart
- Try pinching vertically shut
- Pull up to clear
Natural User Interfaces (NUI)

“NUI exploits skills that we have acquired through a lifetime of living in the World” –Bill Buxton

- Content is the UI (the action)
- Reduce the distance as much as possible between user & content
- Enable direct manipulation of objects & content
- Guessable, predictable, physical, realistic
- Reduce Visuals that are Not Content

9-axis motion and orientation sensing

- Magnetometer
  - Digital compass
  - Magnetic field strength

- Accelerometer
  - Measures motion of device (roll & pitch) & force of gravity
  - Linear acceleration

- Gyroscope
  - Angular speed

9-axis motion and orientation sensing

- True orientation of device in real time
- 3D motion: shakes, twists, and rotations in multiple dimensions
- Has to be tested on actual device
- http://remote-tilt.com/

Source: http://bit.ly/wVqWAG
Landscape Mode

Mac Apps for an Easily Distracted Mind
MICHAEL ANGELES'S
COMPUTING BAG

Ping, ping, ping. Software should stay out of the way so I can get stuff done. I have trouble focusing on some types of tasks an...

11 ITEMS

Alfred
QuickSilver was my launcher for years. Alfred has replaced it. Minimal and there when I need it, and does much more than I expect it to.

COMMENT 8 BAGS

Mac Apps for an Easily Distracted Mind
MICHAEL ANGELES’S
COMPUTING BAG

Ping, ping, ping. Software should stay out of the way so I can get stuff done. I have trouble focusing on some types of tasks an...

10 COMMENTS  SHARE  UNLIKE

11 ITEMS

Alfred
Landscape Mode
Expedia
TripAssist
Where should you be?
Flip it and see.
1. Select a Date.

Scroll the dates horizontally to select the date you want to record a weight on.

3. Shake to Delete an Entry.

Select a date and shake your device to delete a weight entry.
4. Rotate Clockwise to View the Graph.

Double-tap the graphs to access various views.

5. Rotate Counter-Clockwise to View Progress.

Track your progress and view statistical data.
Tilt Scrolling in Instapaper Pro

instapaper.com/iphone
Bump

- To match between two devices...
- Accelerometer data
- Location of the handset
- IP address assigned
- Lots of other stuff

Source: http://b.gr.ae/HavWaZ
Safari Accelerometer Access

iPhone 4 accelerometer experiment
http://pus.hu/g6pKPI
Safari Gyroscope Access
iOS5 Digital Compass Access

Direction Detection

Location Detection
When discovered by users boosted their sustained traffic by 40 to 50 percent.

“It was sort of beyond our expectations. We had no idea.”

Yelp CEO,
Jeremy Stoppelman
Native App

- Location detection
- Device orientation
- Digital compass
- Video camera access

Mobile Web

- Location detection
- Device orientation
- Digital compass (iOS 5)
Camera Input

- Use pre-existing file or live capture
- Stock UI for both
- Can be customized with overlays, controls, content
- Can process live stream or saved file
When information flows freely, reputation, more than reciprocity, becomes the basis for trust.

As a strategic weapon, time is the equivalent of money, productivity, quality, even innovation.

When brands become business systems, brand management becomes far too important to leave to the marketing department.

The winning organization of the future will look more like a collection of jazz ensembles than a symphony orchestra.

Most of our organizations today derive from a model whose original purpose was to control creativity.

Rather than being an obstacle, uncertainty is the very engine of transformation in a business, a continuous source of new opportunities.

IP assets lack clear property lines. Every bit of intellectual property you can own comes with connections to other valuable innovations.

SCAN TO CHECKOUT
Video Overlays

Point the laser at a barcode.
Hold still.

Scanning Barcode...

Tap here to search by keyword or UPC
Designing Web Interfaces: Principles and Patterns for Rich Interactions

Bill Scott & Theresa Neil

Online prices (2) from $31.49
Local prices (1) from $35.99

Amazon.com
New (35) from $23.95; Used (9) from $23.00

Google

Wikipedia

eBay
Camera Customizations
Google maps

We’re a Favorite place on Google

QR Code
Kasa Indian Restaurant - Indian Food Delivery

4001 18th Street
San Francisco, CA 94114

www.kasaindian.com - web site

⭐⭐⭐⭐⭐ 14 reviews

"Kasa was a nice take on Indian 'fast food'." ... "San Francisco likes Indian food." ... "The portions were very generous and tasted really good." ... "And besides, who needs ambiance with an idea this good?" ... "I'm a little obsessed with Kasa...it's that good!" ... "I am hooked!"

insiderpages.com, citysearch.com

(415) 621-6940

Map

Details

Hours Of Operation: Monday: 11:00AM - 10:00PM,
Tuesday - Saturday: 11:00AM - 10:00PM, Wednesday: 11:00AM - 9:00PM, Thursday: 11:00AM - 10:00PM, Friday: 11:00AM - 11:00PM, Saturday: 11:00AM - 12:00AM, Sunday: 11:00AM - 9:00PM.
Deposit a Check

CHECK PAYABLE
- The check should be made payable to the account holder or trust

PHOTO TIPS
- Place the check in a well-lit area on a dark background
- Make sure the four corners of the check are within the blue box
- Align the top of the check with the top of the box
- Avoid shadows on the check

Cancel  Next
Get Paid

card.io
Process Receipts

Lemon™

The sweetest way to manage all of your purchases

Easily scan or email your receipts
We’ll digitize and enrich them
You’ll get reports, useful information & storage for your receipts!
Images as Input

Google Goggles Labs

Ihr Abendessen im April

Schmandtörtchen mit Holunderragout

Sour cream cake with elderberry sauce
Facial Detection in iOS 5

Faces within a picture, including the locations of eyes & mouths
Audio Input

- Language models: “free-form” or “web search”
- Language support: English, Japanese, etc.
- Sends back a list of possible matches (requires network connection)
- Can simply store recordings instead
"Will it be sunny this weekend in Miami?"

Bring your sunglasses, it's going to be nice in Miami.

weekly Forecast

TUES WED THU FRI SAT SUN

93° 97° 97° 93° 93° 93°

61° 63° 63° 61° 61° 61°

"I'm in the mood for Italian food in North Beach."

I found a number of Italian restaurants in North Beach:

- The Stinking Rose
- Tonmasco Ristorante Italiano
- Green Street
- Sotto Mare

"Remind me to pick up my dress when I leave work."

Here's your reminder for when you leave work:

Pick up my dress
Leaving Work

Cancel Confirm
Audio Input
Audio Input
Proximity Sensor

- An on/off light sensor
- Detects when device is close to face (or when covered)

Proximity Sensor

- An on/off light sensor
- Detects when device is close to face (or when covered)

Near Field (NFC)

- Close-range radio communication between phones/devices, tags
- Require a distance of 4cm or less to initiate a connection
- Can read RFID tags (one-way)
Near Field (NFC)
iPhone with an RFID/NFC reader
Mobile Device Capabilities

- Location detection
- Multi-touch sensors
- Device positioning & motion: from an accelerometer
- Gyroscope: 360 Degrees of motion
- Orientation: direction from a digital compass
- Video & image: capture/input from a camera
- Dual cameras: front and back
- Audio: input from a microphone; output to speaker
- Ambient Light: light/dark environment awareness
- Proximity: device closeness to physical objects
- NFC: Near Field Communications through RFID readers
- Device connections: through Bluetooth between devices
Custom Controls
SOFTWARE
1. Constraints
2. Input fields, types, & more
3. Mobile forms

HARDWARE
1. Capabilities
2. Rethinking forms
LOGIN

- Touch Gestures
- Facial Recognition
- SMS Authentication
Touch Gestures

“Microsoft Windows 8 shows mobile’s influence.”

Source: http://dthin.gs/iVlsAw
Building “Windows 8”
Signing in with a picture password

© 2011 Microsoft
## Password Combinations

<table>
<thead>
<tr>
<th></th>
<th>10-digit</th>
<th>A-Z character</th>
<th>Complex character</th>
<th>Multi-gesture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>26</td>
<td>n/a</td>
<td>2,554</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>676</td>
<td>n/a</td>
<td>1,581,773</td>
</tr>
<tr>
<td>3</td>
<td>1,000</td>
<td>17,576</td>
<td>81,120</td>
<td>1,155,509,083</td>
</tr>
<tr>
<td>4</td>
<td>10,000</td>
<td>456,976</td>
<td>4,218,240</td>
<td>6.12157E+11</td>
</tr>
<tr>
<td>5</td>
<td>100,000</td>
<td>11,881,376</td>
<td>182,790,400</td>
<td>3.98047E+14</td>
</tr>
</tbody>
</table>

WHAT ABOUT THE BROWSER?

- Touch Events API
  - `touchstart` finger on
  - `touchmove` finger dragged
  - `touchend` finger removed

- HTML Media Capture
  - Form enhancements that provide access to the audio, image and video capture capabilities of the device
Android 3.0 +

<input type="file" accept="image/*" capture="camera"/>
Facial Recognition
Aucune carte SIM n'a été trouvée.

Appel d'urgence

Montrez votre visage.
WHAT ABOUT THE BROWSER?

- Getusermedia API
- Access to local device multimedia data streams
- Video cameras, microphones, Web cams

Source: http://bit.ly/rOw96f
navigator.sendMessage("sms:16505551234?" + "body=Sign%20me%20in");

bondi.messaging.subscribeToSMS(alert("Let In");
});
{
from: "16505551234"},true);
CHECKOUT

- Contact Autofill
- Location Detection
- Virtual Shopping
- Self Checkout
Contacts API

```javascript
navigator.contacts.find({__id: owner});
```

Source: http://bit.ly/931yM1
Local Purchases

if (navigator.geolocation) {
  navigator.geolocation.getCurrentPosition
}
Local Purchases

Web Workers: API for spawning background scripts in your web application.

바코드/QR 검색
장바구니 가기 로그인 하시면 장바구니가 보입니다.

농심_신라면큰사발_114G
740원
장바구니 담기
관련상품 보기
코드검색 상품
이용안내

Source: http://bit.ly/rYREo
Self Checkout

50% increase in barcode scans last year

40% online prescriptions scanned on mobile

Source: http://tcrn.ch/tASWp0
CHECKOUT

VS.

Thank you

Your Dell Purchase ID is:
2003031124714
What is Dell Purchase ID?

Your receipt is being sent to:
cdr@lukew.com

Order Confirmation will be emailed when your order has been processed (usually within 1 business day). This will include:
• Your Dell Order Number(s)
• Your Dell Customer Number

Thank you.

You're all set.
If you'd like a bag, just show your receipt to a Specialist.

View Receipt

Your receipt has been sent to:

Please note that your purchase is governed by Apple's Sales and Refund Policies.
SOFTWARE
1. Constraints
2. Input fields, types, & more
3. Mobile forms

HARDWARE
1. Capabilities
2. Rethinking forms
THANKS

LUKEW.COM  @LUKEW
Luke Wroblewski

MOBILE FIRST