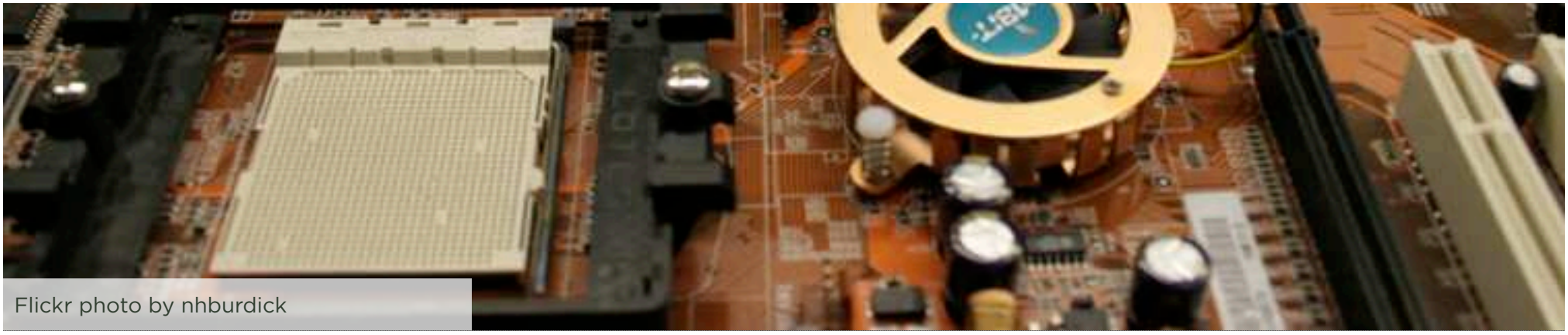
FIRST PERSON USER INTERFACES

LUKE WROBLEWSKI

CHIFOO PORTLAND 2011

ABSTRACTION

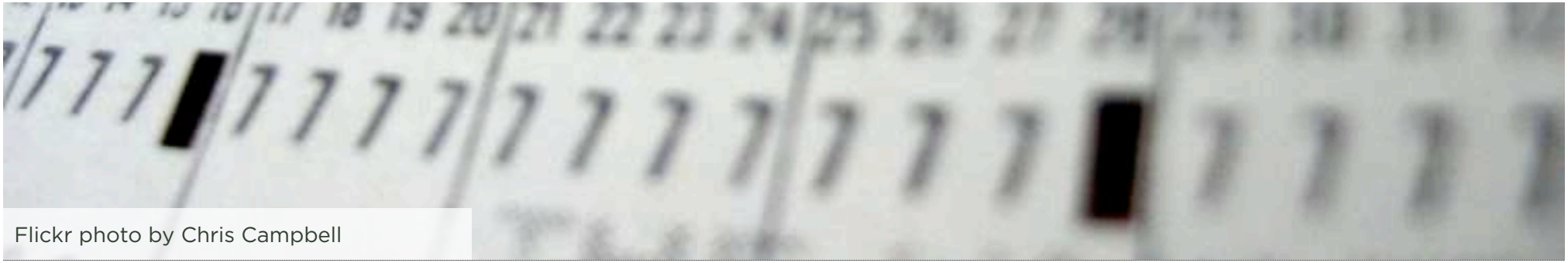
- User interfaces give you access to computing capabilities
- By abstracting away all the messy stuff



Flickr photo by nhburdick

PUNCHED CARD INTERFACES

- Lived outside the computer
- Had specific formats that needed to be learned
- Had to be punched by hand or on a key punch machine
- Had to be fed into a computer
- Output was delivered on paper



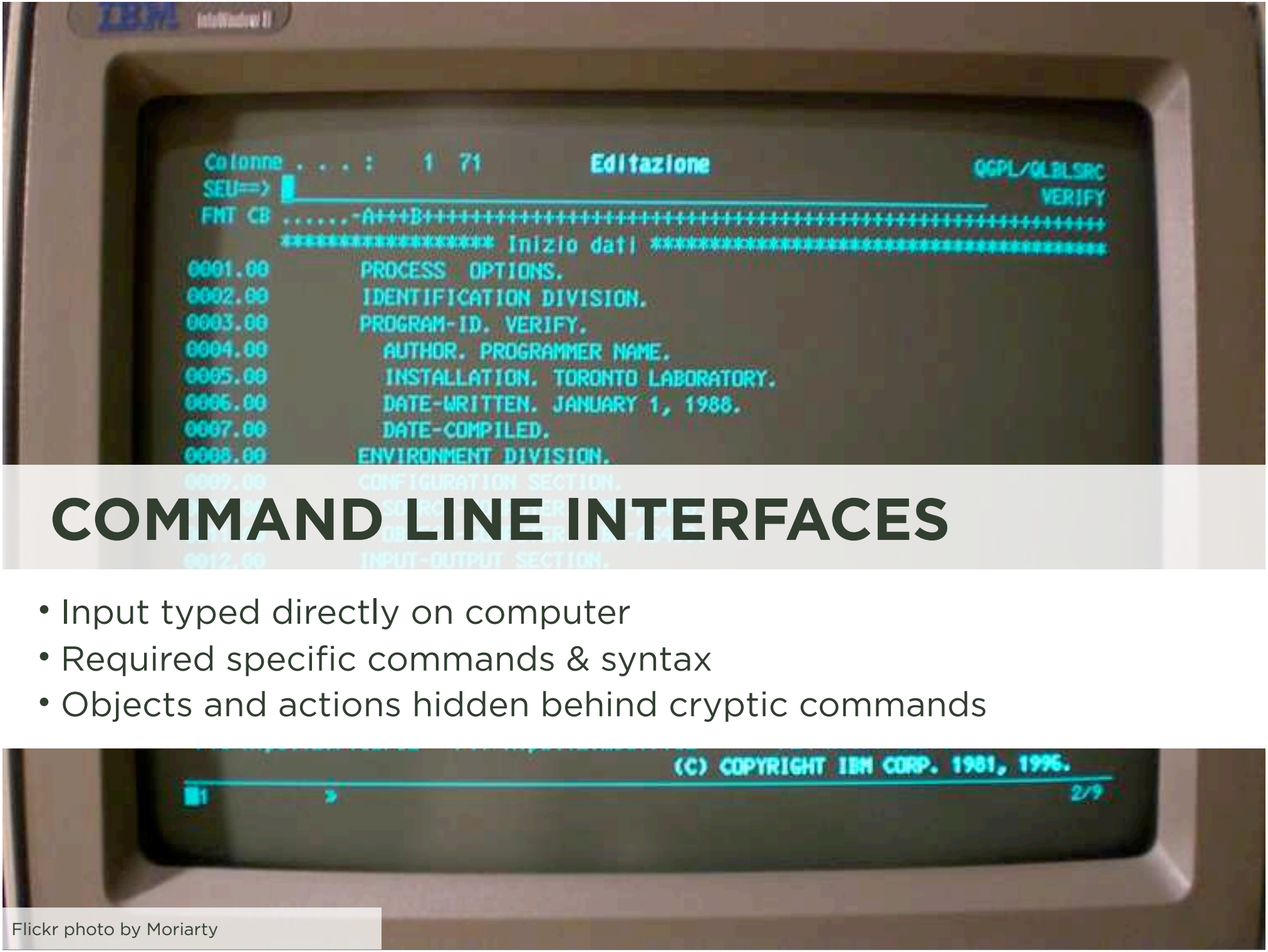
Flickr photo by Chris Campbell

PUNCHED CARD INTERFACES

LAYERS OF ABSTRACTION

INPUT OUTPUT

Punched Cards Interfaces

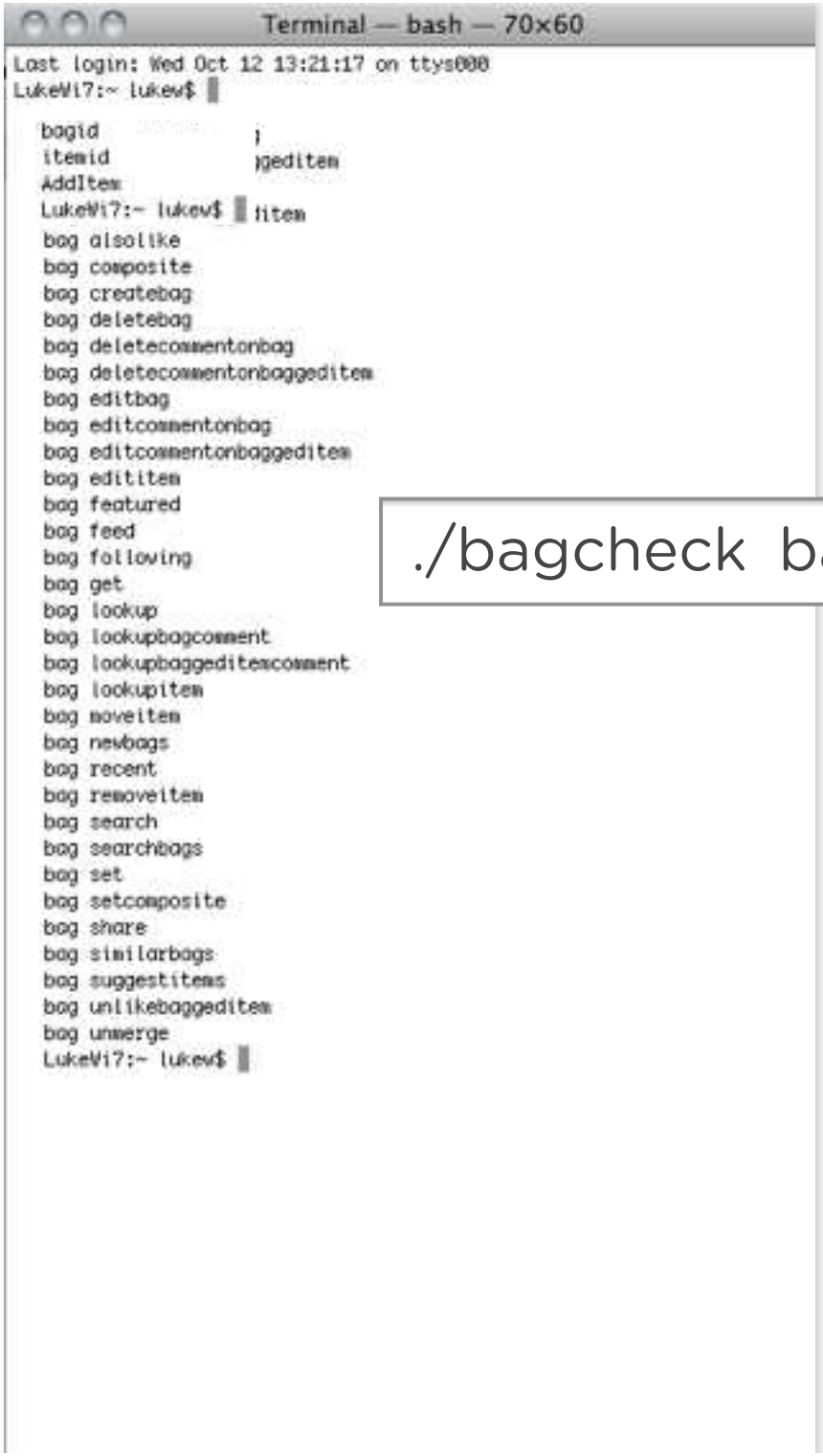


COMMAND LINE INTERFACES

- Input typed directly on computer
- Required specific commands & syntax
- Objects and actions hidden behind cryptic commands

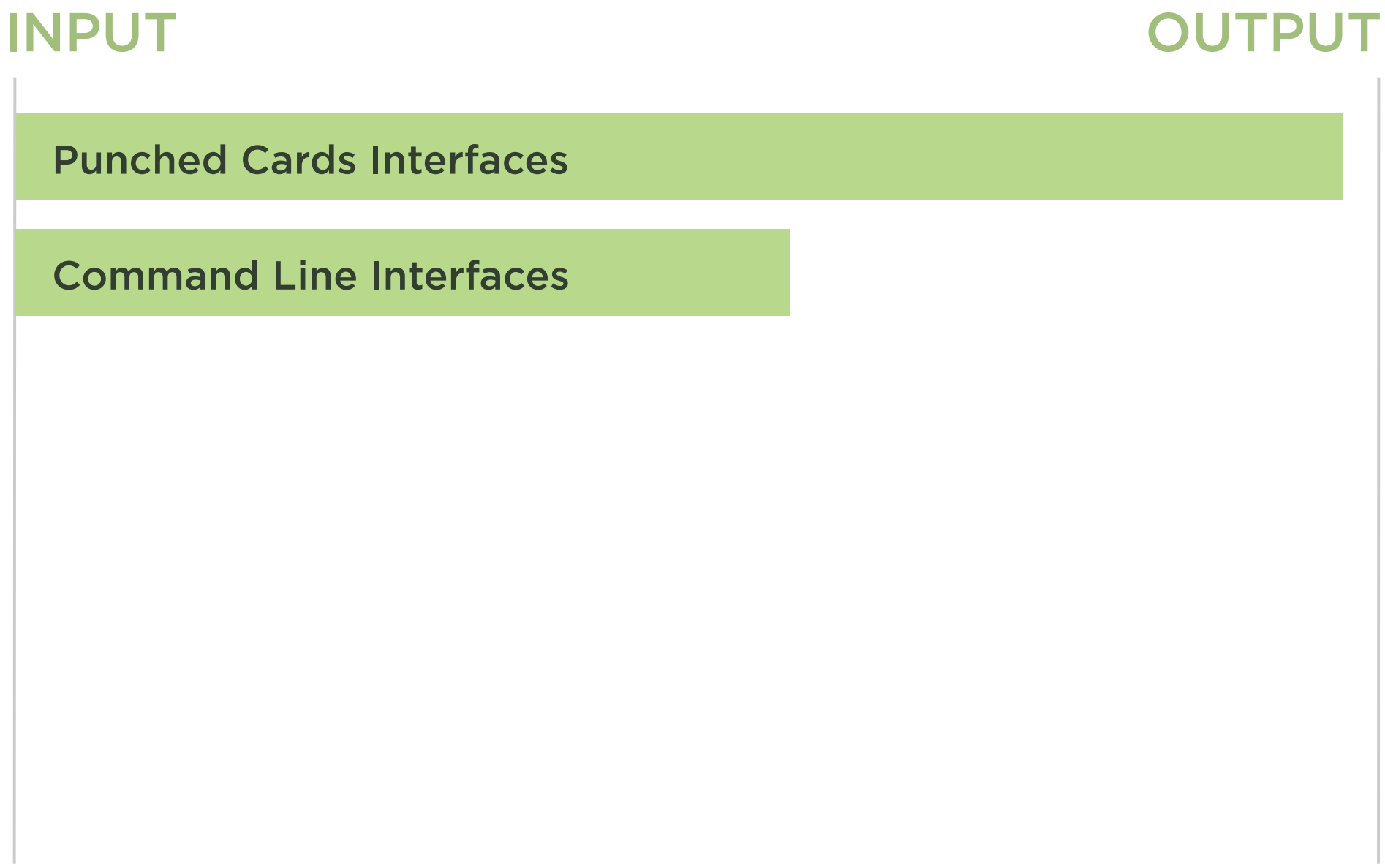
Flickr photo by Moriarty

```
-o                          Set the output file, if appropriate
-i                          Add an input file.
-stdin                      Read input from standard input
-stdout                     Send result to standard output
-change-id                  Change the file's /ID tag
-keep-version               Don't change the version number
-l                          Linearize output files where possible
-merge                      Merge a number of files into one
-retain-numbering           Don't renumber pages when merging
-remove-duplicate-fonts     Remove duplicate fonts when merging
-split                      Split a file into individual pages
-chunk                      Set chunk size for -split (default 1)
-split-bookmarks            Split a file at bookmark boundaries at a given level
-scale-page                 -scale-page "sx sy" scales by (sx, sy).
-shift                      -shift "dx dy" shifts the chosen pages by (dx, dy).
-rotate                     Set rotation of pages to 0, 90, 180, 270
-rotateby                   Rotate pages by 90, 180 or 270 degrees
-rotate-contents            Rotate contents of pages
-upright                    Make pages upright
-hflip                      Flip pages horizontally
-vflip                      Flip pages vertically
-crop                       Crop specified pages
-remove-crop                Remove cropping on specified pages
-mediabox                   Set media box on specified pages
-encrypt                    Encrypt a document
-decrypt                    Decrypt a file
-no-edit                    No edits
-no-print                   No printing
-no-copy                    No copying
-no-annot                   No annotations
-no-forms                   No forms
-no-extract                 No extracting
-no-assemble                No assembling
-no-hq-print                No high quality printing
-no-encrypt-metadata        Don't encrypt metadata (AES only)
-decompress                 Decompress
-compress                   Compress with FlateDecode. Leaves metadata alone.
-list-bookmarks             List Bookmarks
-remove-bookmarks           Remove bookmarks from a file
-add-bookmarks              Add bookmarks from the given file
-presentation               Make a presentation
-trans                      Set the transition method for -presentation
-duration                   Set the display duration for -presentation
-vertical                   Set dimension for Split and Blinds styles
-outward                    Set direction for Split and Box presentation styles
```



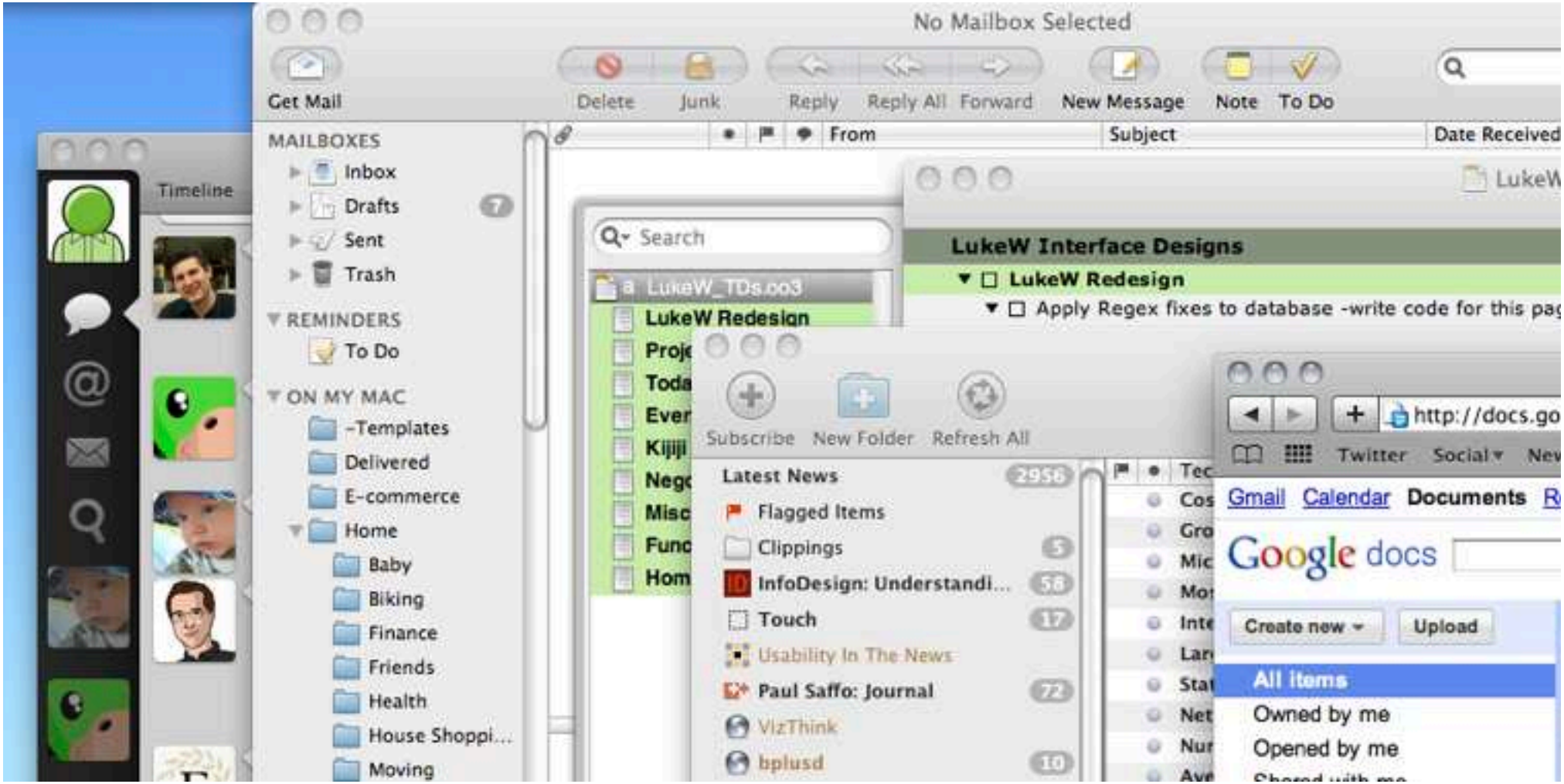
./bagcheck bag additem name='toast'

LAYERS OF ABSTRACTION

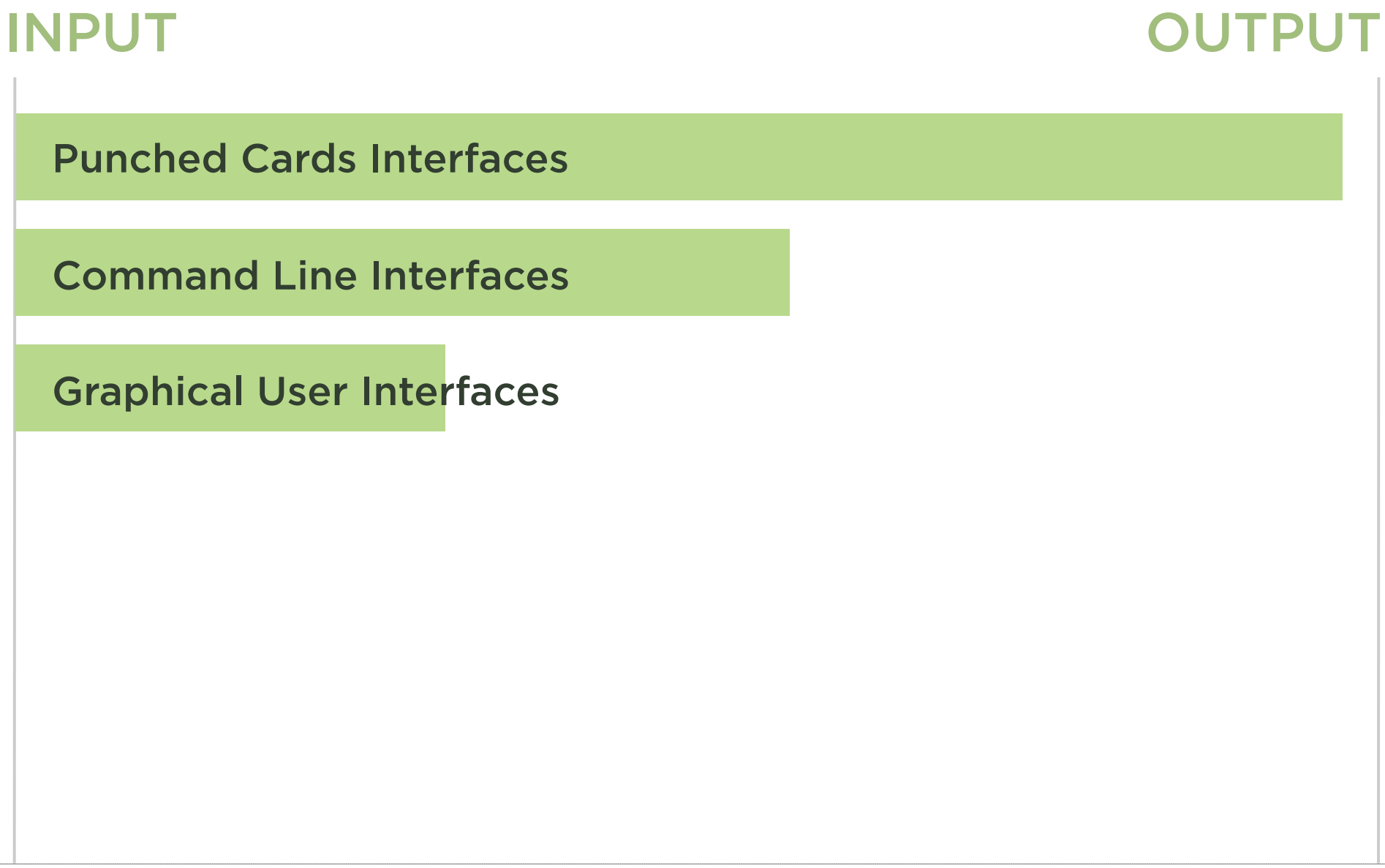


GRAPHICAL USER INTERFACES

- Made objects and applications visible
- Enabled manipulation through icons, controls, and mouse
- Resulted in lots of time interacting with UI components


No Mailbox Selected
Get Mail
Delete
Junk
Reply
Reply All
Forward
New Message
Note
To Do
MAILBOXES
Inbox
Drafts
Sent
Trash
REMINDERS
To Do
ON MY MAC
-Templates
Delivered
E-commerce
Home
Baby
Biking
Finance
Friends
Health
House Shoppi...
Moving
Timeline
From
Subject
Date Received
Search
LukeW Interface Designs
LukeW Redesign
Apply Regex fixes to database -write code for this pag
LukeW Redesign
Subscribe
New Folder
Refresh All
Latest News
Flagged Items
Clippings
InfoDesign: Understandi...
Touch
Usability In The News
Paul Saffo: Journal
VizThink
bplusd
Twitter
Social
Gmail
Calendar
Documents
Google docs
Create new
Upload
All items
Owned by me
Opened by me

LAYERS OF ABSTRACTION



Pont du Carrousel, Paris, France
Address is approximate
User Photos
Pont du Carrousel
Pont du Carrousel
© 2009 Google
Report a problem

NATURAL USER INTERFACES

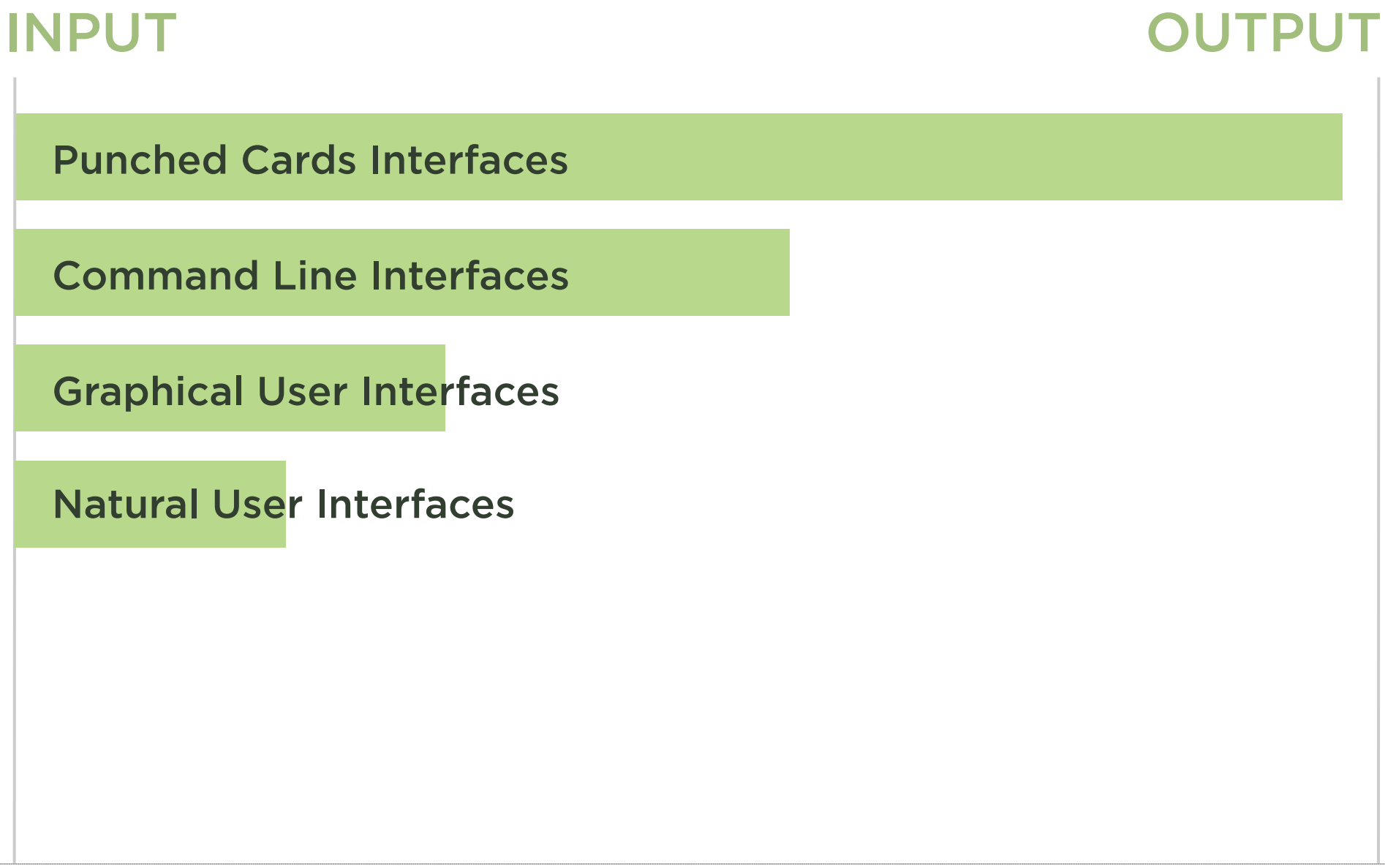
- The content itself serves as the interface
- Interact with guessable, physical, and realistic gestures
- Make use of skills learned through a lifetime of living

www.lukew.com/touch

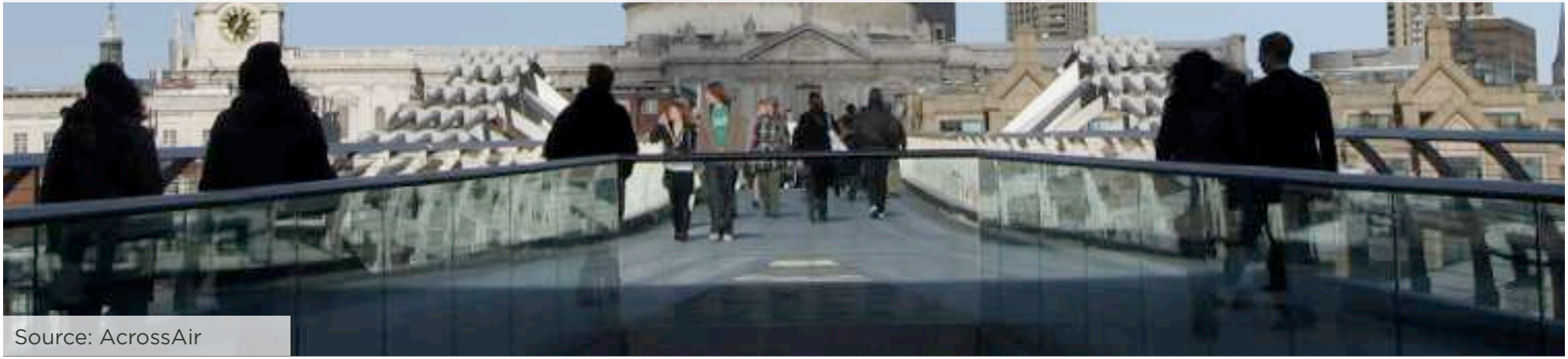
9:41 AM
“Will it be sunny this weekend in Miami.”
Bring your sunglasses, it’s going to be nice in Miami.
Weekly Forecast
TUES WED THU FRI SAT SUN
93° 97° 97° 93° 93° 93°
9:41 AM
“I’m in the mood for Italian food in North Beach.”
I found a number of Italian restaurants in North Beach:
The Stinking Rose
Tommaso Ristorante Italiano
Sotto Mare
9:41 AM
“Remind me to pick up my dress when I leave work.”
Here’s your reminder for when you leave work:
Reminders
Pick up my dress
Cancel
Confirm

9:41 AM
“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°
“I’m in the mood for Italian food in North Beach.”
I found a number of Italian restaurants in North Beach:
The Stinking Rose
Tommaso Ristorante Italiano
Sotto Mare
“Remind me to pick up my dress when I leave work.”
Here’s your reminder for when you leave work:
Reminders
Pick up my dress
Cancel
Confirm
09:54
10 41

LAYERS OF ABSTRACTION

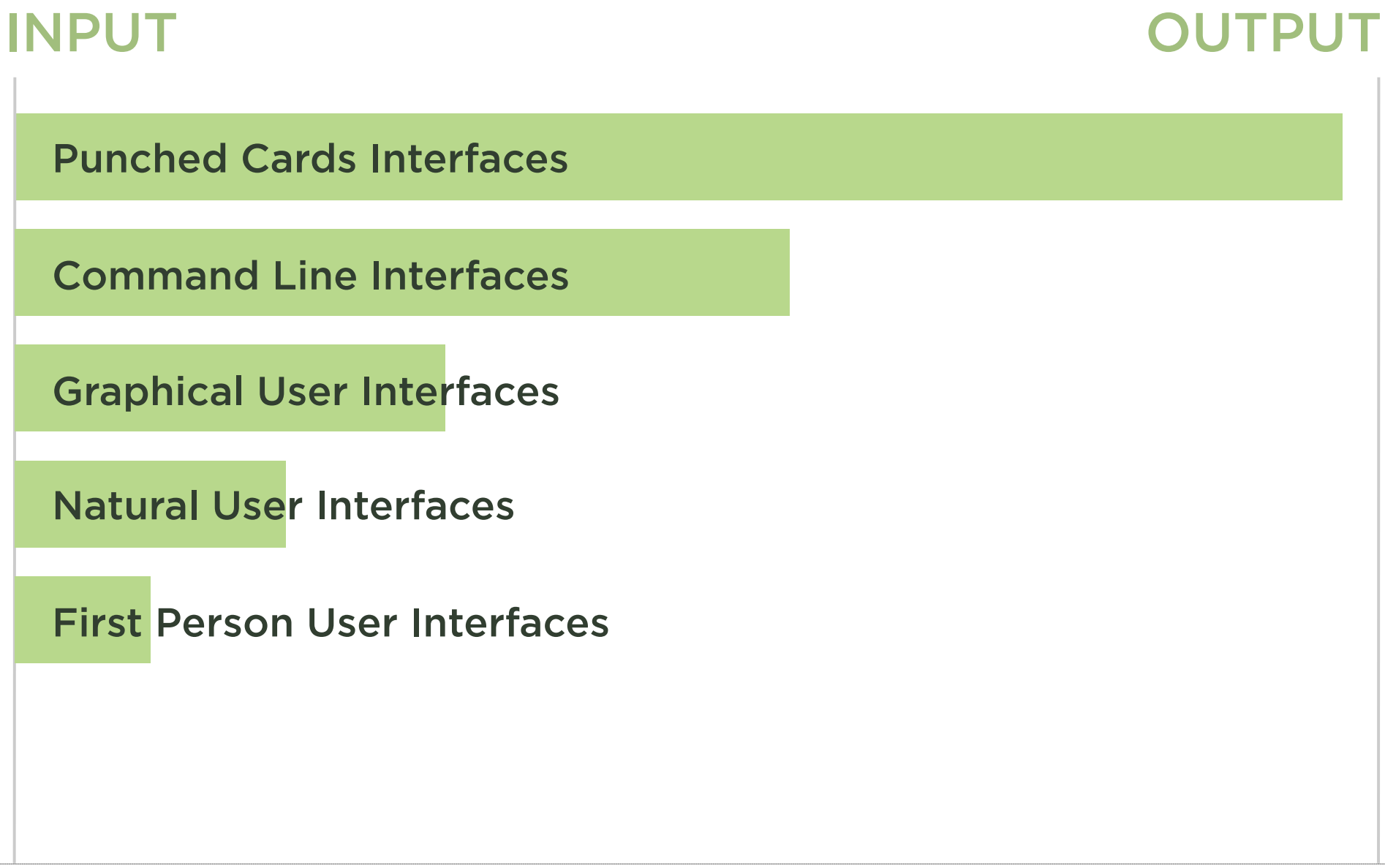


FIRST PERSON USER INTERFACES



Source: AcrossAir

LAYERS OF ABSTRACTION



FIRST PERSON USER INTERFACES

Allow people to digitally interact with the real world as they are currently experiencing it.

Automatically get relevant output based on where you are, and who or what is near you.

Turn objects, locations, and people into networked, interactive elements

Location Detection

What's nearby?

Krispy Kreme Doughnuts
2146 Leghorn St

Lee's Comics
1020 N Rengstorff Ave # F

Pet Club Mountain View
1010 Rengstorff Ave

OfficeMax - Mountain View
1030 North Rengstorff Avenue

Perfect Studio
1040 N Rengstorff Ave # E

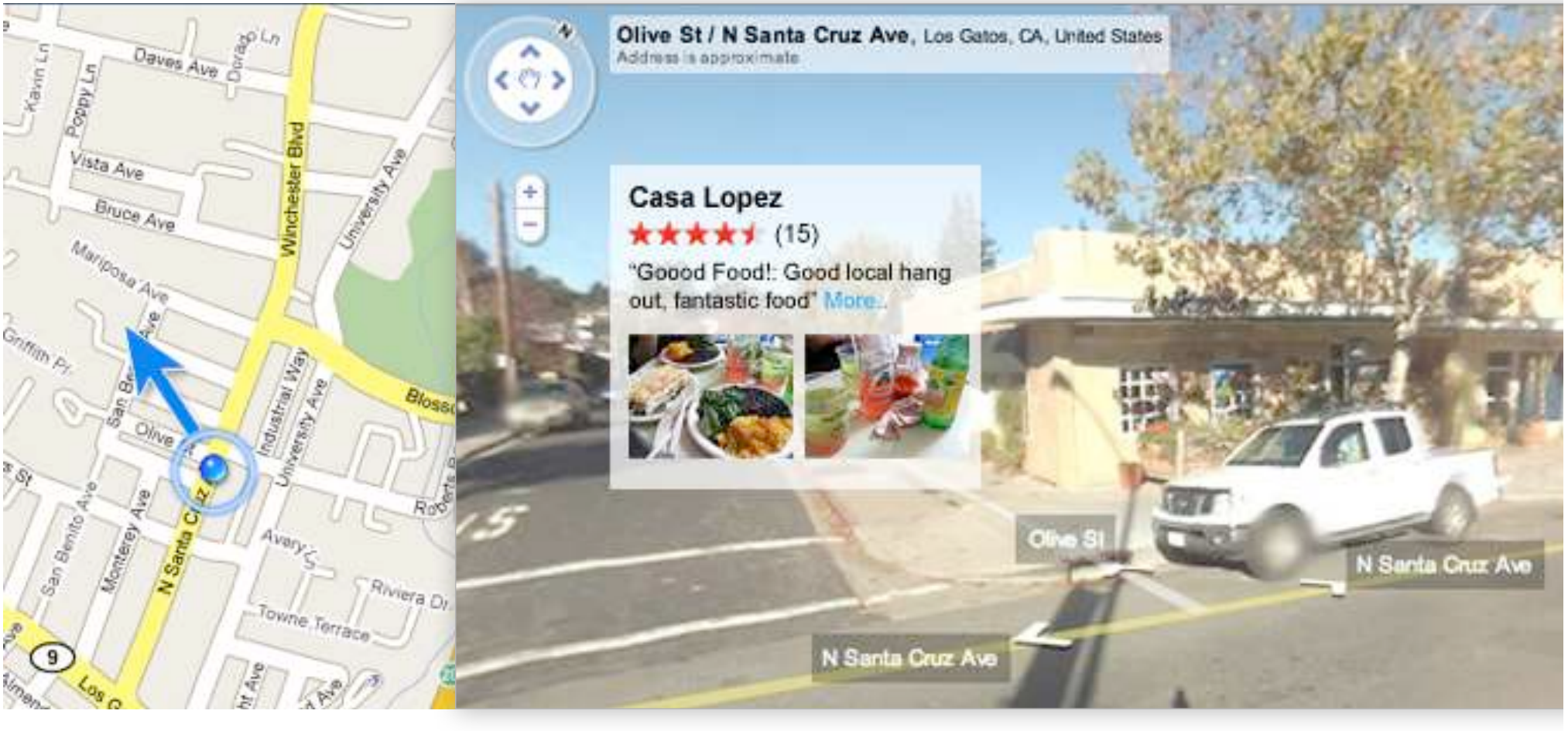
Location Systems

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

Smartphones: hybrid of GPS, Wifi, and cell tower triangulation

Laptops/desktops: WiFi, IP, rarely GPS

Location & Orientation Detection



Sensor Capabilities

- Location detection: GPS, WiFi, cell towers
- Orientation: direction from a digital compass
- Device positioning & motion: from an accelerometer
- Audio: input from a microphone; output to speaker
- Video & image: capture/input from a camera
- Device connections: through Bluetooth between devices
- Proximity: device closeness to physical objects
- Ambient Light: light/dark environment awareness
- RFID reader: identify & track objects with broadcasted identifiers
- Multi-touch sensors
- Haptic feedback: “feel” different surfaces on a screen
- Biometrics: retinal, fingerprint, etc.
- Push: real-time notifications “instant” to user

FIRST PERSON USER INTERFACES

- Interaction through a set of always-on sensors
- Instant, relevant output based on your position
- Or based on who or what is near you

Source: AcrossAir

FIRST PERSON USER INTERFACES

1. Navigate the space around you
2. Augment your immediate surroundings
3. Interact with nearby objects, locations, or people

FIRST PERSON USER INTERFACES

1. Navigate the space around you
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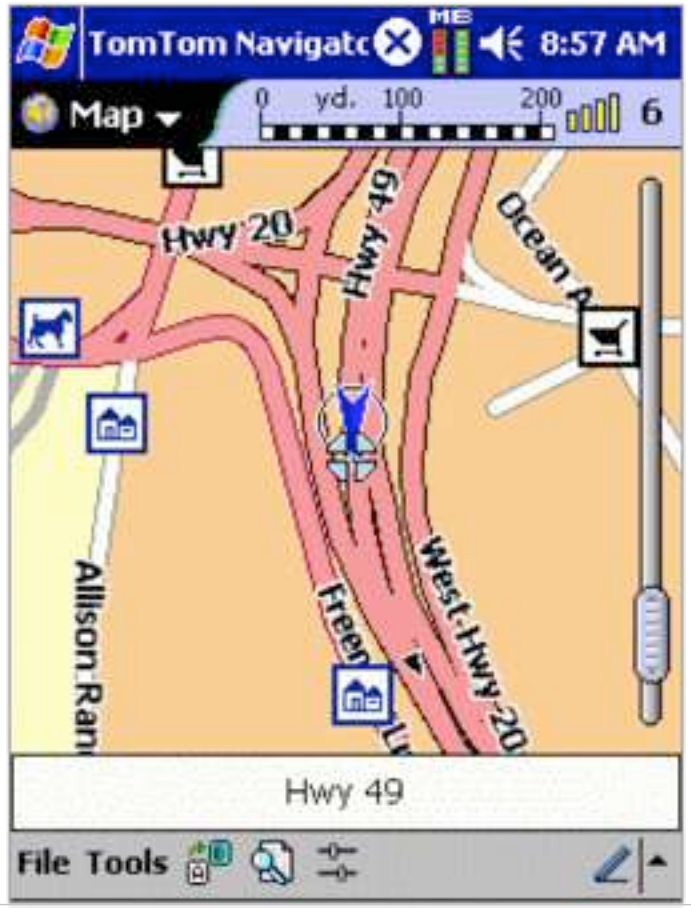
TomTom Navigation System



TomTom Navigation System

Google Maps Navigation

C3

FIRST PERSON USER INTERFACES

1. Navigate the space around you
2. Augment your immediate surroundings
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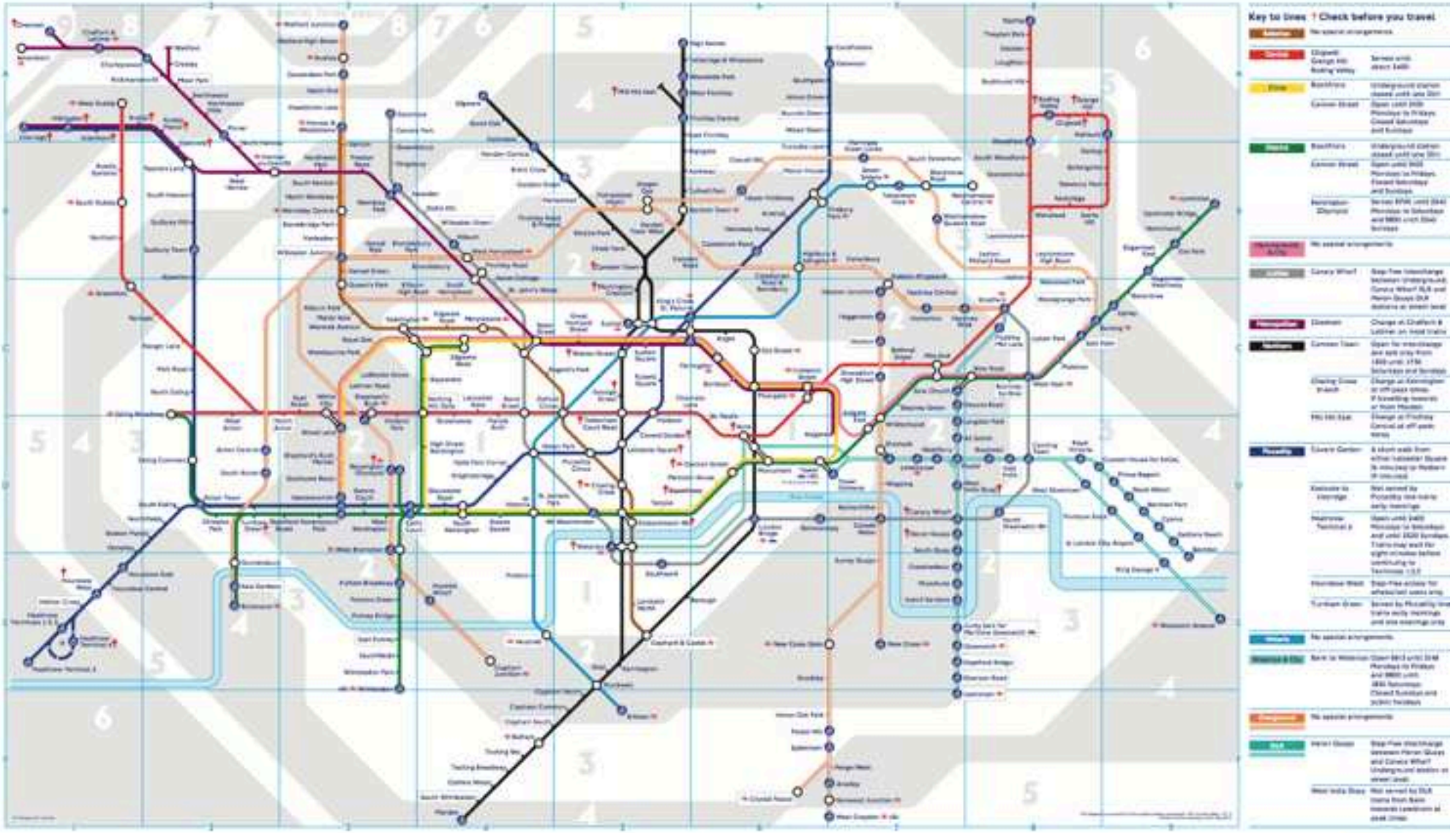
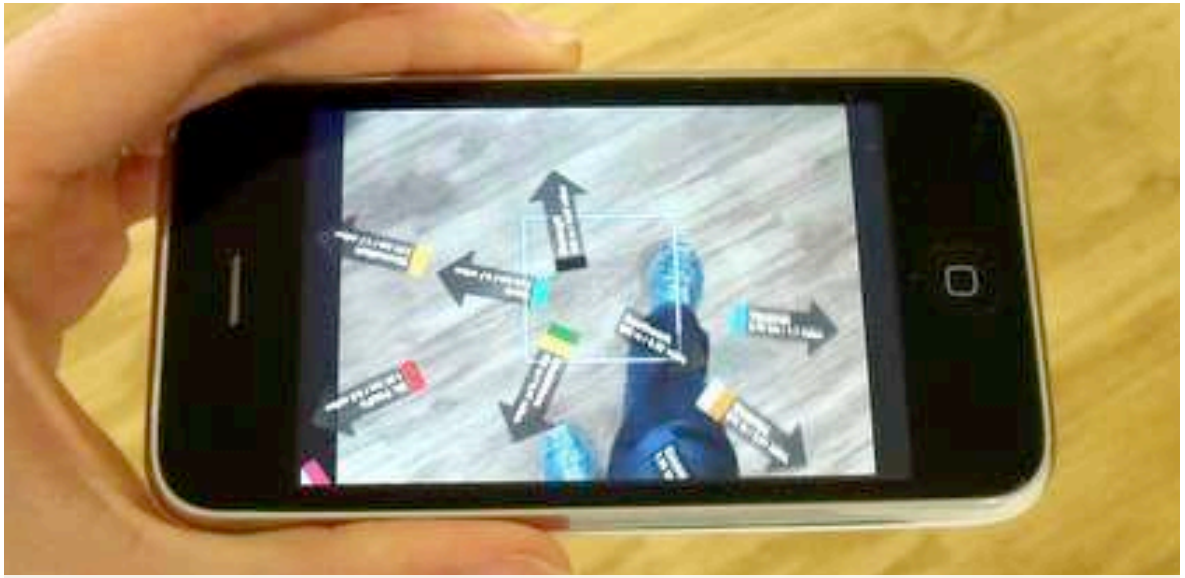
Tube map


Key to lines
Check before you travel
MAYOR OF LONDON
tfl.gov.uk
020 7222 1234
Transport for London
UNDERGROUND

LOOKING UP



LOOKING DOWN

LOOKING AHEAD

Augmented Outdoors

Yelp Monocle

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

Wikitude AR Guide

OVERVIEW & ORIENTATION

MARKERS

DATA WINDOW

IBM Seer at Wimbeldon

Wikitude AR Guide

ZOOM/SCALE

MARKERS

DATA WINDOW

OVERVIEW & ORIENTATION

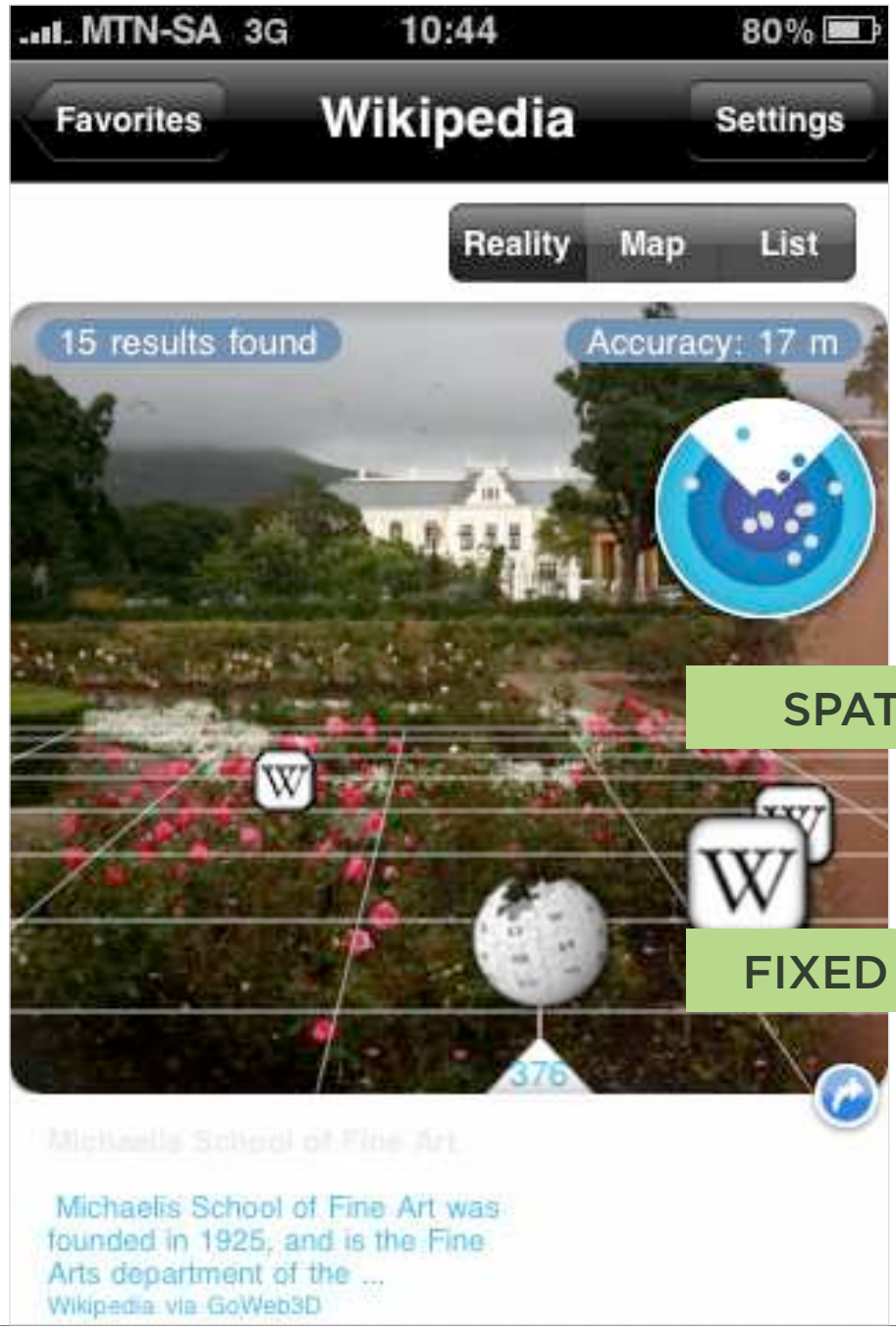
Marker Overload

LUKEW IDEATION + DESIGN

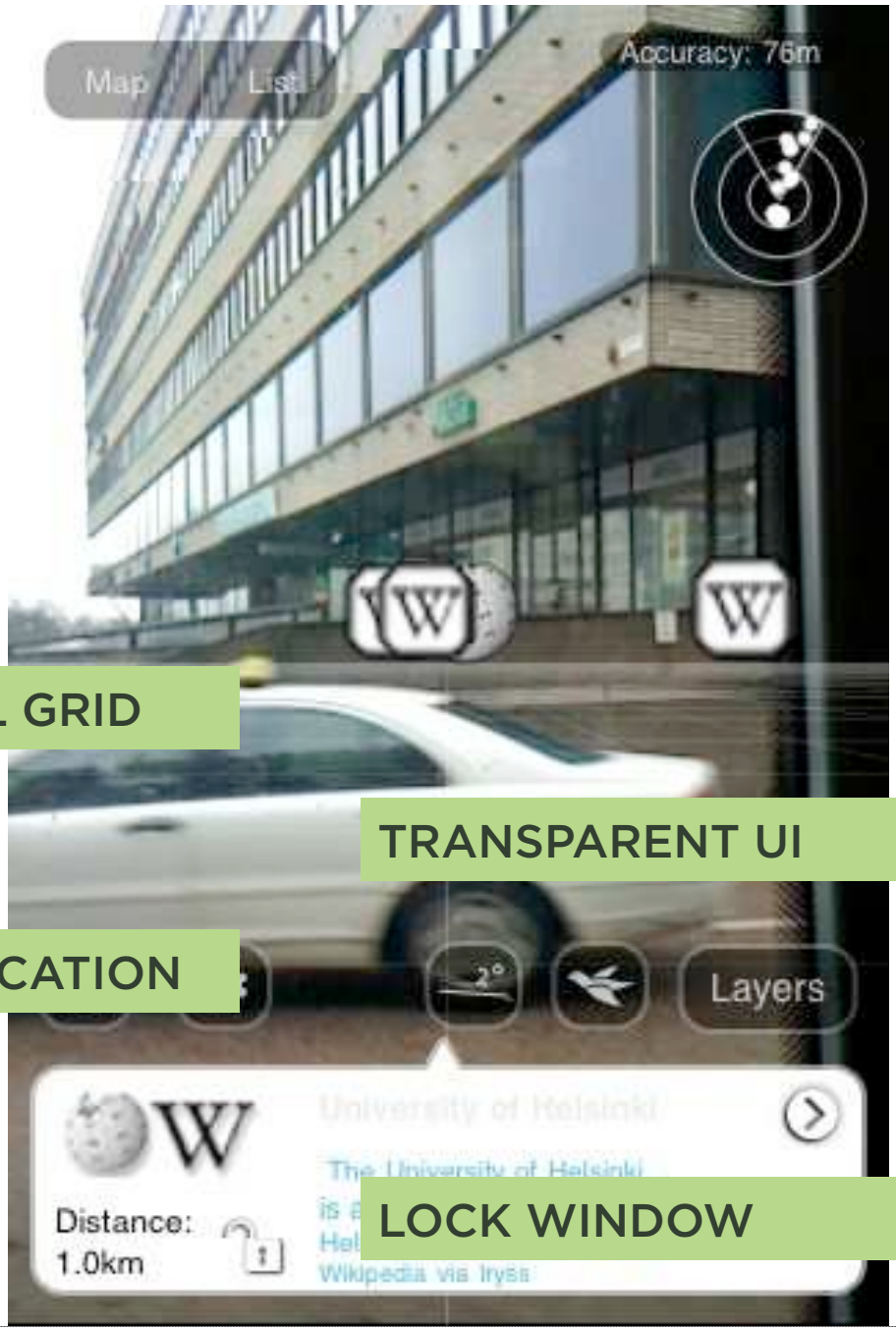
OVERVIEW & ORIENTATION

MARKERS

Layar Browser



SPATIAL GRID

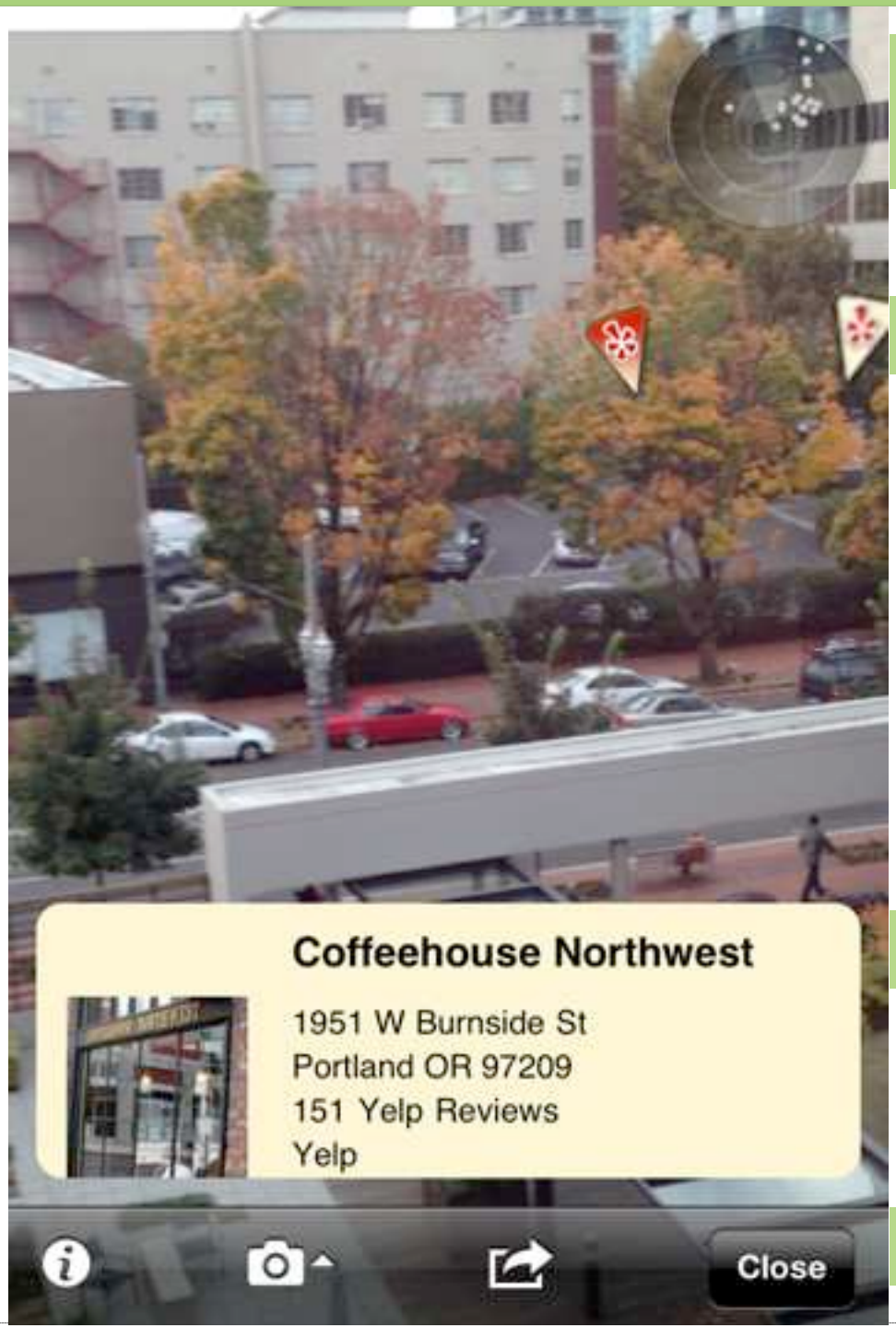


TRANSPARENT UI

FIXED LOCATION

LOCK WINDOW

Layar Browser



OVERVIEW & ORIENTATION

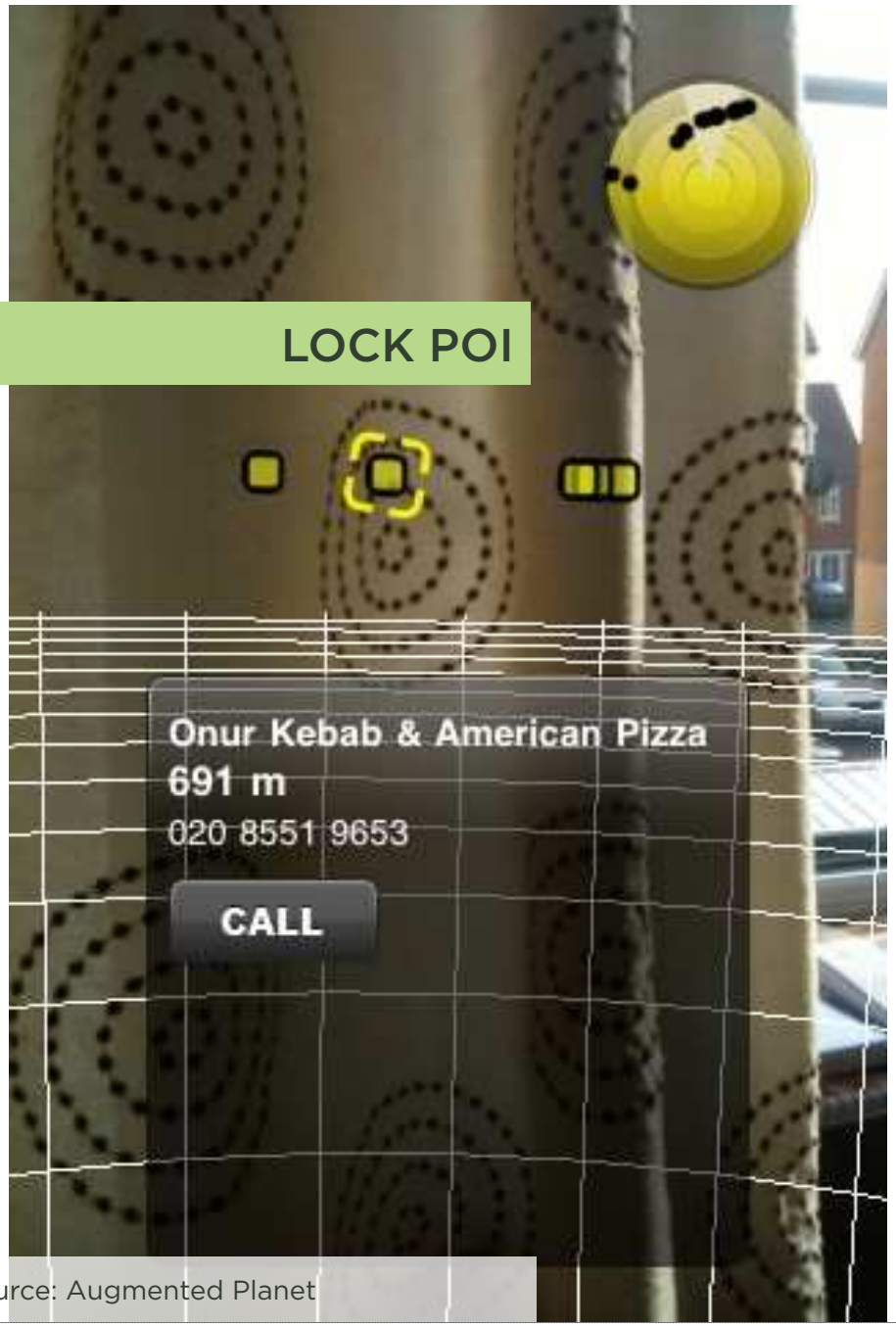
MARKERS

FIXED LOCATION

TRANSPARENT UI

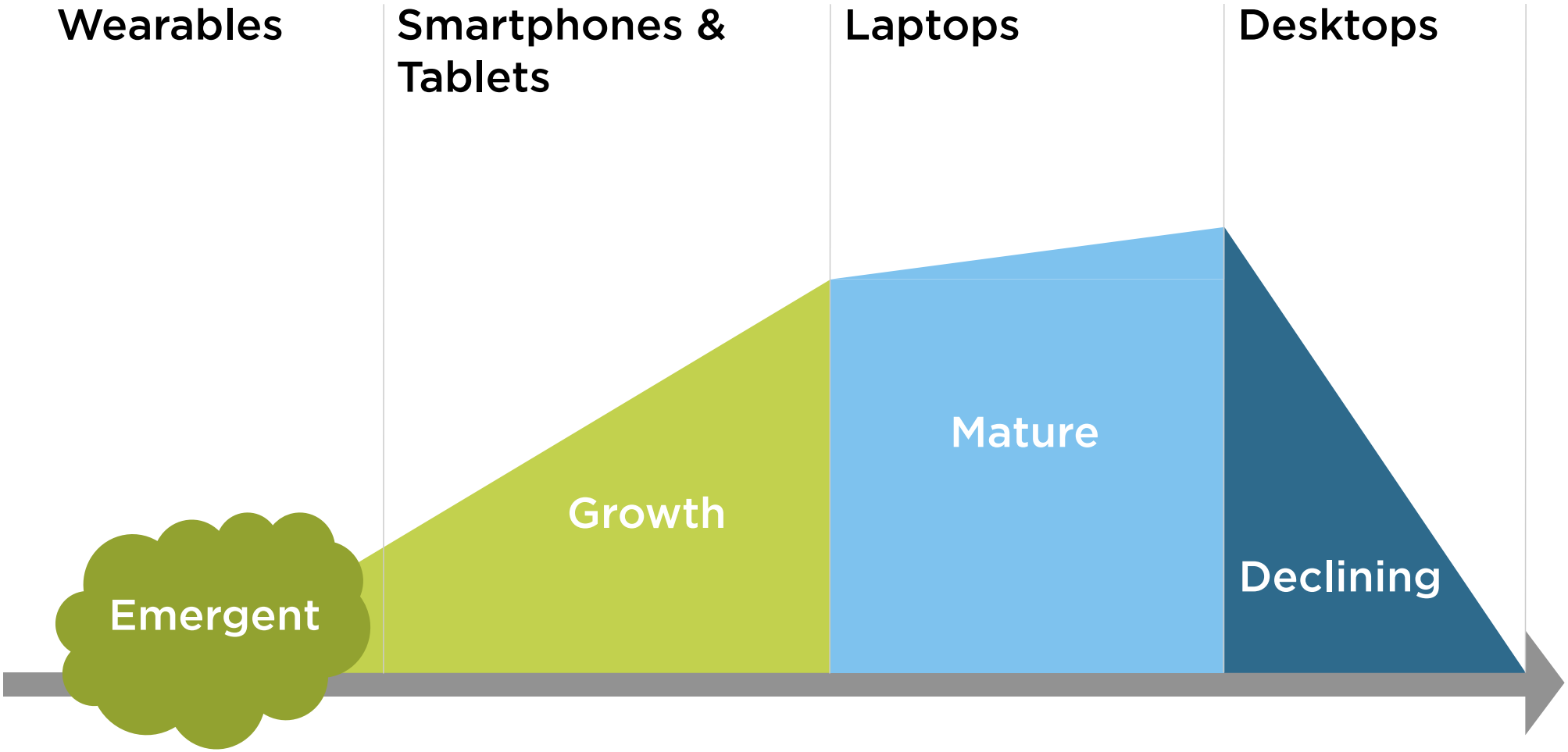
More Approaches

LUKEW IDEATION + DESIGN

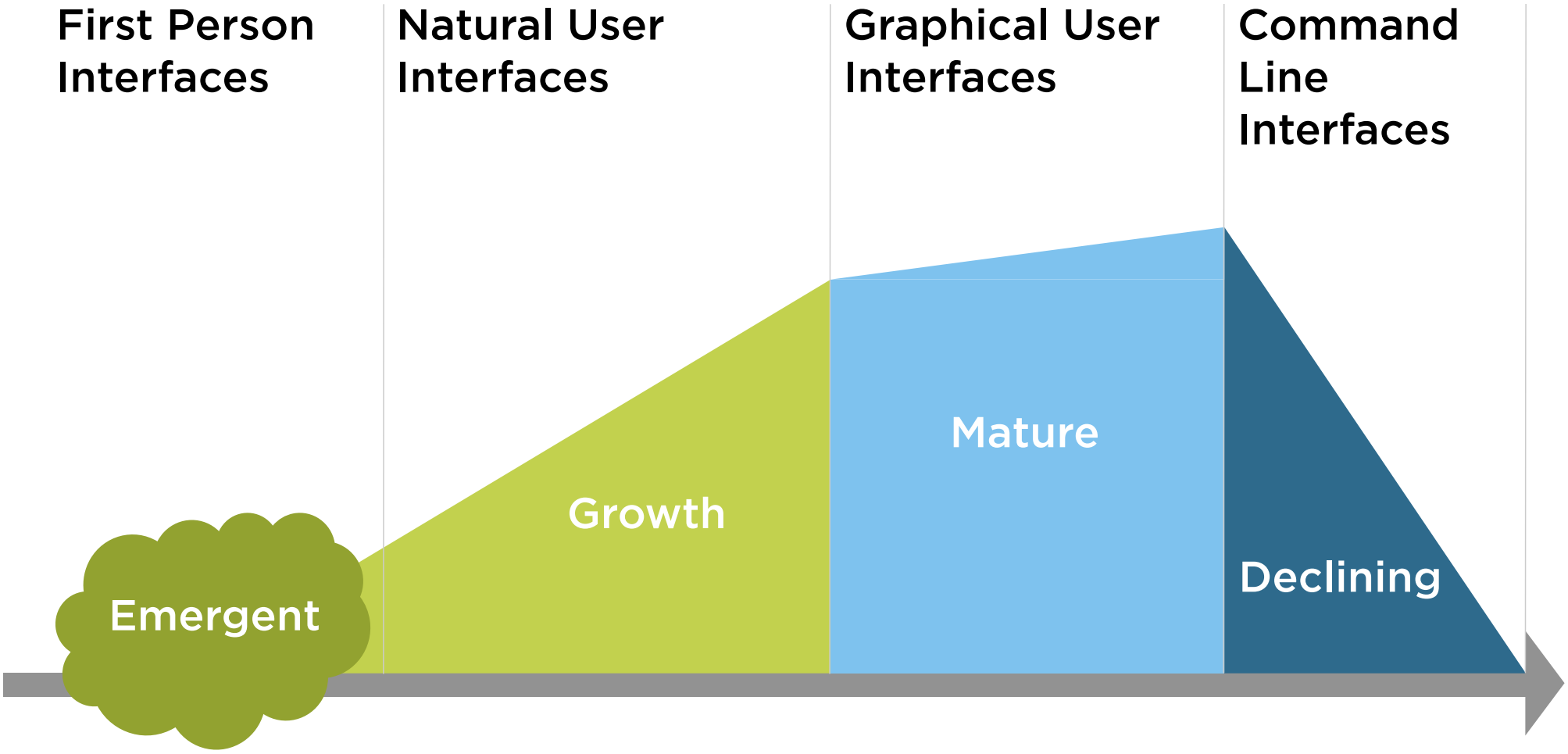


Source: Augmented Planet

Usage Curve


Wearables
Smartphones & Tablets
Laptops
Desktops
Emergent
Growth
Mature
Declining

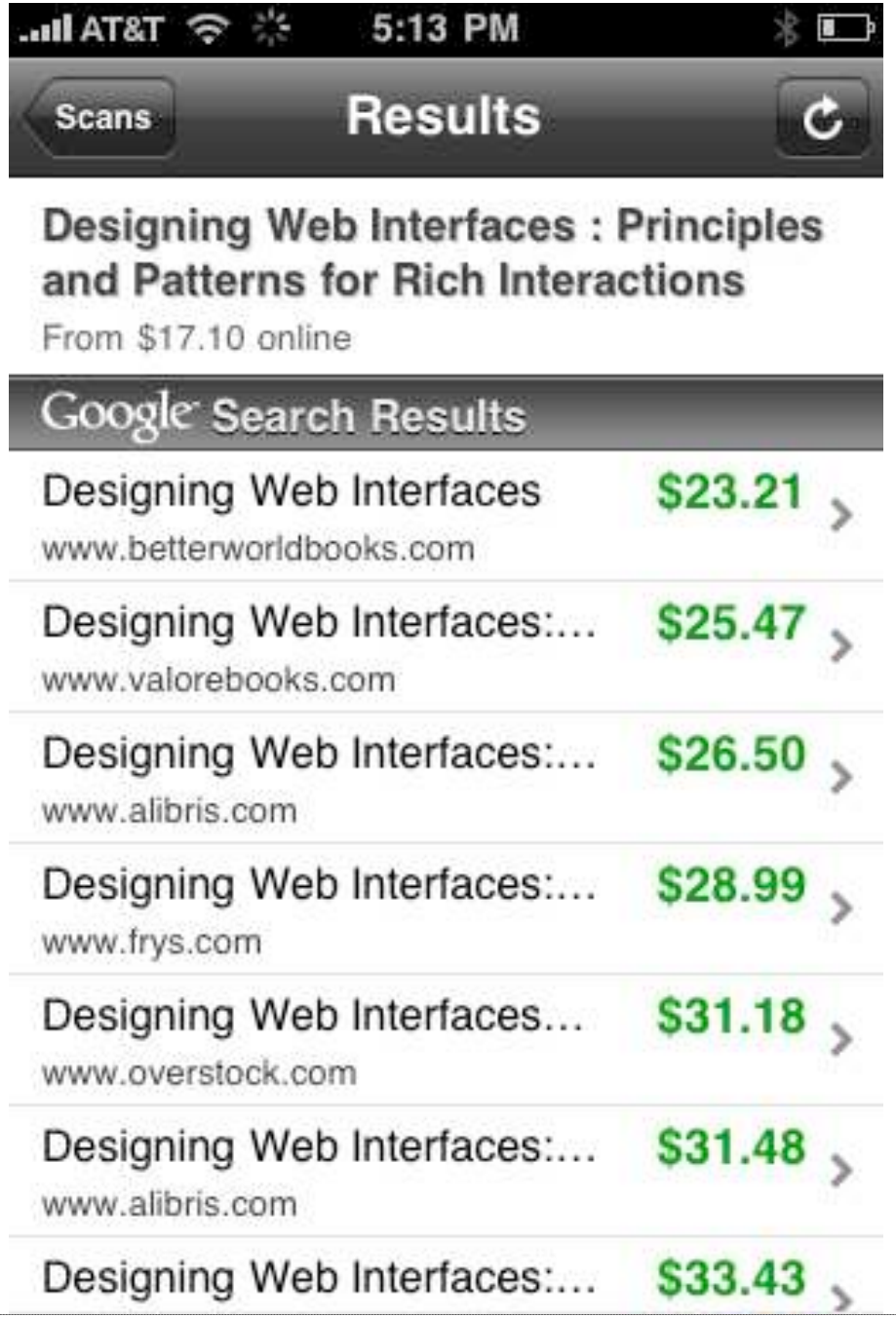
Usage Curve


First Person Interfaces
Natural User Interfaces
Graphical User Interfaces
Command Line Interfaces
Emergent
Growth
Mature
Declining

FIRST PERSON USER INTERFACES

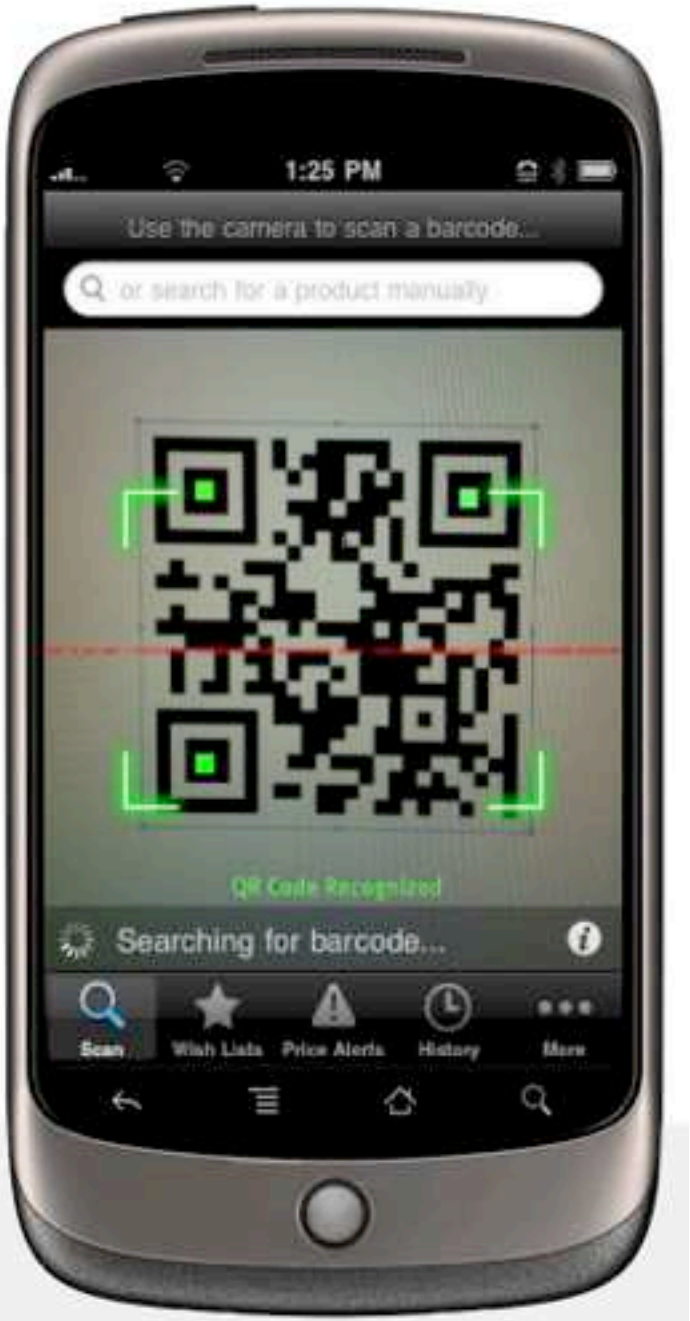
1. Navigate the space around you
2. Augment your immediate surroundings
3. Interact with nearby objects, locations, or people

Red Laser Barcode Scanner

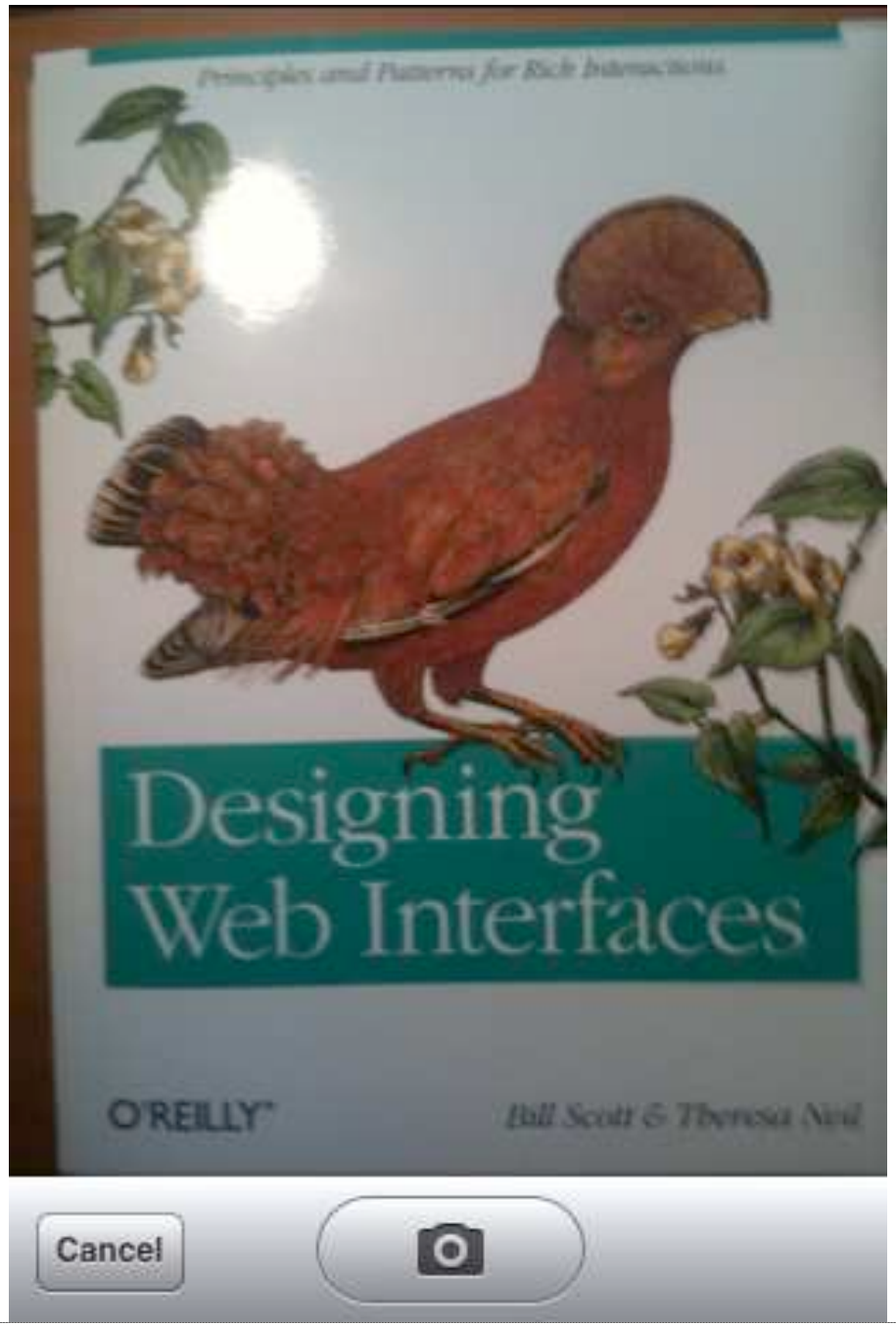


ShopSavy on iPhone

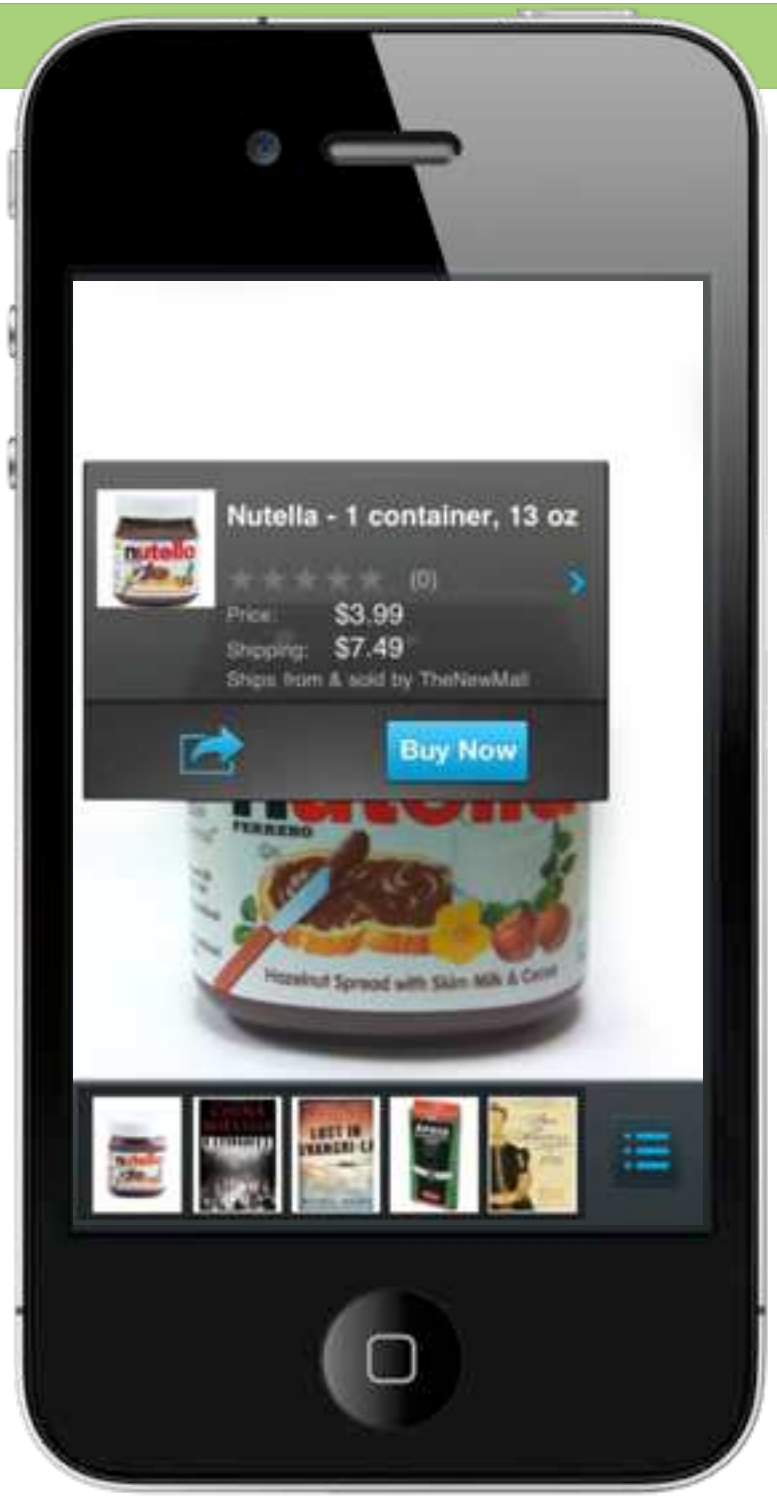
Shop Savvy on Android



SnapTell on iPhone

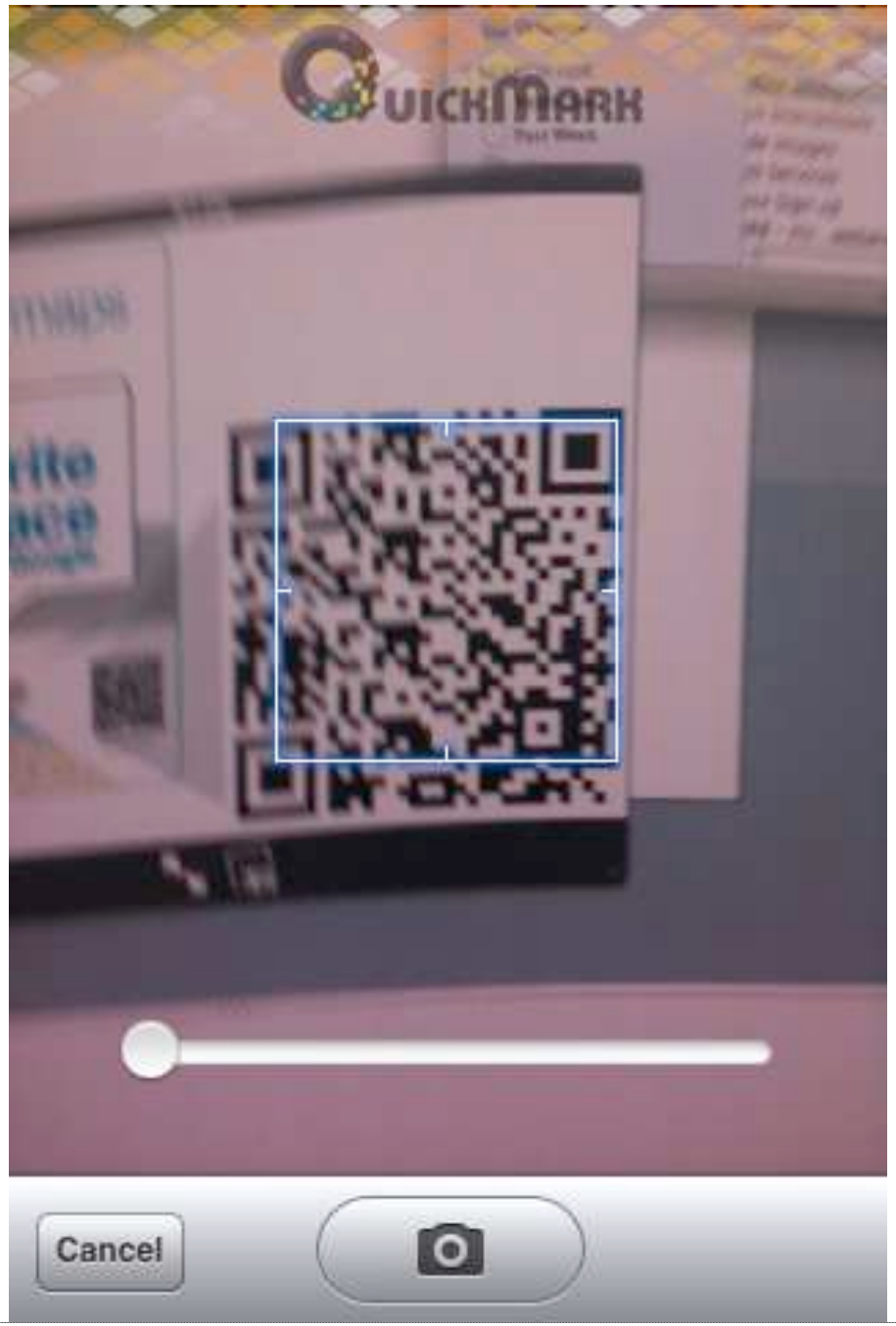


Amazon Flow on iPhone



QR Code Input

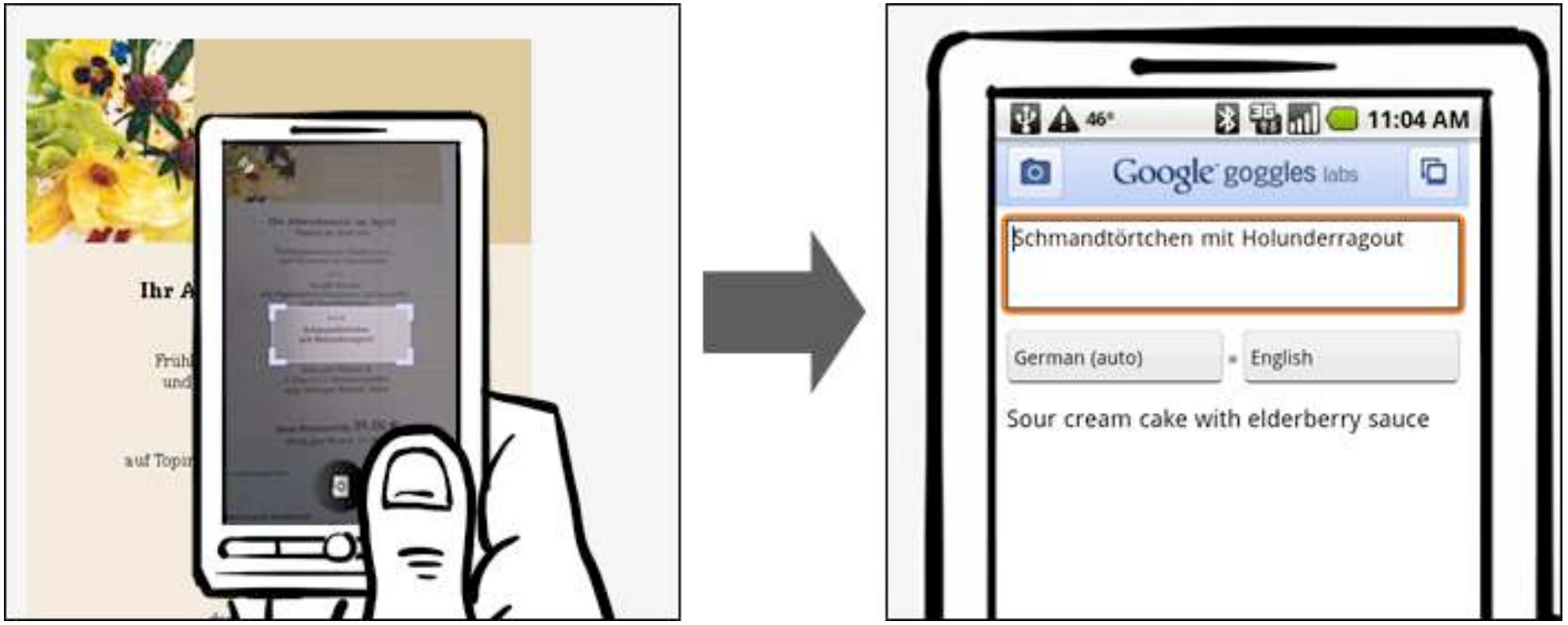
Images as Input

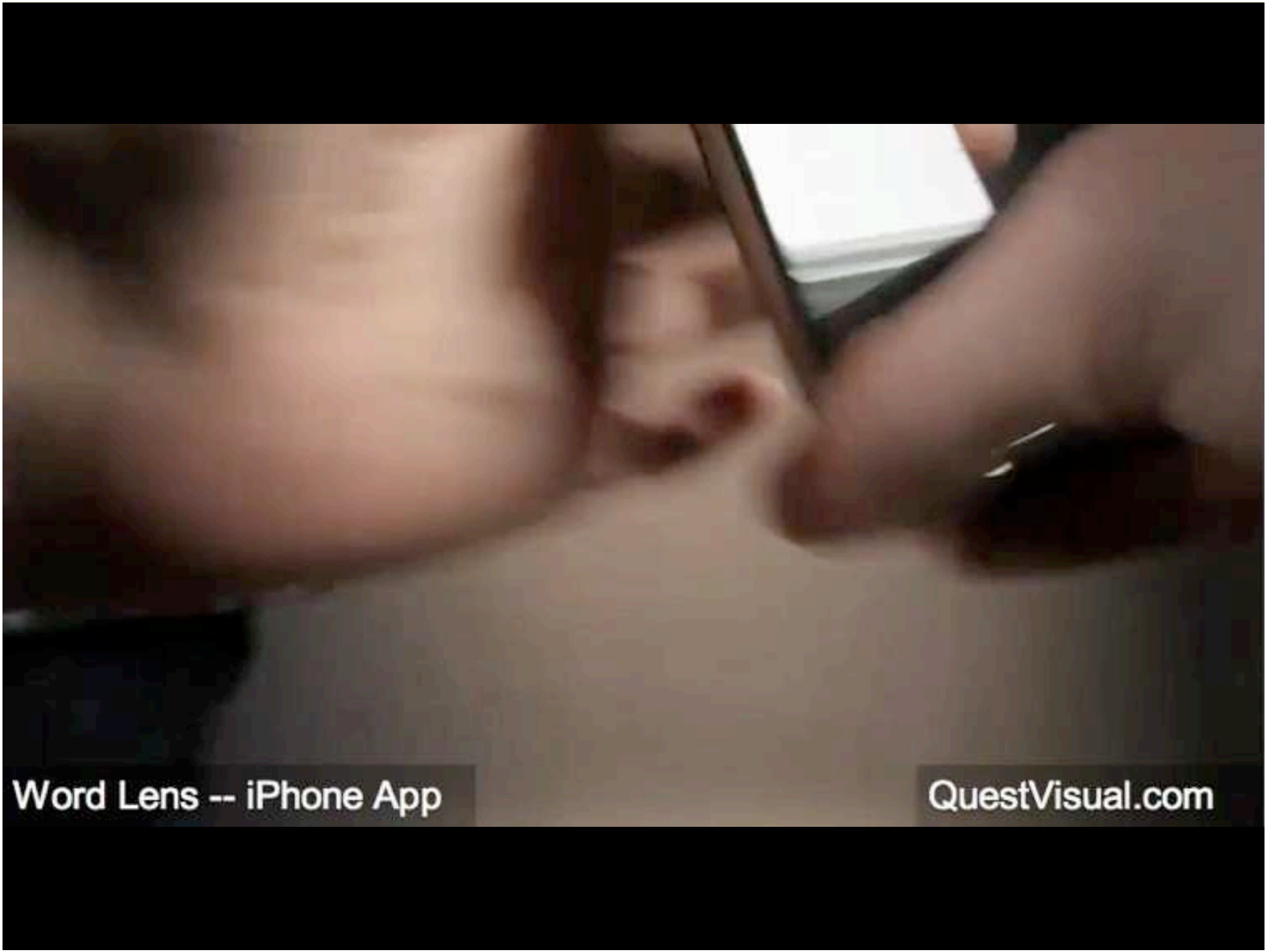


Google Goggles

LUKEW IDEATION + DESIGN

Google goggles labs




Word Lens -- iPhone App
QuestVisual.com

Images as Input

card.io

Images as Input

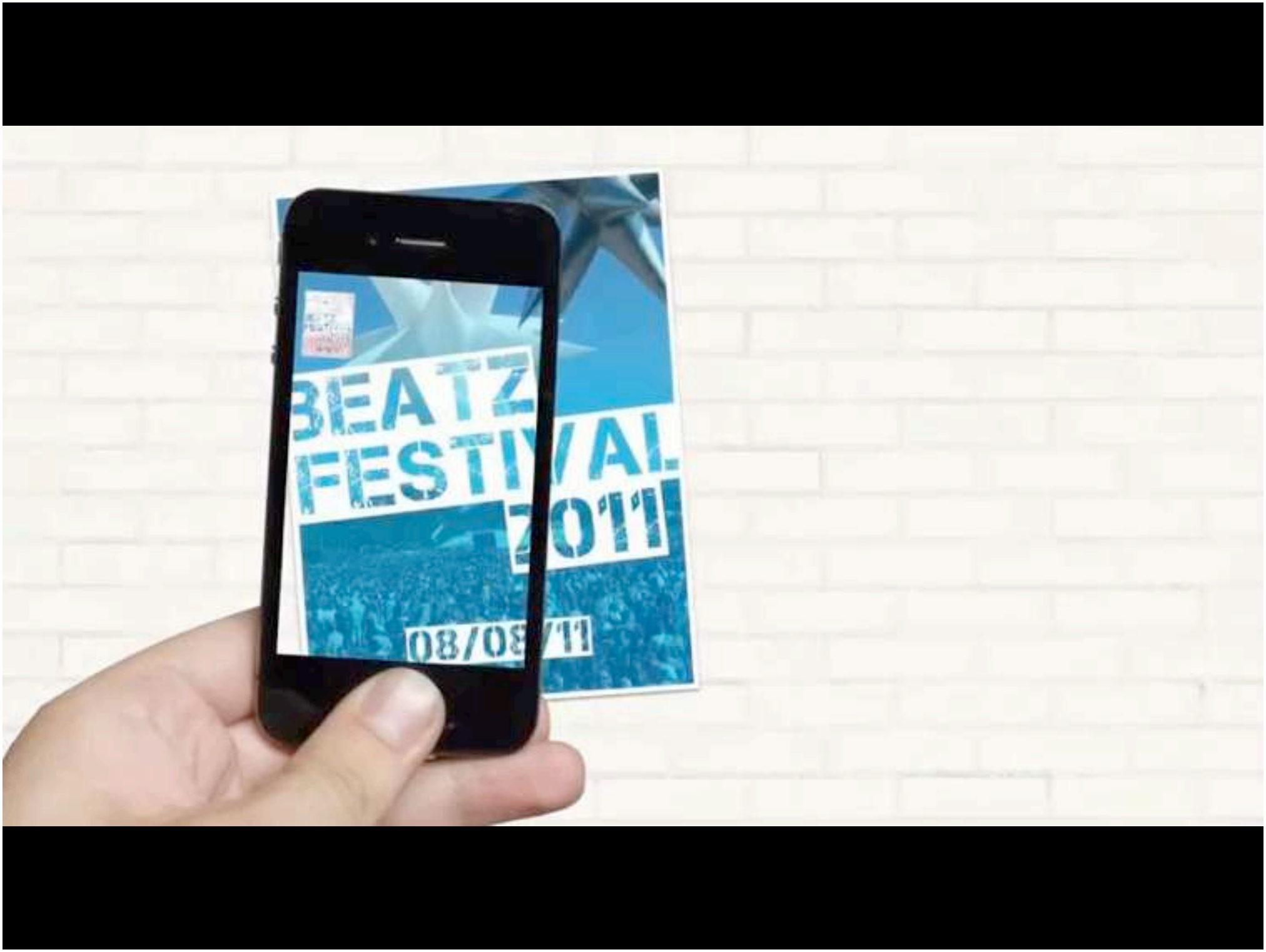
CHASE

PNC

charles SCHWAB

USAA

STATE FARM INSURANCE Bank

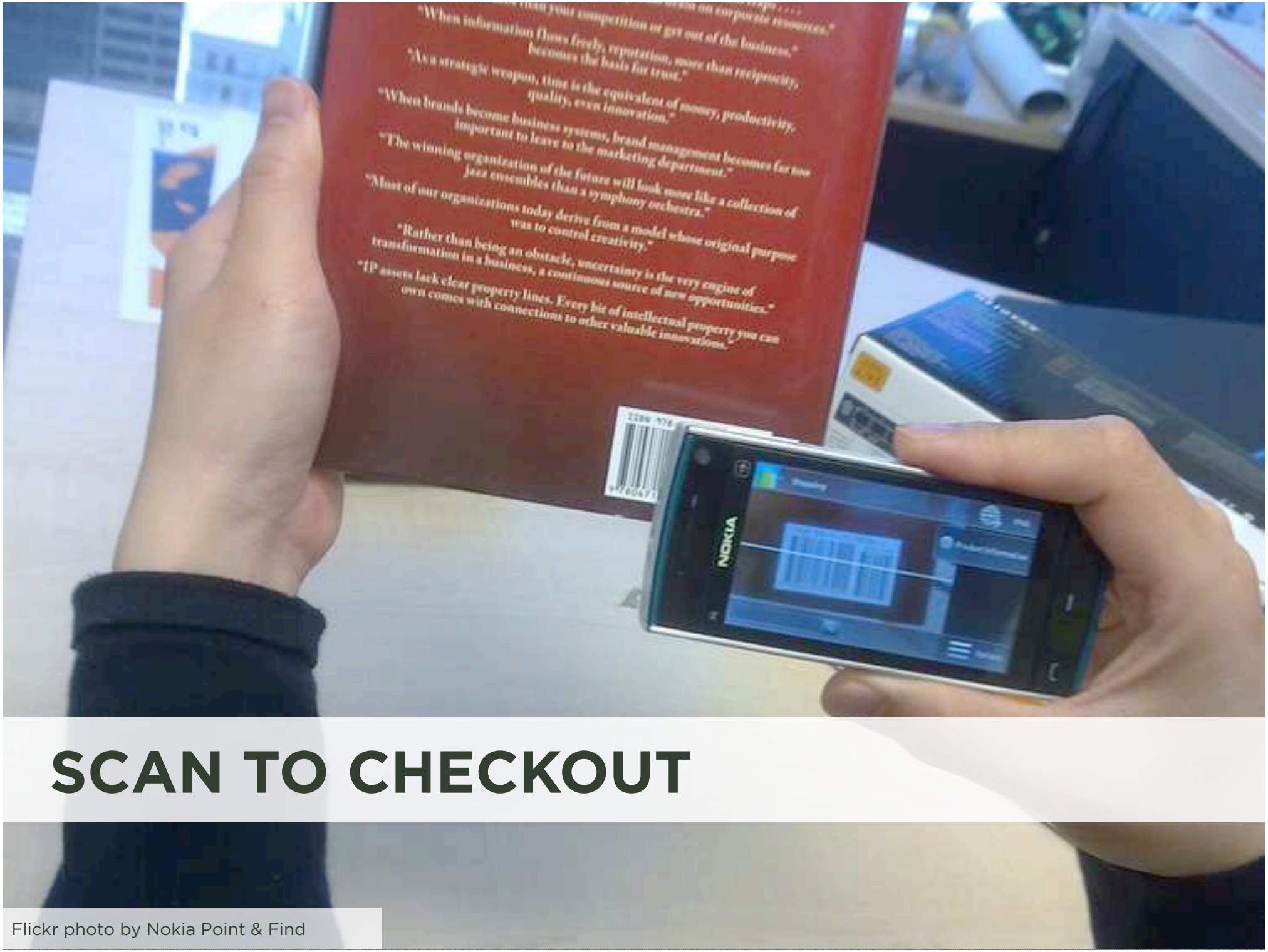

BEATZ
FESTIVAL
2011

AWKWARD INTERACTIONS

1. Small screens
2. Handheld positioning
3. Scanning for information

SMALL SCREEN, BIG WORLD

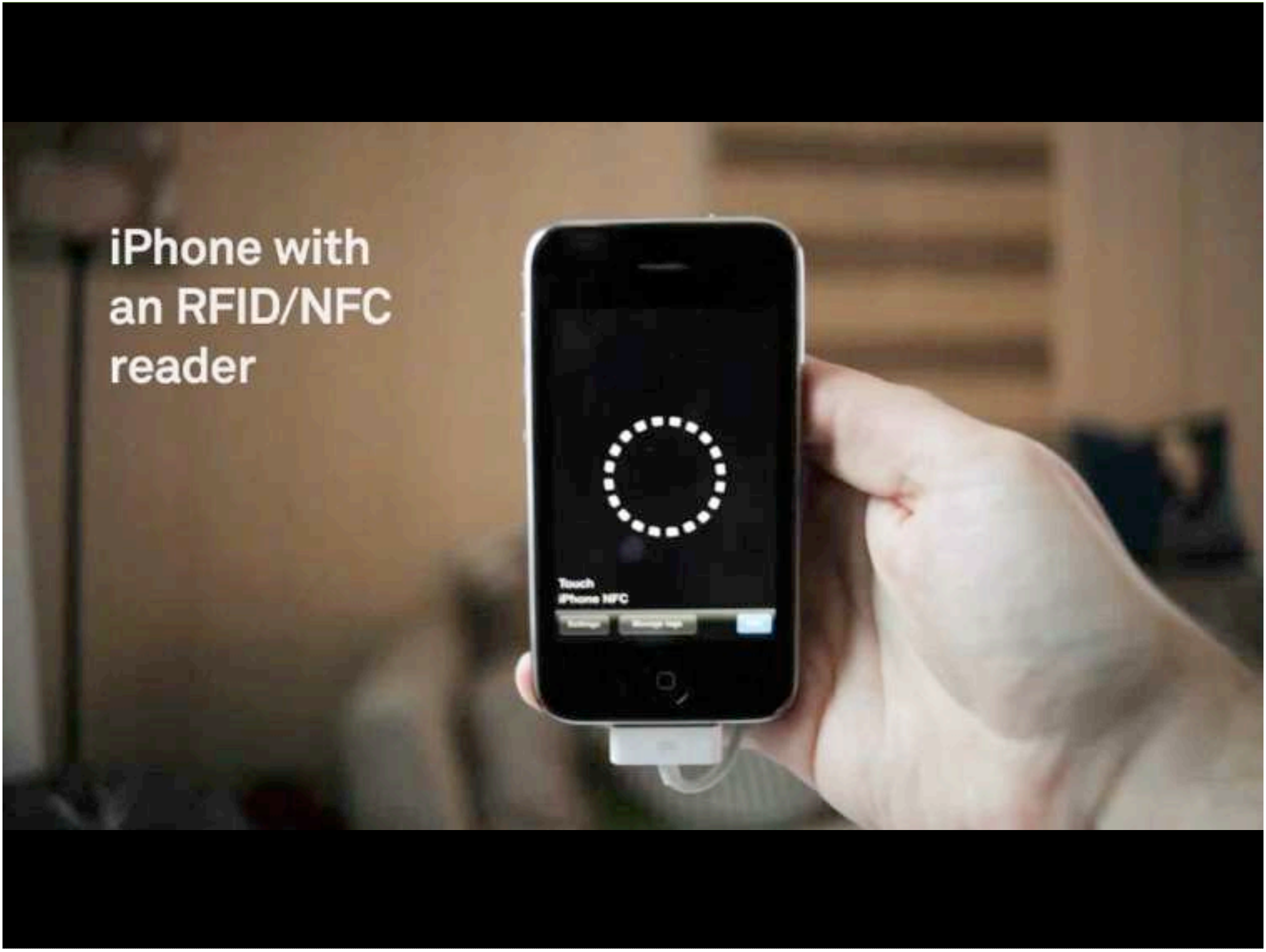
Flickr photo by Nokia Point & Find



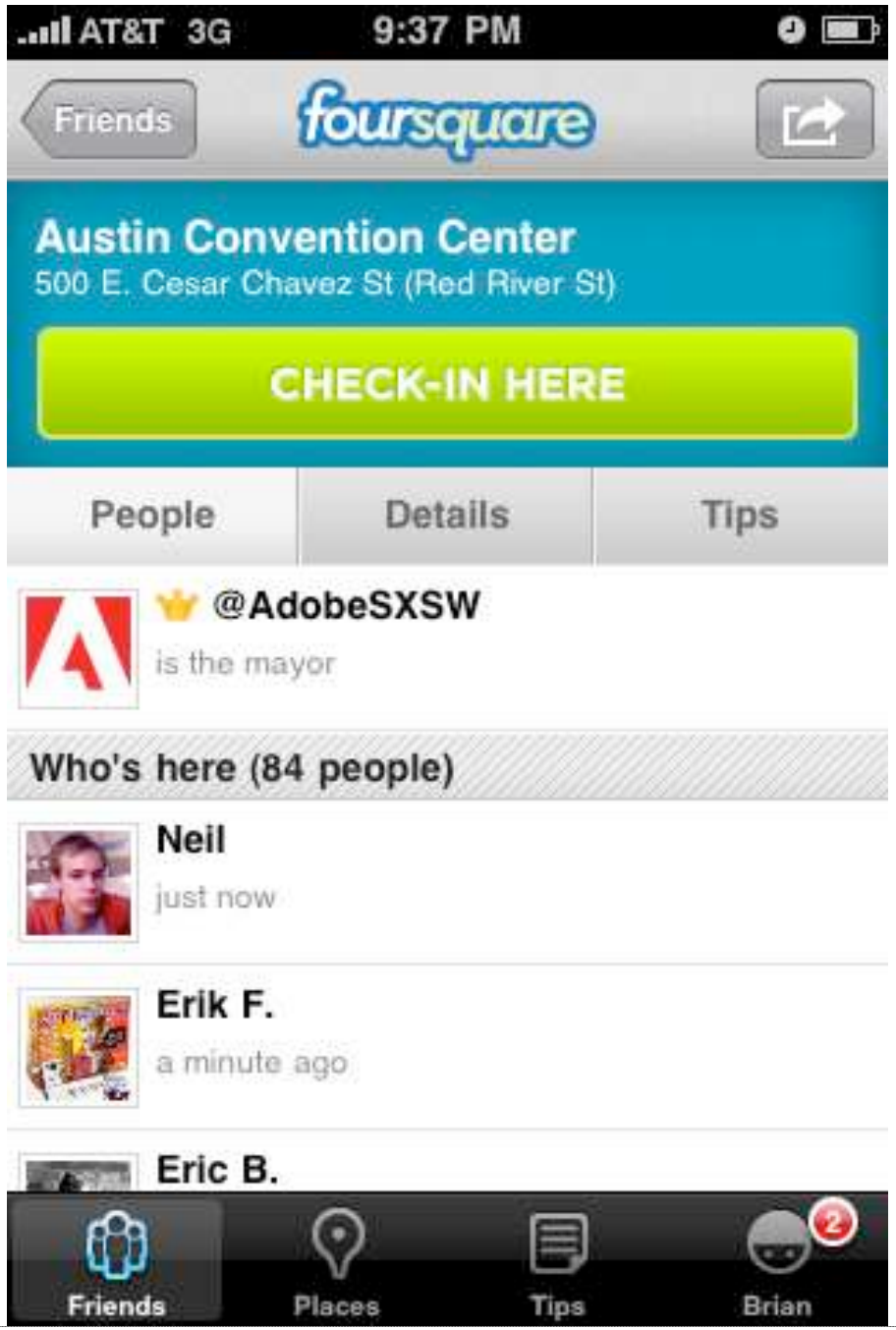
SCAN TO CHECKOUT

Flickr photo by Nokia Point & Find

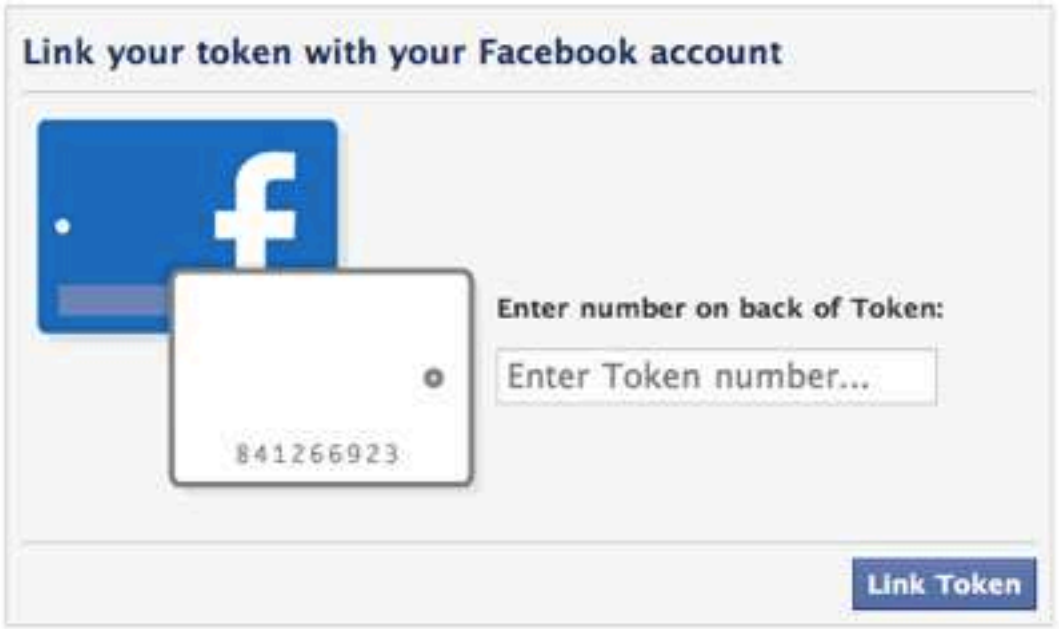
Flickr photo by Nokia Point & Find

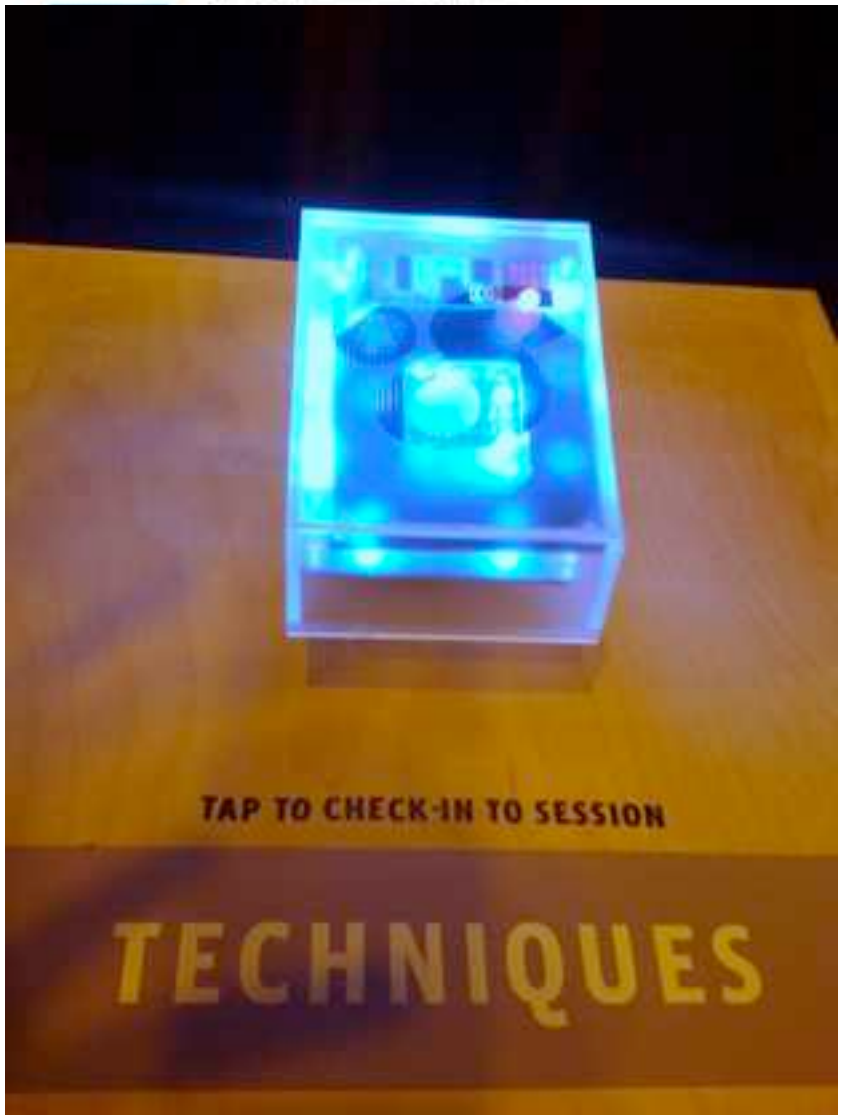

iPhone with
an RFID/NFC
reader
Touch
iPhone NFC

Location Check-in



Facebook Presence





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Hitachi 2400 Smart Windshield
Recommend Upgrading to OS 2.7
Look at Target and Blink Rapidly to Install
Han, Jennifer // Age 23
Expired Registration, DUI Conviction 2012
STARBUCKS COFFEE
3,413
2600
80
100
60
120
40
140
20
160
0 MPH
180

Looking Ahead

FIRST PERSON USER INTERFACES

Further reduce abstraction by allowing people to interact digitally with the real world as they are currently experiencing it.

1. Navigate the space around you
2. Augment your immediate surroundings
3. Interact with nearby objects, locations, or people

NEED DESIGN HELP

MOBILE FIRST

- @lukew
- www.lukew.com

Mobile First!

- abookapart.com

LUKEW
IDEATION + DESIGN