

the **PHYSICAL** **INTERFACE**



josh clark
@bigmediumjosh



a quick trip to the near future





**THERE ARE
A MILLION WAYS
WE COULD GET
THIS WRONG**

A MILLION WAYS
WE COULD GET
THIS WRONG

so let's think hard
about how we might **get it right**

CALL ECLIPSE 9000 1-800-333-1111 FAX 1-800-333-1114

A horizontal row of seven black rectangular bars of varying widths, arranged from left to right. The first two bars are narrow and of equal width. The third bar is wider than the first two. The fourth bar is very narrow. The fifth bar is wider than the fourth. The sixth bar is very narrow. The seventh bar is wider than the fifth. The eighth bar is very narrow.

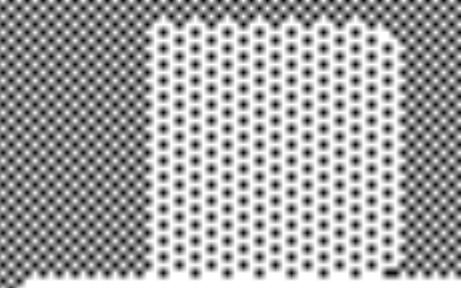
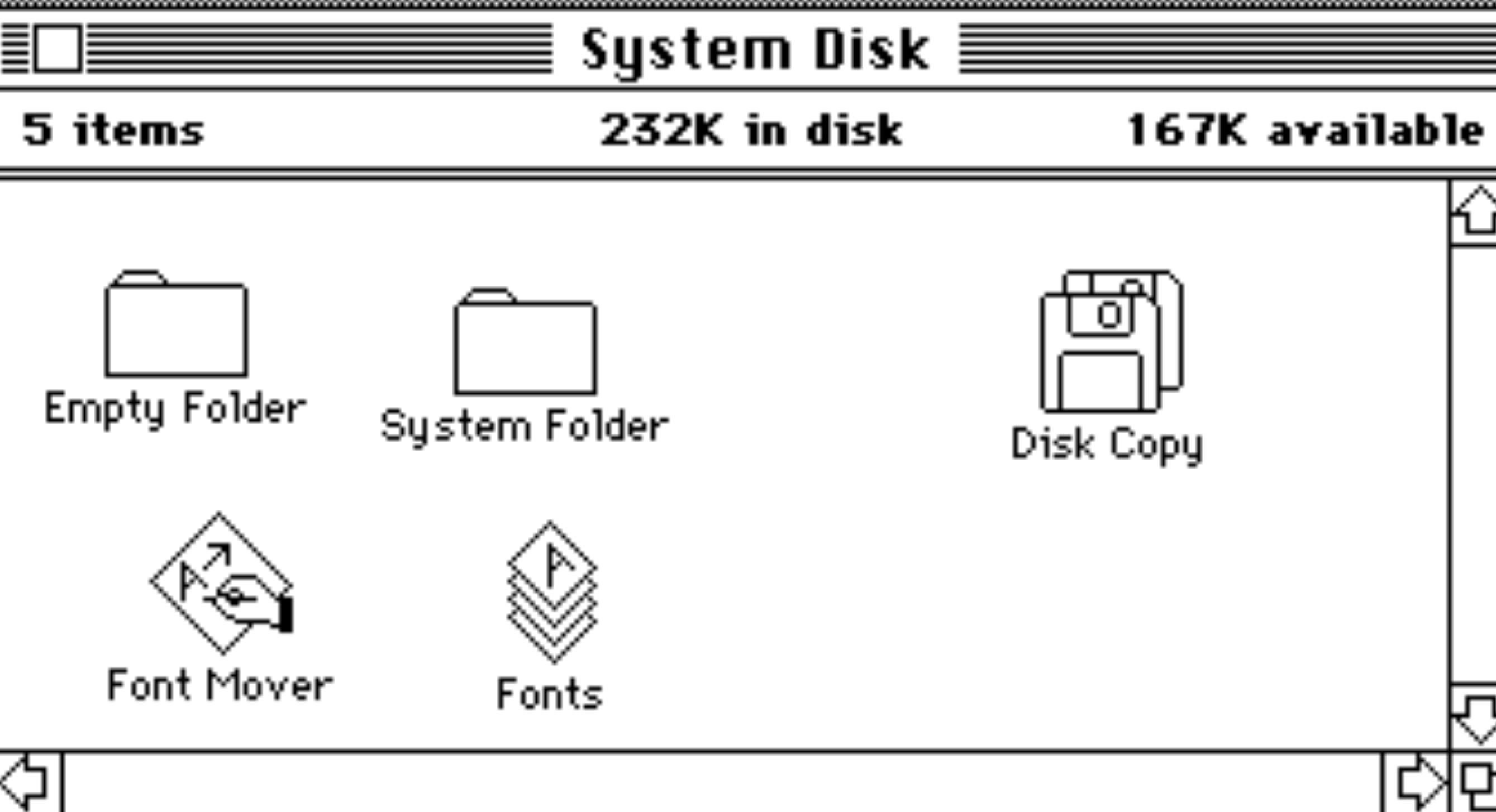
— 1 —

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

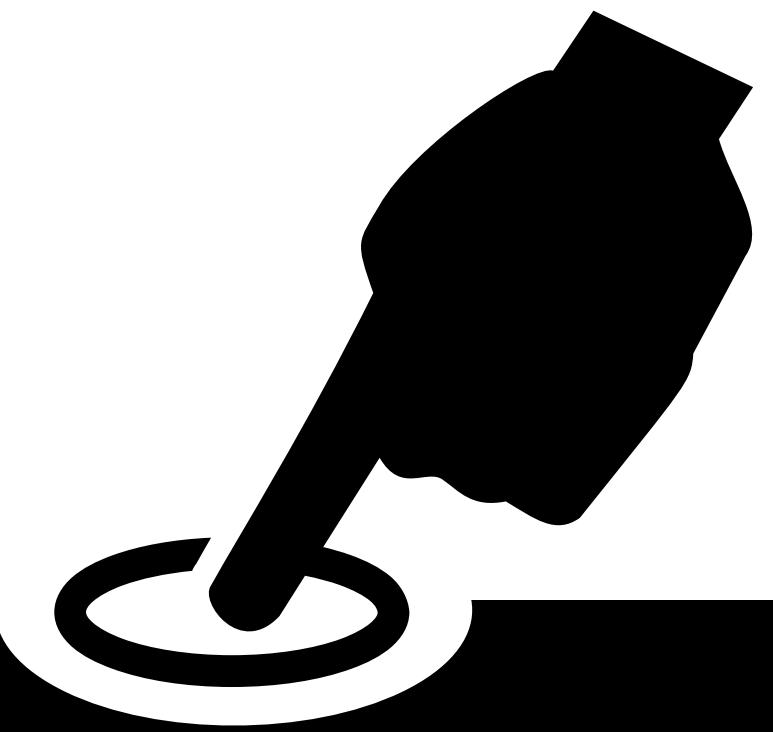
*L
C CALCULATE STATISTICS ON DATA FROM LOW SPEED READER
SUM=0
SUMSQ=0
TYPE 100
100 FORMAT("ENTER THE NUMBER OF VALUES TO CACULATE STATISTICS ON",//)
ACCEPT 10,N
10 FORMAT(I)
DO 200 I=1,N
READ 1,110,V
110 FORMAT(E)
SUM=SUM + V
SUMSQ=SUMSQ + V*V
TYPE 120,I,V
120 FORMAT("VALUE",I,"IS",E,//)
200 CONTINUE
SAMP=N
AVRG=SUM/SAMP
STD=SQRT(SUMSQ/SAMP - AVRG**2)
TYPE 300,N,AVRG,STD
300 FORMAT("NUMBER OF VALUES",I,"MEAN",E,"STANDARD DEVIATION",E,//)
END

*
.R FORT
?

File Edit View Special







TOUCH DATA

like a physical object

THE UNRELIABLE SCREEN

THE SCREEN HAS LONG SEEMED a trusty canvas as the base for our visual interfaces. For most of web design's short history, screens were reassuringly stable. They kept the same aspect ratio for decades, and though they gradually grew in size, they did so at a steady pace. The web design industry settled on standard widths—beginning with 600 pixels in the 1990s, then 800 pixels around 2000, then 980, and finally 1200. And then, suddenly, this fixed-width illusion exploded with the mobile revolution and its bevy of screen shapes and sizes.

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A BOOK APART
Brief books for people who make websites.

14

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FOREWORD by Brad Frost

kindle



DIGITAL → PHYSICAL

DIGITAL → PHYSICAL

PHYSICAL → DIGITAL

sensors

smarts

connection

**THE SMARTPHONE IS
THE FIRST HUGE
IOT DEVICE**

**MOBILE gives
COMPUTING POWER to
IMMOBILE OBJECTS**

Nappy Notifier
bit.ly/diaper-app



THE WEB HAS
SENSOR SAVVY,
TOO

www.w3.org/standards/techs/js

- RECORD AUDIO & VIDEO
- UNDERSTAND SPEECH
- MAKE & HEAR SOUND
- GPS LOCATION
- VIBRATE
- VIDEO CONFERENCE
- ACCELEROMETER
- AMBIENT LIGHT

www.w3.org/standards/techs/js

DO THIS TODAY

**WHERE DO WE
GO FROM HERE?**



four kinds of physical interfaces

SENSOR INPUT TO THE WEB

NOTIFICATION FROM THE WEB

AVATAR OF DIGITAL INFO

PHYSICAL INTERACTION

the web gets physical

1.

SENSOR INPUT TO WEB SERVICES

ASTHMAPOLIS

Home Trends Event Log Maps My Profile AlexVega



Hello, Alex! Sign Out

Madison Air Quality Good 71° The Weather Channel

This Week at a Glance

Degree of Asthma Control	Atronevent	Rescue Events	2	You're doing well this week! Keep it up!
Good ☺	Last sync: 10/25/2012	Control Medication Adherence	75%	Your monthly adherence is lower than it should be.

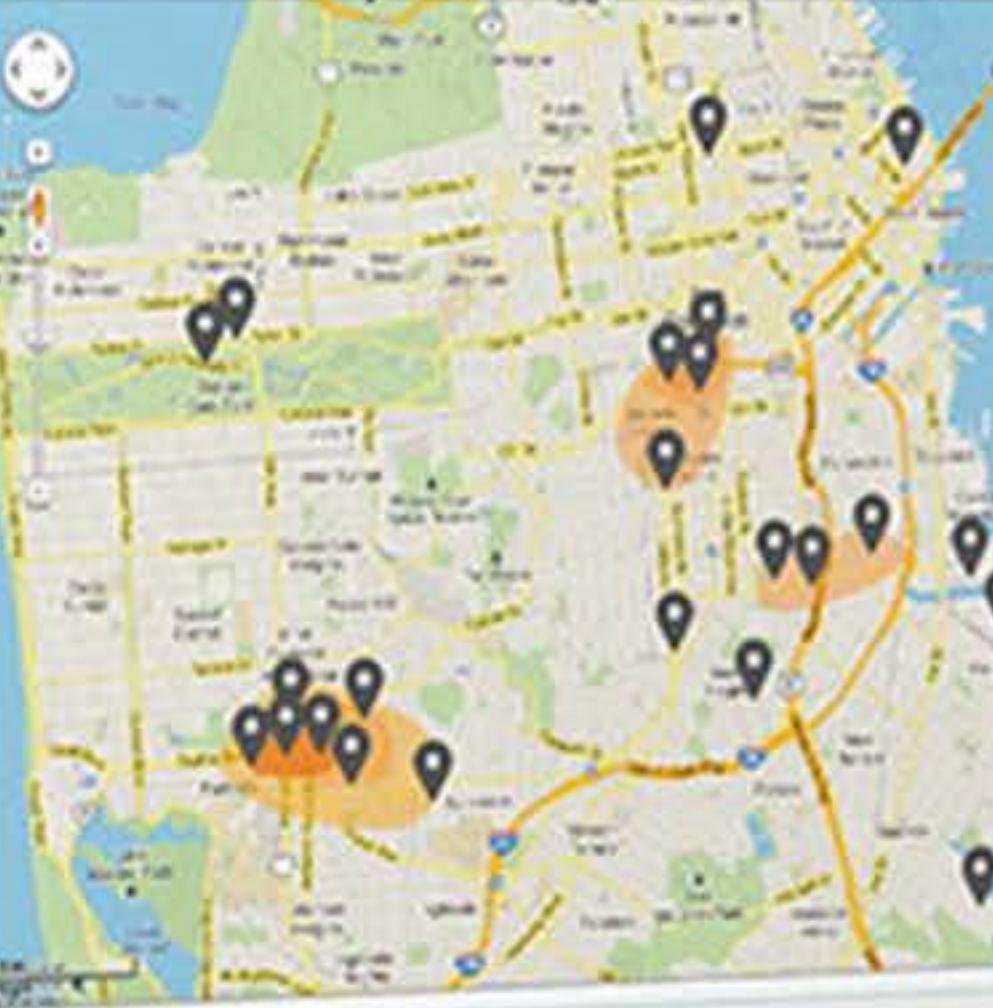
Over Time
■ Above ■ Below

Alerts
No Alerts

Dust Mites
Give all of your bedding a hot wash at least once a week, and dry it thoroughly. Use dust-proof covers for pillows and mattresses.
[Read More...](#)

My To-Dos
Here are some suggestions for you to follow to manage your asthma care.
 Regularly dust to remove allergens from your home.
 Don't forget to use your doctor prescribed control inhaler. Set a reminder.
 Reduce tobacco use.

Events in the Last 30 Days



Community Trends
77% Users Having Events, Exercise Most Common Trigger, Difficulty Most Common



propellerhealth.com



- Cottons
- Minimum iron
- Woollens
- Outerwear
- Proofing
- Express



Generally, you don't see that kind of behavior in a major appliance.



MAXWELL
HOUSE

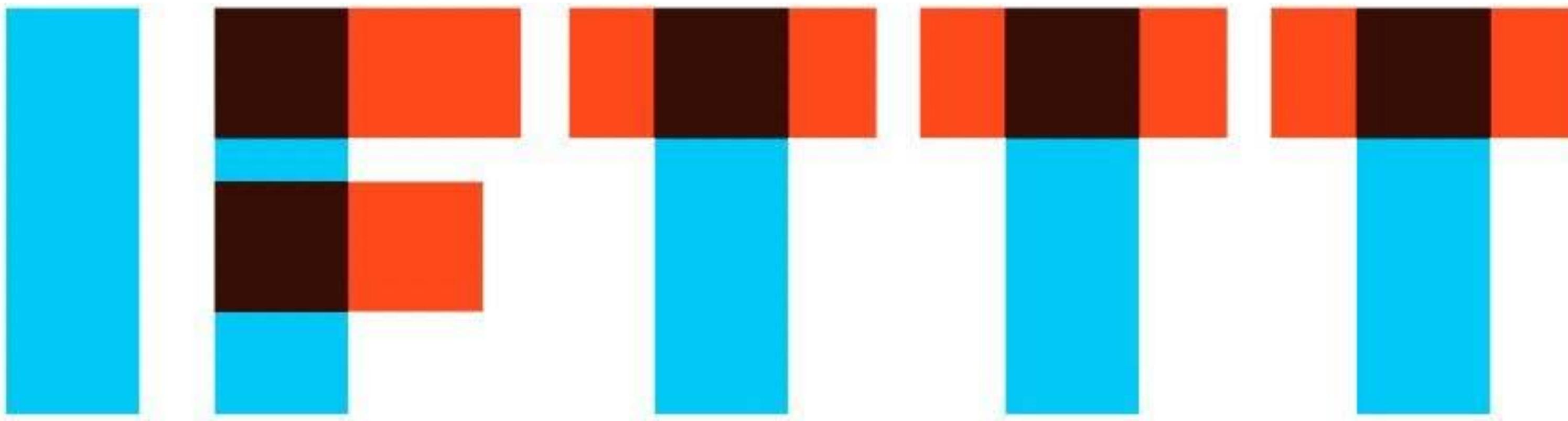


AWS IoT Button

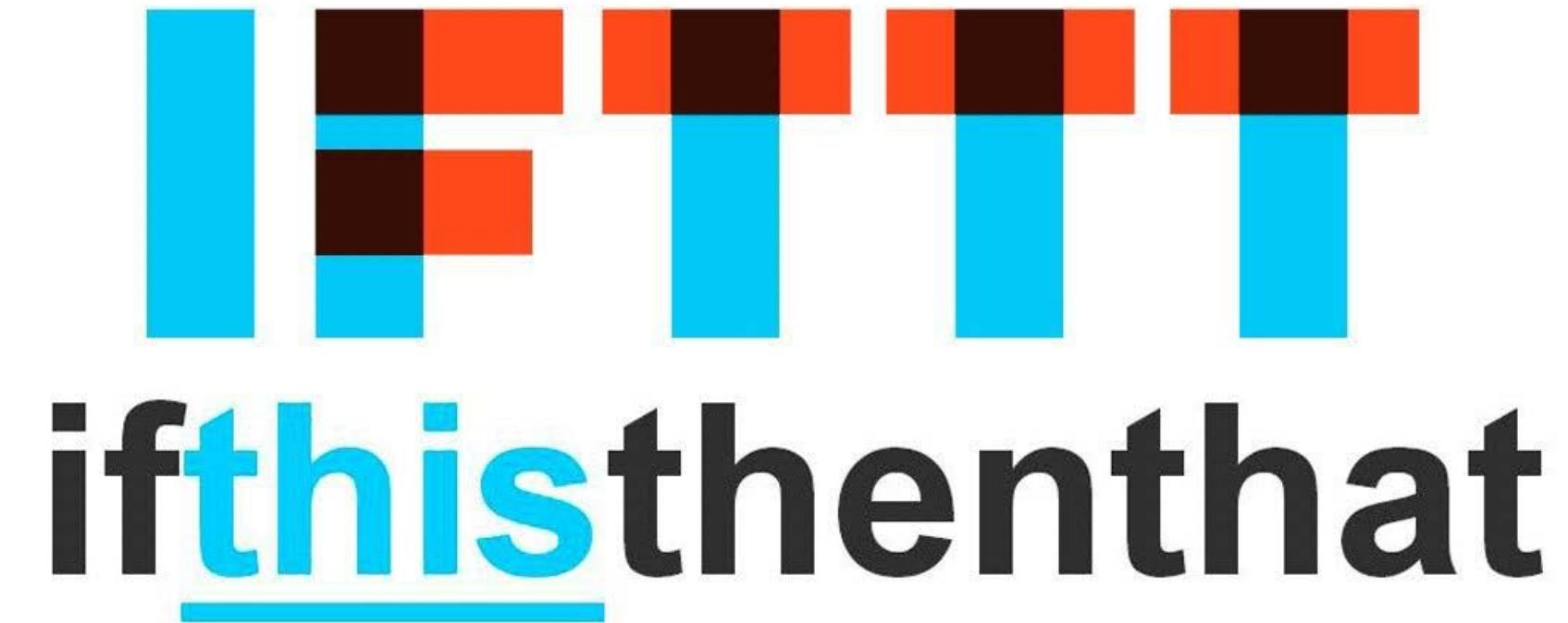


bt.tn





ifthis then that



DO THIS TODAY

the web gets physical

2.

NOTIFICATION FROM WEB SERVICES

Glowcaps





THIS IS THE INTERFACE



THIS IS THE APP



THIS IS THE BROWSER

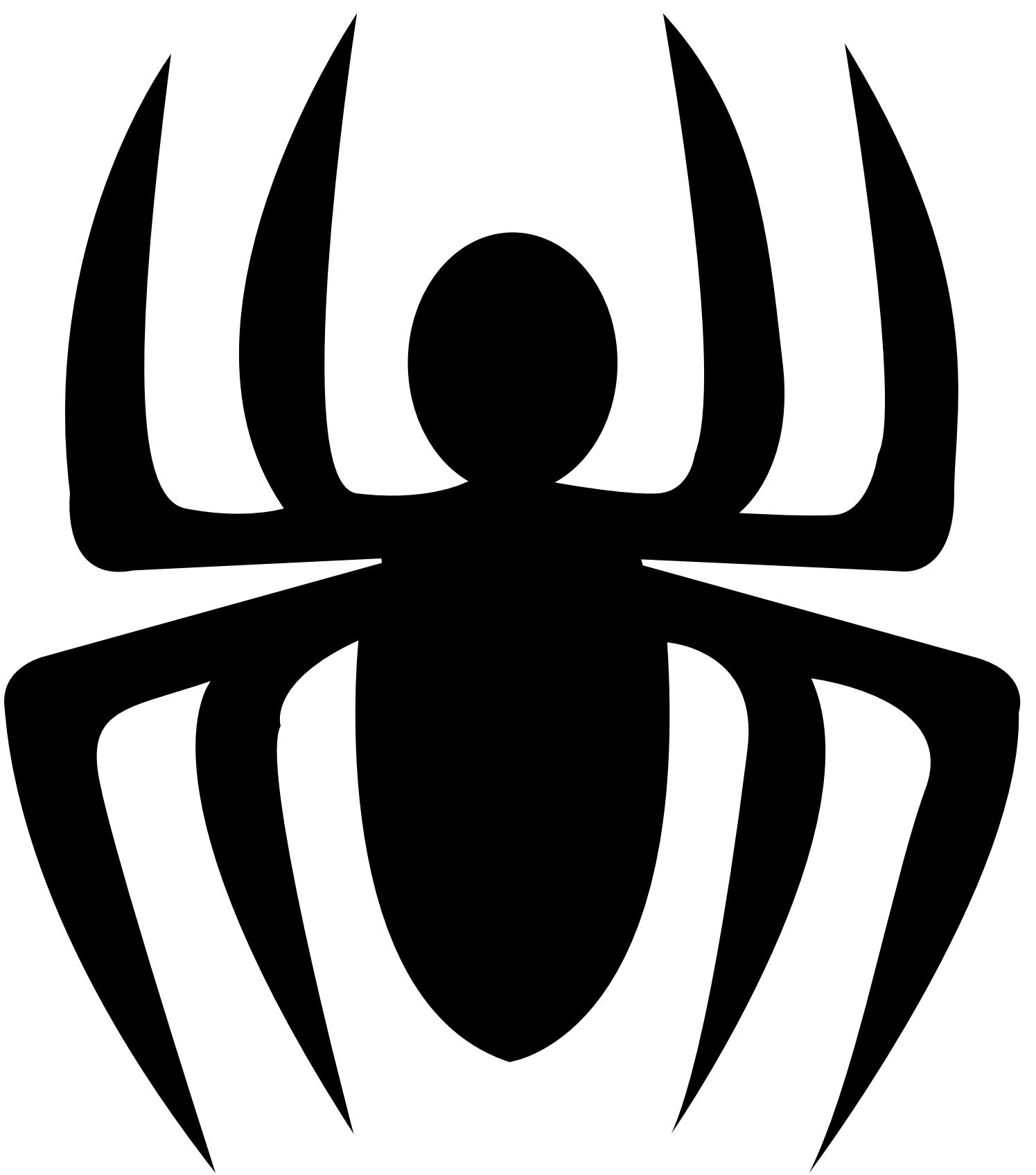
WEB ≠ BROWSER

Ringly



Lechal



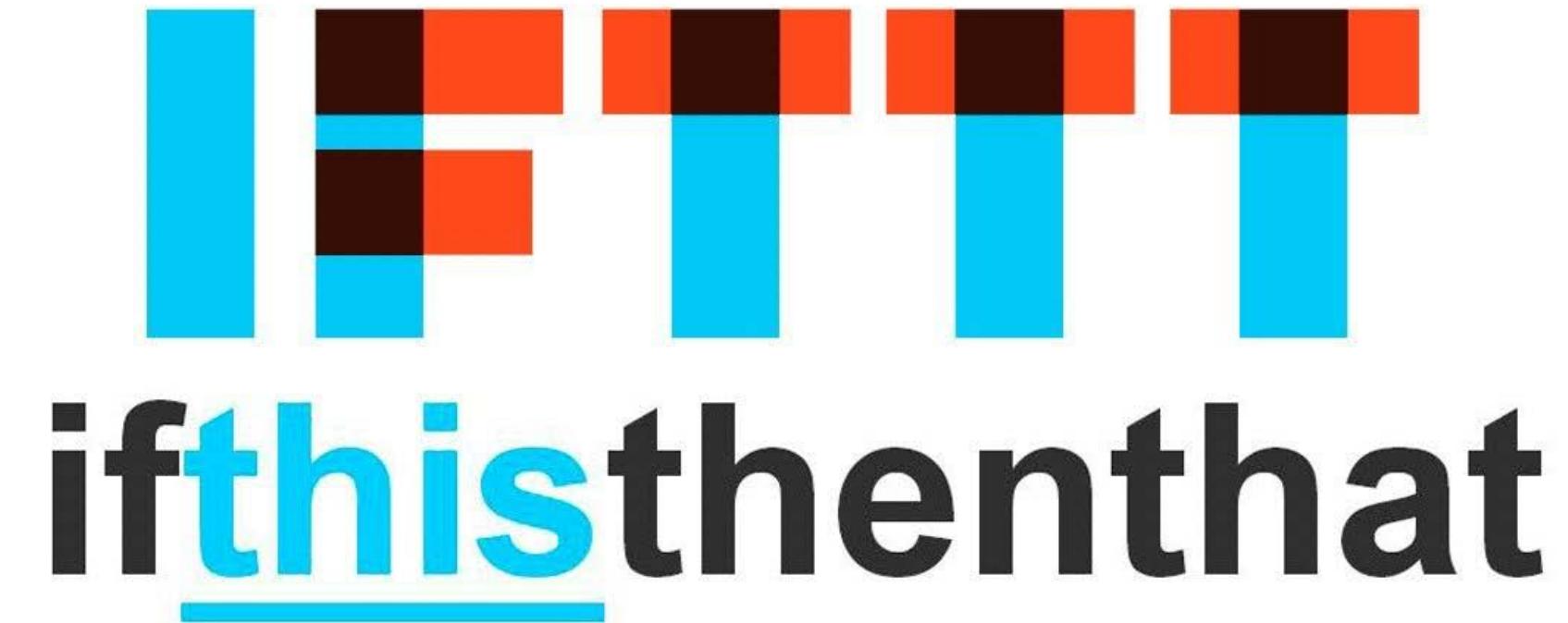


**DESIGN
CALM
TECHNOLOGY**



Mailchimp: Oliver
bit.ly/mailchimp-oliver

MailChimp



DO THIS TODAY

**PHYSICAL
INTERFACES
FOR DIGITAL APIs**

the web gets physical

3.

PHYSICAL AVATAR OF DIGITAL INFO

Google has cataloged

**1 BILLION
ENTITIES, PEOPLE,
PLACES & THINGS**

Medication Plan

March

Mon	Tue	Wed	Thu	Fri	Sat	Sun
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

CALL DOCTOR



Connected Paper
bit.ly/connected-paper

**UNLOCK DATA
IN PHYSICAL
OBJECTS**











Mary Parks
@maryparks



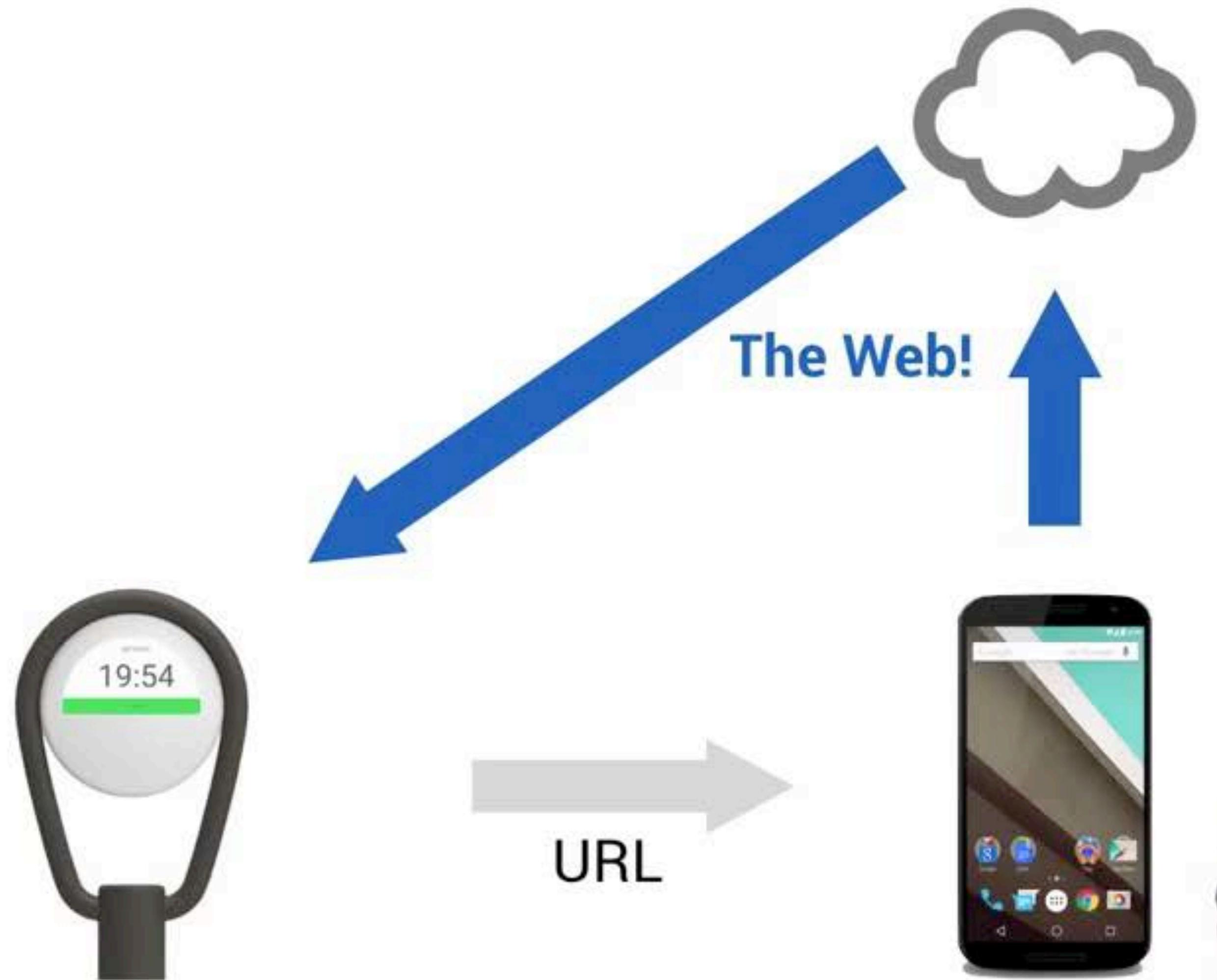
Following

If I have to launch an app every time I want to use your physical product, or in order for it to be easy to use, you have failed me.

**WHERE'S THE
UNIVERSAL
CONNECTOR
NETWORK?**



THE PHYSICAL WEB







physical-web.org

DO THIS TODAY

**THE
INTERACTION IS
STILL ON SCREEN**



PHOTO: ERIC J. SMITH

the web gets physical

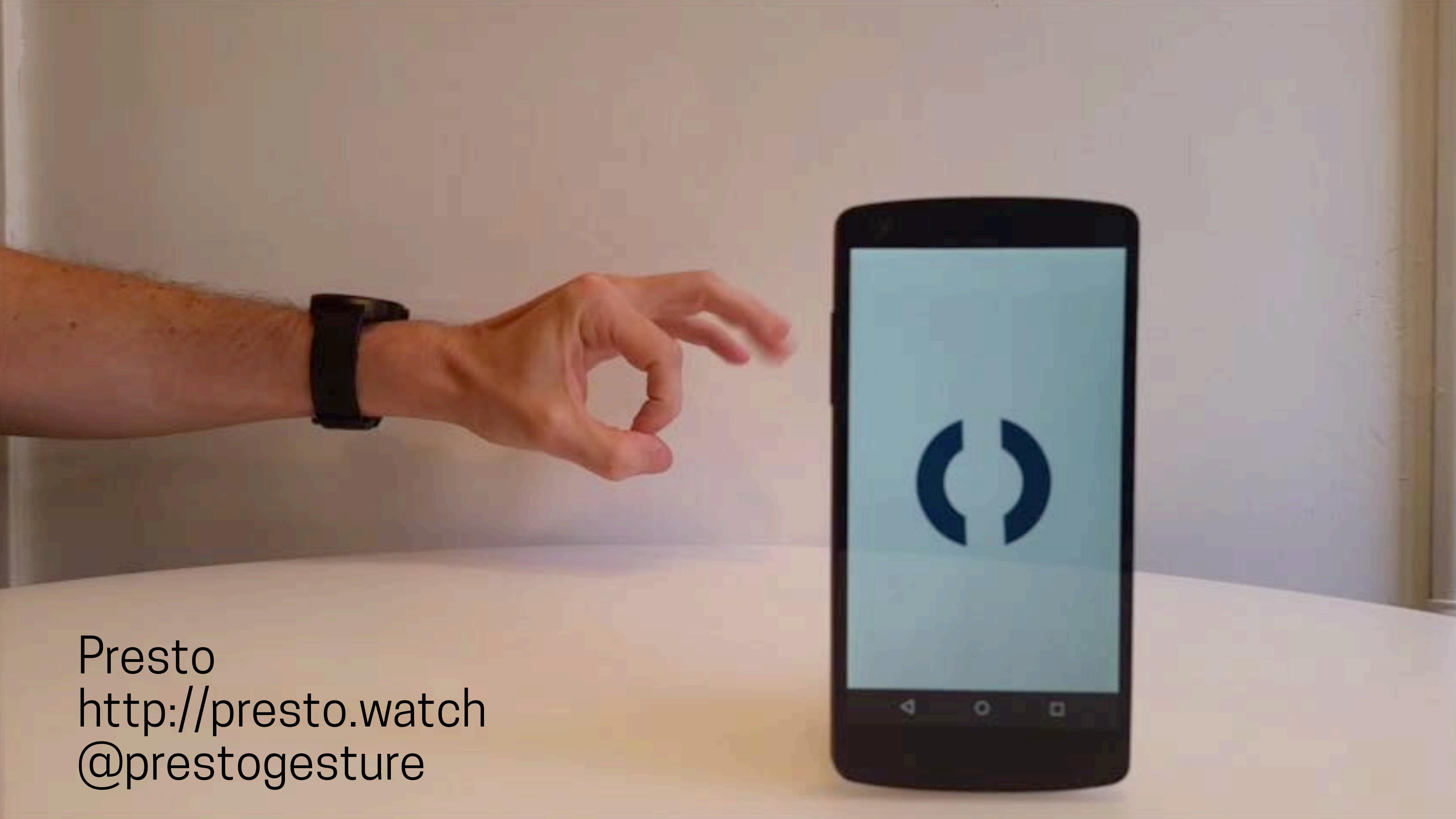
4.

PHYSICAL INTERACTION



@LARRYLEGEND

Presto
<http://presto.watch>
@prestogesture





Grab Magic
bit.ly/grab-magic

push the possibilities
of everyday devices

DO THIS TODAY

it's not a challenge of technology

**IT'S A CHALLENGE
OF IMAGINATION**





Reality Editor
realityeditor.org

Open Hybrid

Home

Design Guidelines

Download

Install

Learn

Contact

Forum

Open Hybrid is a platform for interaction with everyday objects.

It combines physical objects with the benefits of a flexible augmented user interface.

It is Open Source and based on Web-Technology and Arduino. [Join our Community](#)

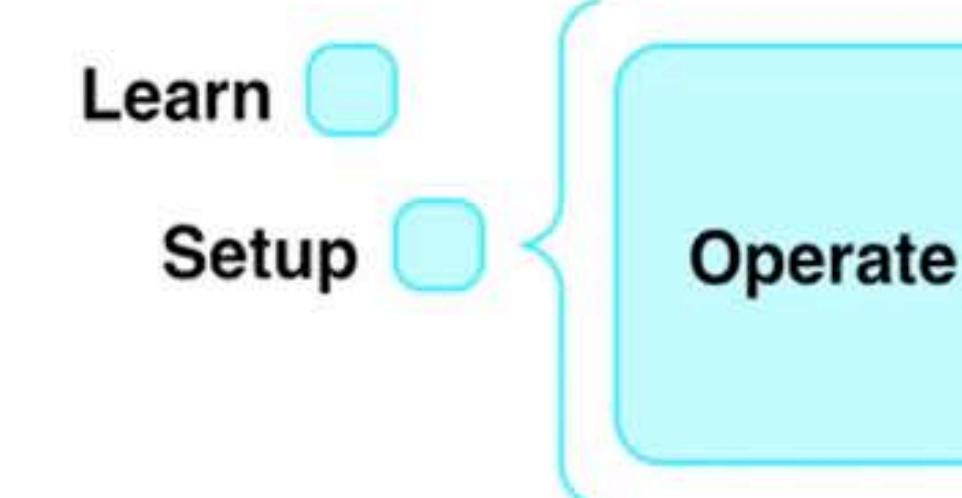
Find a simple Arduino Yun example [here](#) and the Reality Editor in the [iOS App Store](#)

Design Guidelines



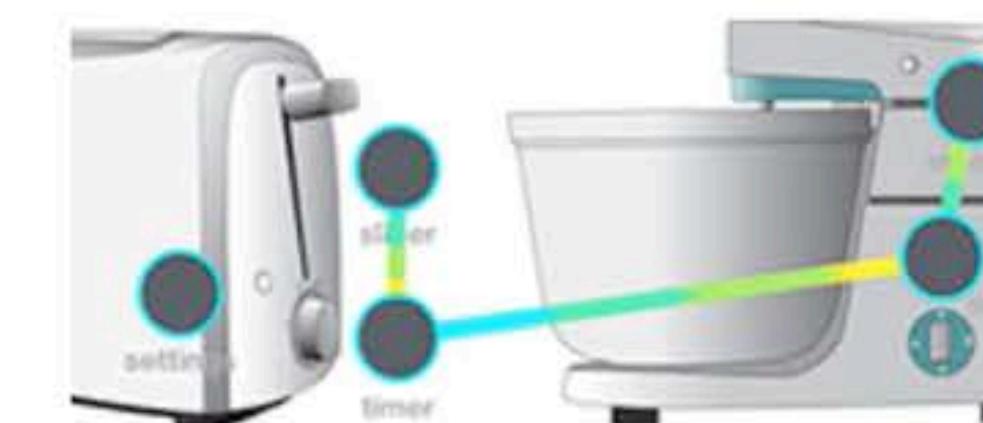
Direct Mapping

The need for new visual Paradigms
for the Operation of the Internet of
Things.



Learn, Setup and Operate

Think about the Reality Editor as a
digital multi-tool for physical space.



How to Connect everything

How to connect the functionality of
electronic devices

SCREENS CONFIGURE

OBJECTS OPERATE

openhybrid.org

DO THIS TODAY

**WHAT IF THERE'S
NO SCREEN
AT ALL?**

amazon echo

amazon.com/echo



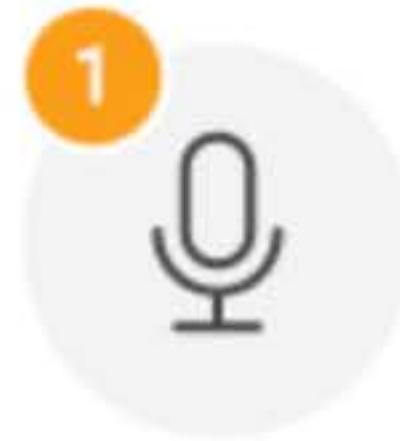


THIS IS THE
THING BEYOND
THE PHONE

**ONE INTERFACE
FOR OVER 300
SERVICES**

Ready? Let's get started

Read our [getting started guide](#) for an overview of how users interact with your Alexa skill and to learn how to conduct a conversation with your customers. You can also follow these steps:



Design a Voice User Interface

Design an effective voice user interface to give users a great experience

[See Voice Design Best Practices](#)

Create a framework to map user requests to intents your service can handle

[See Defining the Voice User Interface](#)

Build out sample phrases so that your skill responds to user intents

[See Sample Utterances](#)



Build and Host Code

Set up your skill in AWS Lambda or another cloud-based hosting service

[See Creating a Lambda Function](#)

Code your skill

[See Handling Requests](#)

Review sample code in Node.js or Java

[See Alexa Skills Kit Samples](#)



Submit Your Skill

Add your skill to the developer portal

[See Registering Skills](#)

Test your skill using our service simulator or on Amazon Echo

[See Testing a Skill](#)

Submit your skill for certification

[See Submission Checklist](#)

developer.amazon.com

DO THIS TODAY

four kinds of physical interfaces

SENSOR INPUT TO THE WEB

NOTIFICATION FROM THE WEB

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**WHY
DO WE MAKE IT?
TO WHOSE BENEFIT?**

=====UPDATE=====

- > You have 15 pairs of underwear left.
[Ok] [buy more underwear] [find help online]
 - > Your cat checked in at the litterbox.
 - > Your microwave just heated a lasagna.
 - > Record: You stared out the window for 23 minutes.
[Ok] [post your score]
 - > Your couch likes your microwave's status update.
 - > It's raining again.
[Ok]
 - > 15 of your things are broken.
 - > You haven't left the house in 5 days.
[Ok]
-
-



<https://twitter.com/jergason/status/730973872221093888>

the goal is not to make things talk

**IT'S TO IMPROVE
THE CONVERSATION**

ind.ie/blog/ethical-design-manifesto/

ETHICAL DESIGN MANIFESTO

@indie

SURVEILLANCE CAPITALISM



Obligatory mention of
Minority Report

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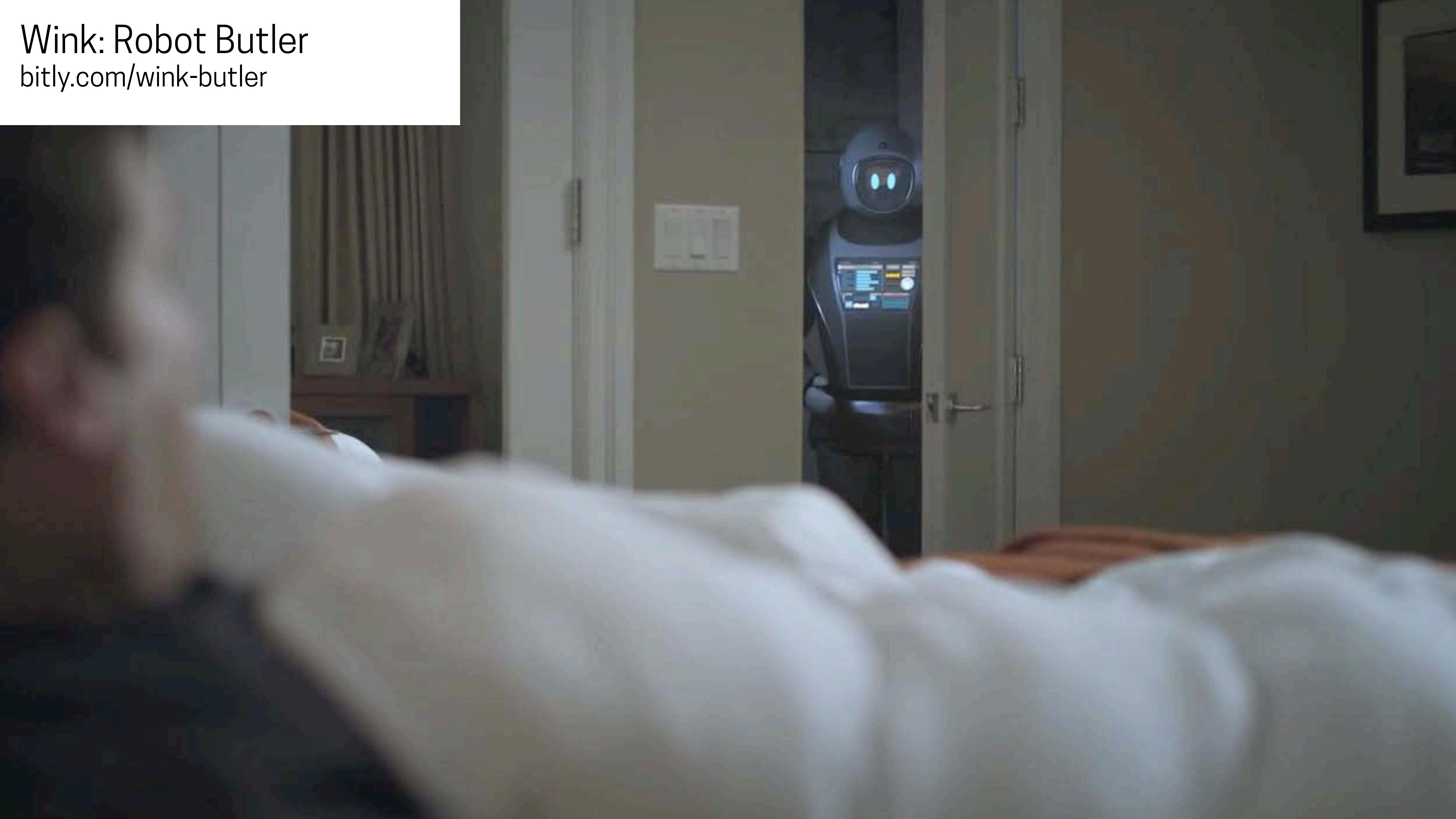




Wayfindr
wayfindr.net

Wink: Robot Butler

bitly.com/wink-butler



**HOW SMART
DOES YOUR BED HAVE TO
BE BEFORE YOU'RE
AFRAID TO GO TO SLEEP
AT NIGHT?**

Rich Gold



A robot vacuum tried to eat its sleeping owner's head

By Molly McHugh [✉](#) [Follow](#) on February 08, 2015

18k
Shares

The future of robots is simultaneously thrilling and terrifying. For every mental image of sweet *Wall-E*, there's one of *Terminator*'s invincible red eye. Will our robotic overloads be task-oriented, adorable, and friendly... or will they try to murder us in our sleep?

GIVE THE ROBOTS
GOOD VALUES &
GOOD MANNERS



Eleanor Saitta

@Dymaxion



Following

\$deity spare us all from bright young things with
an algorithm, a data set, and the notion that
history, causality, & culture are irrelevant

RETWEETS

56

LIKES

58

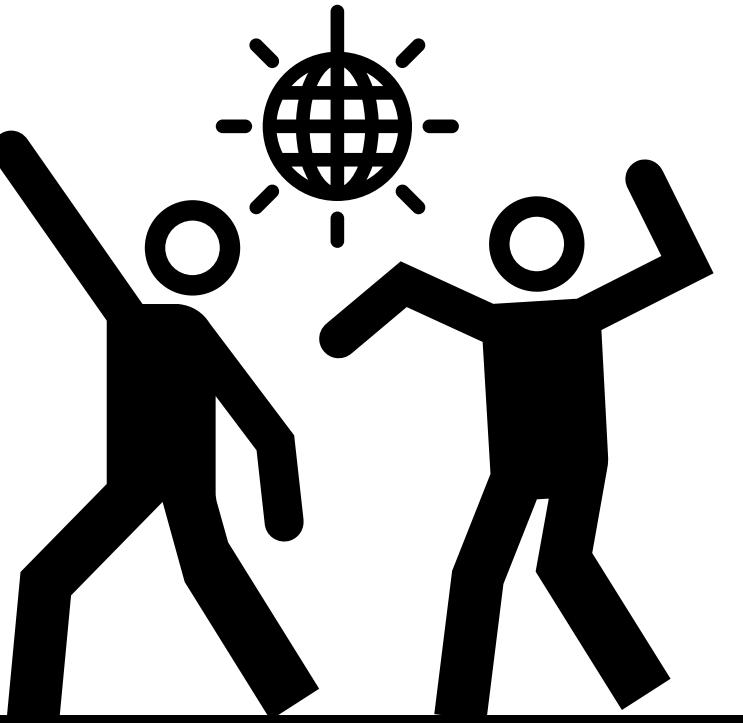


4:43 AM - 15 May 2016

**AMPLIFY YOUR
HUMANITY**

check the values of your creation

DO THIS TODAY



THANKS!

josh clark
@bigmediumjosh

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