

TURNING SENSORS INTO SIGNALS.

**Humanizing IoT with
Old Smartphones and the Web.**

Dietrich Ayala

Women Who Code

Portland, May 24, 2016



mozilla

THERE'S A LOT GOING ON IN IOT...

SO MANY DEVELOPER BOARDS

SO MANY CLOUD SERVICES

SO MANY LIBRARIES

SO MANY APIs

SO MANY...

THE THINGS EXPERIENCE TODAY.

PAYING LOTS OF MONEY
TO HAND YOUR WHOLE LIFE
OVER TO A FOR-PROFIT
CORPORATE CLOUD.

COMPLEXITY

EASE OF USE

USER CONTROL

CLOUD

PRIVACY

FEATURES

LOOKS LIKE DEAD ROBOTS

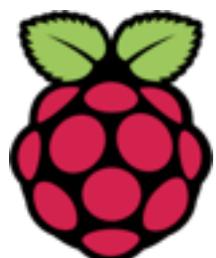
BEAUTIFULLY DESIGNED



MAKER / DIY

KICKSTARTER / STARTUPS

MASS MARKET CONSUMER



HomeKit



nest



WHO ARE YOUR PEOPLE?

WHAT IS THEIR PROBLEM?

AUTOMATED SHOPPING DOESN'T MAKE MY LIST OF PROBLEMS.

REAL TALK.

*I DON'T HAVE ENOUGH **MONEY**.*

*I DON'T HAVE ENOUGH **TIME**.*

*I'M **HUNGRY**. I'M **LONELY**.*

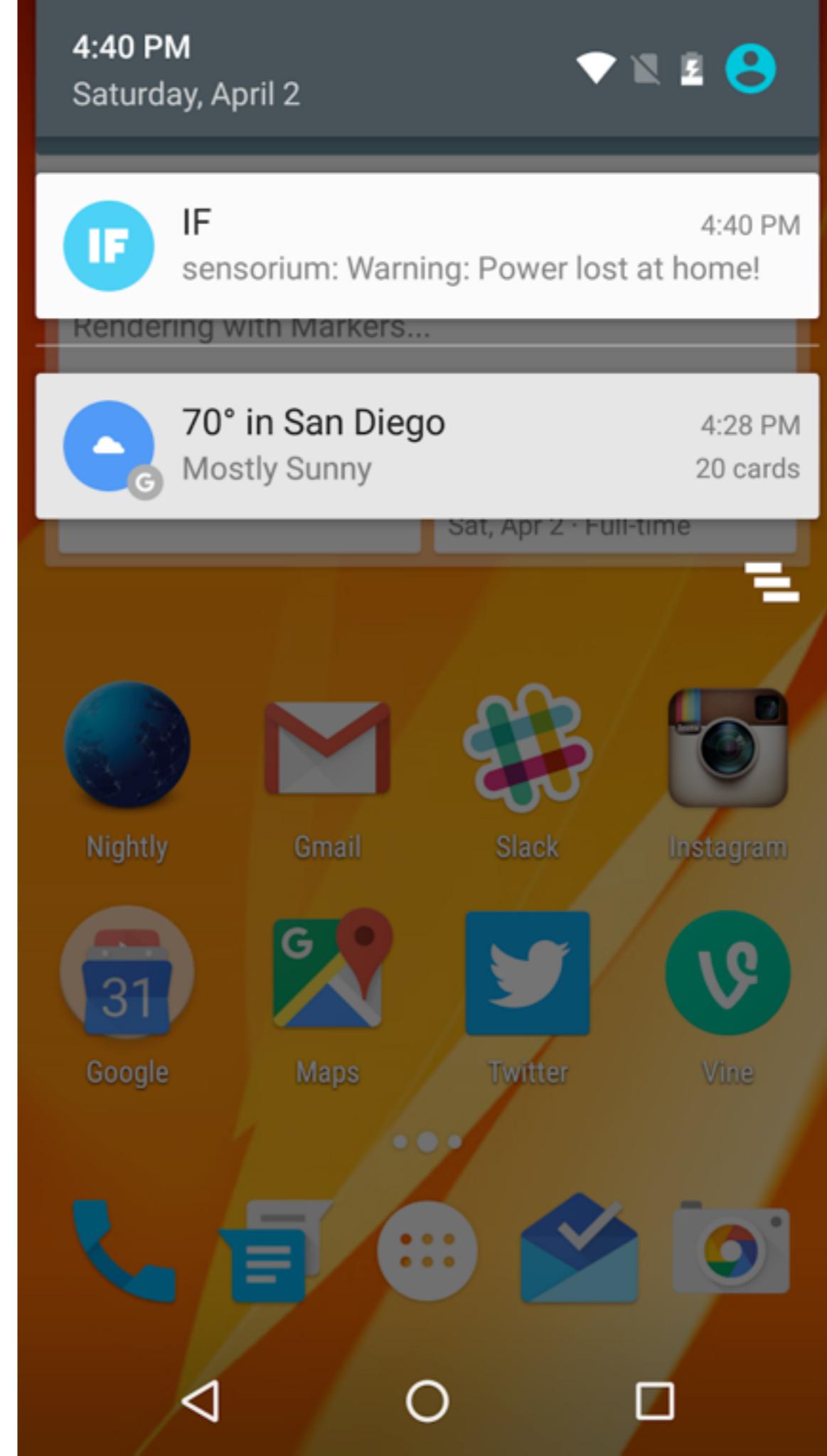
*ME OR MY PEOPLES ARE **SICK**.*

*I'M AWAY FROM **HOME**.*

*MY GOVERNMENT IS **HUNTING** ME.*

I'M AT WORK.

*I WANT TO KNOW
IF THE POWER
WENT OUT AT
HOME.*





Today

Notifications

Today



IF now
sensorium: New Bluetooth Device
Detected: "alan's iPhone"

I'M TRAVELING.

I WANT TO KNOW

IF A STRANGER

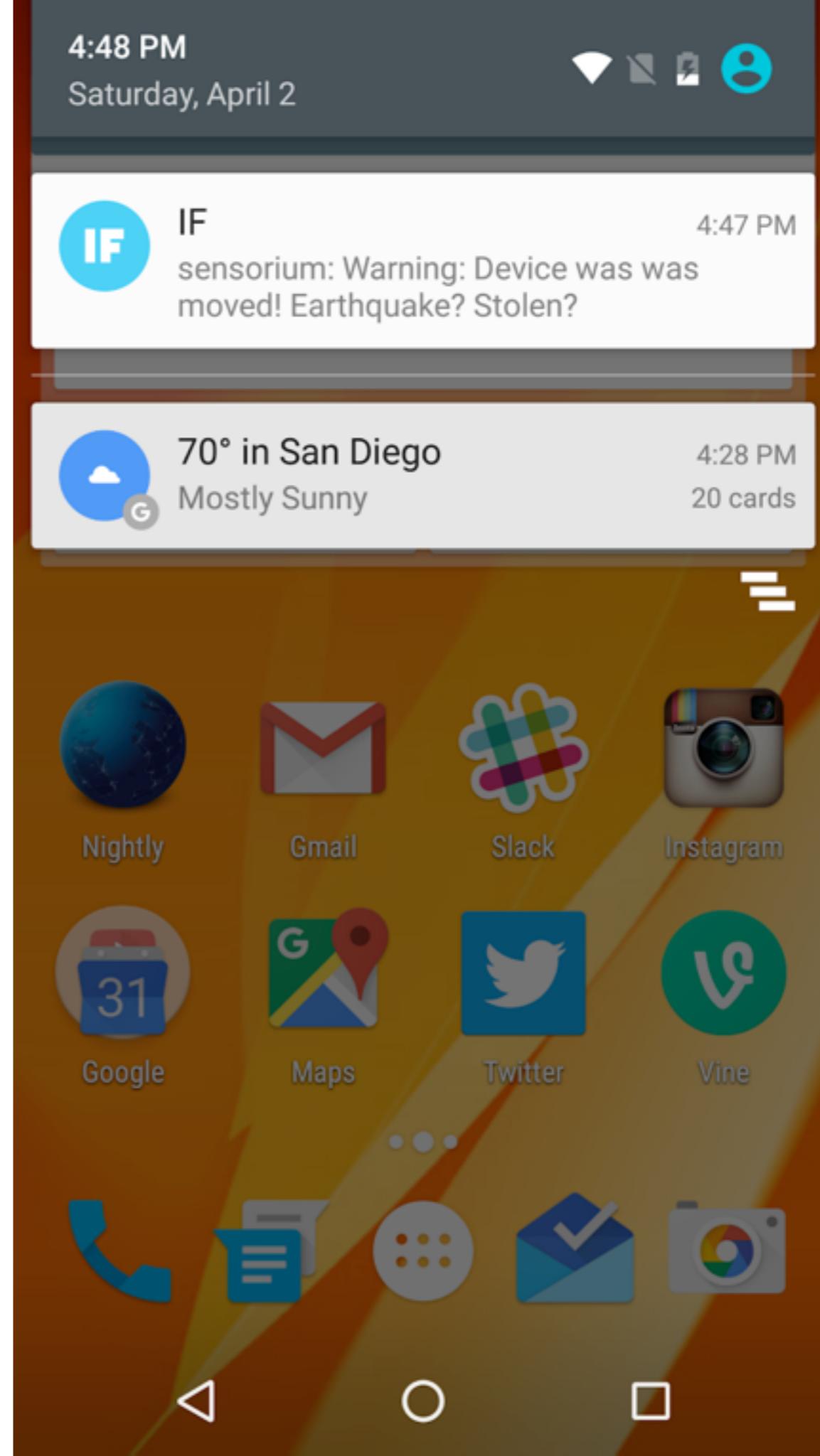
ENTERS MY

HOME.

PHYSICAL AWARENESS.

**DO APPLIANCES
KNOW IF THEY
MOVED OR NOT?**

**WHAT DOES IT
MEAN IF THEY
MOVED?**



Today

Notifications

Today

X



IF now

sensorium: Warning: It's 9am and there's
been no sound for two hours.

**GRANDMA LIVES
ALONE NOW.**

**IF SHE'S NOT UP
AND AROUND BY
9AM, THEN
SOMETHING MIGHT
BE WRONG.**

UGH, NOT AGAIN.

FRIGGIN COMCAST.

5:11 PM

Saturday, April 2



IF

5:10 PM

sensorium: I'm sending you this text
because the wi-fi internet connection has
been lost.

San Diego



70°

Barcelona

Real Madrid

Sat, Apr 2 · Full-time



Nightly



Gmail



Slack



Instagram



Google



Maps



Twitter



Vine



**YOU CAN DO
THESE THINGS
WITH CONTEXT.**

**YOU CAN GET
CONTEXT FROM
SMARTPHONE
DEVICE APIs.**

APIS -> TRIGGERS

BATTERY API	POWER OUTAGE
ACCELEROMETER.....	EARTHQUAKES/ THEFT
BLUETOOTH	PRESENCE / ABSENCE
WI-FI	NEIGHBORHOOD
MICROPHONE	PRESENCE / ABSENCE
CAMERA	PRESENCE OF CATS

PHYSICAL APIs

ACCELEROMETER

ORIENTATION

PROXIMITY DETECTION

AMBIENT LIGHT DETECTION

POWER / BATTERY



Ambient Light

Vibration

Proximity Detection

Camera

Orientation Detection

Mic

Geo-location

UDP

Wi-F

Motion Detection

MEDIA APIs

MICROPHONE
CAMERA
SPEECH RECOGNITION
SPEECH SYNTHESIS
A SPEAKER



UDP

Wi-Fi

Motion
Detection

Mic

Ambient
Light

Vibration

Proximity
Detection

Camera

Orientation
Detection

Geo-
location

RADIO APIS

BLUETOOTH (LE/SMART)

NFC

GEOLOCATION

WI-FI

NFC

I2C

SPI

BLE

GPIO

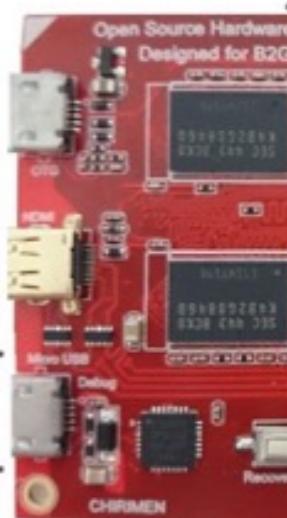
EXEC

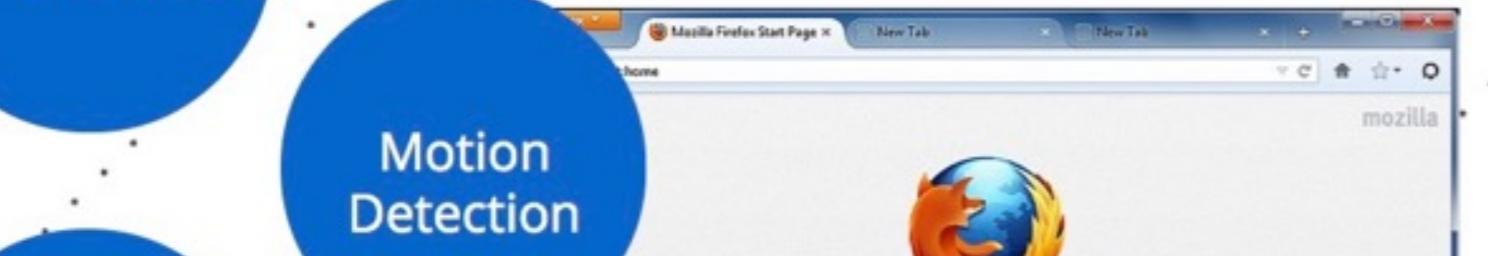
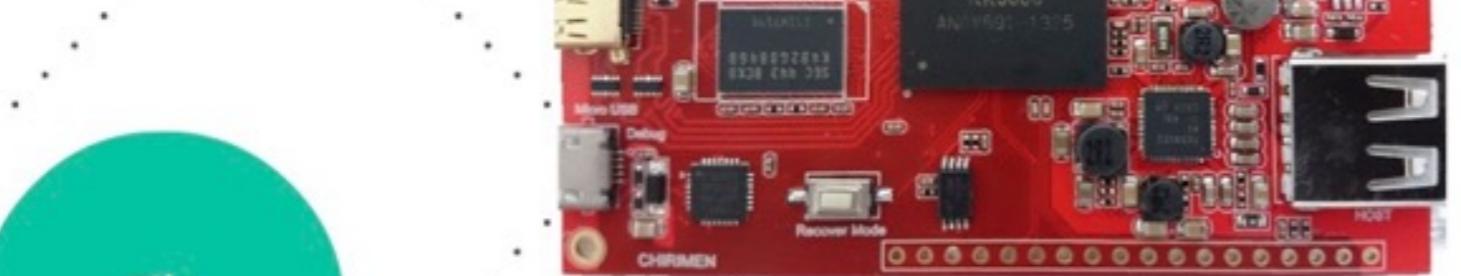
File System

TCP

mD

UDP





File
System

TCP

mDNS

UDP

UDP

Wi-Fi

SSDP

MQTT

Web
RTC

NETWORK APIs

XHR

TCP & UDP SOCKETS

MDNS / BONJOUR

SSDP

DLNA

NOTIFICATIONS

WEB PUSH NOTIFICATIONS

SMS

SLACK BOT

IFTTT'S MAKER CHANNEL

YOU *CAN* TRY THIS AT HOME.

[HTTPS://GITHUB.COM/AUTONOME/CONTEXT](https://github.com/autonome/context)

OPEN IN A WEB BROWSER!

FIREFOX OS, PHONEGAP, ANDROID, IOS



THANK YOU.

@DIETRICH