

TURNING SENSORS INTO SIGNALS.

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

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Open IoT Summit

San Diego, April 4, 2016



mozilla

THERE'S A LOT GOING ON...

SO MANY DEVELOPER BOARDS

SO MANY CLOUD SERVICES

SO MANY LIBRARIES

SO MANY APIs

SO MANY...

***THERE'S A WAR
GOING ON
FOR YOUR MIND.***

(BUT THAT'S A TALK FOR ANOTHER DAY.)

THINGS TODAY.

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

USER CONTROL

EASE OF USE

PRIVACY

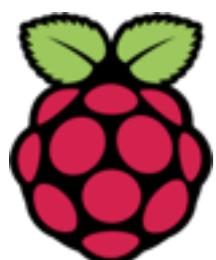
CLOUD

PERSONALIZATION

GENERAL FEATURES



MAKER / DIY



KICKSTARTER / STARTUPS



HomeKit



nest



THERE IS NO IOT.

THERE ARE PEOPLE.

THERE ARE PROBLEMS.

THERE IS AIR.

THERE IS DIRT.

AND THERE ARE RADIO WAVES.

***THE IOT DEVICE
THAT WILL RULE
THEM ALL...***

A woman with blonde hair is lying on a light-colored wooden floor, smiling. She is surrounded by a large number of electronic devices, including several laptops (laptop, tablet, and smartphone), a keyboard, and a small television screen. The devices are scattered around her, creating a sense of abundance.

ALL OF THEM.

Credit: Jeremy Keith

WHO ARE YOUR PEOPLE?

WHAT IS THEIR PROBLEM?

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.

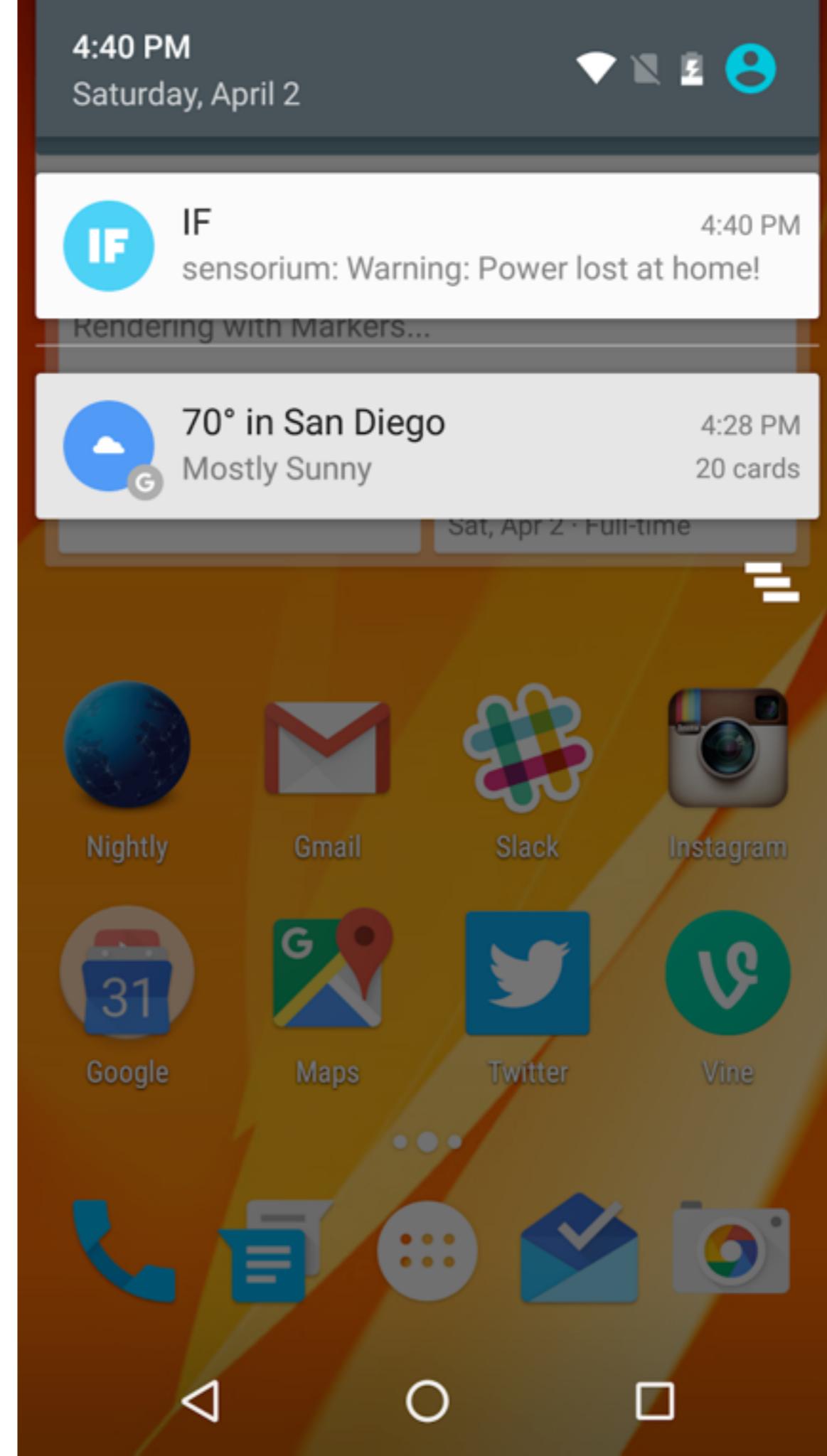
MY GOVERNMENT IS HUNTING ME.

***I HAVE BASIC
PROBLEMS.***

AUTOMATED SHOPPING DOESN'T MAKE MY LIST OF PROBLEMS.

I'M AT WORK.

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



•oooo T-Mobile Wi-Fi 16:44



Today

Notifications

Today



IF now

sensorium: New Bluetooth Device

Detected: "alan's iPhone"

I'M TRAVELING.

I WANT TO KNOW

IF A STRANGER

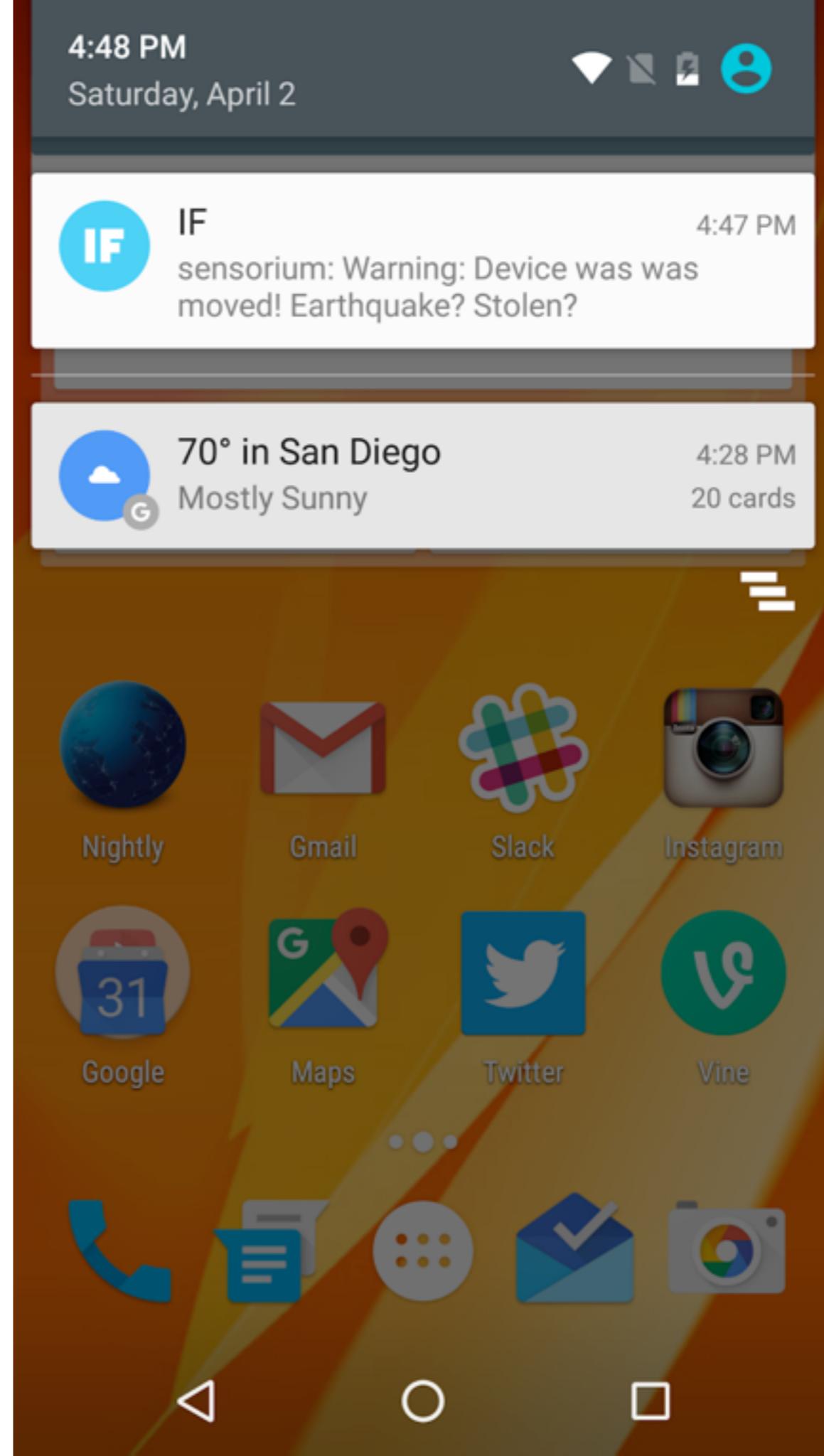
ENTERS MY

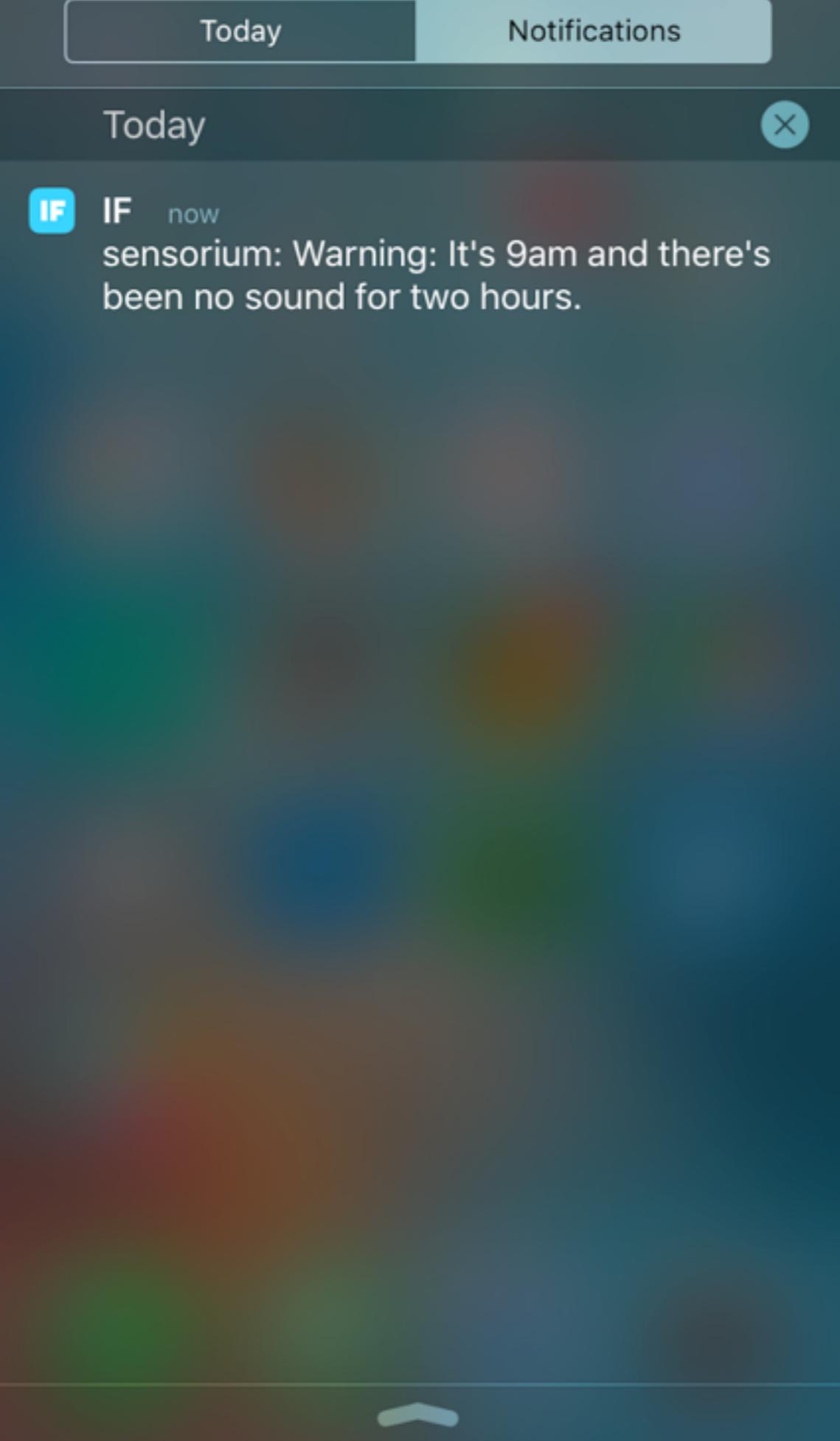
HOME.

PHYSICAL AWARENESS.

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

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





**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.**

PHYSICAL APIs

ACCELEROMETER

ORIENTATION

PROXIMITY DETECTION

AMBIENT LIGHT DETECTION

POWER / BATTERY



Ambient Light

Vibration

Proximity Detection

Camera

Orientation Detection

Mic

Geo-location

Motion Detection

UDP

Wi-Fi

MEDIA APIs

MICROPHONE
CAMERA
SPEECH RECOGNITION
SPEECH SYNTHESIS
A SPEAKER



UDP

Wi-F

Ambient
Light

Vibration

Proximity
Detection

Motion
Detection

Camera

Orientation
Detection

Mic

Geo-
location

RADIO APIs

BLUETOOTH (LE/SMART)

NFC

GEOLOCATION

WI-FI

NFC

I2C

SPI

BLE

GPIO

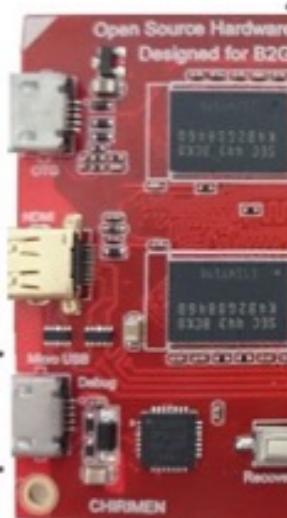
EXEC

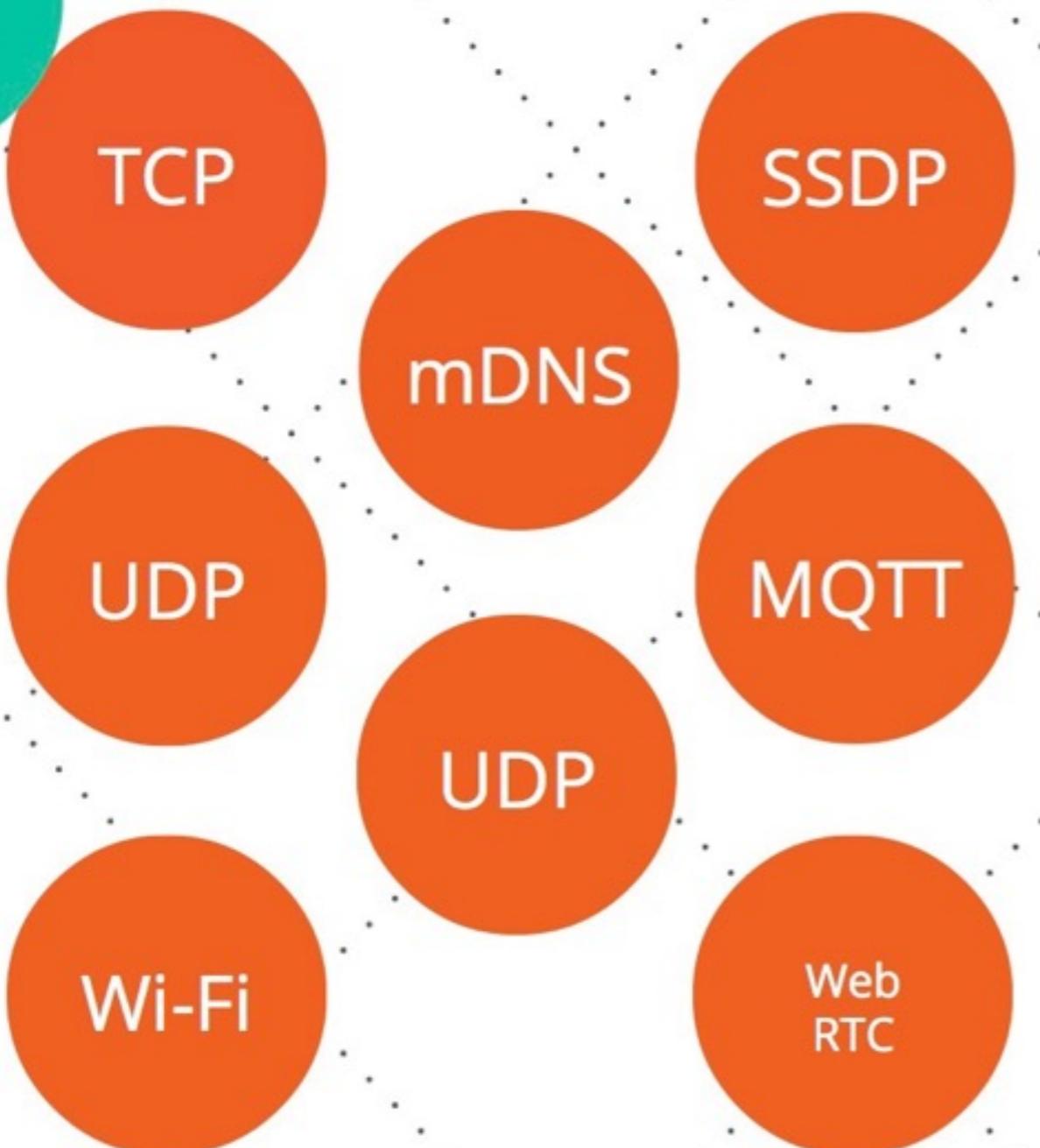
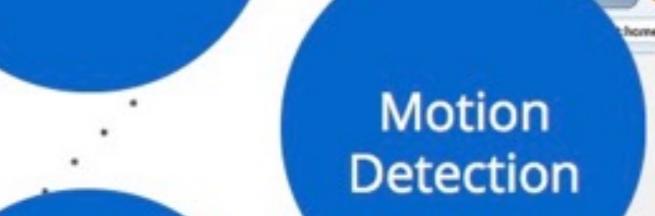
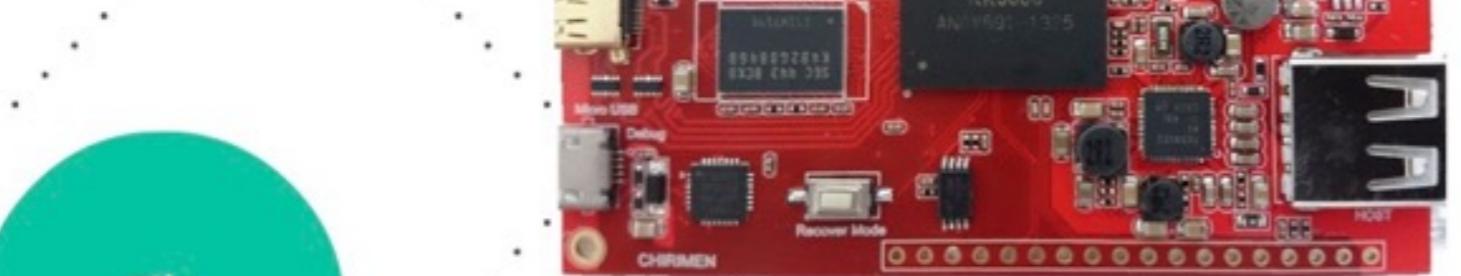
File System

TCP

mD

UDP





NETWORK APIs

XHR

TCP & UDP SOCKETS

MDNS / BONJOUR

SSDP

DLNA

WHAT YOU NEED TO PLAY.

AN OLD SMARTPHONE.

JAVASCRIPT.

WEB APIs.

NOW LOOK AROUND.

DEVICES AND PLATFORMS

I'M USING A FIREFOX OS PHONE
BECAUSE I CAN ACCESS LOW-LEVEL
DEVICE APIs FROM JAVASCRIPT.

WEB PAGES ON ANDROID AND IOS
CAN DO INTERESTING THINGS TOO!

APIS -> TRIGGERS

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

INTERACTIONS

WEB PUSH NOTIFICATIONS

SMS

SLACK BOT

IFTTT'S MAKER CHANNEL

YOU **CAN TRY THIS AT HOME.**

HTTPS://GITHUB.COM/AUTONOME/CONTEXT

FIREFOX OS (CYANOGEN)

PHONEGAP

ANDROID

IOS



THANK YOU.

@RABIMBA

@DIETRICH