TURNING SENSORS INTO SIGNALS.

Humanizing IoT with Old Smartphones and the Web.

Dietrich Ayala & Rabimba Karinjai

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

PRIVACY

PERSONALIZATION

EASE OF USE

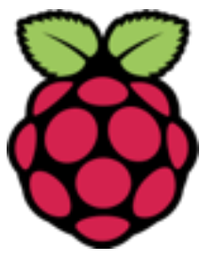
CLOUD

GENERAL FEATURES

MAKER / DIY

KICKSTARTER / STARTUPS

MASS MARKET CONSUMER



HomeKit

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...

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.

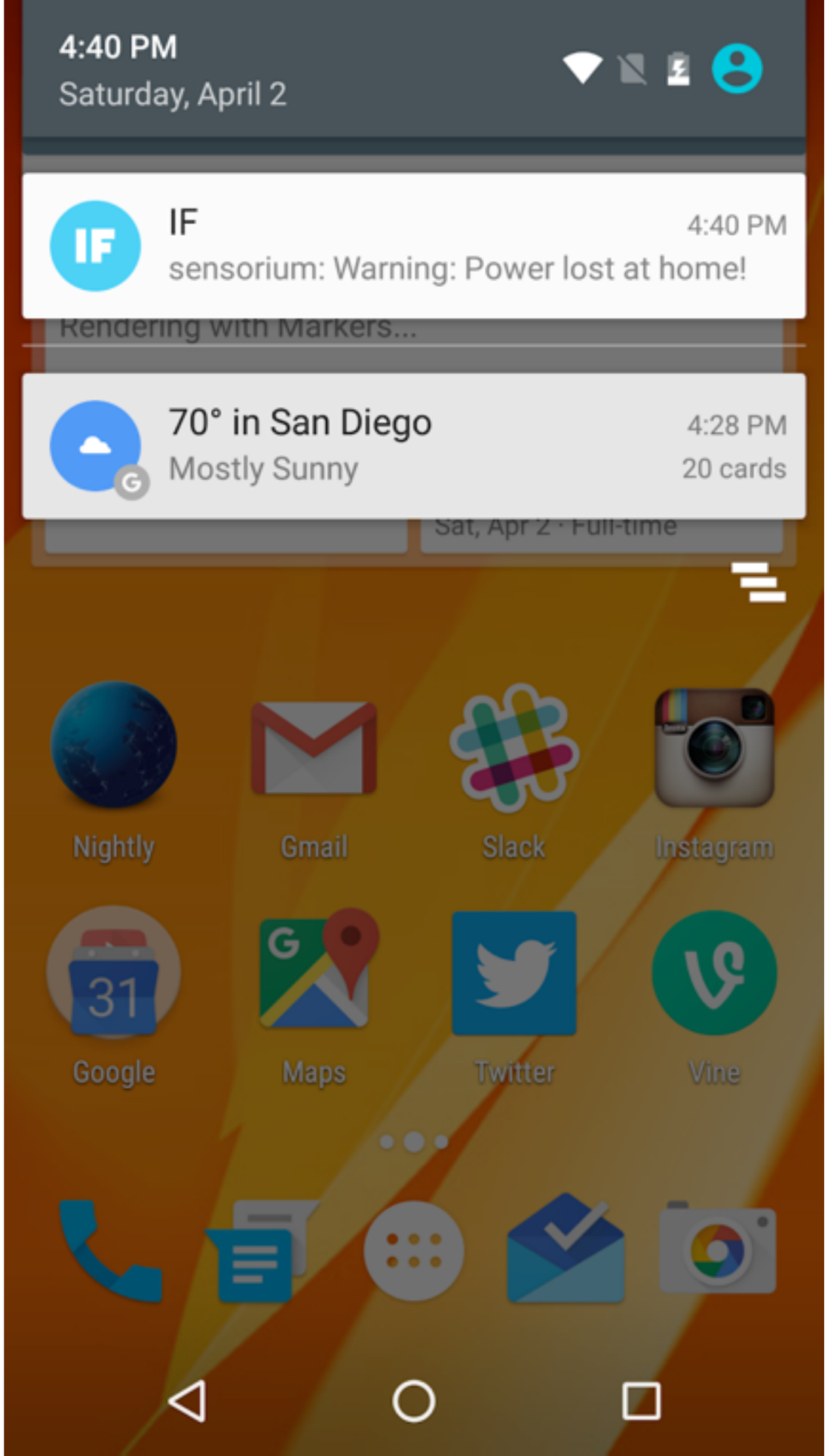
I'M AT WORK.

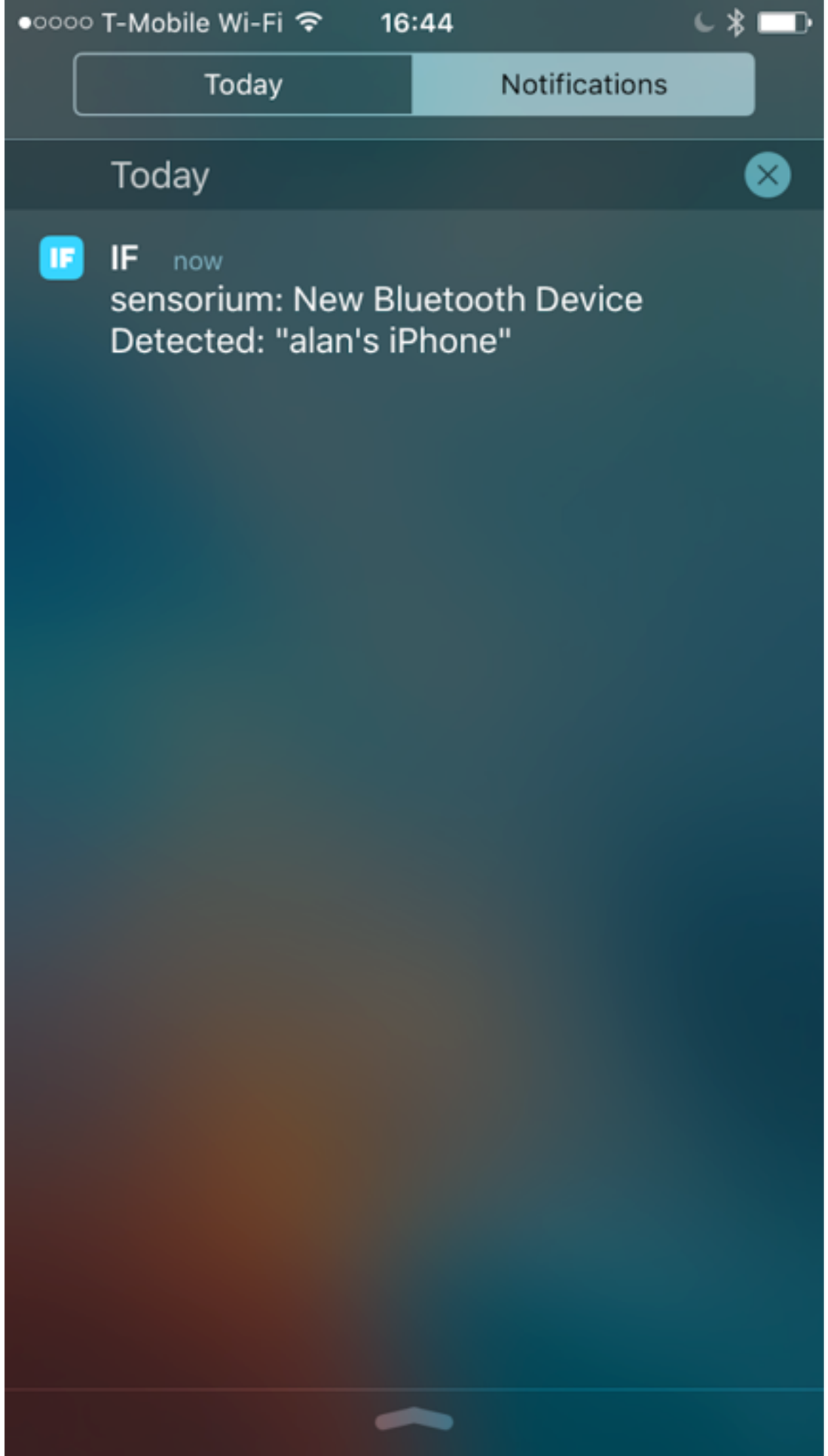
I WANT TO KNOW

IF THE POWER

WENT OUT AT

HOME.





I'M TRAVELING.

I WANT TO KNOW

IF A STRANGER

ENTERS MY

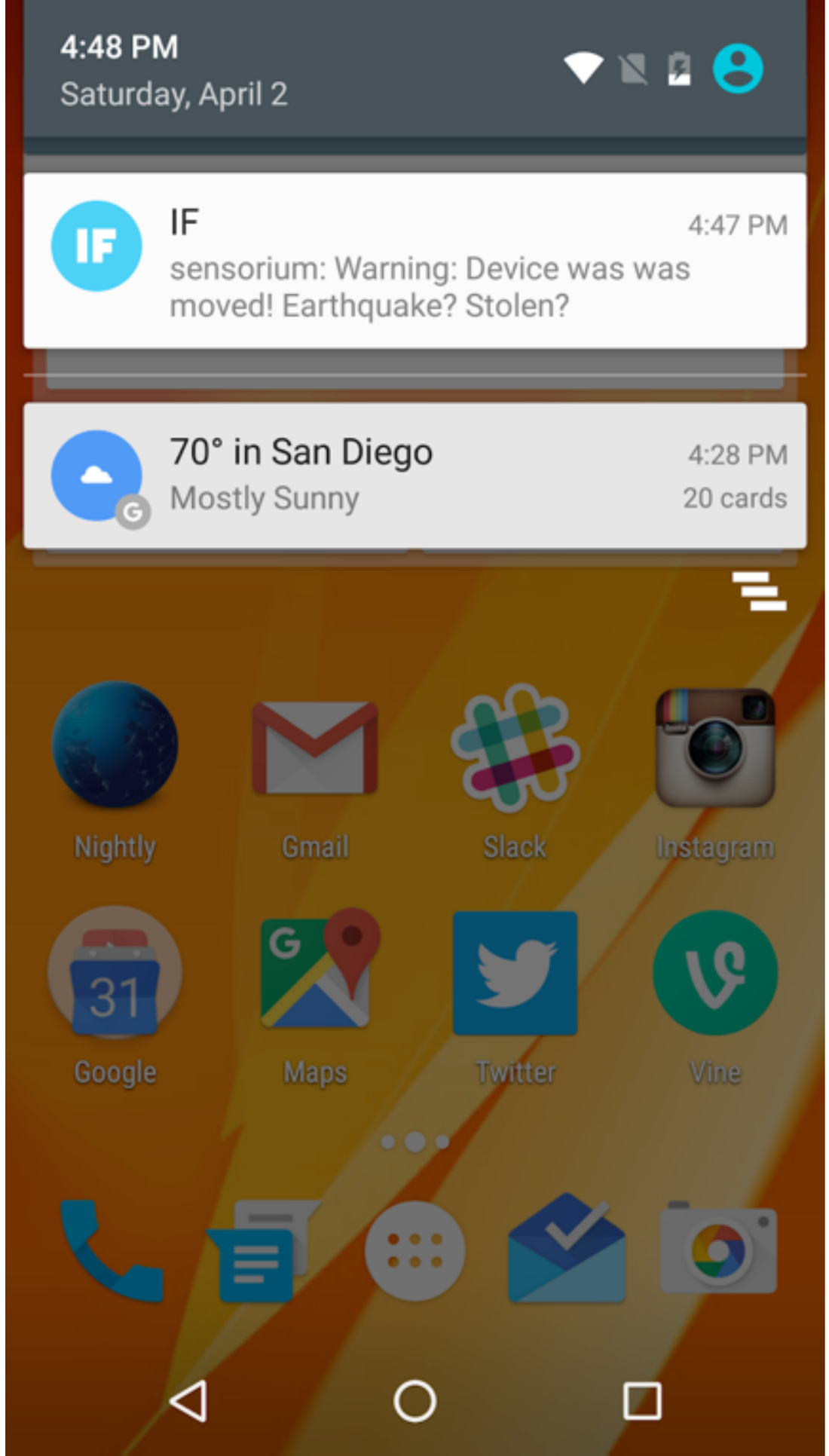
HOME.

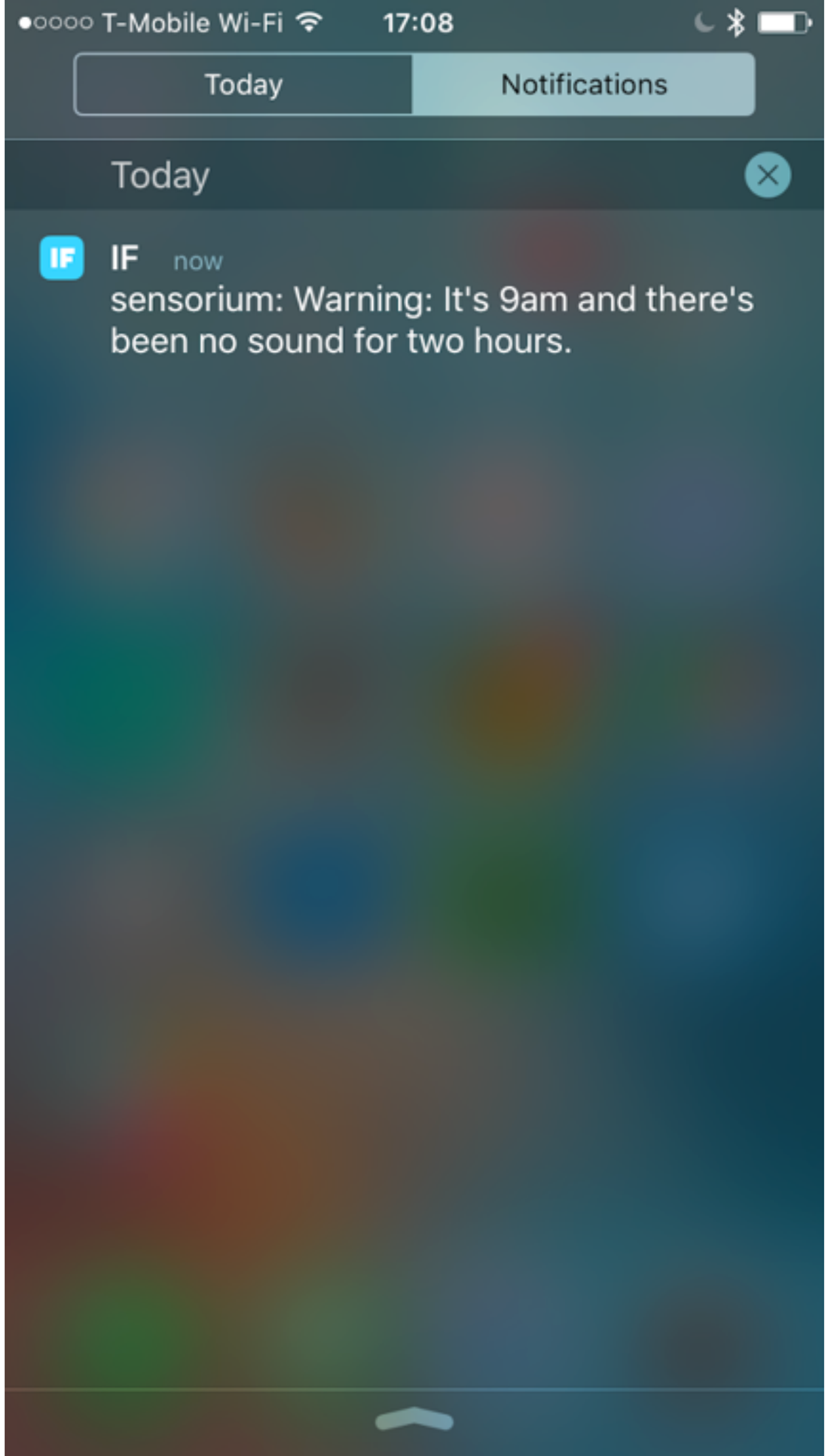
PHYSICAL

AWARENESS.

DO APPLIANCES KNOW IF THEY MOVED OR NOT?

WHAT DOES IT MEAN IF THEY MOVED?





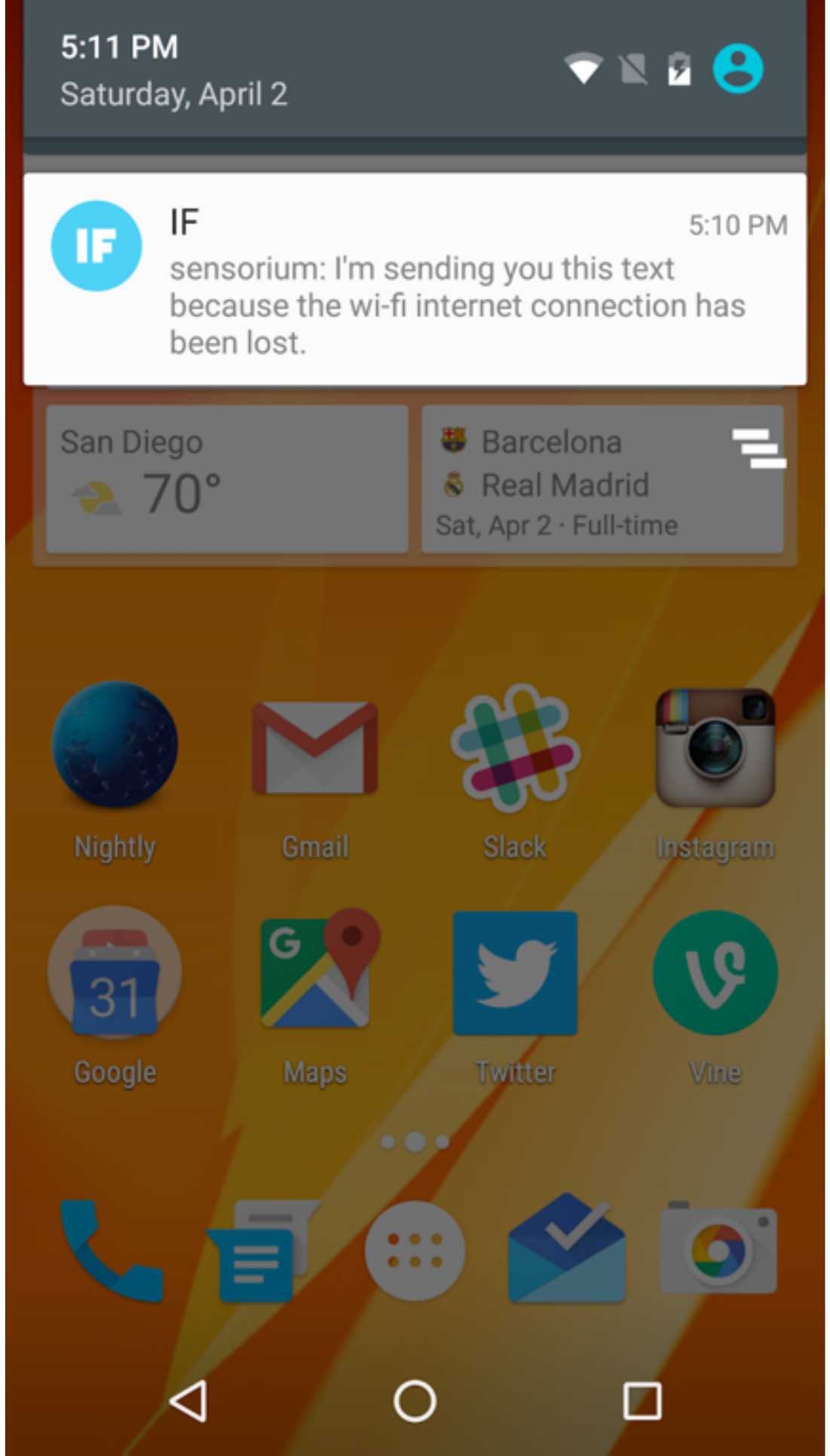
GRANDMA LIVES ALONE NOW.

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

UGH, NOT AGAIN.

FRIGGIN

COMCAST.



YOU CAN DO

THESE THINGS

WITH CONTEXT.

YOU CAN GET

CONTEXT FROM

SMARTPHONE

DEVICE APIS.

PHYSICAL APIS

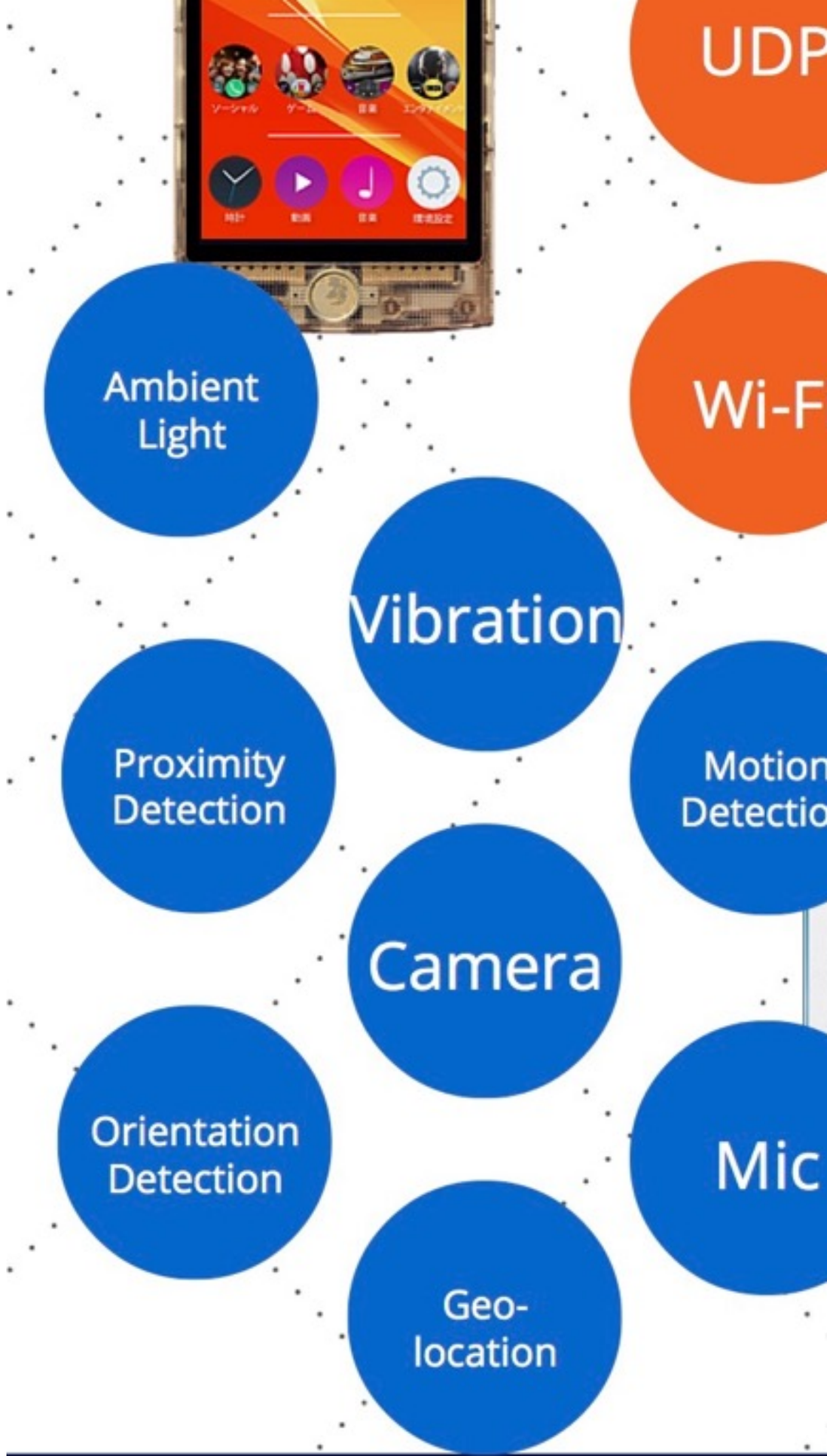
ACCELEROMETER

ORIENTATION

PROXIMITY DETECTION

AMBIENT LIGHT DETECTION

POWER / BATTERY



MEDIA APIS

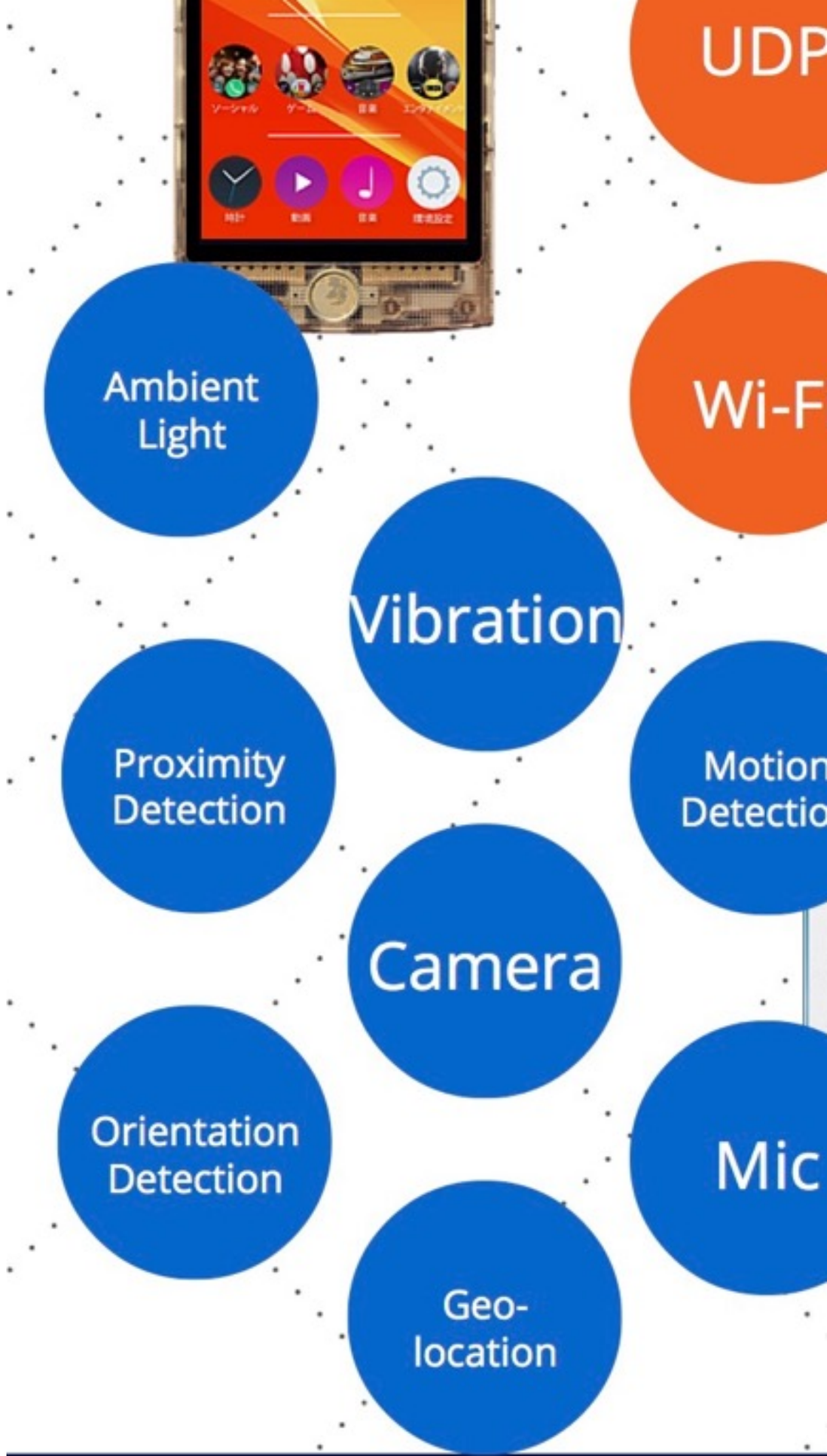
MICROPHONE

CAMERA

SPEECH RECOGNITION

SPEECH SYNTHESIS

A SPEAKER



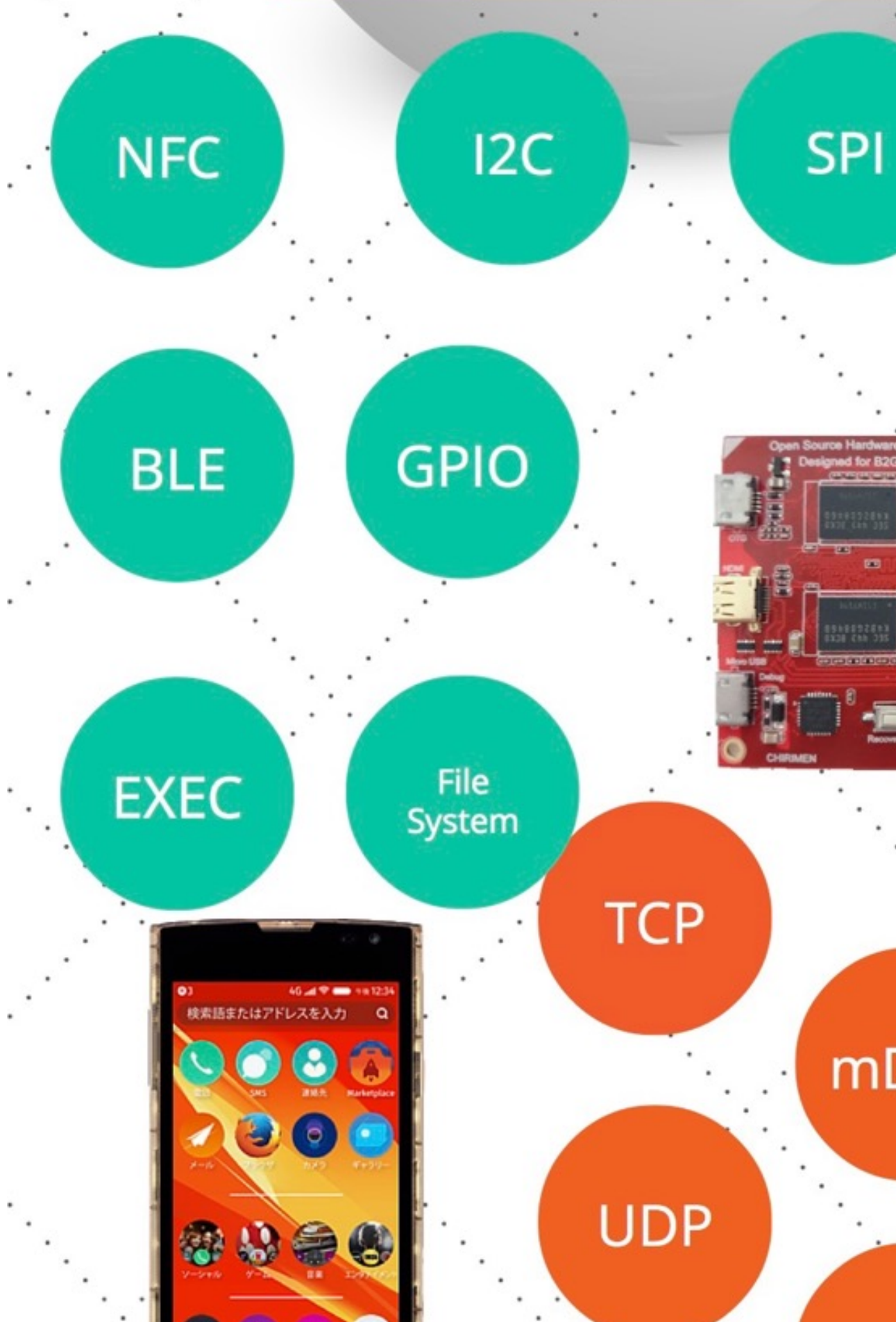
RADIO APIS

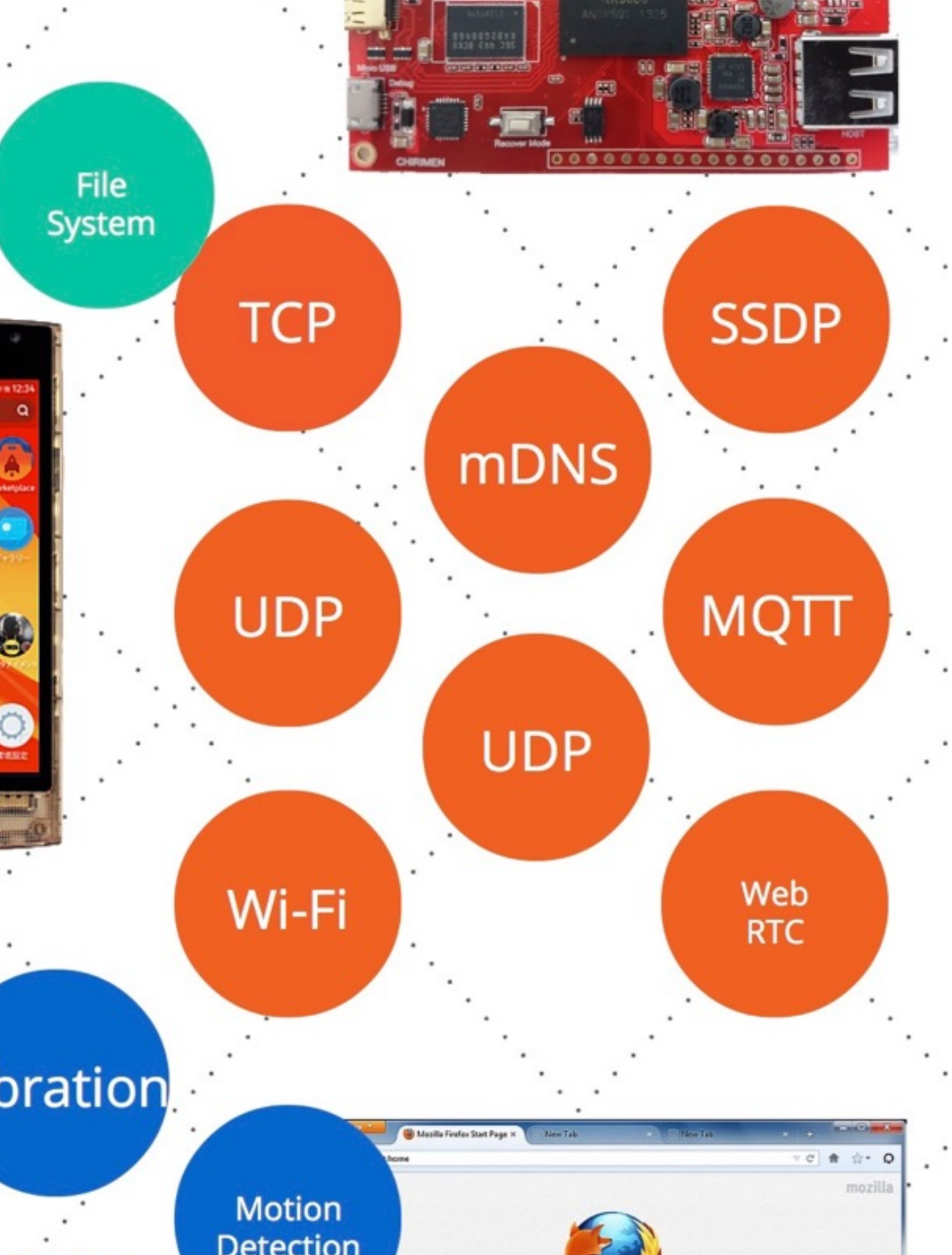
BLUETOOTH (LE/SMART)

NFC

GEOLOCATION

WI-FI





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