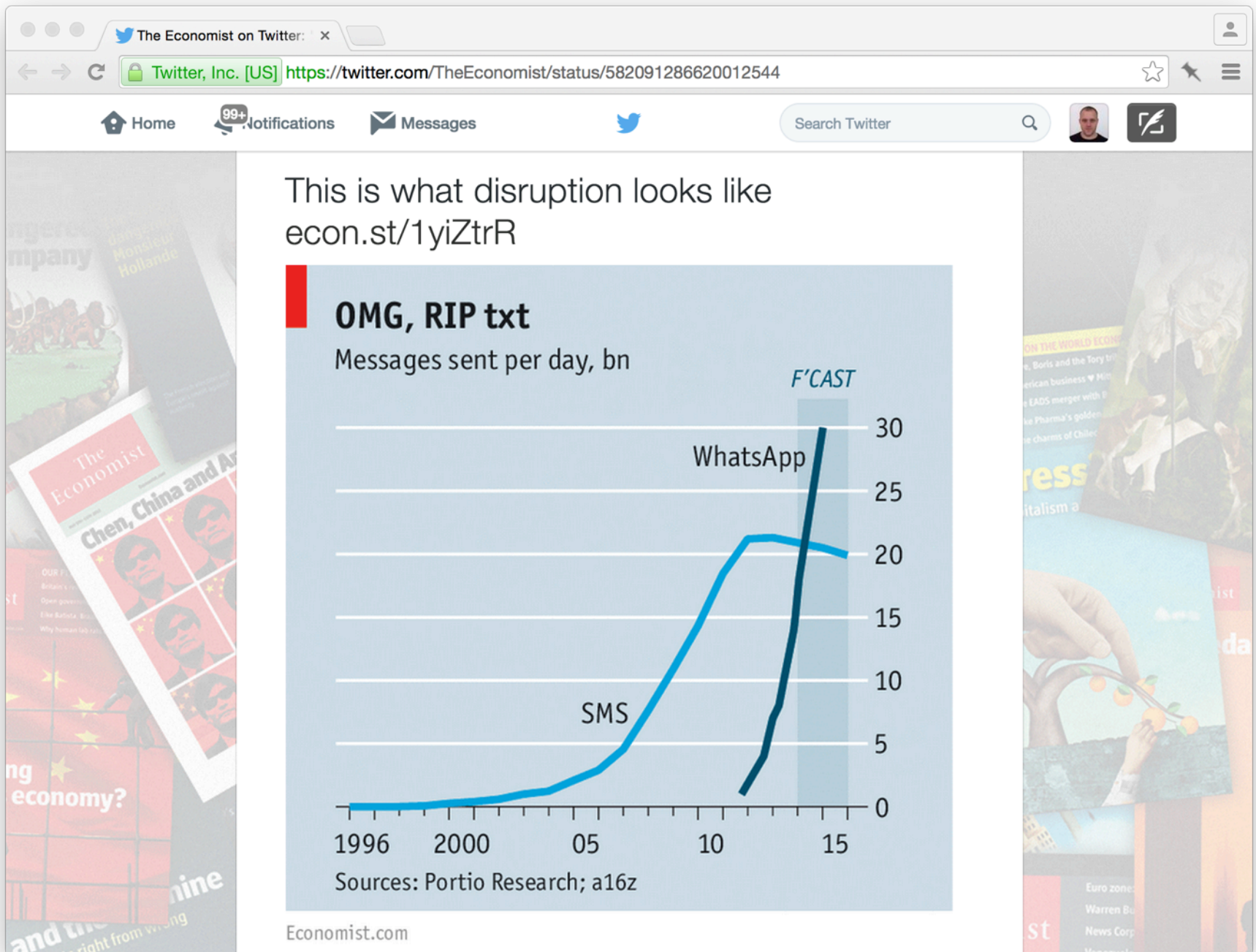


Bottom-up Innovation, Hardware Startups and Maker Movement

thomas.amberg@yaler.net

September 2015



Software and the Web



Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

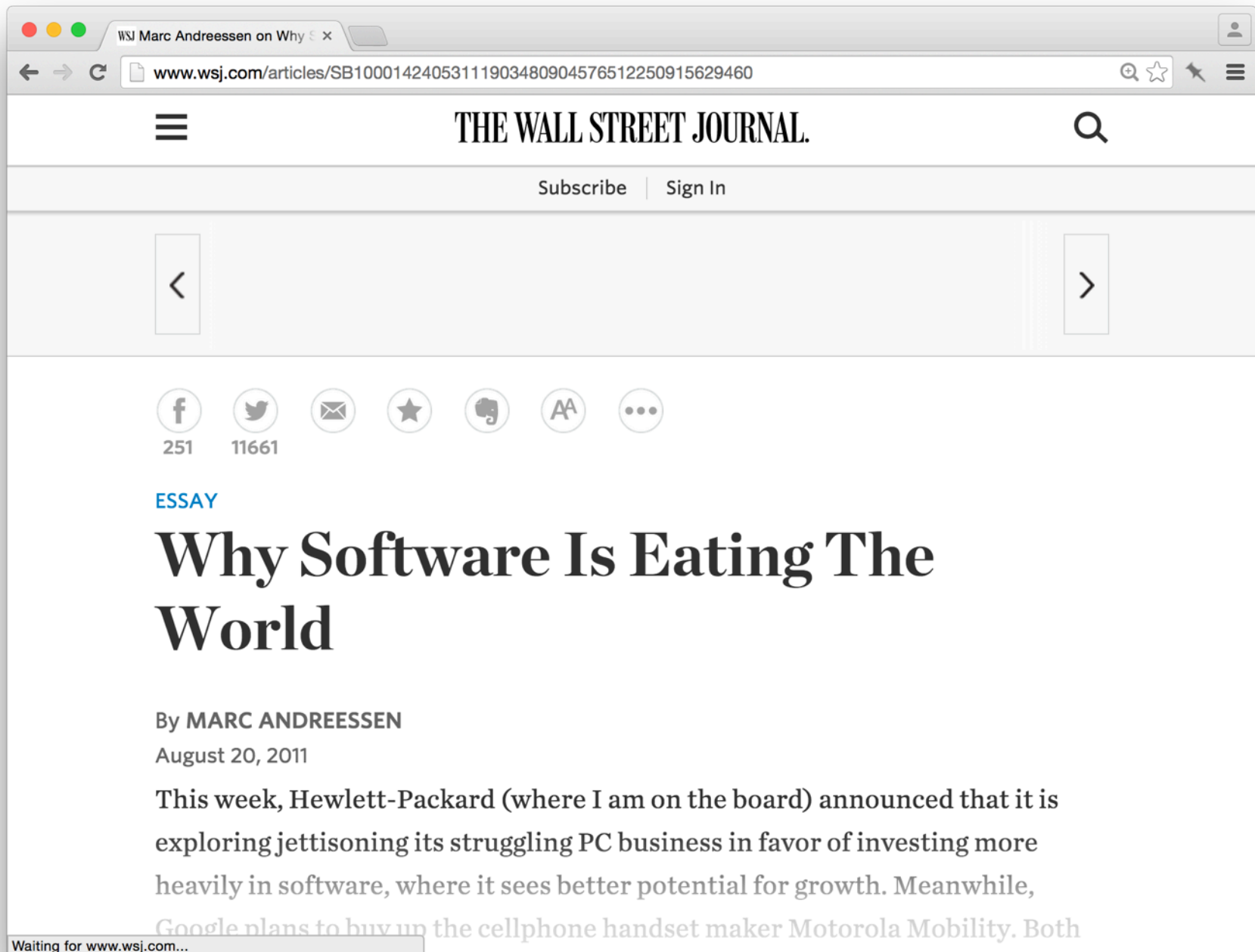
Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.



Based on the after-hours spike, Amazon's market cap is now worth about \$264 billion. Wal-Mart is worth \$233.5 billion.

Looked at another way, Amazon grew by about \$36 billion in the first half hour after its earnings crossed. For comparison, Twitter's market cap is \$23.5 billion.

Here's the epic chart.

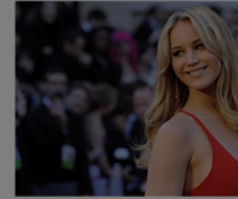
AMAZON IS NOW BIGGER THAN WALMART



SOURCE: Bloomberg

BUSINESS INSIDER

Videos You May Like



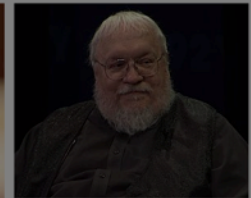
6 scientifically proven features men find attractive in women



Two models in Russia just posed with a 1,400-pound bear



Forget the Apple Watch — here's the new watch everyone on Wall Street wants



'Game of Thrones' superfans caught George R.R. Martin's mistake so he hired

by Taboola



Alchemist Hour

An API

Web Series

WSJ Jeff Bezos of Amazon: Birth of a Revolution

www.wsj.com/news/articles/SB10001424052970203914304576627102996831200

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Mr. Bezos stood up and declared, "No, communication is terrible!"

He wanted a decentralized, even disorganized company where independent ideas would prevail over groupthink. He instituted, as a company-wide rule, the concept of the "two-pizza team"—that is, any team should be small enough that it could be fed with two pizzas.

From the beginning, Mr. Bezos was fanatical about squeezing from Amazon.com every incremental degree of usefulness. New features were often simple things, like 1-Click ordering—whose notorious patent was called by one law journal "probably the most memorable example of an unoriginal software patent." It forbids any other online retailer from using a one-click purchasing option without paying a royalty to Amazon.

An elderly woman once sent an email to the company saying that she loved ordering books from the site but had to wait for her nephew to come over and tear into the difficult-to-open packaging. Mr. Bezos had the packaging redesigned to make it easier to open.

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We ad match.

We match local competitors' printed ads.
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We also accept competitors' coupons
that feature a specified price.

We don't honor double or triple coupon offers or percent off or dollar off coupons.
Coupons. We accept only 1 eligible coupon per item.




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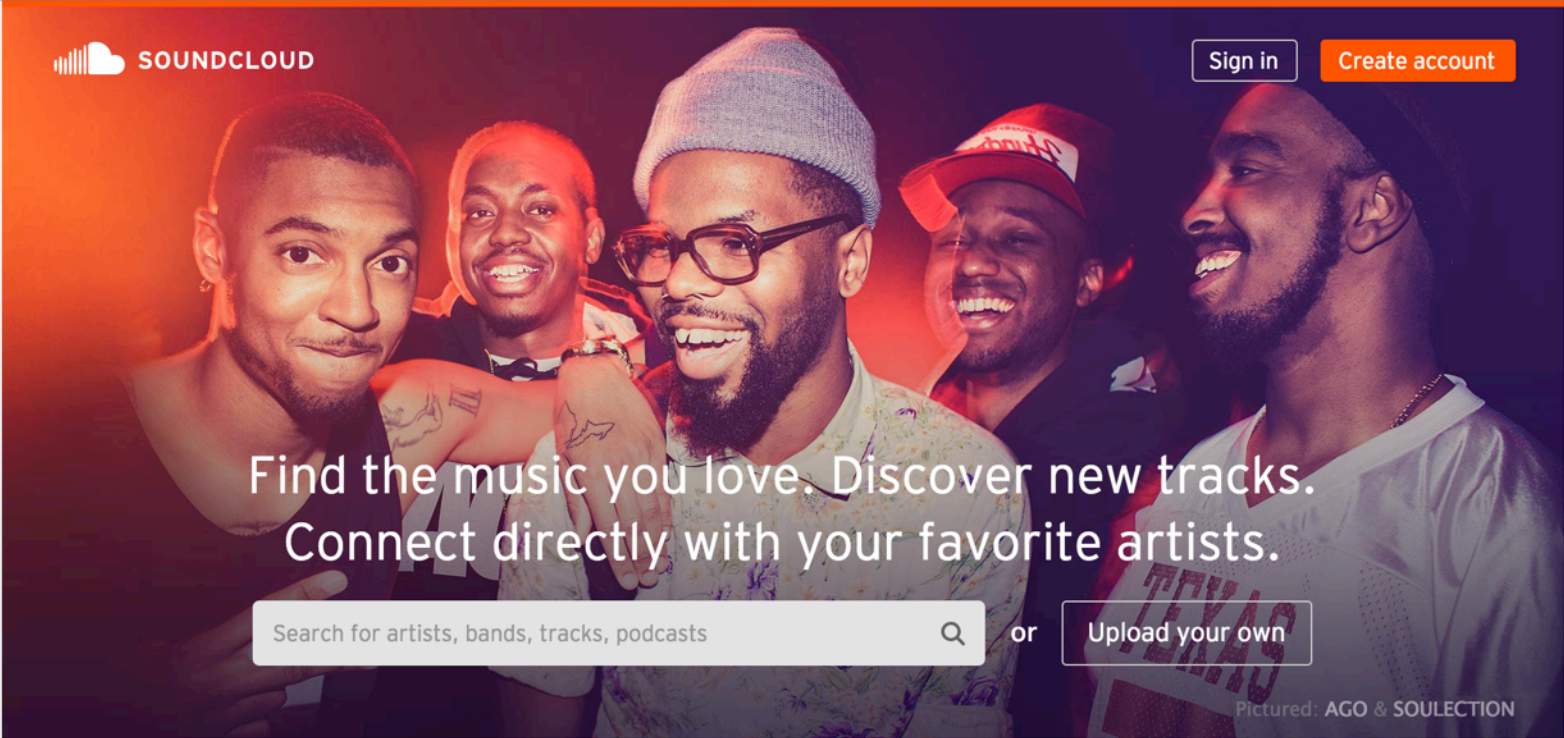


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https://soundcloud.com

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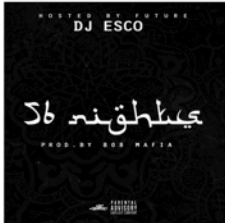
Listen now: trending in the community




Drake ~ Back To B...




Doo It!




Future - Trap Nigg...



Travis Scott - Anti...

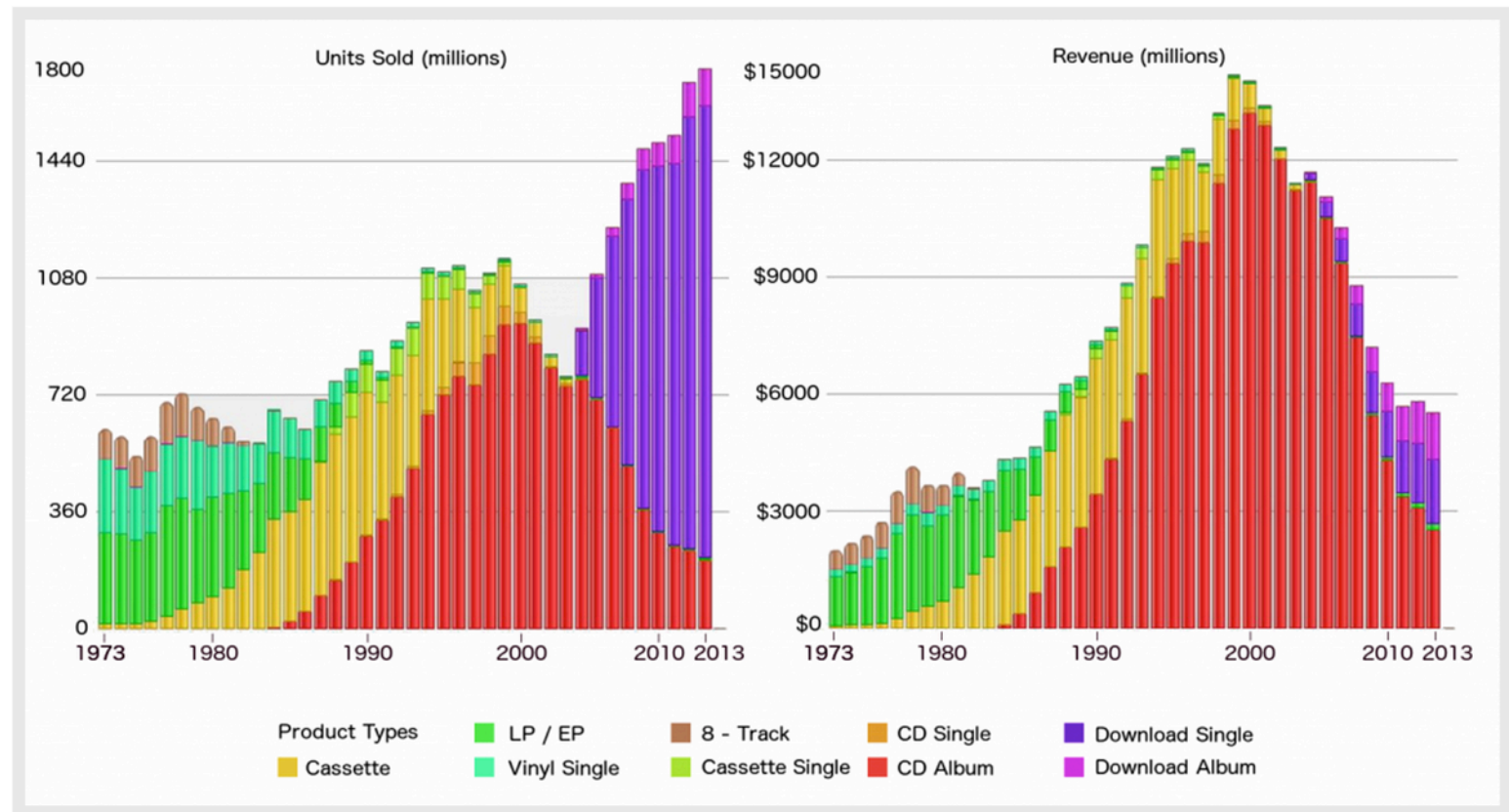


Sam Feldt - Show ...



iHeart Memphis - H...

Figure 1 shows the millions of US music sales in terms of units and dollars for a number of music formats. It can clearly be seen that in 2013 more music is being sold than ever before, however the upward trend of sales is mirrored by a falling trend in terms of revenue. This divergence highlights the diminishing economic value of commercial music in the years since digital download sales became prevalent in 2004.



MyCreativity Sweatshop - 1 x

https://vimeo.com/114217888

☆

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53:15

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MyCreativity Sweatshop - Whatever Happens to Musicians, Happens to Everybody by Bruce Sterling

from network cultures PLUS 8 months ago ALL AUDIENCES





SPECIAL
ISSUE

Local Programs Sept. 9-15
35¢

FALL PRE- VIEW

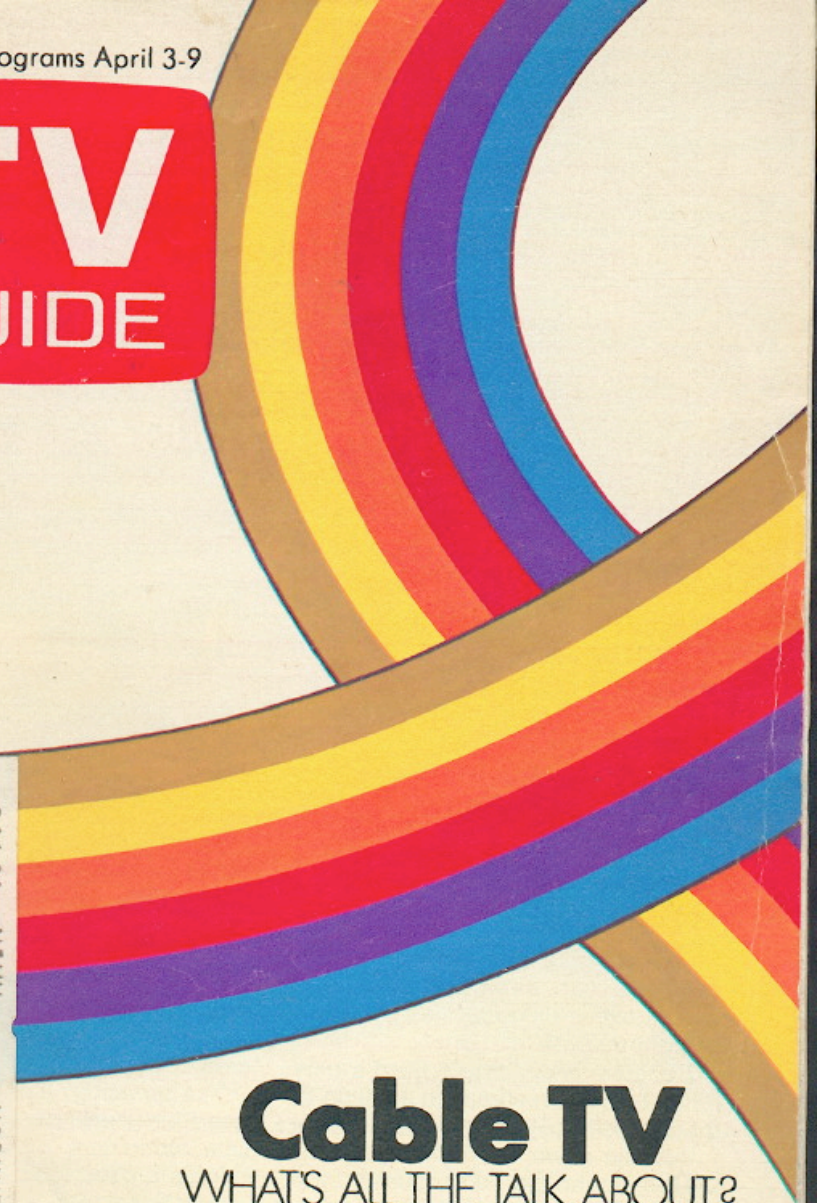


Ginsy

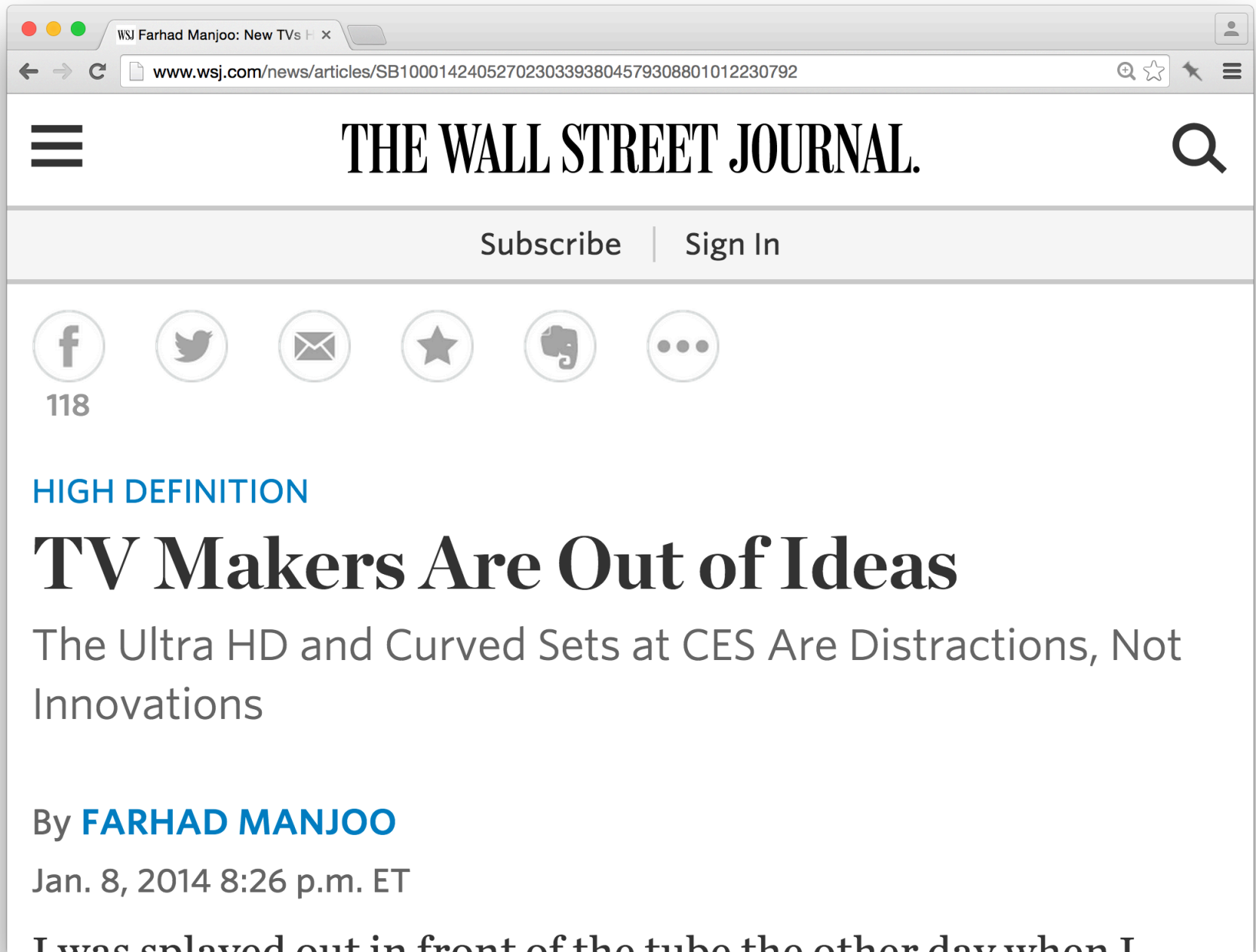
Local Programs April 3-9

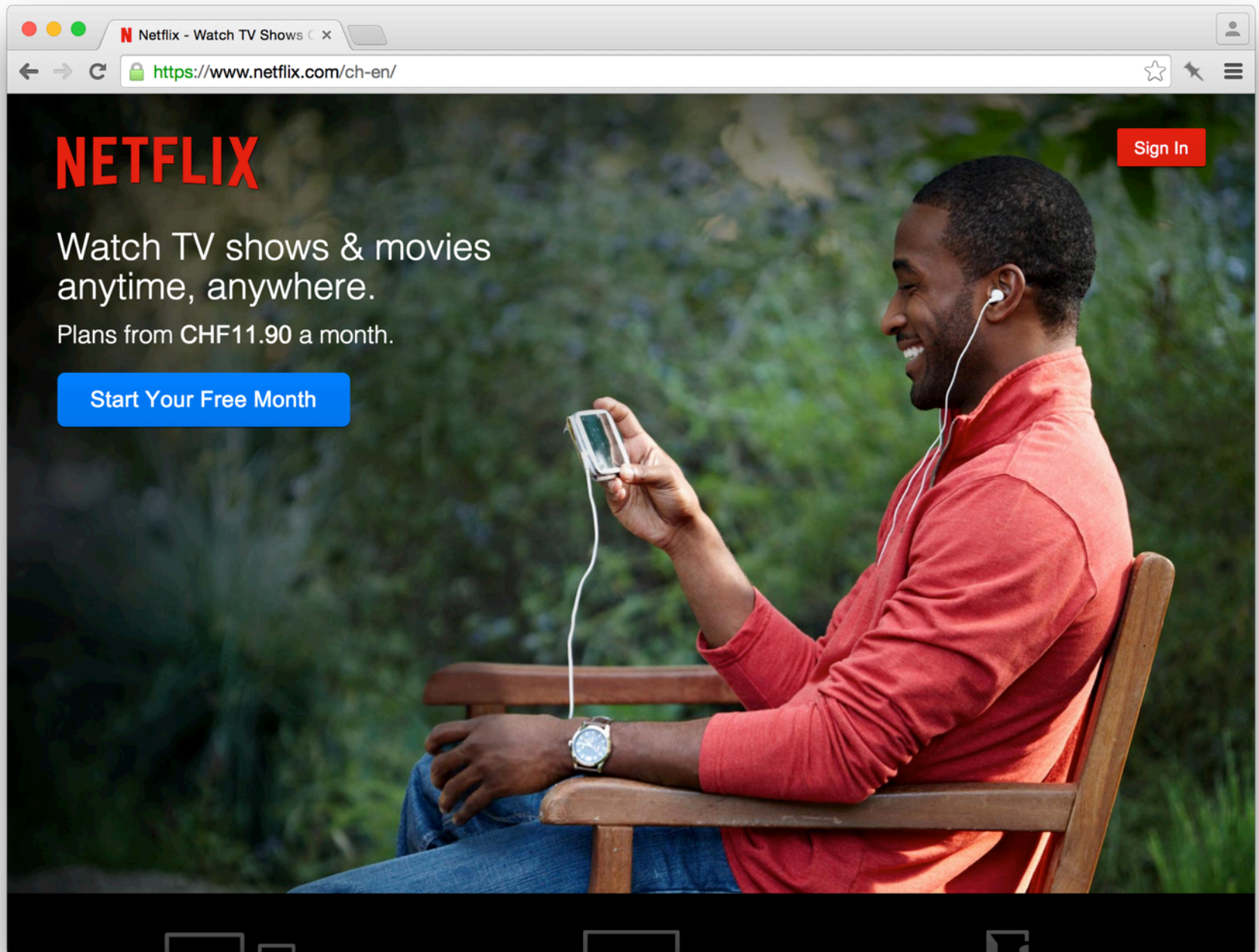


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MAIN 03906



Cable TV
WHAT'S ALL THE TALK ABOUT?
See page 8

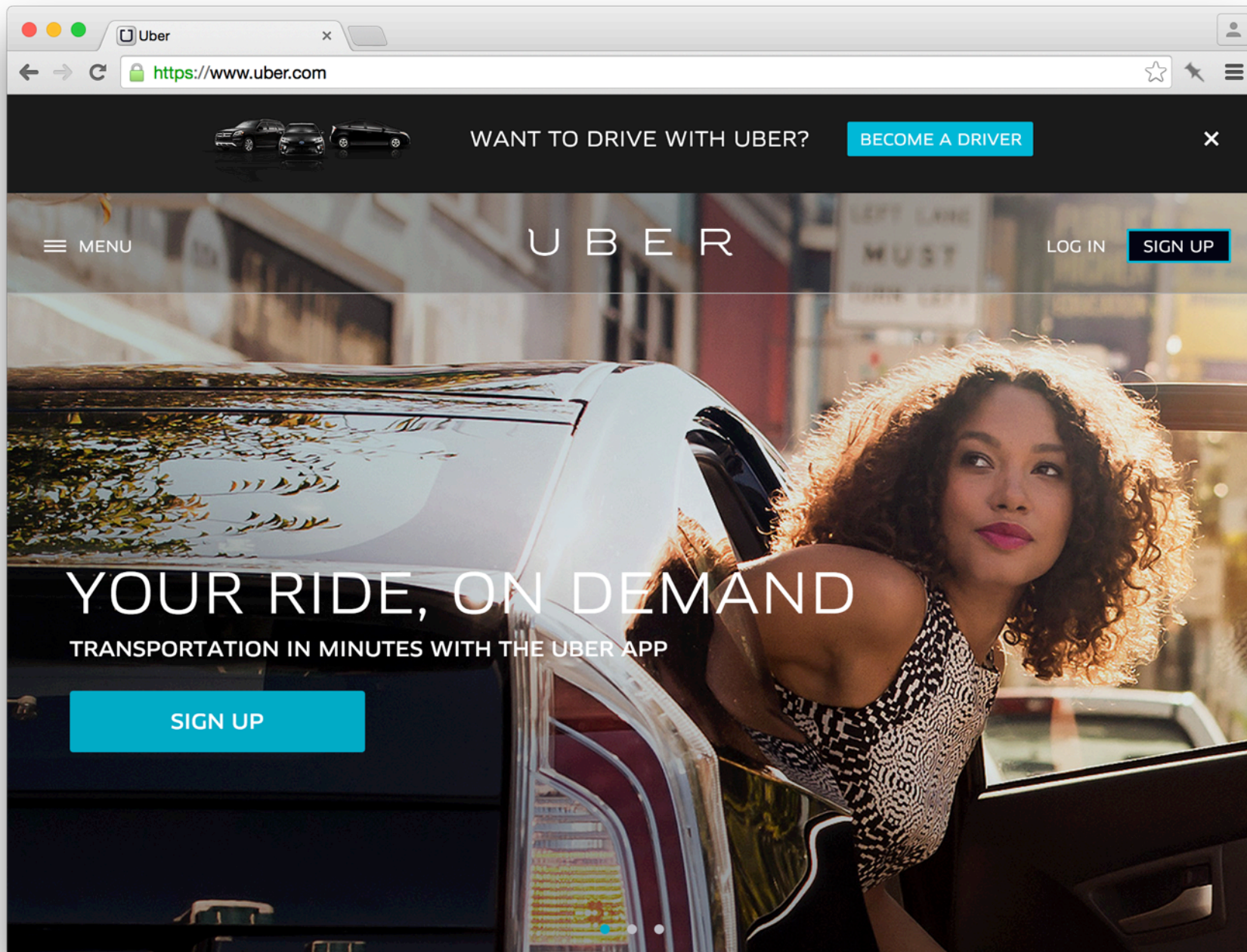






QUEUE HERE
FOR TAXI







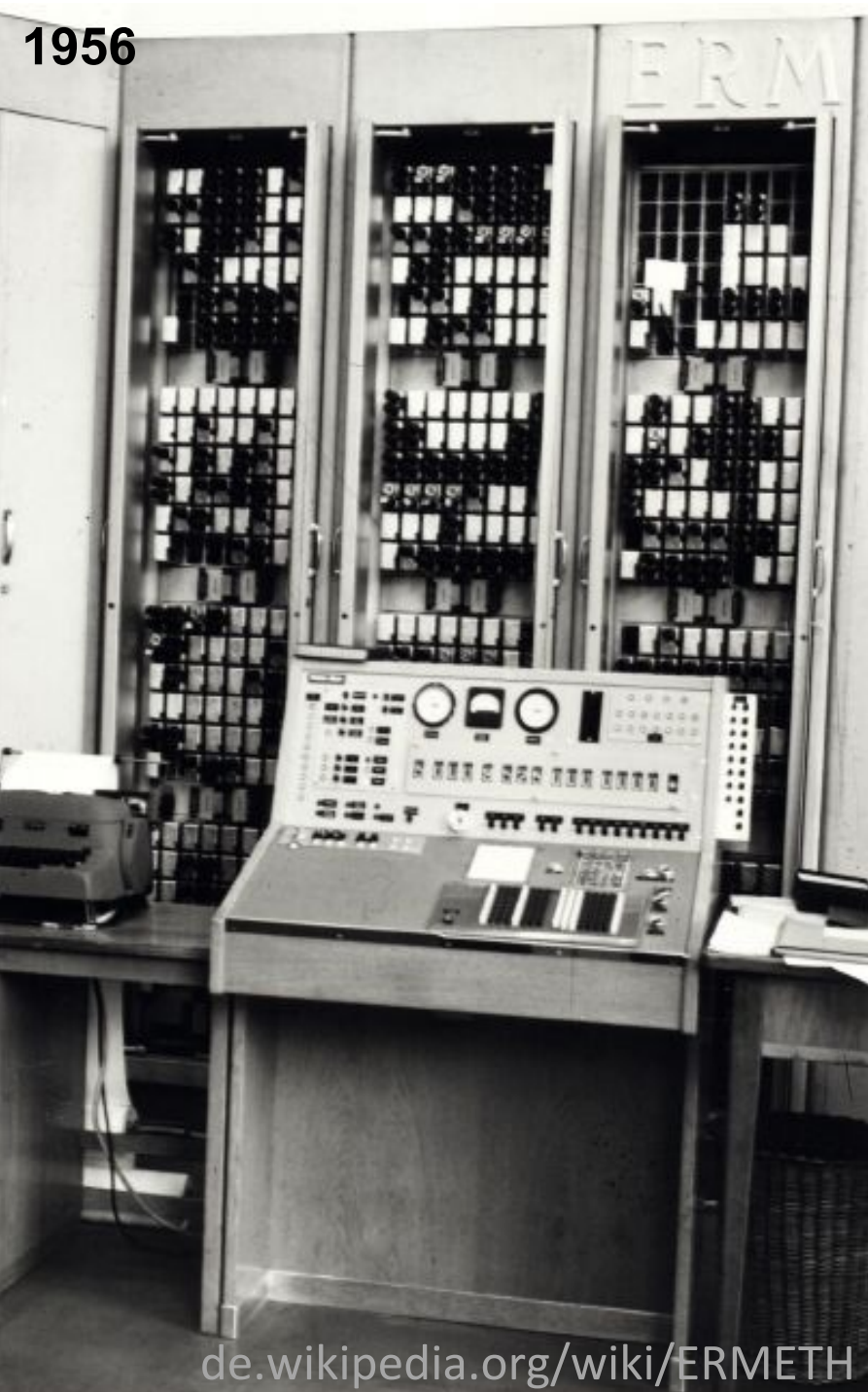
The nationwide protests saw violence in Marseille as well as Paris

San Francisco-based Uber says it has a million users in France, including 250,000 for UberPOP. Uber also operates a luxury service which is not banned.

Uber has faced similar teething problems in cities all over the world, with traditional taxi drivers protesting against being undercut by the unlicensed company.

Internet of Things

1956



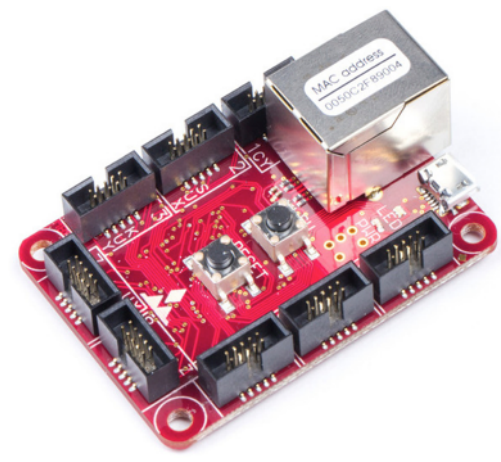
de.wikipedia.org/wiki/ERMETH

1990



Archiv D-INFK

2012



mountaineer-boards.com



withings.com



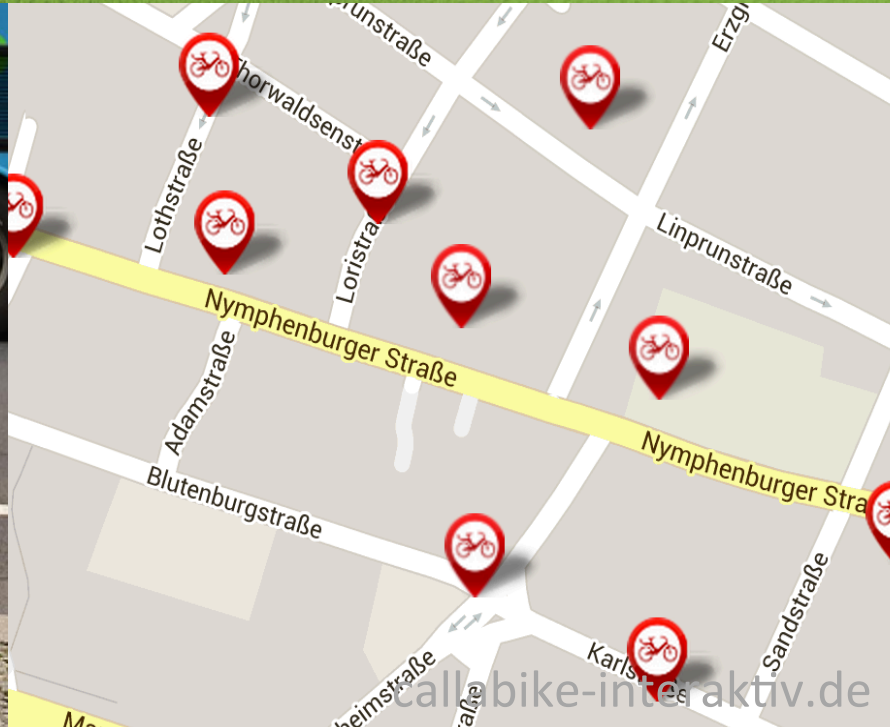
Visualize Your Progress

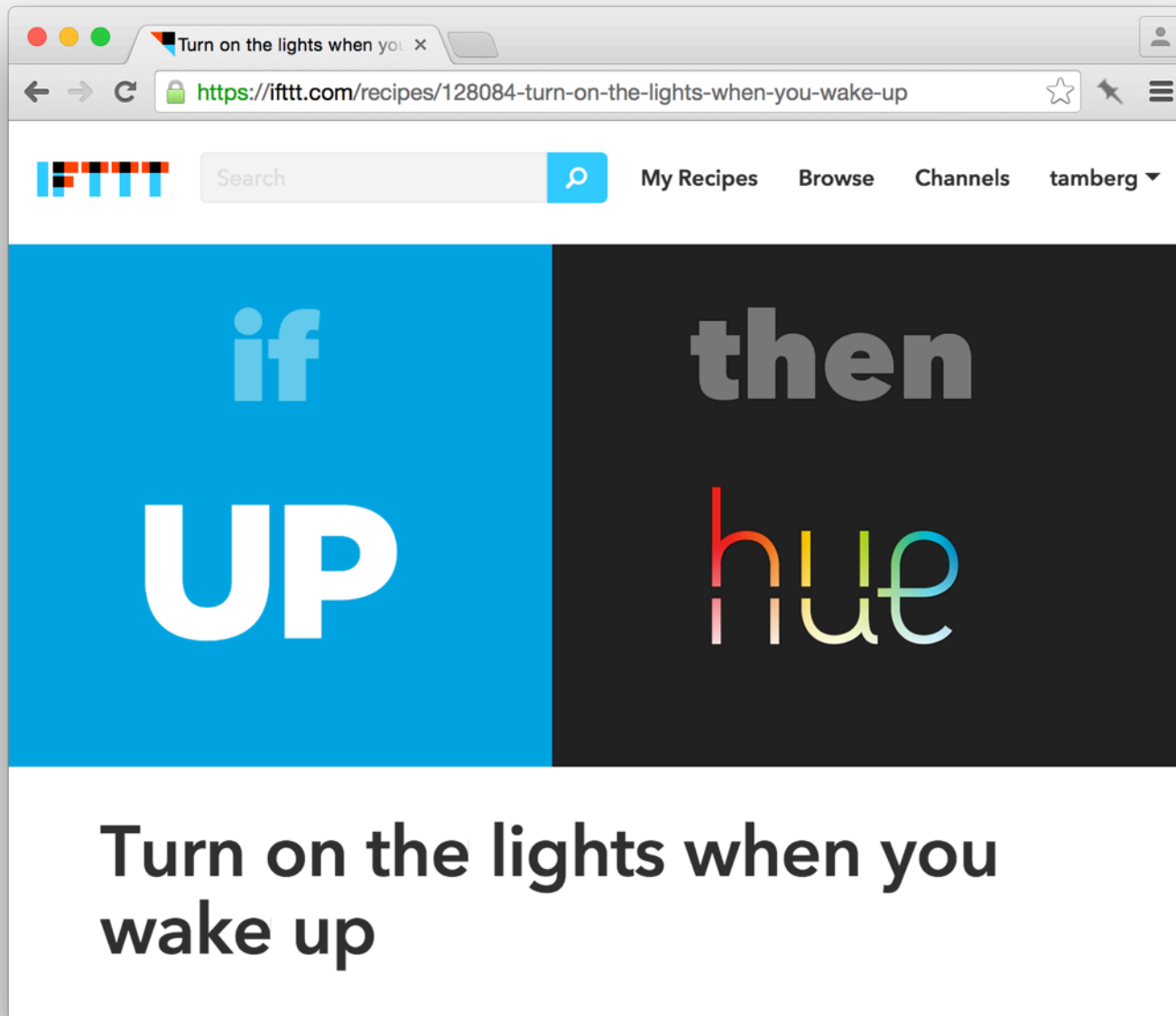


Play With Friends



nikeplus.nike.com



A screenshot of a web browser displaying an ifttt.com recipe page. The browser's address bar shows the URL "https://ifttt.com/recipes/128084-turn-on-the-lights-when-you-wake-up". The ifttt logo is in the top left, followed by a search bar and navigation links: "My Recipes", "Browse", "Channels", and a dropdown menu for "tamberg". The main content area is split into two vertical panels. The left panel has a blue background with the word "if" in light blue and "UP" in large white letters. The right panel has a black background with the word "then" in grey and "hue" in multi-colored lowercase letters. Below these panels, a white box contains the text "Turn on the lights when you wake up".

Turn on the lights when you wake up



CogniToys Leverages Watson's

spectrum.ieee.org/tech-talk/consumer-electronics/gadgets/cognitoys-leverage-watsons-brains-to-teach-your-kids


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CogniToys Leverages Watson's Brain to Befriend, Teach Your Kids

By Evan Ackerman
Posted 20 Feb 2015 | 0:19 GMT

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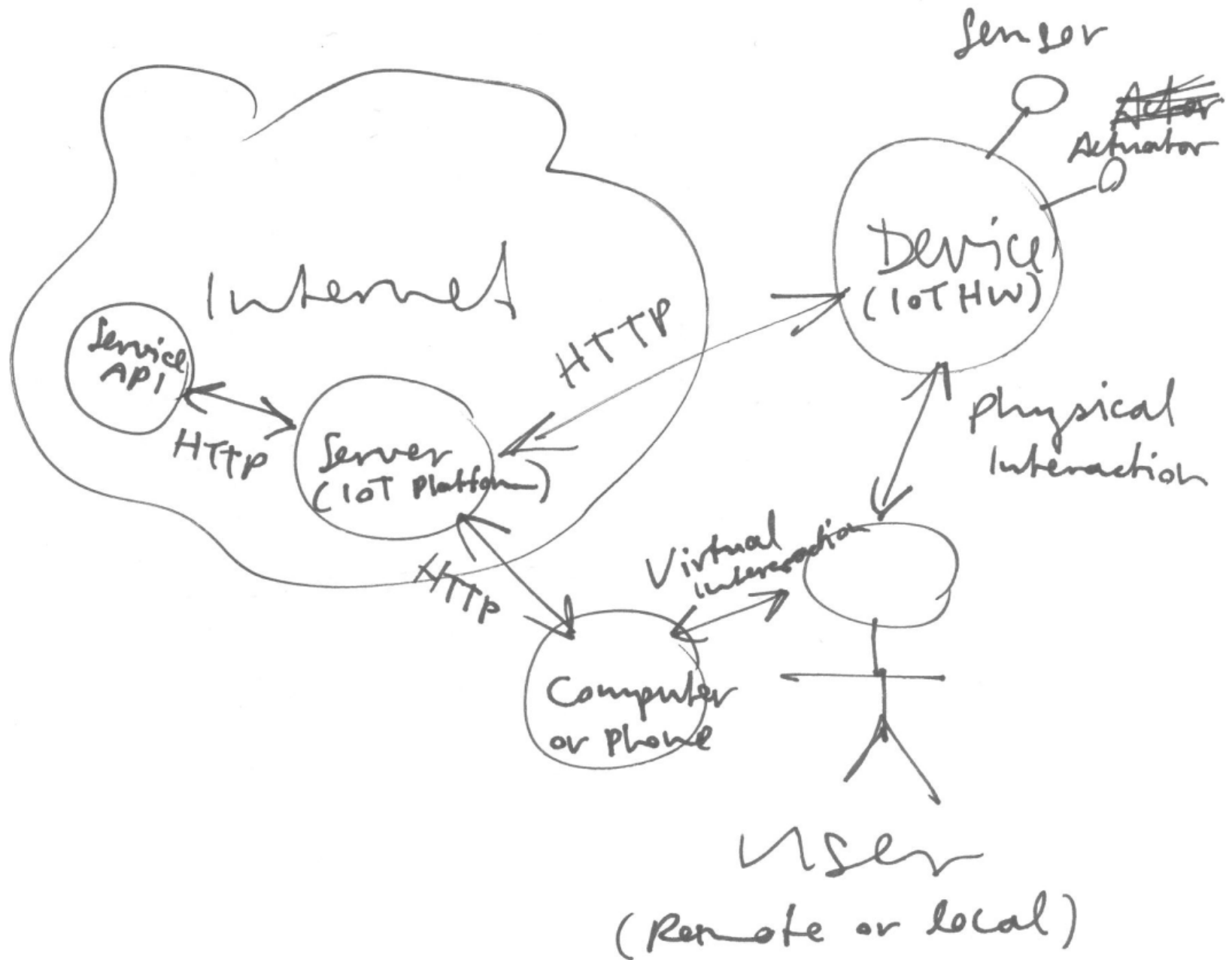
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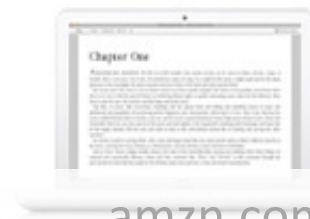
Honda Jazz Hybrid



Economy

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Mike Kuniavski: Service Avatars



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Amazon Dash Button - Offi x


https://www.amazon.com/oc/dash-button/

amazon

PRODUCT OVERVIEWPOPULAR BRANDSHOW IT WORKSMAKERS AND INNOVATORS

Place it. Press it. Get it.

Dash Button comes with a reusable adhesive and a hook so you can hang, stick, or place it right where you need it. Keep Dash Button handy in the kitchen, bath, laundry, or anywhere you store your favorite products. When you're running low, simply press Dash Button, and Amazon quickly delivers household favorites so you can skip the last-minute trip to the store.



Popular brands and products

Choose from favorite household brands. Select your favorite pack sizes. [See selection](#)

SunPort – Demand Solar. A X

← → ↺ <https://www.kickstarter.com/projects/1275963200/sunport-plug-into-solar-power-no-panels-required/description> 🔍 ☆ ⚡ ☰

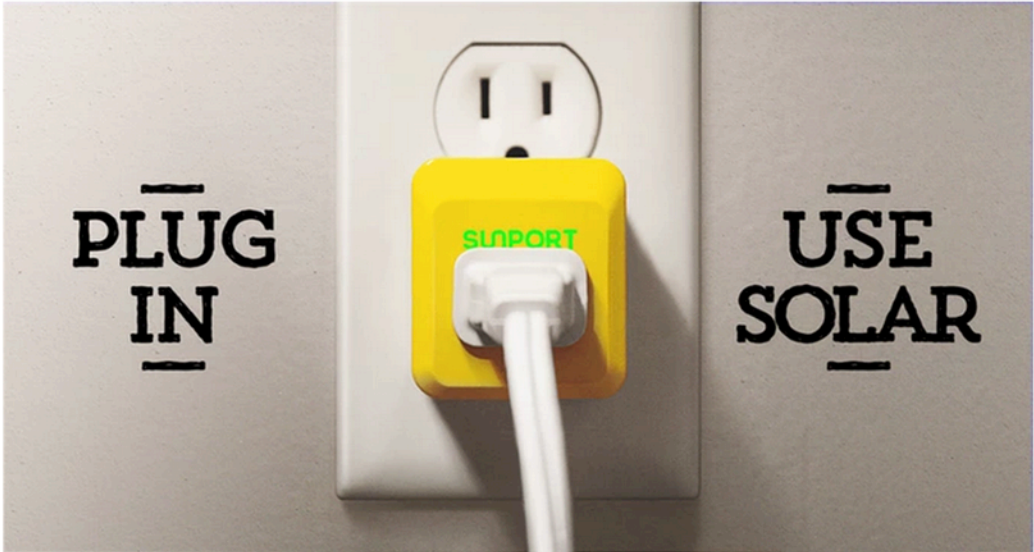
Campaign

Updates (6)

Comments (74)

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So how can you consume real solar without panels? You can't. Real solar only comes from panels, but you don't need to own them. SunPort "asks" the people with the panels for their solar by buying and consuming the solar credits their panels supply.



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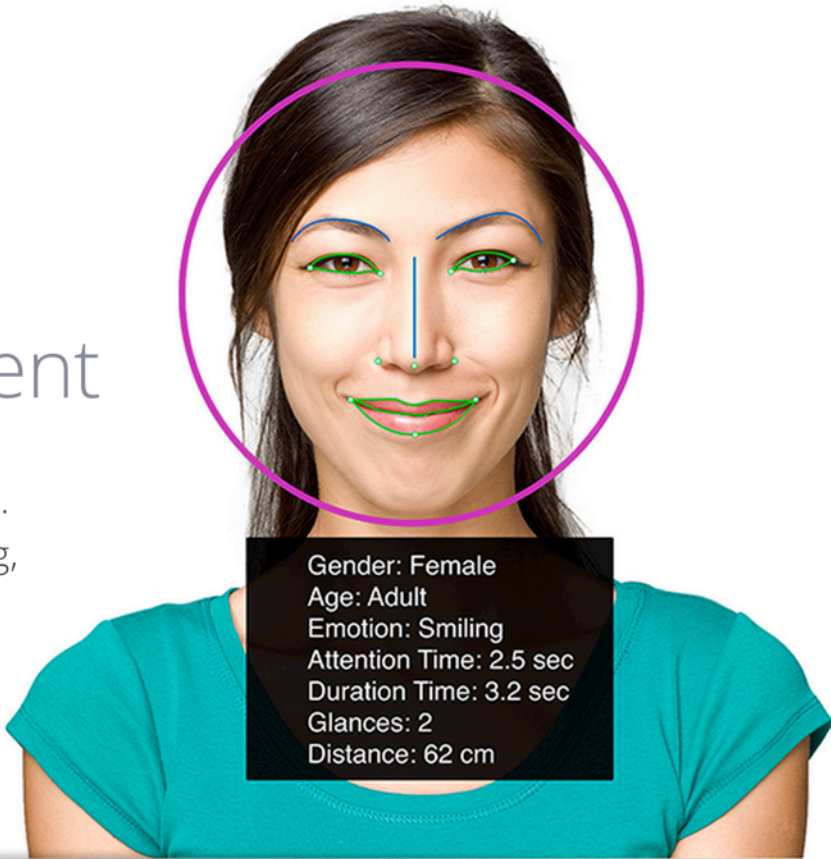
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Duration Time: 3.2 sec
Glances: 2
Distance: 62 cm

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scenetap.com

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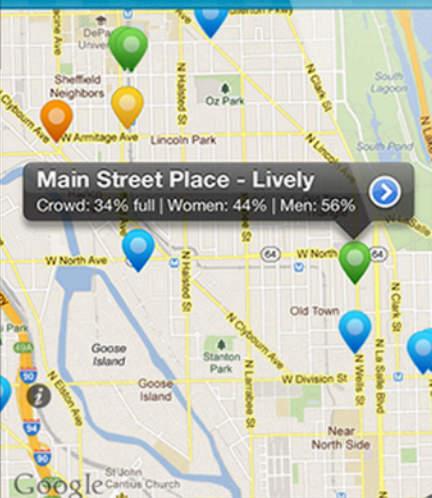
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SceneTap lets you check out the scene in real-time.

SceneTap

Main Street Place - Lively

Crowd: 34% full | Women: 44% | Men: 56%



Main Street Place

64% Full

Hoppin'


68%

32%

29yrs

Avg Age



26yrs



What is SceneTap?

With the tap of a button, view information on how many people are at a place, the male to female ratio, and the average age of everyone inside.


Start using desktop app

Download mobile app  





Learn more about SceneTap [here](#)

Find your people - Meetup

www.meetup.com/find/?allMeetups=true&radius=50&userFreeform=Zürich%2C+Switzerland&mcName=Zürich%2C+CH&la...

 **Find**
a Meetup Group

Start
a Meetup Group

Your Next Meetup

JUN

23

IoT Zurich

Make IoT ZH at MechArtLab

Tuesday, June 23 at 8:00 PM


26

Meetups in your groups

415

Meetups nearby

All Meetups



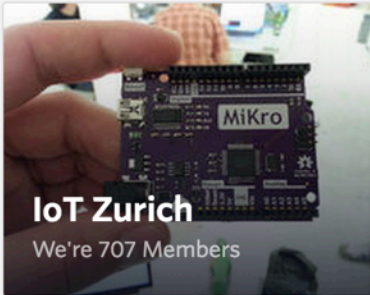
within 50 miles of Zürich, CH

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Calendar

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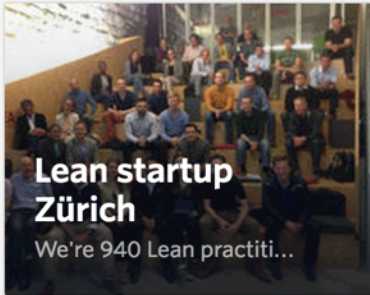
IoT Zurich
We're 707 Members



3D Printing Zürich
We're 348 Members



Hardware Startup Zürich Meetup
We're 97 Members

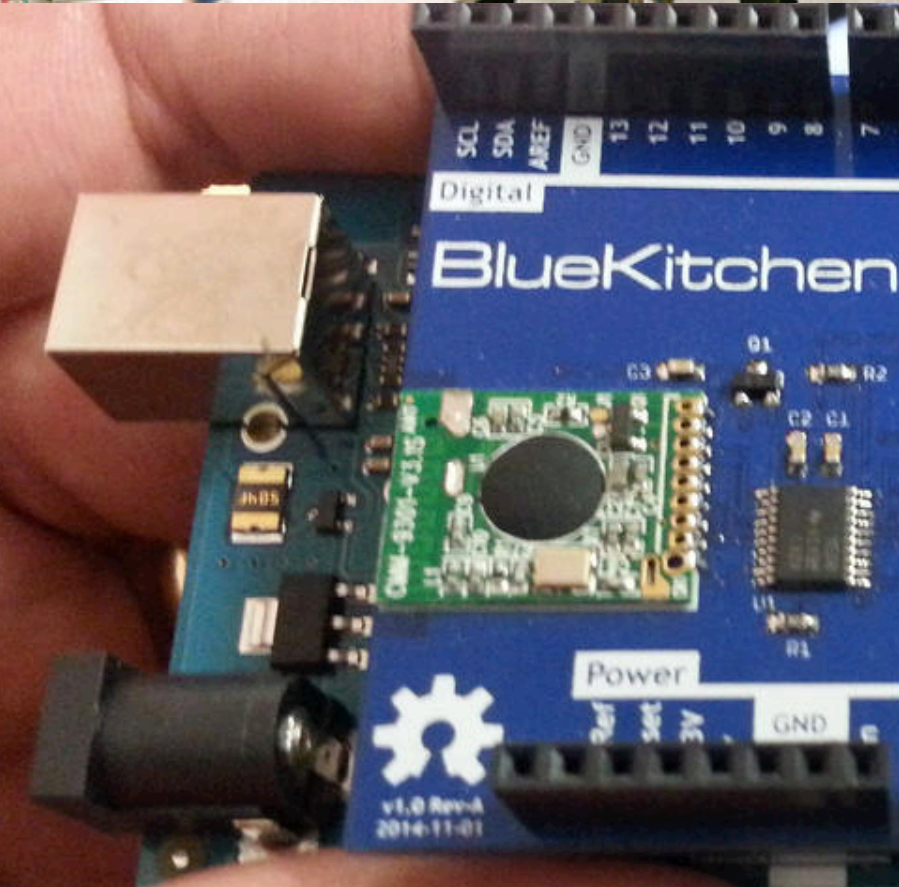


Lean startup Zürich
We're 940 Lean practiti...

Makers

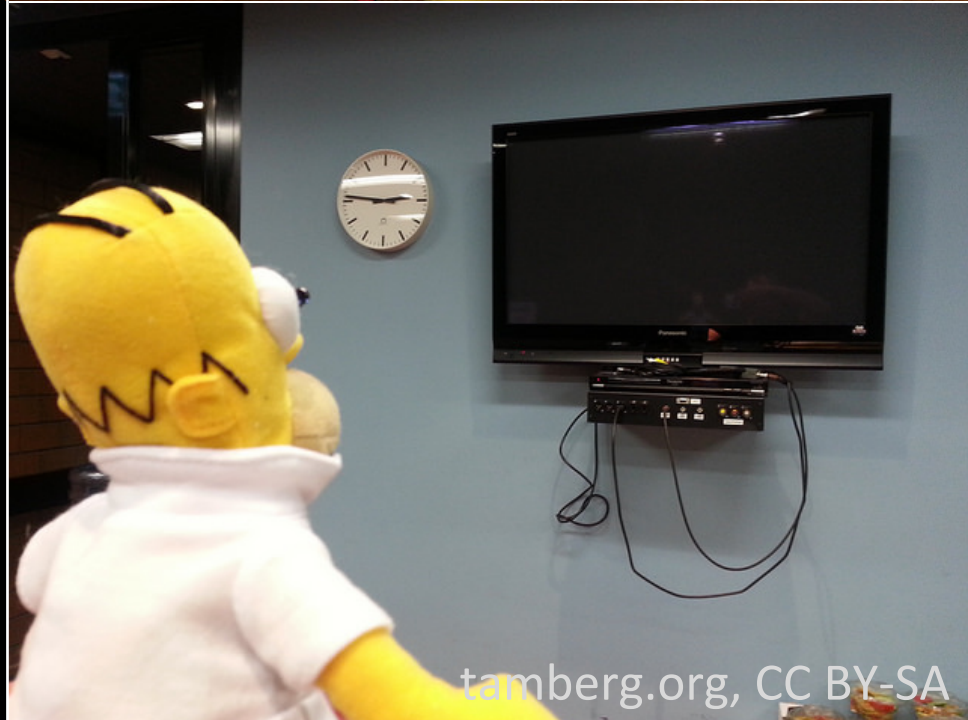
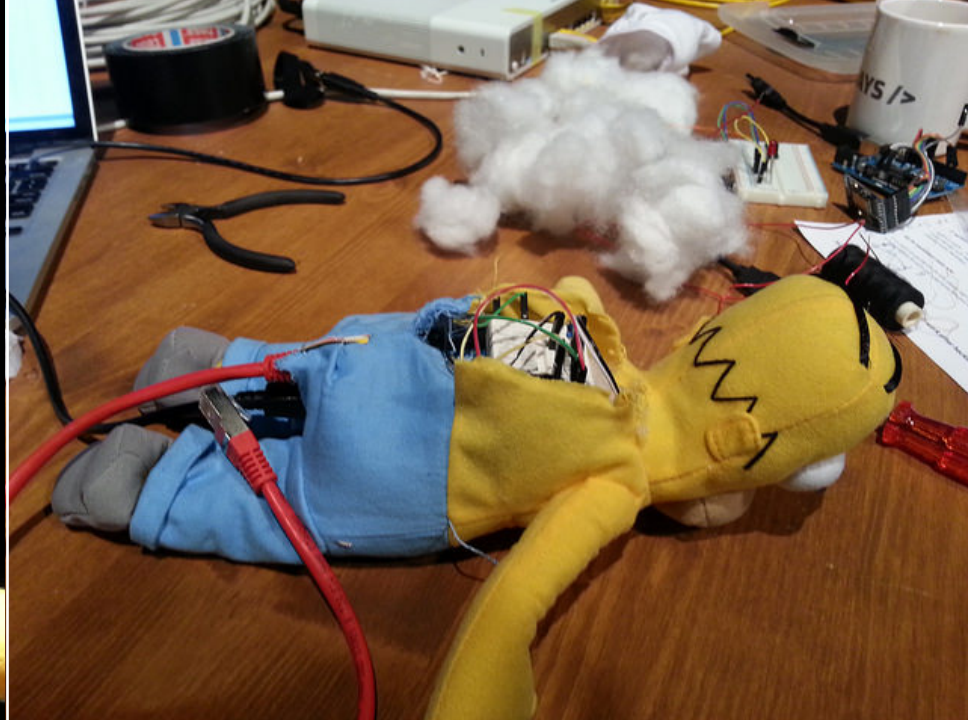


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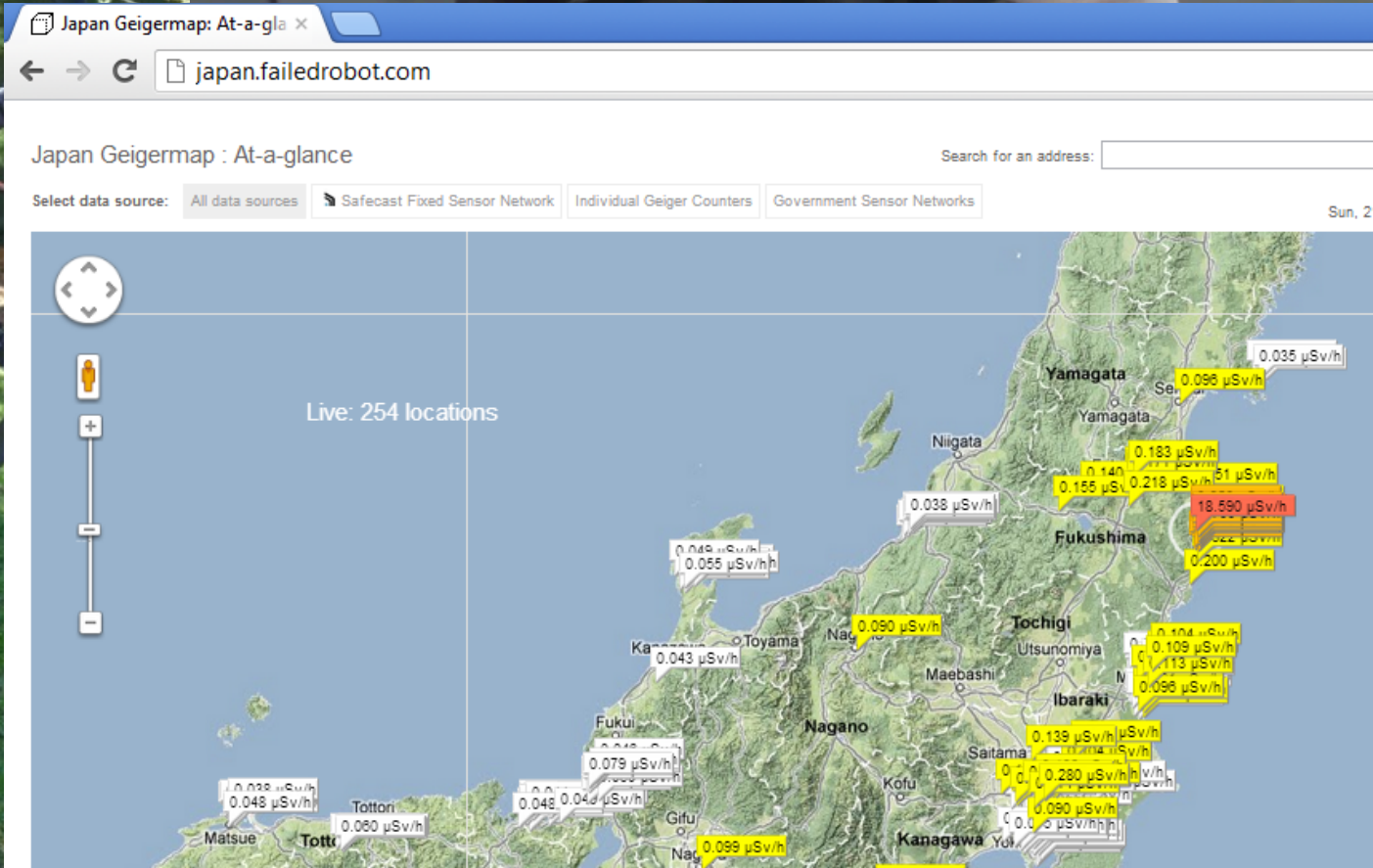


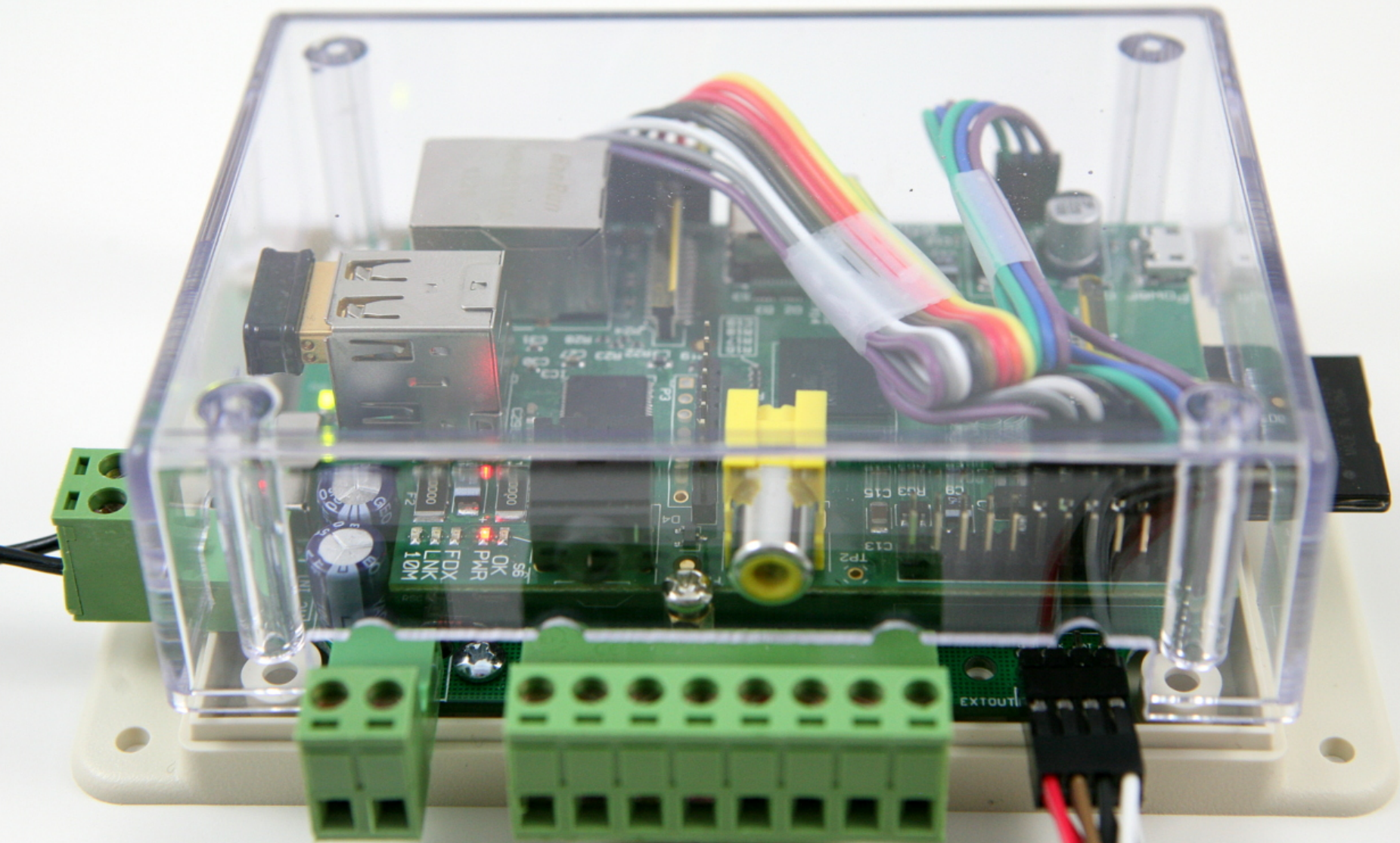


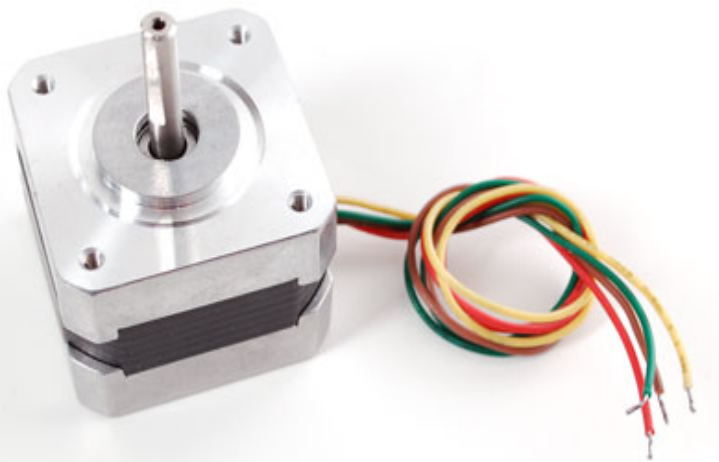
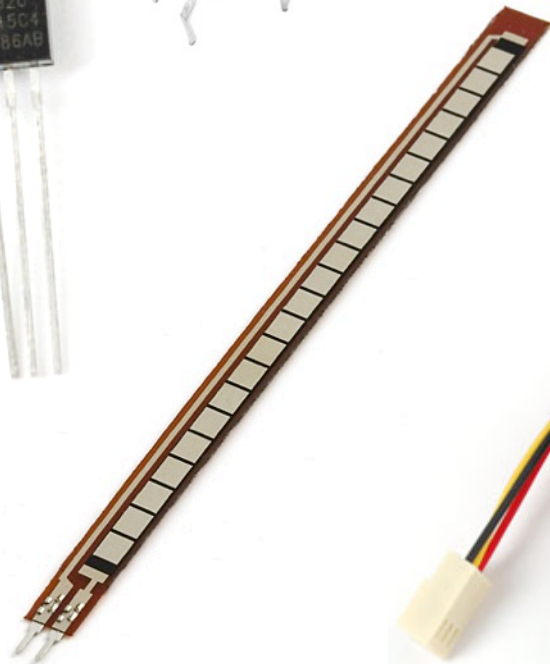
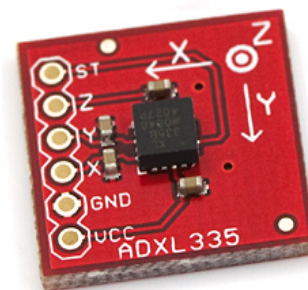


SRG SSR
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100

















BRIEFING ROOM

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A Nation Of Makers



European Maker Faire





Massimo Banzi

Intel CEO Announces Colla x

newsroom.intel.com/community/intel_newsroom/blog/2013/10/03/intel-ceo-announces-collabo

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Intel CEO Announces Collaboration with Arduino to Inspire Creativity, Learning and Invention with Makers and Students

Posted by IntelPR in Intel Newsroom on Oct 3, 2013 4:00:10 AM

Introduces First Intel-Based Arduino-Compatible Development Board; Announces Donation to 1,000 Universities Worldwide

MAKER FAIRE ROME, Oct. 3, 2013 – Intel Corporation CEO [Brian Krzanich](#) today announced a collaboration agreement with [Arduino LLC](#), the leading open-source hardware platform in the maker and education community. Krzanich also unveiled the Intel® Galileo board, the first product in a new family of Arduino-compatible development boards featuring Intel®



Arduino.cc

2nd_generation_core appup
appup_center
consumer_core core_i5 core_i7
education intel processors
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technology

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Alexandra D-S



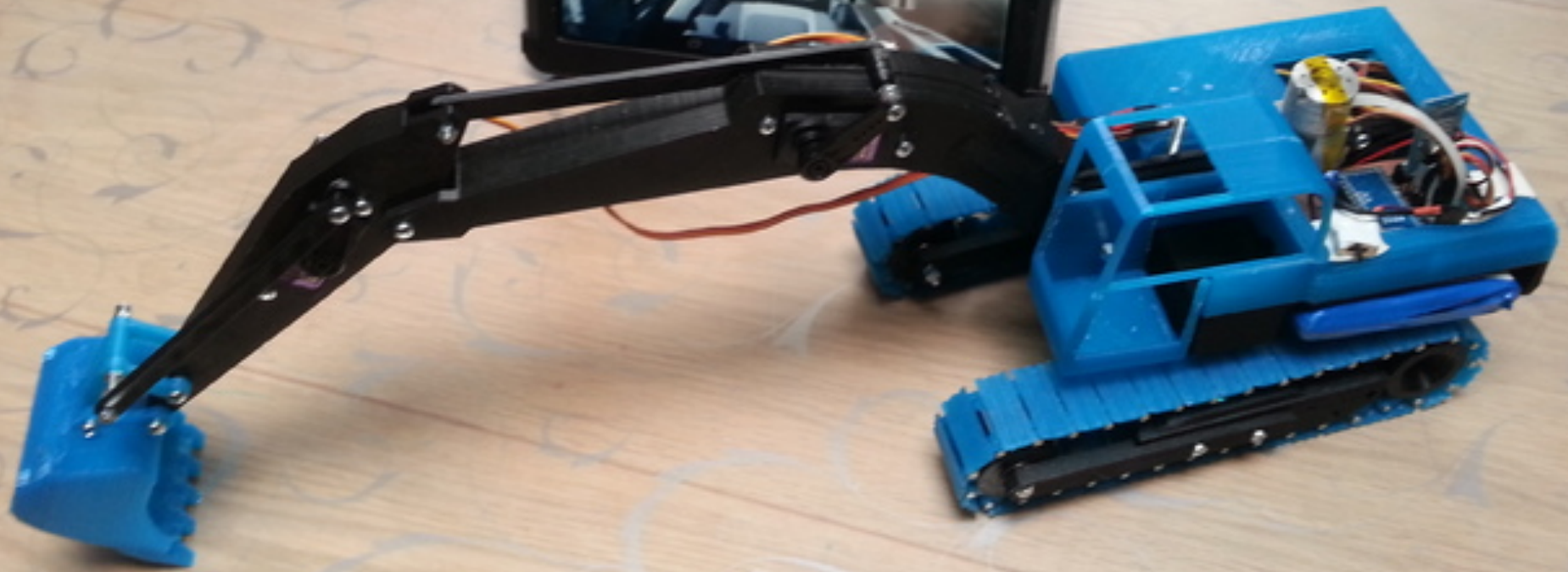
5600+ Members

Digital Fabrication

Fab Lab Zürich



3D Printed Remote Controlled Toy



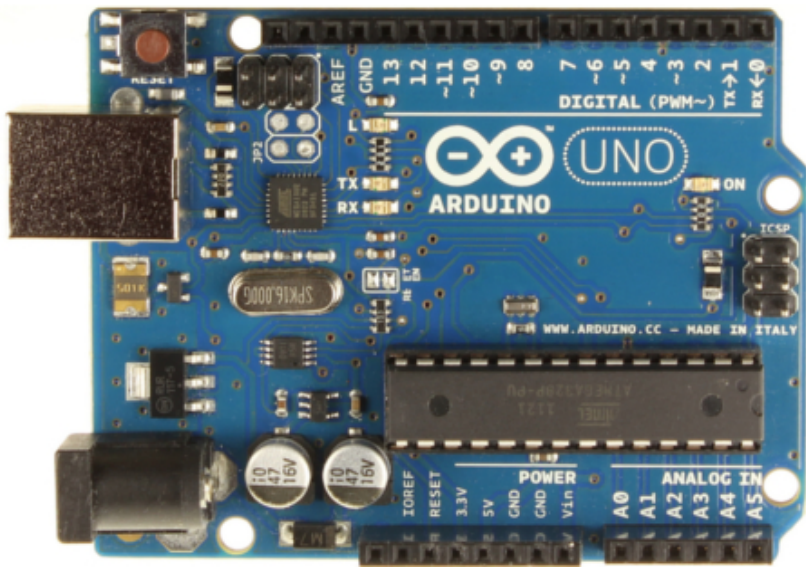
Laser-cut DIY Bio Lab Equipment

The image displays a variety of custom-built laboratory equipment made from laser-cut wood and acrylic. The items include:

- Hard Drive Centrifuge:** A device that repurposes a hard drive platter as a centrifuge rotor, with four red-tipped tubes mounted on it. It features a digital display and a power button.
- Hand-Drop Counter:** A small wooden box with a black lever and a digital display, used for counting drops.
- Microfluidics Setup:** A transparent acrylic device with a black lever and a digital display, used for precise liquid dispensing.
- Test Tube Rack:** A wooden rack holding several small test tubes.
- Electronic Controllers:** Several small wooden boxes with digital displays and buttons, likely used for controlling the equipment.
- Other Components:** A blue-capped test tube, a small wooden box with a digital display, and a small wooden box with a digital display.

The equipment is arranged on a white surface, showcasing the precision and creativity of laser-cutting in bio-lab applications.

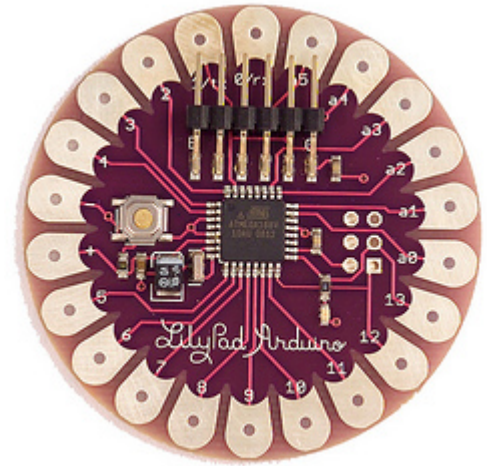
gaudi.ch/GaudiLabs, CC BY-SA



arduino.cc/en/Main/arduinoBoardUno



tiny-circuits.com/products/tinyduino



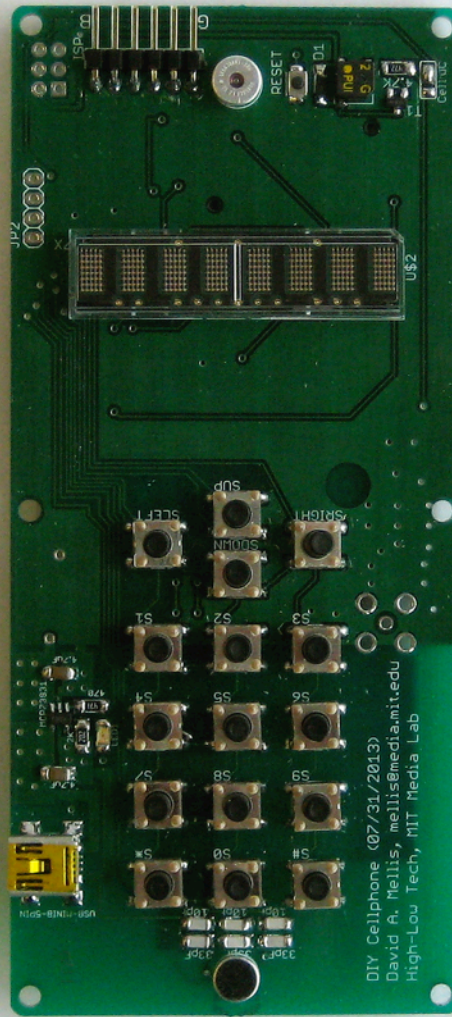
arduino.cc/en/Main/ArduinoBoardLilyPad

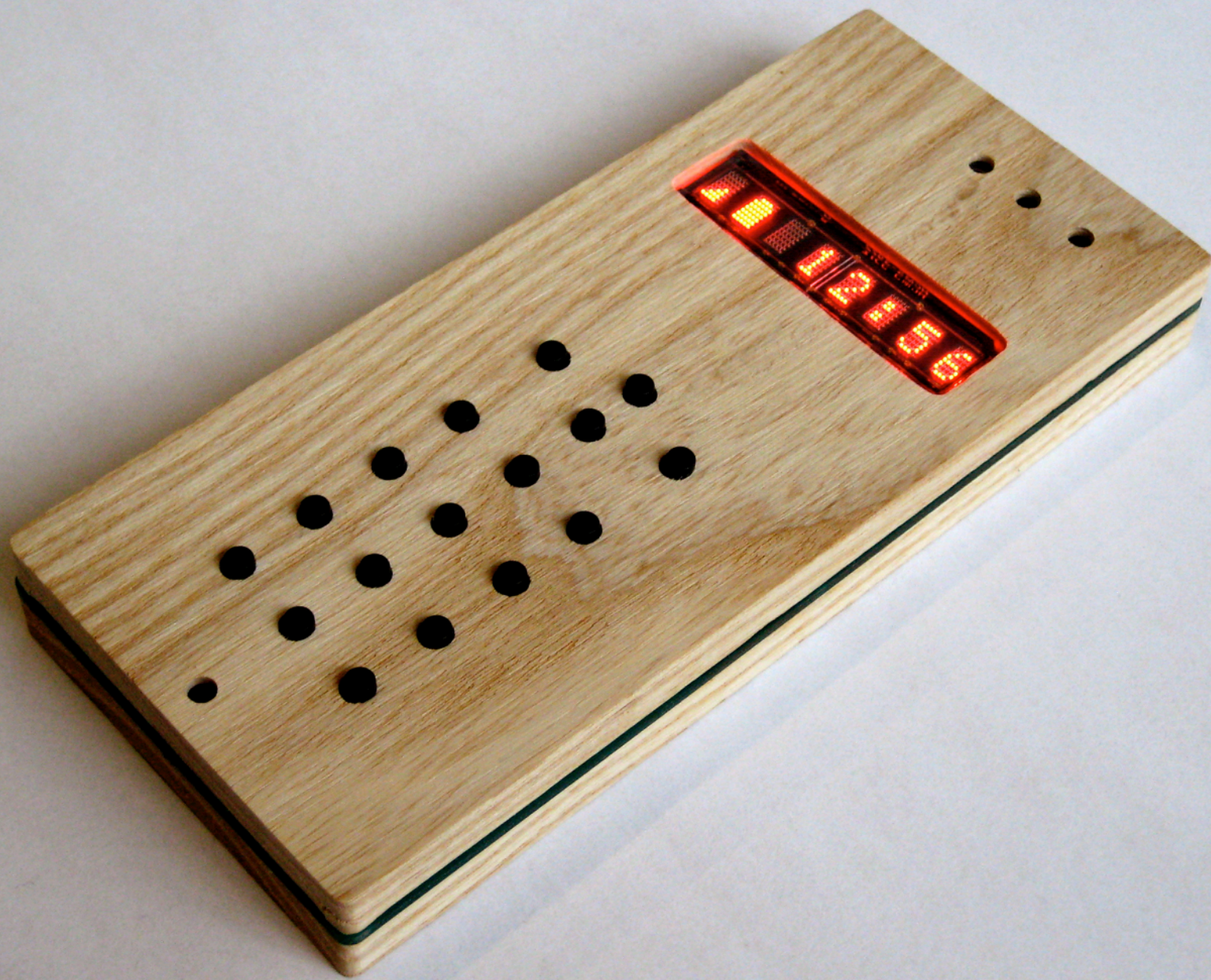


hlt.media.mit.edu/?p=2182

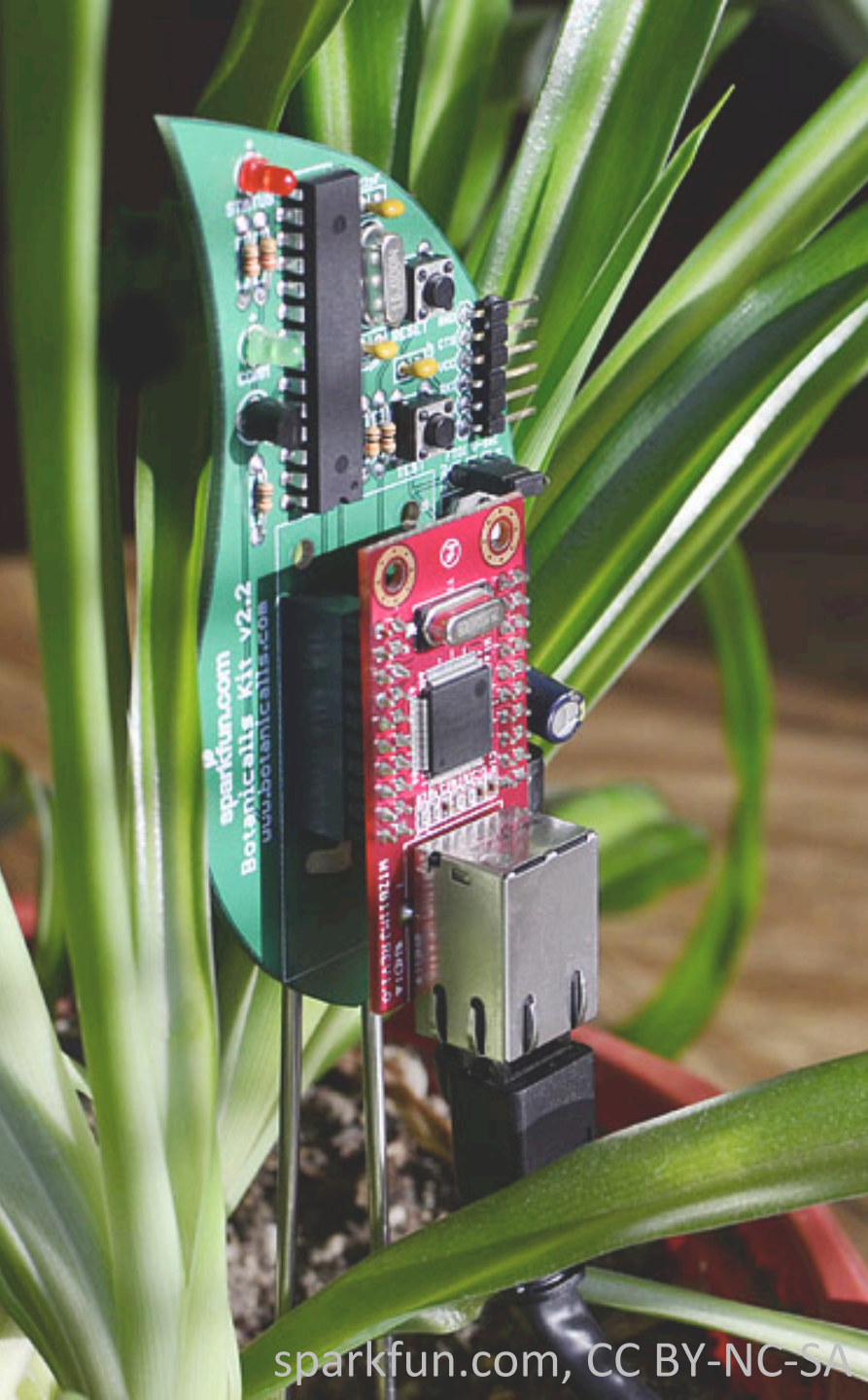


industruino.com

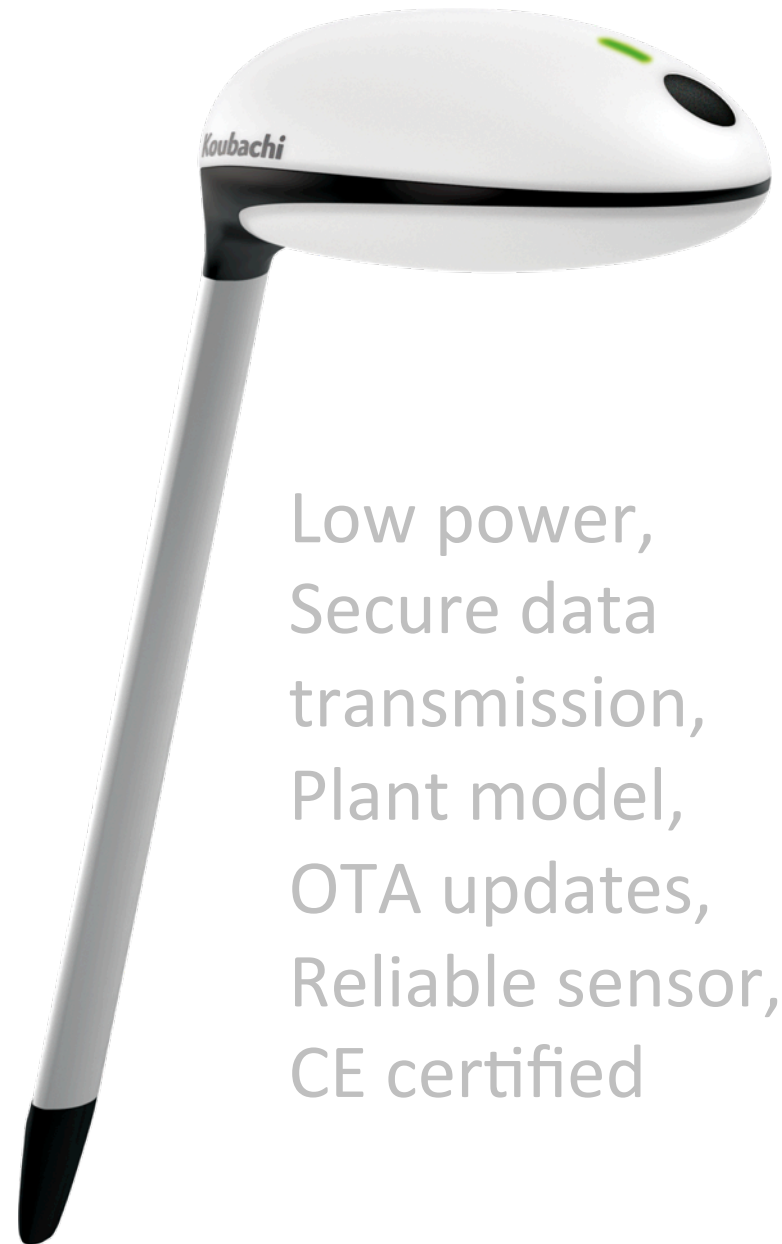




Hardware Startups



sparkfun.com, CC BY-NC-SA



Low power,
Secure data
transmission,
Plant model,
OTA updates,
Reliable sensor,
CE certified

koubachi.com

Home - HAXLR8R x

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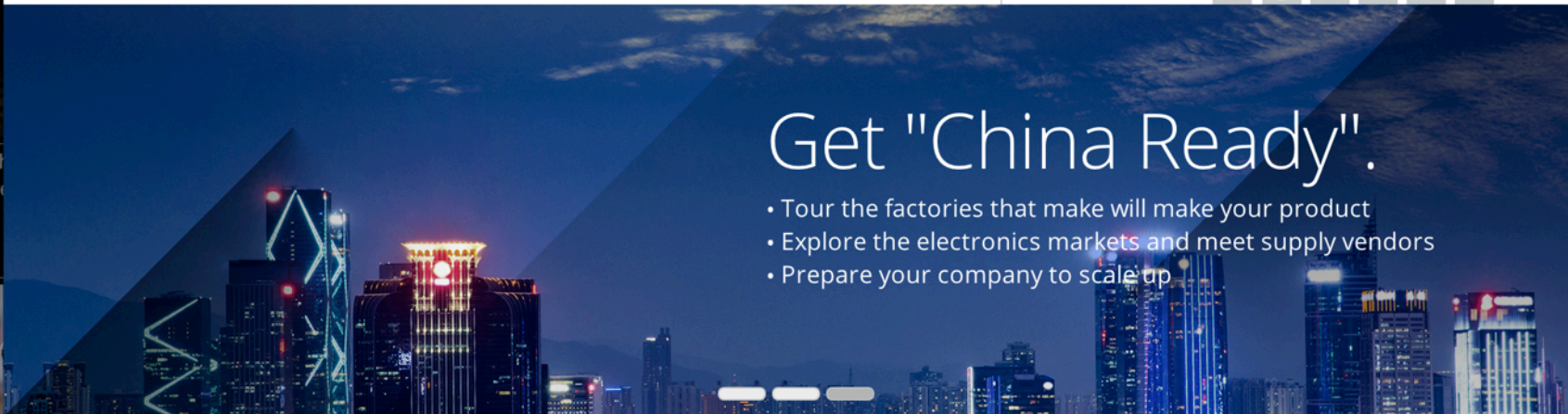
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\$1,558,280 to help bring
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Made with China

KADDZ

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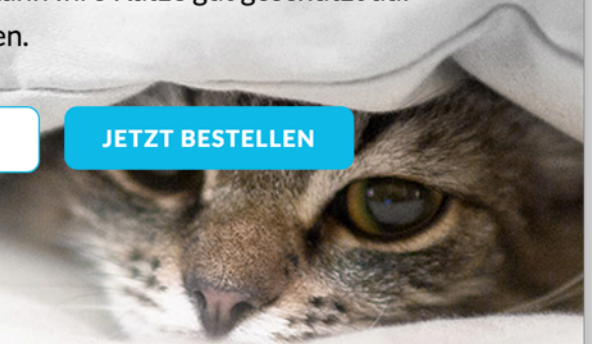


KADDZ – das smarte GPS Halsband für Katzen

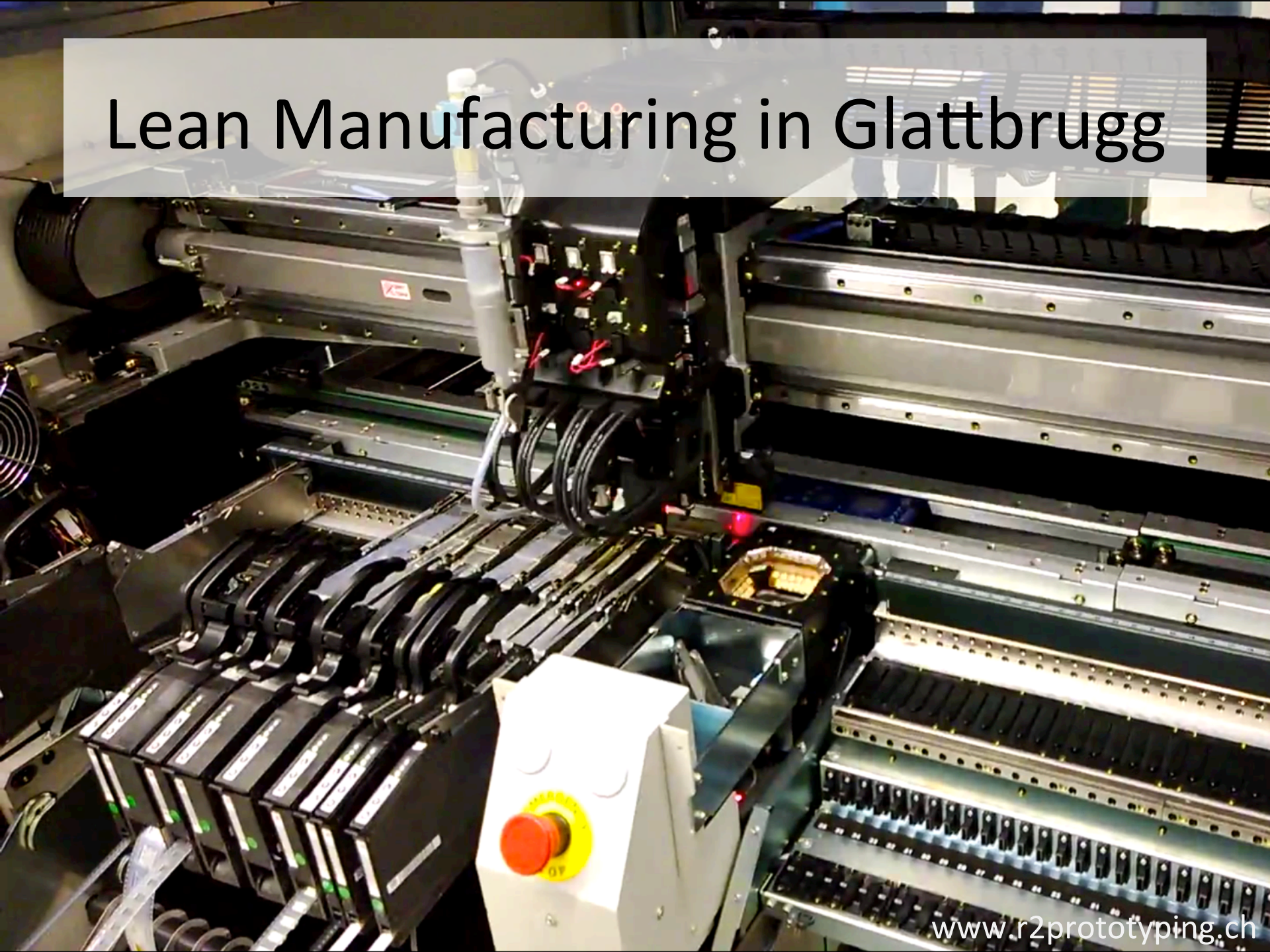
Katzen sind neugierig und lieben ihre Freiheit. Mit dem KADDZ Halsband kann Ihre Katze gut geschützt auf Entdeckertour gehen.

MEHR ERFAHREN

JETZT BESTELLEN



Lean Manufacturing in Glattbrugg





Standards? Epic Struggle

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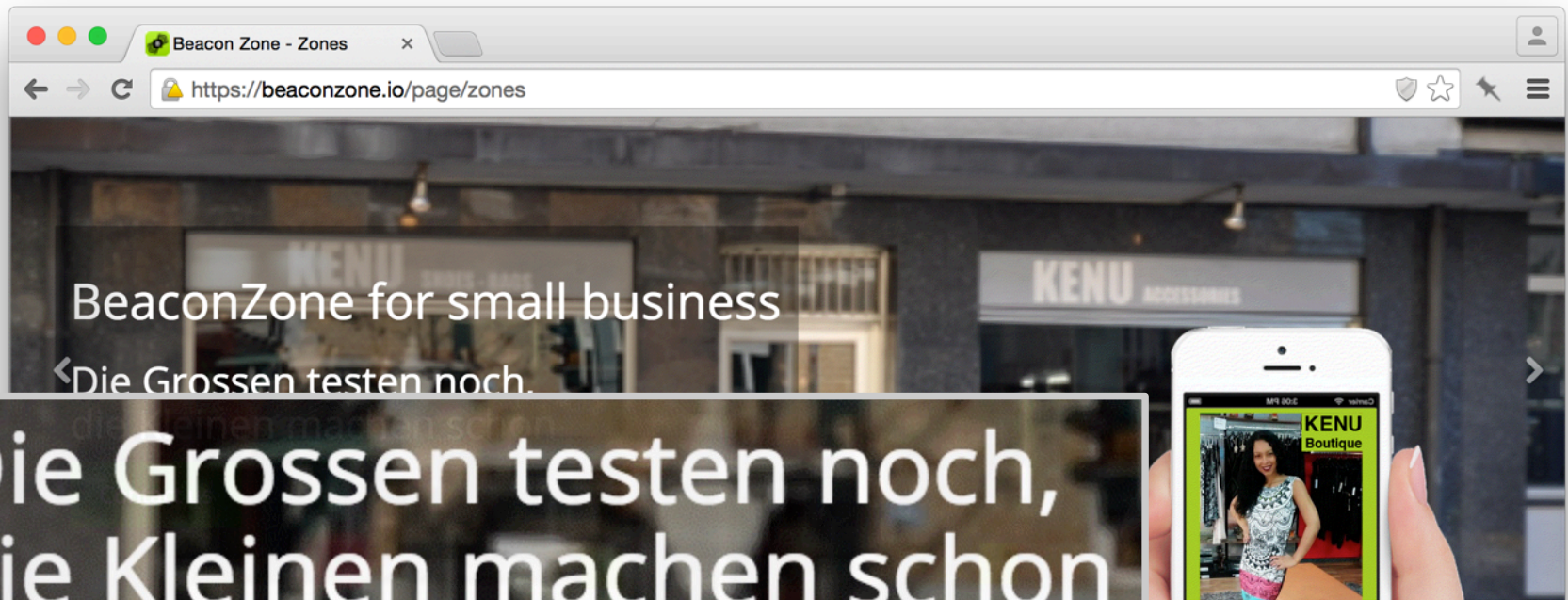
Support

Member Center



HomeKit

HomeKit is a new framework for communicating with and controlling connected devices in a user's home. Apps can enable users to discover devices in their home and configure them, or you can create actions to control those



Das Pilotprojekt

Fakten | Zahlen | Ziele



#WiedikonValley

#WiedikonValley

Sprung in die Gegenwart.
Wiedikon ist im Wandel und voll von
schönen alten Wäldern, Hügeln und
Zeit, den Schmelzdegel von Tradition und
Moderne im Herzen von Zürich zu
entdecken: **#Start-up #KMU #Smart**



Digito ergo sum

Smartphones erreichen Menschen
4,8 Millionen Menschen in der Schweiz
verlassen sich auf ihre Smartphones als
ständige Begleiter. **Projektthese:** wenn
etwas auf dem Smartphone stattfindet,
wird es in der "Realität" oft erst



BeaconZone

20 Pioniere gestalten den Wandel
iBeacons sind die Vorboten des Internets
der Dinge oder eine Brücke vom
physischen in den digitalen Raum. 20
Geschäfte in Wiedikon verbinden sich mit
Bluetooth-Sendern und einer

Wienke on Twitter: "In six weeks we crowdsourced a internet of things data network in Amsterdam. And the world is next!"

Twitter, Inc. [US] <https://twitter.com/wienke/status/634031945584873472>

Home Notifications Messages Search Twitter

Wienke
@wienke

In six weeks we crowdsourced a internet of things data network in Amsterdam. And the world is next!


thenextweb.com/insider/2015/0...

RETWEETS 6 FAVORITE 1

5:59 PM - 19 Aug 2015


The Things Network

thethingsnetwork.org




NEW DATA CONNECTIVITY TECHNOLOGIES

New data network technologies allow for things to connect to the internet



LOW COSTS

Because the reach is very high and the cost of the equipment is low, covering an entire city can be done with a small



CROWDSOURCING

Because the costs are very low, we do not have to rely on large telco cooperations to build such a network. Instead

Maker Business



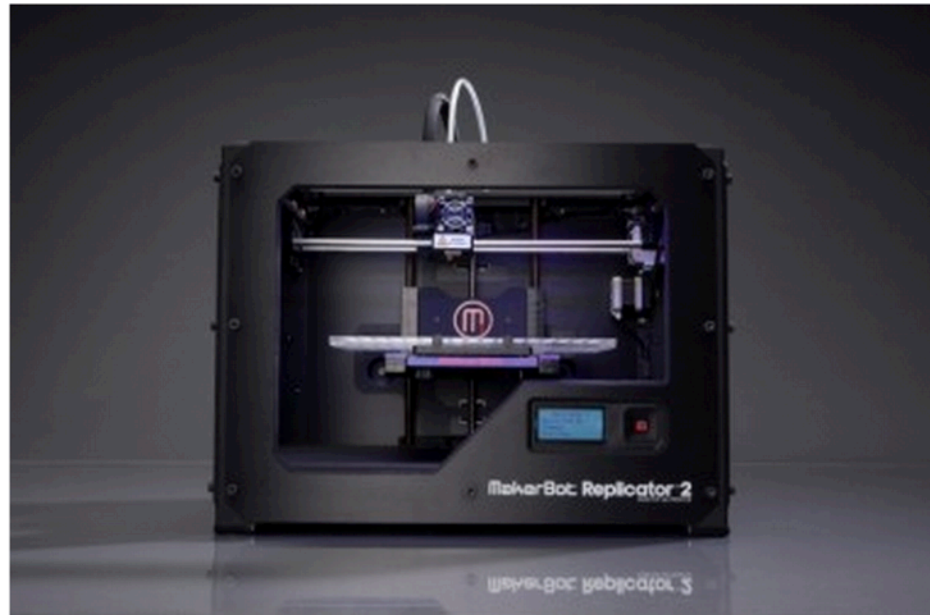
News

MakerBot Sells to Stratasy's for \$403M — Plus \$201M for Earn-Outs — as 3-D Printing Market Explodes

Published on June 19, 2013
by **Kara Swisher**

The democratizing of 3-D printing just saw its first big deal, with the sale of MakerBot to Stratasy's for \$403 million in stock, with an additional \$201 million in performance-based earn-outs.

Stratasy's is a larger industrial 3-D printing company, which has been around since 1989, while MakerBot has pioneered the desktop 3-D printing. But it has sold more than 22,000 3-D printers since it was founded in 2009, especially the most recent MakerBot Replicator 2 unit.




With it, a consumer can print out small objects, such as a plastic figurine. But the entire 3-D industry is

Patents

www.makerbot.com/legal/patents/

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Patents

MakerBot Industries, LLC is a world leading manufacturer of 3D printers. The following listings serve as notice under 35 U.S.C. 102(b)(2).

MakerBot Replicator Desktop 3D Printer (Fifth Generation)
U.S. Pat. Nos. 6,004,124, 7,384,255.
Additional patent applications pending.

MakerBot Replicator Z18 3D Printer
U.S. Pat. Nos. 6,004,124, 6,722,872, 7,384,255.
Additional patent applications pending.

MakerBot Replicator Mini Compact 3D Printer
U.S. Pat. Nos. 6,004,124, 7,384,255.
Additional patent applications pending.

MakerBot Replicator 2 Desktop 3D Printer
U.S. Pat. Nos. 6,004,124, 7,384,255, D677723.

MakerBot Replicator 2X Experimental 3D Printer
U.S. Pat. Nos. 6,004,124, 6,749,414, 7,384,255, D677723.

MakerBot Digitizer Desktop 3D Scanner
Patent applications pending.

Help

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Twitter, Inc. [US] https://twitter.com/josefprusa/status/24852983...


25

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14



Josef Jo Průša

@josefprusa





So I called @makerbot support and asked. Replicator 2 is NOT Open Source! #FAIL #reprap :-(\ I'm sad! /cc @bjepson @adafruit @make @hackaday


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RETWEETS

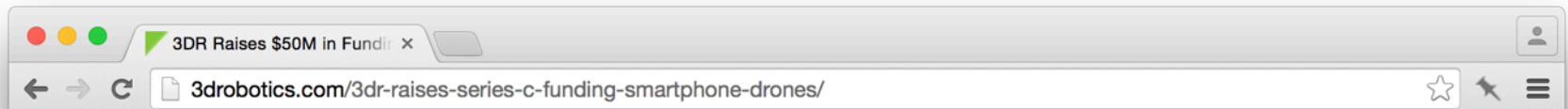
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11:11 PM - 19 Sep 2012



3DR Raises \$50M in Series C Funding, Extending Smartphone Revolution to Drones

LittleBits Receives \$44.2M in Funding, Names New Key Hires

By Sophia Smith June 25th, 2015 1:15 pm Category Electronics, Maker News, Maker Pro

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LittleBits, the New York-based open source hardware startup that produces




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How one woman turned her passion for tinkering into a \$33 million business – without a dime of funding



Matt Weinberger



Aug. 19, 2015, 1:42 AM 🔥 1,131



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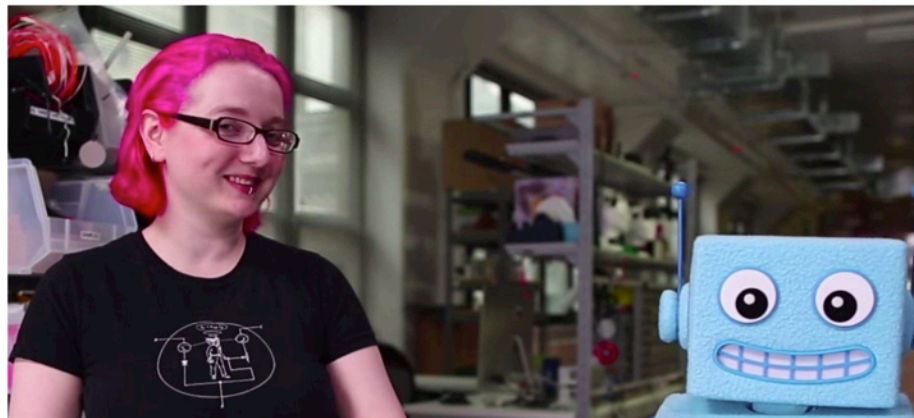
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Back in 2005, MIT engineering graduate student Limor Fried was procrastinating hard on finishing the "busy work" of her final thesis by




Opendesk - Desk


<https://www.opendesk.cc/lean/desk>

Furniture

Workspaces




Open Making



Desk

Get it Made

Make it Yourself



The original Opendesk, an open design project commissioned by Mint Digital as a generous and flexible four person workstation.


The sawtooth edge of the Desk top can be rotated to create individual sections, or to allow two or more colleagues to work co-operatively next to each other, on both sides of the table (either side of the central cable tray). Several desks can also be connected in line to emphasise the sawtooth effect.

Opendesk - Open Making

https://www.opendesk.cc/open-making


Furniture

Workspaces




Open Making

Connecting you directly with **designers** and **makers**



Makers
get paid work





IJ CNC Services is a professional CNC maker based in the UK.

Opendesk now makes up a large proportion of his business.


join as a maker »

You
get great furniture





Designers
get global distribution



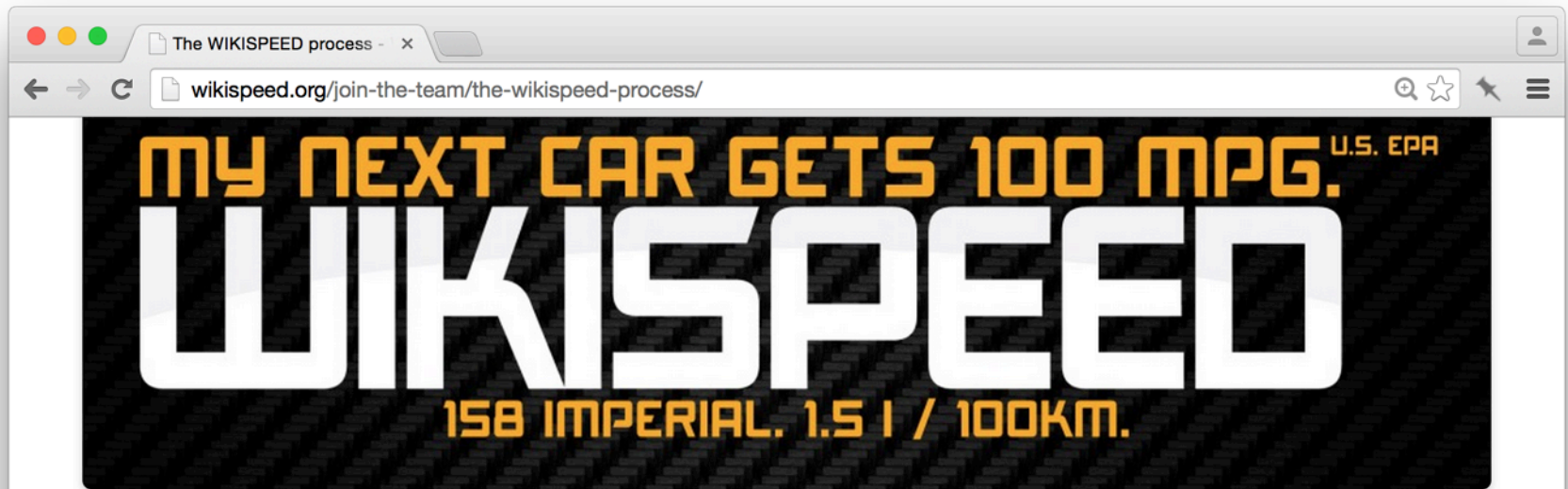
The Future

Wikispeed Open Source Car



BUILT IN 3 MONTHS

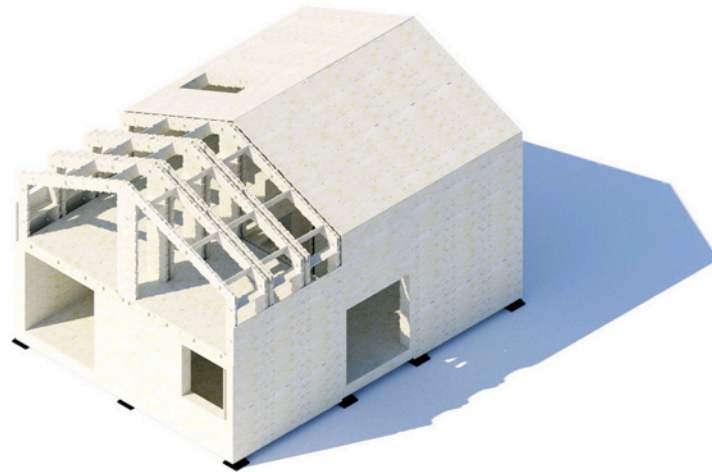
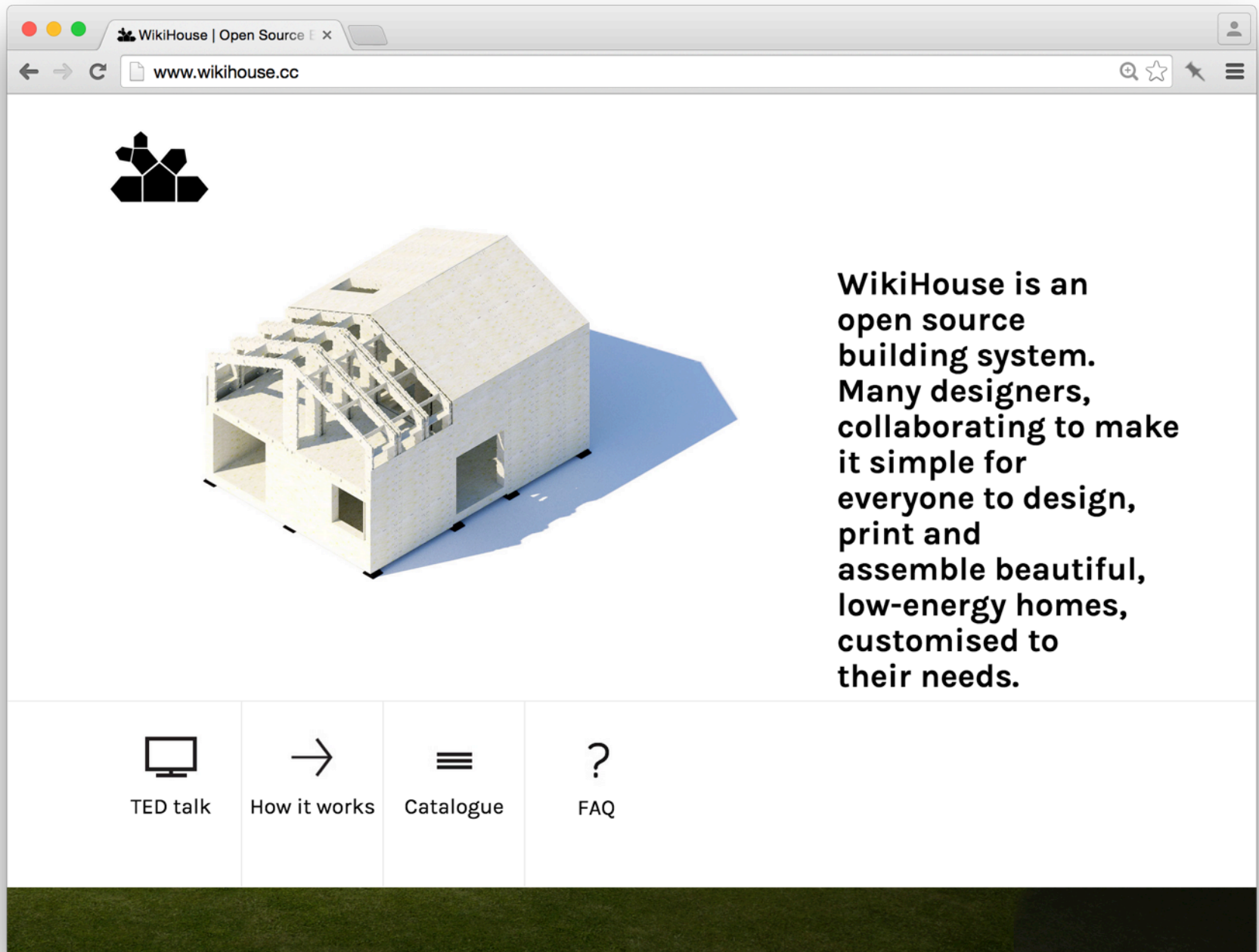




The WIKISPEED process

Team WIKISPEED – Agile, Lean, and Scrum

Team WIKISPEED uses methods developed by the fastest-moving software companies. In fact, in many ways we have more in common with Google or Twitter than with GM or Toyota. Manufacturing and



WikiHouse is an open source building system. Many designers, collaborating to make it simple for everyone to design, print and assemble beautiful, low-energy homes, customised to their needs.



TED talk



How it works




Catalogue



FAQ

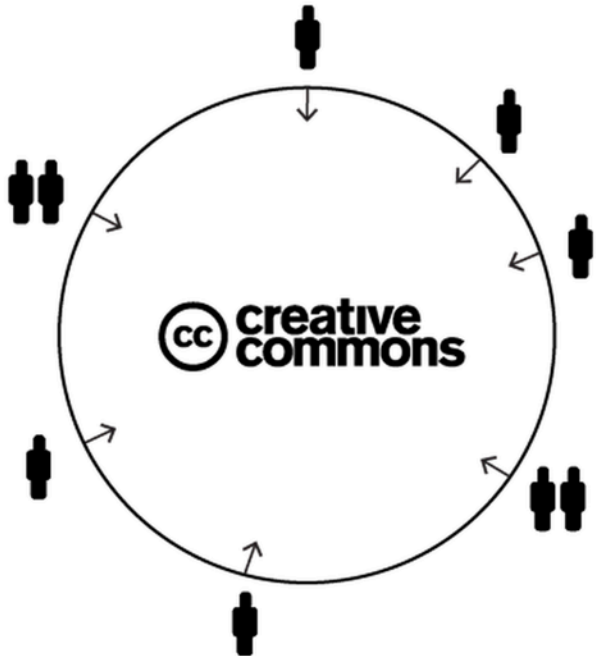
About | WikiHouse

www.wikihouse.cc/about/



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1



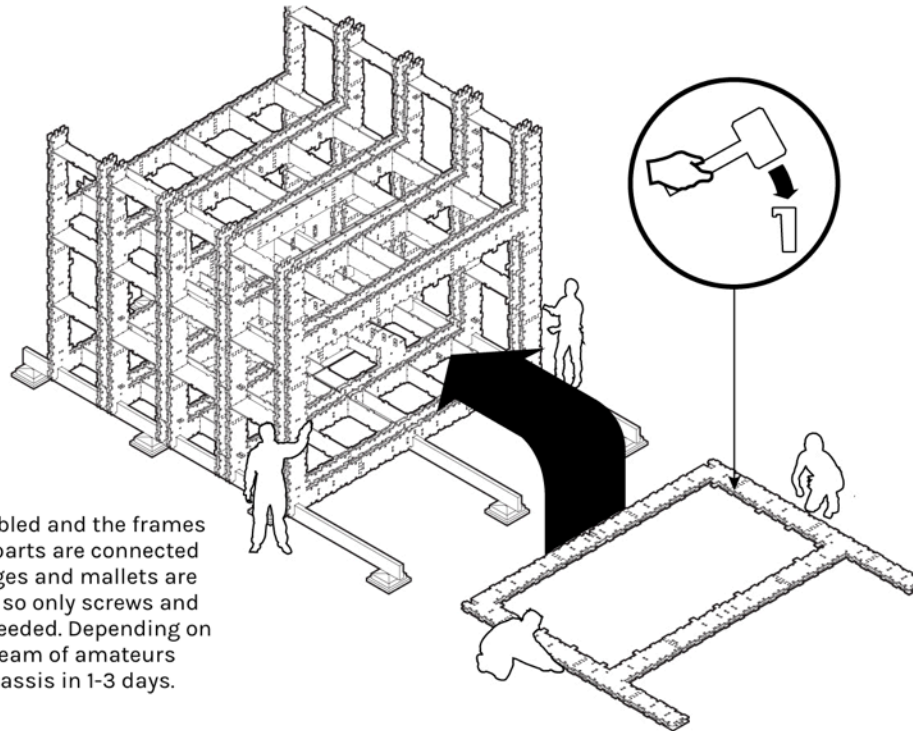
Open Design

WikiHouse is a commons where many companies work together to develop the best, most sustainable building systems ever designed, which are then freely shared for anyone to build upon and improve.

Design Principles



5



Frame raising

The parts are assembled and the frames raised by hand. The parts are connected using pegs and wedges and mallets are also cut with the kit, so only screws and basic DIY tools are needed. Depending on the size of house, a team of amateurs can assemble the chassis in 1-3 days.

Design Principles





Les Corts
Accessibility

Vallvidrera
Theater and arts

Green Fab Lab
Self-Sufficiency

Ciutat Meridiana
Urban renewal

Horta
Water and energy

Gracia
Textiles

Sant Andreu
Mobility and cycling

Santa Coloma
Furniture

Can Batllo
Advanced 3d Print

El Raval
Music and artisans

MOB Eixample
Design and art

Fab Lab Barcelona
Smart Cities

柴火创客空间

CHAIHUO MAKERSPACE



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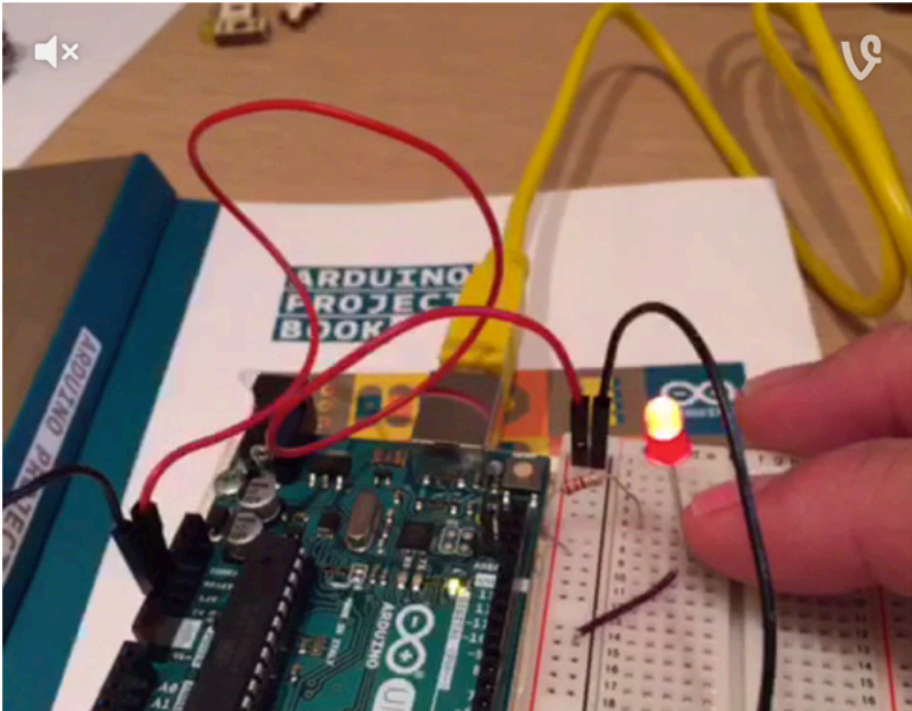
@Werner

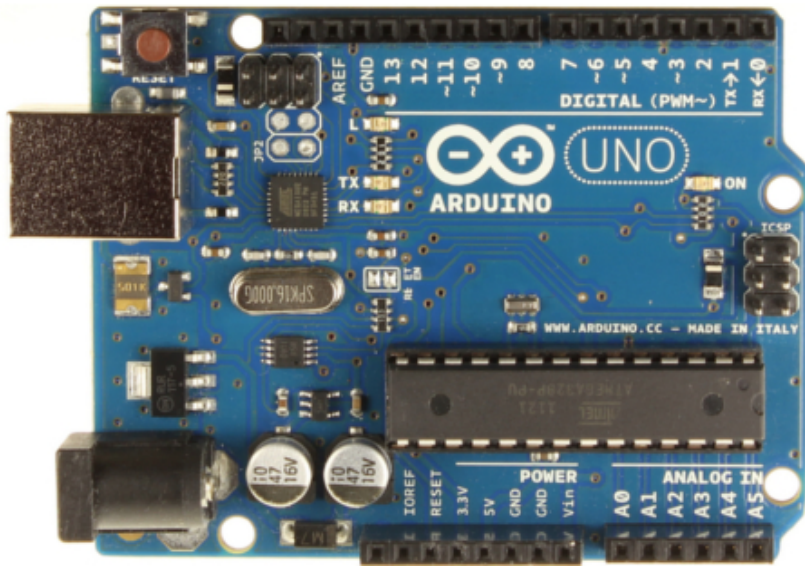


Following

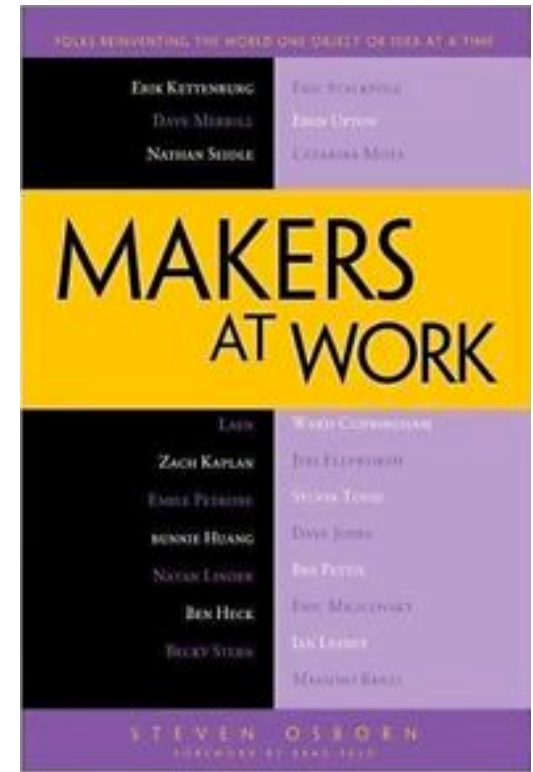
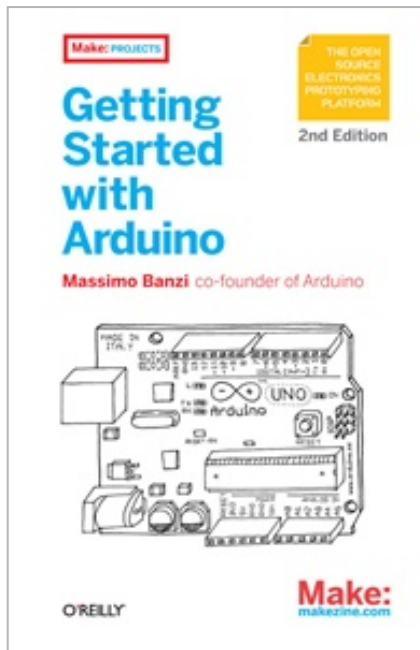
The giddiness when your first @arduino circuit works

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<https://www.play-zone.ch/>



Thanks.

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yaler.net

Slides at goo.gl/67ASmc →

