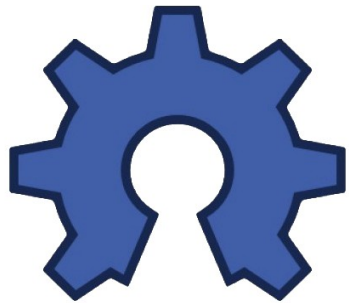




¿De qué va a ir todo esto?

Alberto Labarga – Experimental Serendipity S.L.

Laboratorio de Fabricación Digital, UPNA, Octubre-Noviembre 2014



open hardware



open source



OPEN ACCESS





1953: IBM presenta su primera computadora electrónica Comercial, la IBM 701 con una memoria total de una memoria total de 2048 palabras de 36 bits



1970s: Las máquinas de batalla de los comienzos de la cultura UNIX fueron los PDP-11 y su descendiente, el VAX. UNIX, funcionaba prácticamente inalterado en una mayor variedad de máquinas de las que uno pudiese encontrar en ARPANET.

NEWSLETTER

Homebrew Computer Club



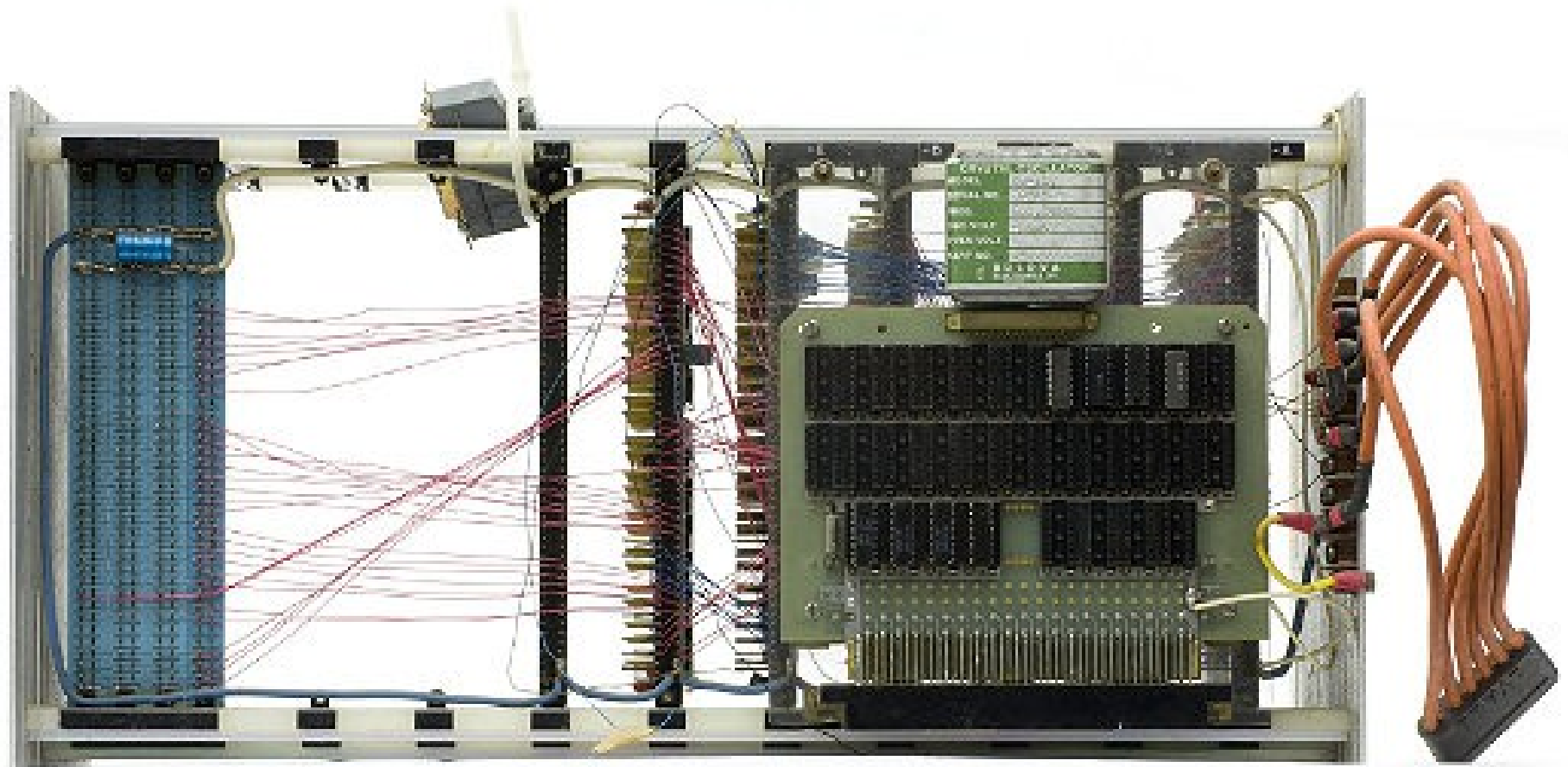
Robert Reiling, Editor — Post Office Box 636, Mountain View, CA 94042 — Joel Miller, Staff Writer
Typesetting, graphics and editorial services donated by LAUREL PUBLICATIONS, 17235 Laurel Rd., Los Gatos, CA 95030 (408) 353-3609

random data

by robert reiling

staff reporter of *The Wall Street Journal*, makes this observation: "The home-computer industry is so new and so frag-

Computing Microtrek, the computer magazine for the hobbyist, was first published in August of 1976. Its second edition was recently published in



HOW TO "READ" FM TUNER SPECIFICATIONS

Popular Electronics

WORLD'S LARGEST-SELLING ELECTRONICS MAGAZINE JANUARY 1975/75¢

PROJECT BREAKTHROUGH!

World's First Minicomputer Kit to Rival Commercial Models...

"ALTAIR 8800" SAVE OVER \$1000



ALSO IN THIS ISSUE:

- An Under-\$90 Scientific Calculator Project
- CCD's—TV Camera Tube Successor?
- Thyristor-Controlled Photoflashers



TEST REPORTS:

Technics 200 Speaker System
Pioneer RT-1011 Open-Reel Recorder
Tram Diamond-40 CB AM Transceiver
Edmund Scientific "Kirlian" Photo Kit
Hewlett-Packard 5381 Frequency Counter



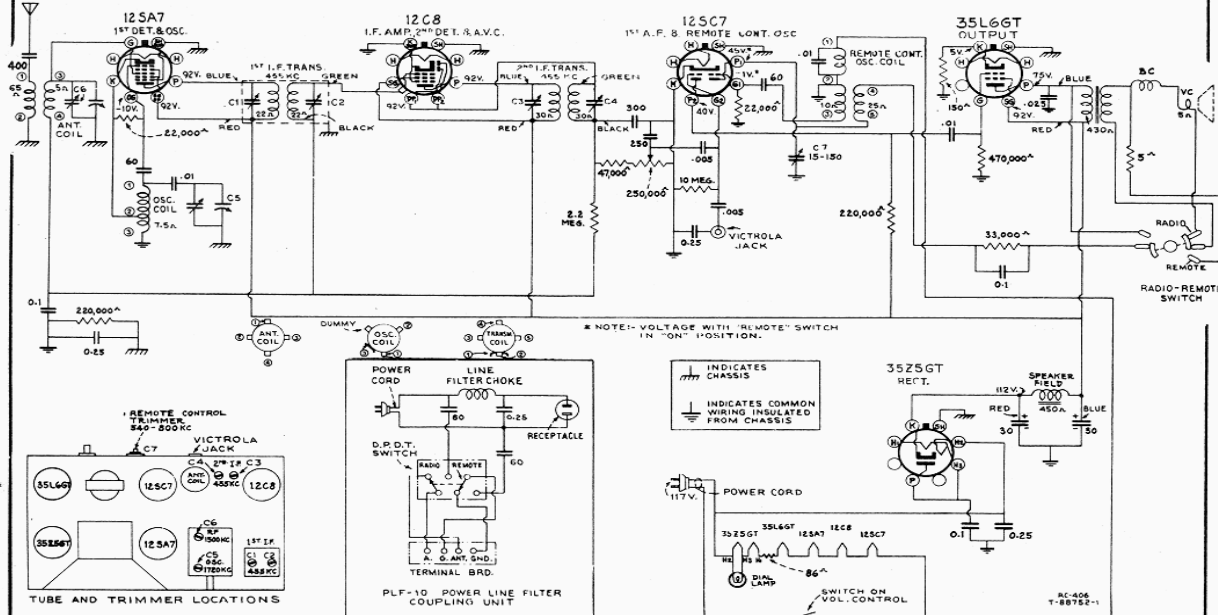
Steve Wozniak debuted the prototype Apple-1 at the Homebrew Computer Club in 1976. For \$666.66, buyers received a blank printed circuit board, parts kit, and 16-page assembly manual. One had to add a power supply, keyboard, storage system, and display.











Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
13057	Capacitor—60 mmfd.	32969	Socket—Dial lamp socket
12488	Capacitor—250 mmfd.	14278	Socket—Phonograph socket
12952	Capacitor—300 mmfd.	32537	Socket—Tube socket
30433	Capacitor—400 mmfd.	30585	Spring—Drive cord spring
4838	Capacitor—.005 mfd.	33319	Transformer—First i-f transformer
4937	Capacitor—.01 mfd.	32578	Volume control and power switch
4870	Capacitor—.025 mfd.	POWER LINE FILTER PLF-10	
4839	Capacitor—.01 mfd.	13057	Capacitor—60 mmfd.
12484	Capacitor—.025 mfd.	12484	Capacitor—.025 mfd.
33321	Capacitor—Electrolytic, 2 sections 30 mfd. each	33492	Coil—Choke coil
32572	Coil—Antenna coil	33493	Receptacle—Power receptacle
33320	Coil—Duplex oscillator coil	33491	Switch
32962	Coil—Oscillator coil	SPEAKER ASSEMBLIES (39105—2)	
33323	Condenser—Trimmer 20-150 mmfd.	32964	Transformer—Output transformer
32968	Condenser—2-gang variable tuning	MISCELLANEOUS ASSEMBLIES	
32634	Cord—Drive cord	X-639	Cabinet—Ivory finish—Model 5X5I (net)
32946	Drum—Condenser drive drum	X-638	Cabinet—Walnut finish—Model 5X5W (net)
12409	Lead—Antenna lead	32942	Dial—Glass dial scale
33322	Resistor—5 ohms, 5 watts	33317	Fastener—Push fastener to hold cabinet back
14071	Resistor—33 ohms, 1/2 watt	33306	Knob—Black tuning knob—Model 5X5I
13428	Resistor—150 ohms, 1/2 watt	32447	Knob—Ivory knob—Model 5X5W
13988	Resistor—22,000 ohms, 1/2 watt	32943	Nut—Speed nut to hold dial
12454	Resistor—33,000 ohms, 1/2 watt	31646	Spring—Knob retaining spring
12412	Resistor—47,000 ohms, 1/2 watt		
12264	Resistor—220,000 ohms, 1/2 watt		
12285	Resistor—470,000 ohms, 1/2 watt		
12679	Resistor—2.2 meg., 1/2 watt		
13601	Resistor—10 meg., 1/2 watt		
32945	Shaft—Tuning knob shaft and bushing		

Additional Replacement Parts:

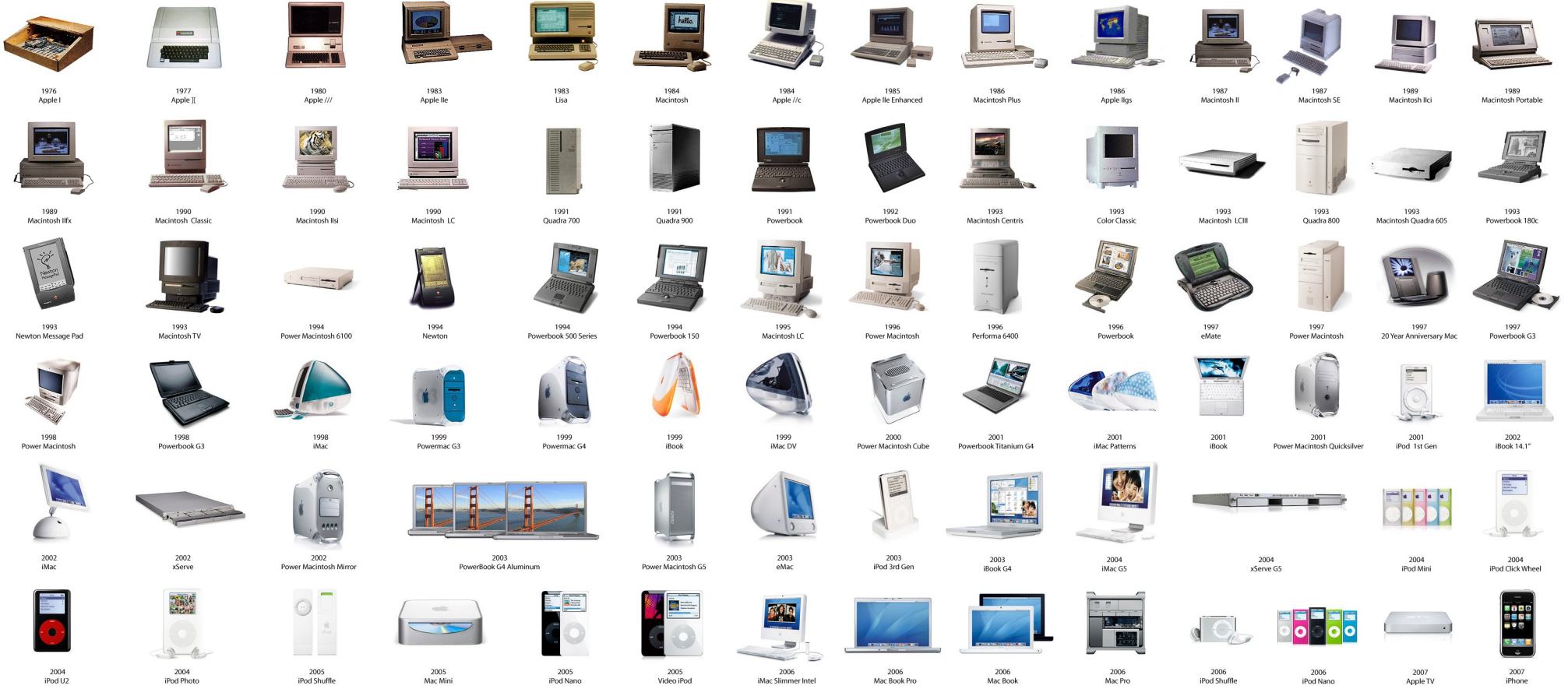
Stock No.

- 32946 Drum—Condenser drive drum and indicator
11765 Lamp—Dial lamp, Mazda No. 51
33324 Switch—"Remote" switch
32967 Transformer—Second I-F trans.
34569 Speaker—Complete—less transformer



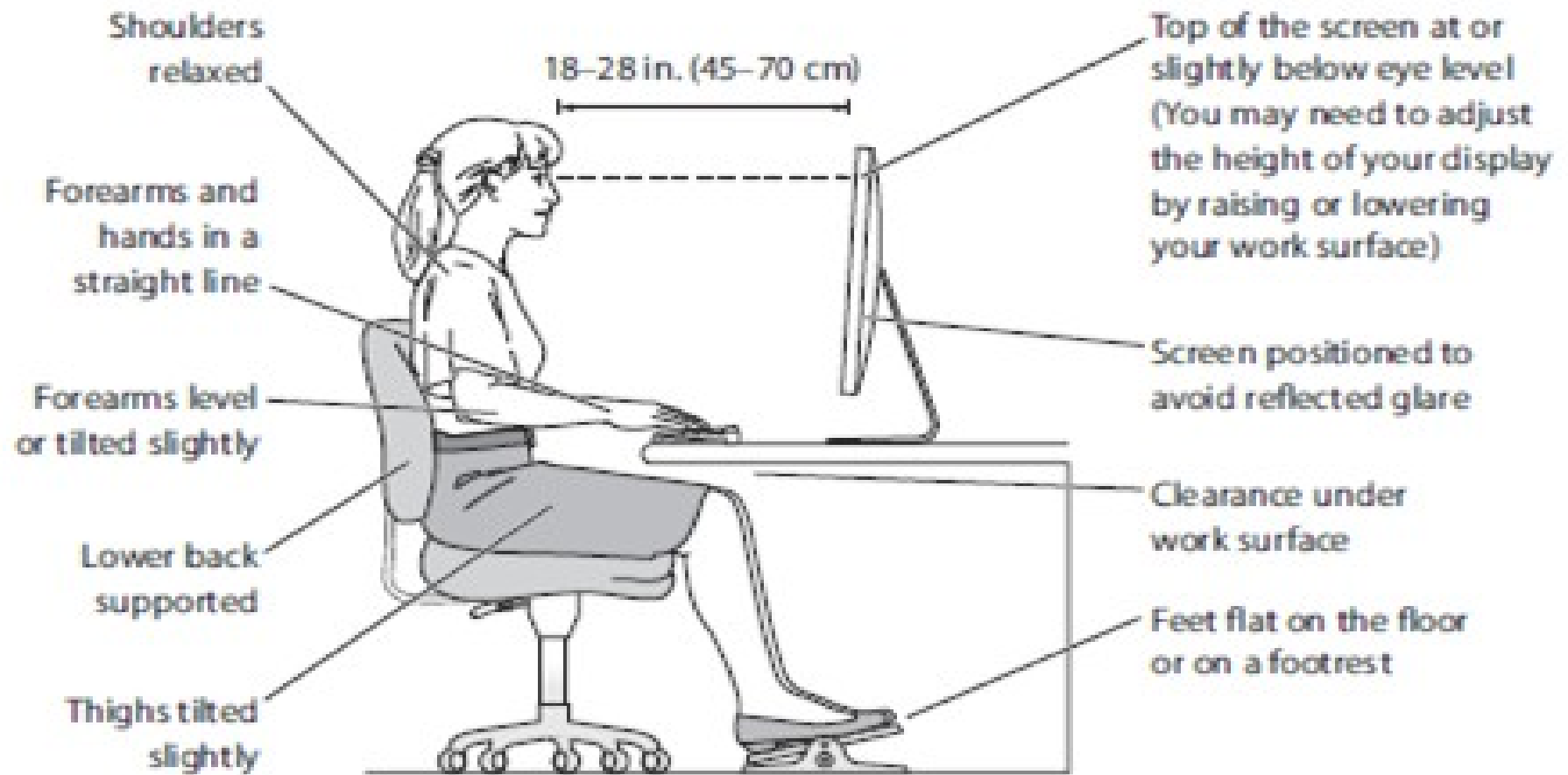
Apple Form Factor Evolution 1976 through 2007

This is a visual representation of most all the products Apple has launched. This image documents the ever changing form factor and industrial design of Apple's products, not every single model number or slight change made to a previous model. ~ Enjoy



Misc. Apple Accessories





More information about ergonomics is available on the web:

www.apple.com/about/ergonomics



U.S. Patent

Oct. 2, 2012

US D668,263 S



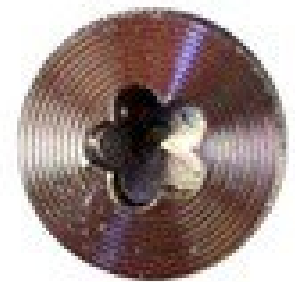
<http://www.businessinsider.com/9-of-apples-strangest-patents-2012-10>



MacBook Pro



iPhone 4



MacBook Air

*... a rectangular touch-screen
devices with a minimalist
interface with few physical
buttons...*



BIG ISSUE

TECH PATENT WAR

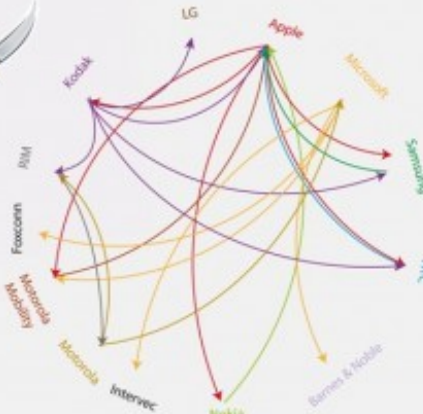
APPLE'S \$1BN WIN JUST A SKIRMISH IN A LONG WAR

The war began in March 2010 as a fight between Apple and Google's Android operating system, involving an onslaught against a variety of smartphone makers that use Android, but Samsung soon became the primary target. The South Korean company may be winning the battle over the world's most popular smartphone maker after edging out Apple but the war over dominance of the \$220 billion market is still young and who wins in the courtroom may matter more than who claims more consumers' hearts and wallets, particularly after Apple's big \$1 billion victory in California last month. The two companies control about half the smartphone market, a business that's growing more than 12% annually. But beyond their escalating patent litigation, the two companies are also major partners, with Apple purchasing \$8 billion worth of semiconductors from Samsung in 2011.

"This is officially World War III," Carl Howe, an analyst with Yankee Group, told National Public Radio. "This is a case of whether the iPhone really, as Apple claims, changed the world in 2007."

A TANGLE OF LAWSUITS

Apple's suing everyone and everyone's suing Apple. A look at who's targeting whom in the patent war



5 WACKY SMARTPHONE PATENTS

Obviously who owns the patents to the core functions of a phone is key to victory. Beyond the truly innovative, companies have a tendency to try to patent the ridiculously simple (ie, Apple's "thin, rectangular shapes with flat surfaces") as well as crazy or far-fetched ideas that may never see the light of day. From smartphones sporting jet packs to ovulation meters, here are five of the more interesting patents out there.

HOVER PHONE Amazon patented a smartphone protection scheme that would detect when a device is being dropped and then deploy a safety mechanism to protect itself, such as airbags, springs or jet-pack style thrusters. Filed 11 Feb 2010

TINGLING TATTOOS Nokia filed a patent that would allow a smartphone to alert a user via a tattoo or other marking to send a "perceivable stimulus to the skin." Filed 13 Feb 2011

LIGHT HARNESS To make it easier to view a laptop screen in direct sunlight, Apple came up with the idea to use sunlight to give the display a brightness boost. The notebook would use a "light harness" to collect the light and then reflect it back onto the screen. Filed 19 Sept 2008

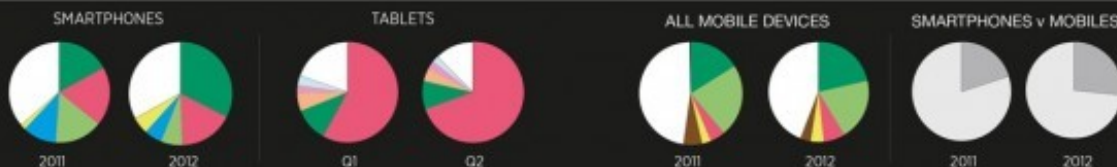
THIS PHONE'S GOT WINGS Before the iPhone reinvented keyboards as software, Samsung envisioned a dual-keyboard design that used springs to flick two sets of keys out of the sides, switchblade style. Filed 24 Dec 2008

A FEMINE PHONE An old patent from Samsung aimed directly at women imagined a handheld device that would be capable of taking a body temperature reading whenever the user held the handset up to her ear. The data would then be used to chart the user's ovulation cycle. Filed 6 July 2006

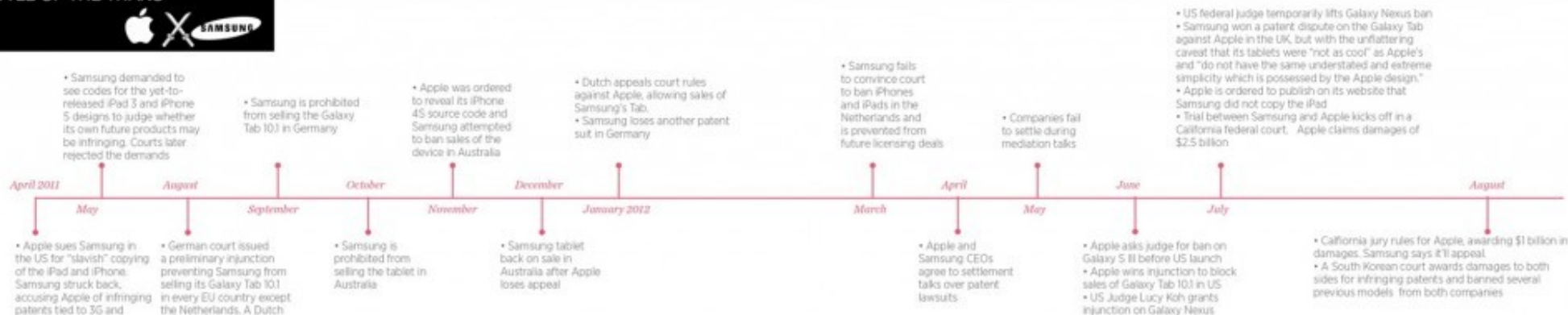
WHO CONTROLS THE MARKET

The battle for dominance in the smartphone market is increasingly coming down to two names: Samsung and Apple, with everyone else seeing shrinking shares of the fast-growing market. A similar consolidation can be seen in other mobile markets.

— SAMSUNG
— APPLE
— NOKIA
— HTC
— ZTE
— LG
— AMAZON
— ASUS
— B&N
— OTHERS



BATTLE OF THE TITANS



Sources: Gartner, IDC, IPS, visual by PC World



1981: IBM PC A Intel 8088 processor running at 4.77 MHz.
Basic in ROM. 16K RAM. MS-DOS 1.0

HOW TO CUT YOUR '82 TAXES NOW

Money

NOVEMBER 1982 \$2

SPECIAL REPORT

CHOOSING THE BEST COMPUTER FOR YOU

All you want to know
about those thinking
machines—plus a buyer's
guide to 36 of them

William Gates, 27,
who made millions
by creating the basic
language of small
computers, tells
you what to get
and what to watch
out for



Proyecto GNU

- **Richard Stallman**
- **Proyecto GNU creado en el año 1984.**
 - Software Libre
 - Licencias GPL 
 - Free Software Foundation



Software libre!

libertad de uso

libertad de copia

libertad de modificación

libertad de distribuir el

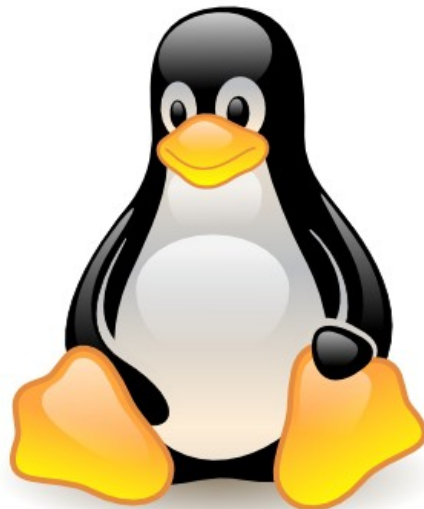
software modificado

Estructura de GNU

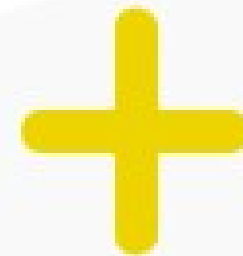


Linux

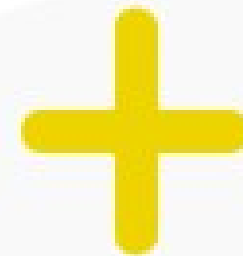
- Linus Torvalds.
- Nucleo Linux (1991)
 - Compatible con Unix
 - Licenciado bajo GPL
 - Publicado en Internet



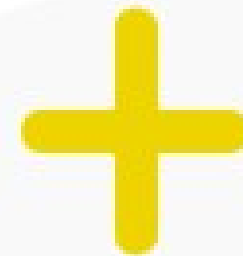
GNU + Linux



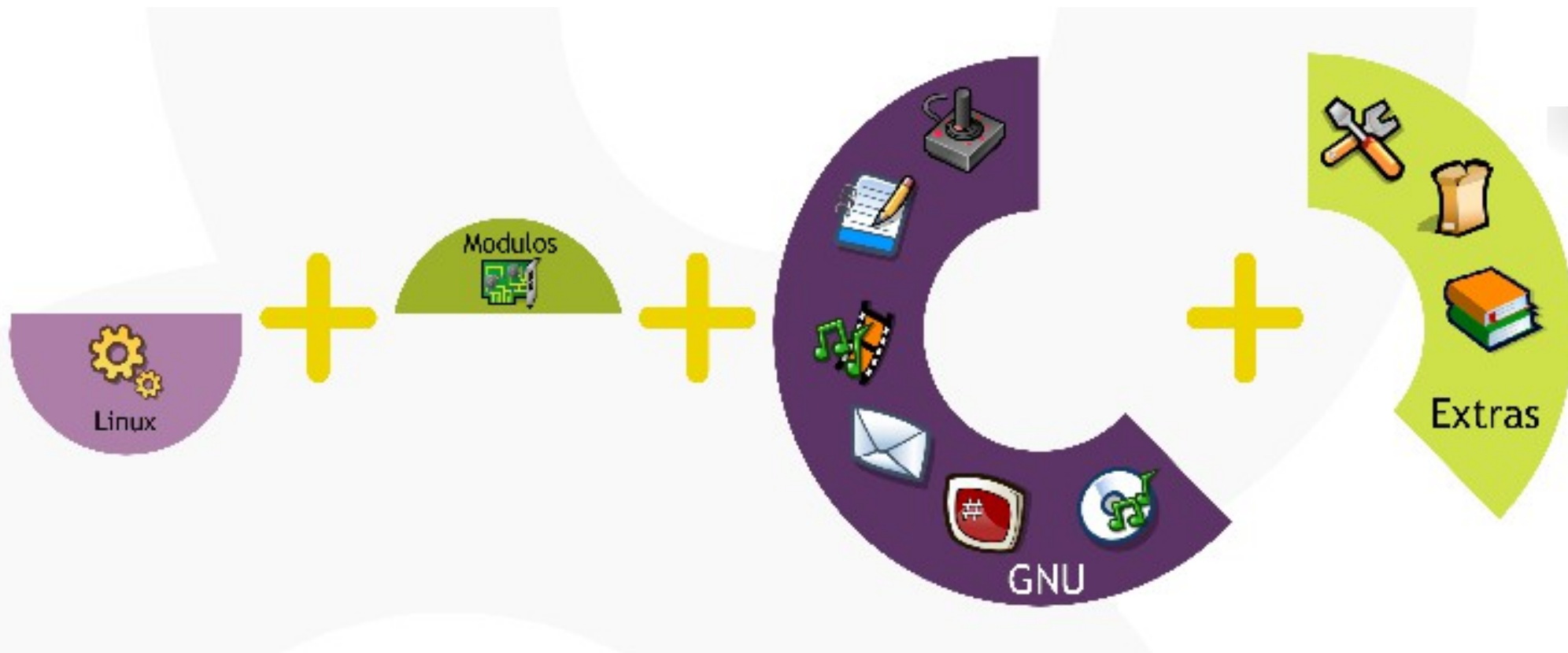
GNU + Linux



GNU + Linux



Componentes de una distribución



Componentes de una Distribución

Paquetes



Documentación



Soporte



Actualizaciones





blag



coil-blue:~ # df -H

filesystem	Size	Used	Avail	Use%	Mounted on
dev/sda3	56G	44G	8.6G	84%	/
dev	3.7G	173k	3.7G	1%	/dev
dev/sda1	104M	15M	84M	15%	/boot
dev/sdb1	886G	21G	821G	3%	/opt
install	56G	44G	8.6G	84%	/var/ftp/install
tftpboot	56G	44G	8.6G	84%	/var/ftp/tftpboot
dev/ASDC_archive	1.1P	1.4T	1.1P	1%	/ASDC_archive
dev/SPG_ops	147T	52T	96T	36%	/SPG_ops
dev/homedir	6.0T	4.6G	6.0T	1%	/homedir
dev/scf0	90T	16T	75T	18%	/SCF

coil-blue:~ #



Search

Shortcuts



Trouver des Applications Médias



Naviguer sur le Web



Trouver des Applications Web



Voir des Photos



Trouver plus d'Applications



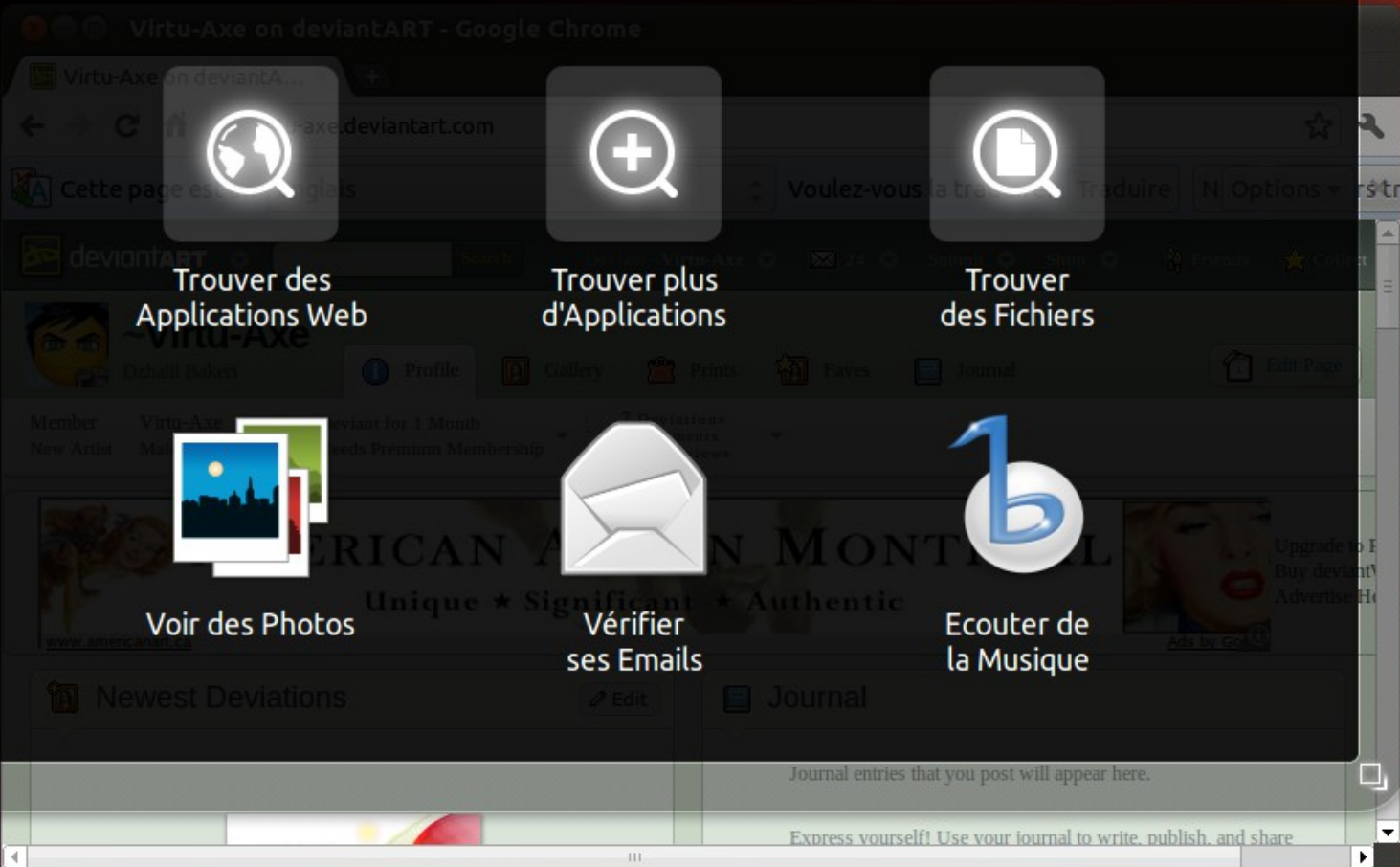
Vérifier ses Emails



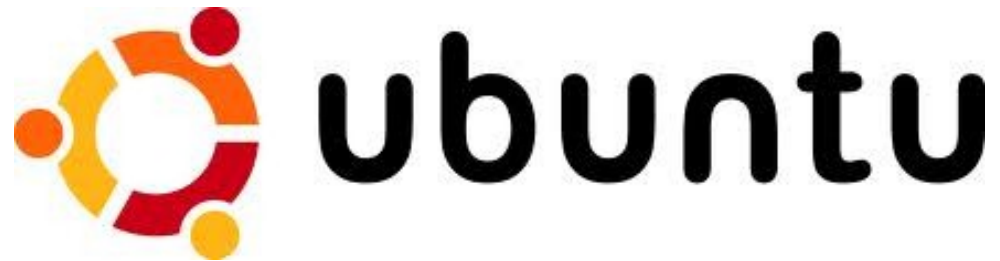
Trouver des Fichiers



Ecouter de la Musique



Recomendaciones



<http://www.jomuoru.net/wp-content/uploads/2010/03/gldt102-full.png>

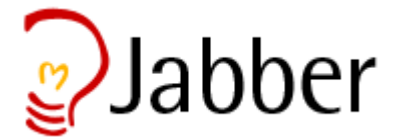
<http://distrowatch.com>

Recomendaciones





The BLE logo, showing a black headset with a microphone and the letters 'BLE' in white on a black background.



LibreOffice
The Document Foundation



GIMP



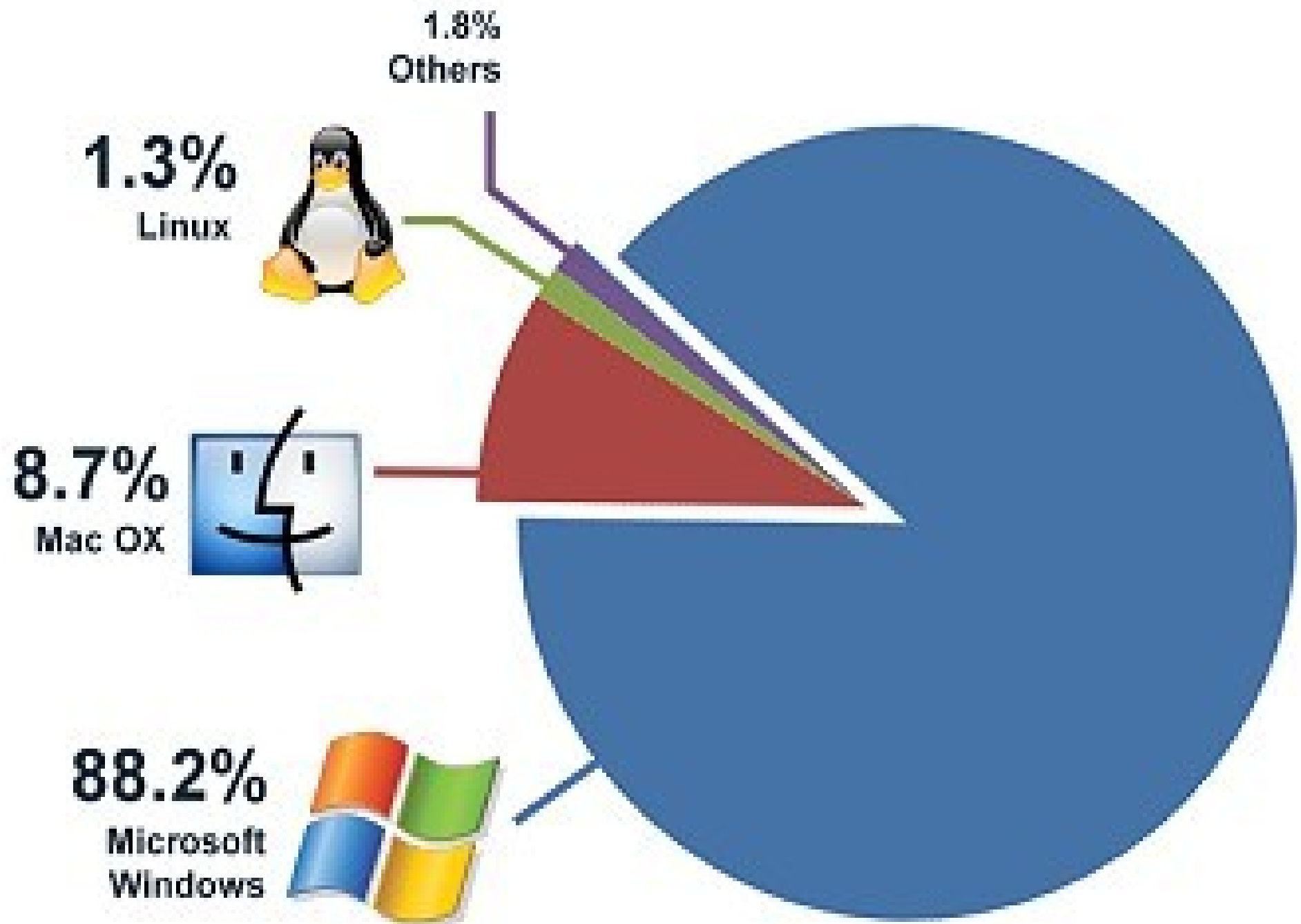
Inkscape



Scribus



VLC
media player





CoverStills

Crowdfunder Launches Social Enterprise And It's All For Good Causes

Shutterstock.com
Young • Crowdfunder
an online business
crowdfunder.com
has launched a new
side called Social
Enterprise that aims
to connect people
investors with the
best doing social
and focusing on
to improve the
well-being of him
and the environment.
Analyst says
Kickstarter forgo
niles, Crowdfunder
known for being.

“Dams Le Noir was really
fun. Fascinating to have to
formulating strategies
when you're totally blind.
Harder than you think! ...”

 Christmas Karaoke
1 hour ago

Our 25 Most Popular Stories Of The Year, According to Math

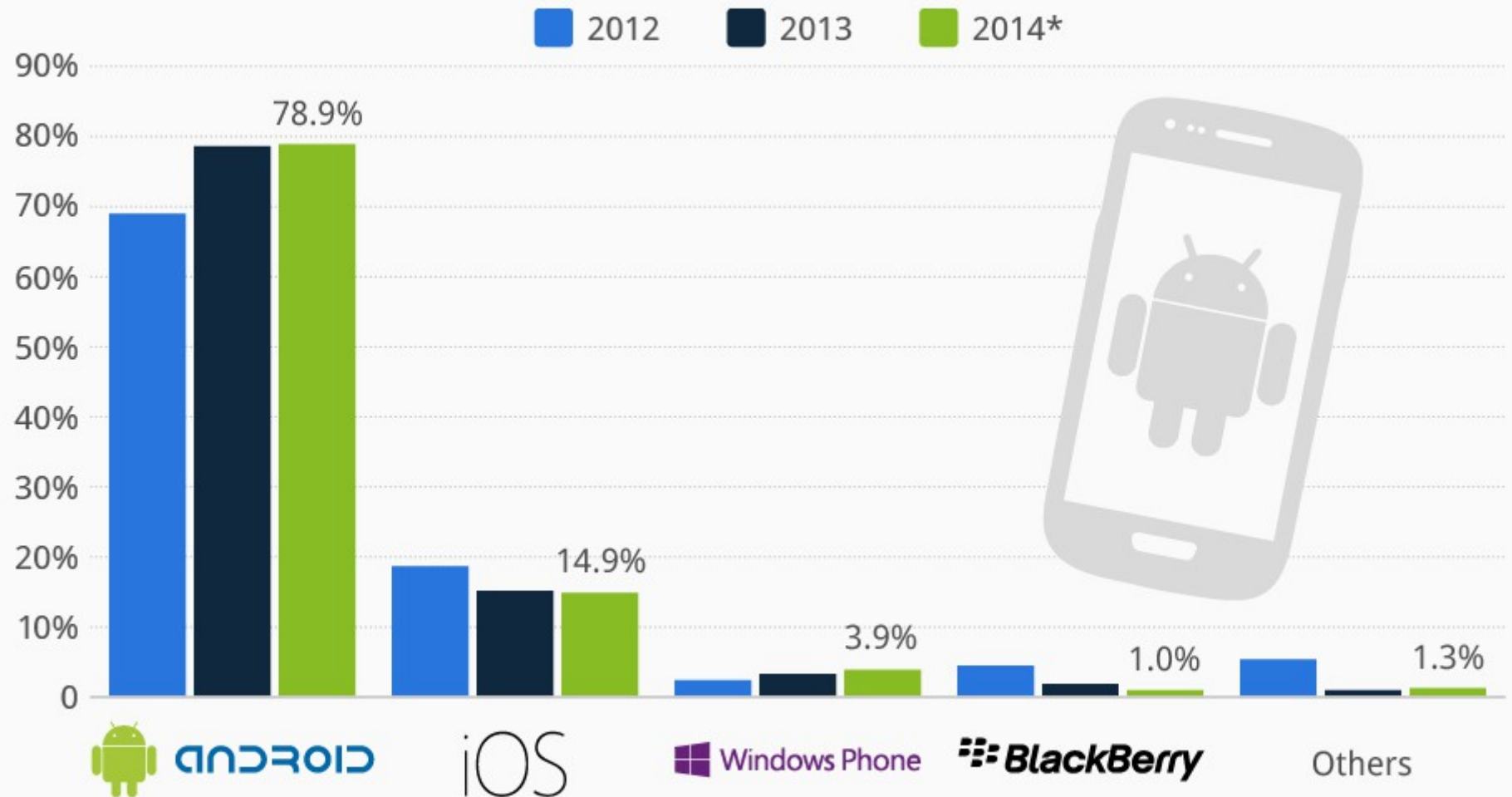
 Story
1 hour ago



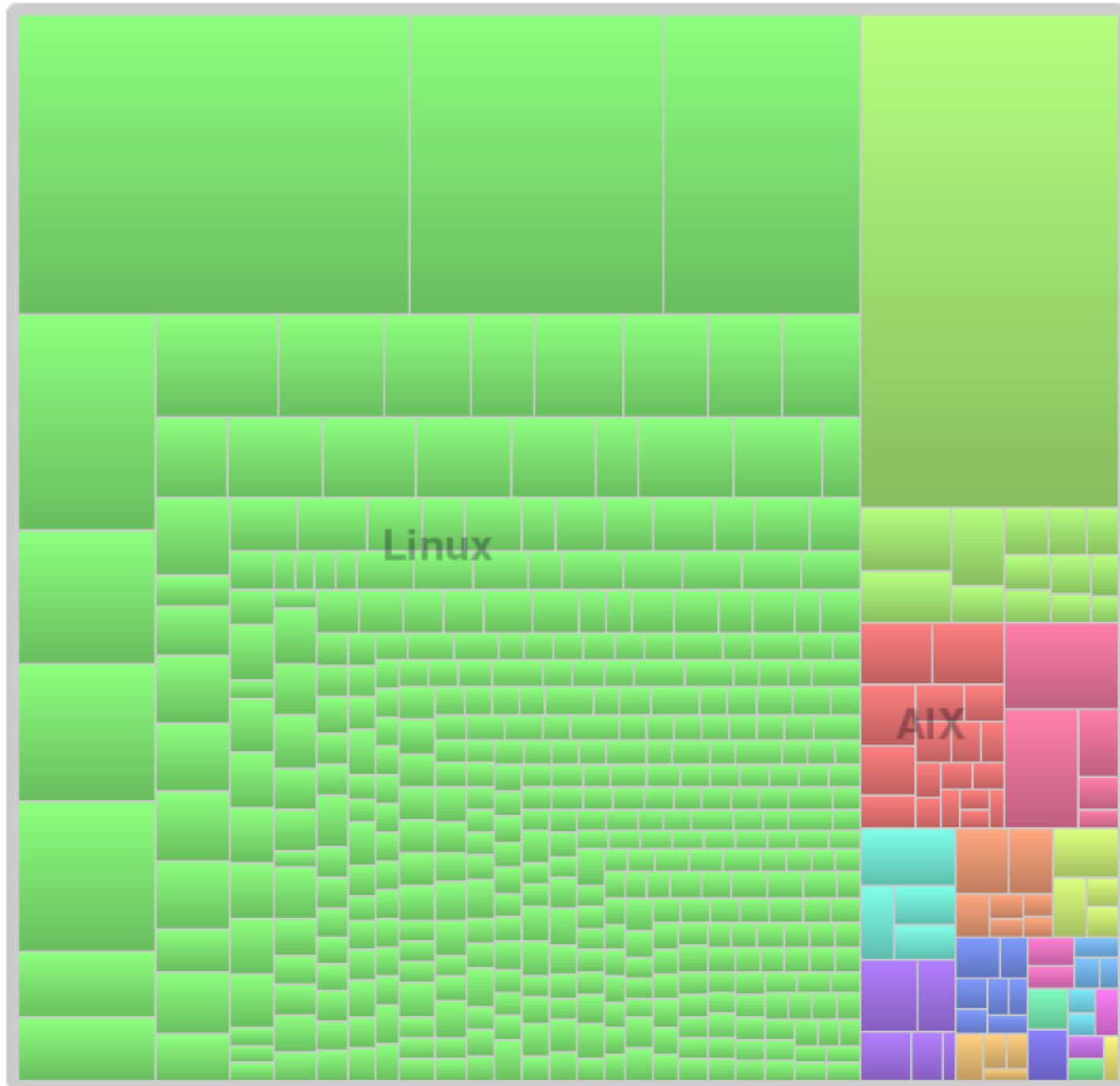
Clark Obama on the day of
it channel when he ...

Android To Retain Big Lead In Maturing Smartphone Market

Worldwide smartphone market share, by operating system







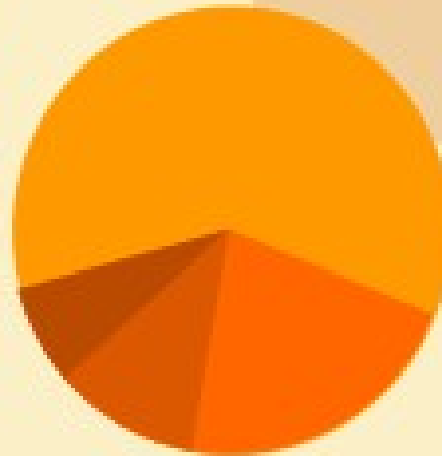


Web Servers

OPEN
SOURCE

60%
APACHE

8%
**NGINX +
LIGHTTPD**



20%
MICROSOFT IIS

CLOSED
SOURCE

STANDARDS

- Implements the latest protocols, including HTTP/1.1 (RFC2616)
- Highly configurable and extensible with third-party modules



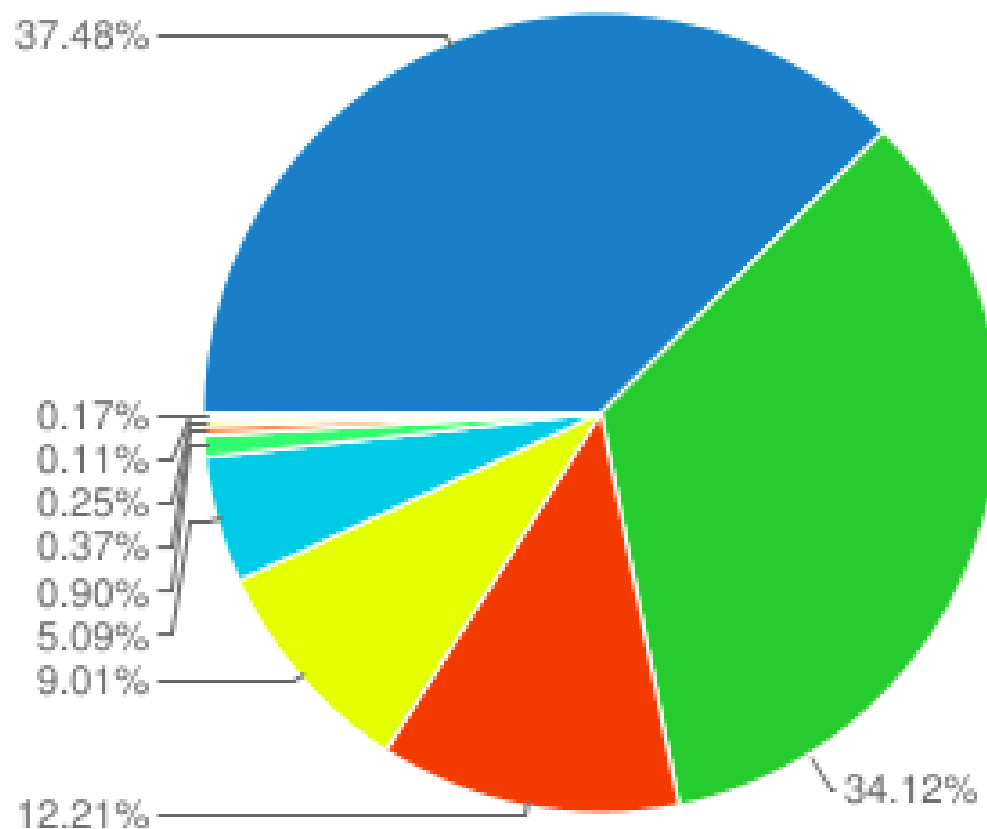
USAGE

- Runs on over more than 120 million Internet servers

THE FOUNDATION

- Apache web server is one of the projects of the Apache Software Foundation. Other projects include Hadoop, Apache Solr, SVN and the Cassandra database.

1.	■ Chrome	37.48%
2.	■ Firefox	34.12%
3.	■ Internet Explorer	12.21%
4.	■ Safari	9.01%
5.	■ Opera	5.09%
6.	■ Android Browser	0.90%
7.	■ Mozilla Compatible	0.37%
8.	■ Opera Mini	0.25%
9.	■ (not set)	0.17%
10.	■ RockMelt	0.11%



Software libre

“El movimiento del software libre siempre ha sido político, pero su trabajo no es esencialmente político. Pero ya no podemos hacerlo, porque ahora tenemos enemigos explícitos. Nadie nos intentaba impedir antes que desarrollásemos software libre. Teníamos problemas de otro tipo, más vinculados al trabajo técnico. Sin embargo, empresas como Microsoft se declaran enemigas nuestras (...) tratan de imponer leyes que prohíben nuestro trabajo. Por eso debemos actuar de modo político contra esas leyes, al mismo tiempo que seguimos desarrollando software libre.” Richard Stallman

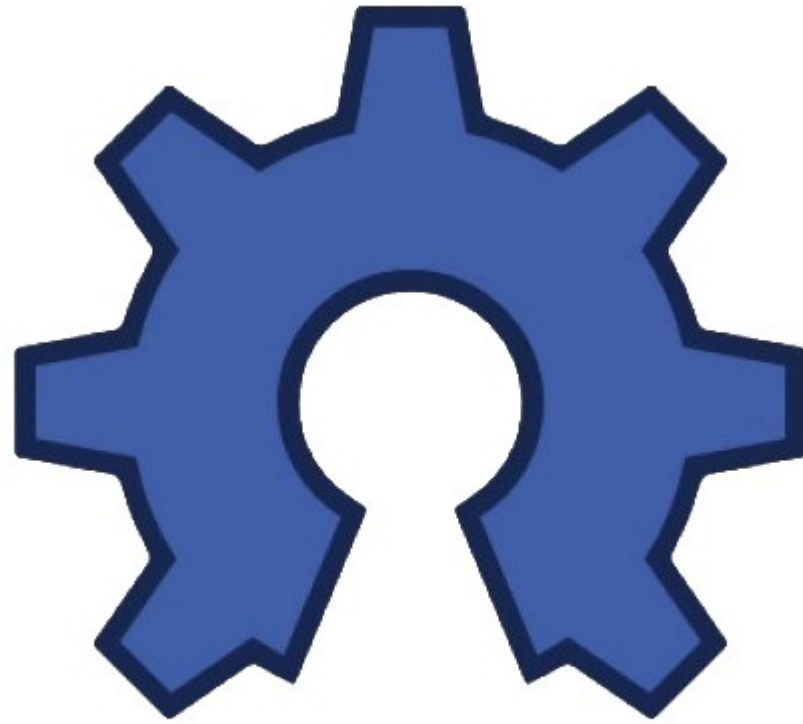
Cultura libre y Conocimiento abierto

Las obras culturales libres son aquellas que pueden ser libremente estudiadas, aplicadas, copiadas y/o modificadas por cualquiera, para cualquier propósito.



El conocimiento es abierto cuando cualquiera puede usarlo, reusarlo, y distribuirlo.

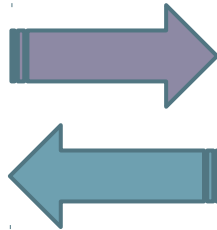




open hardware

designers :

publish documents, software,..
essential to design the device.



users :

are allowed to use, to improve
and to redistribute existing
projects freely.



<http://www.openmoko.org>



<http://localmotors.com/rallyfighter/>

The Global Village Construction Set

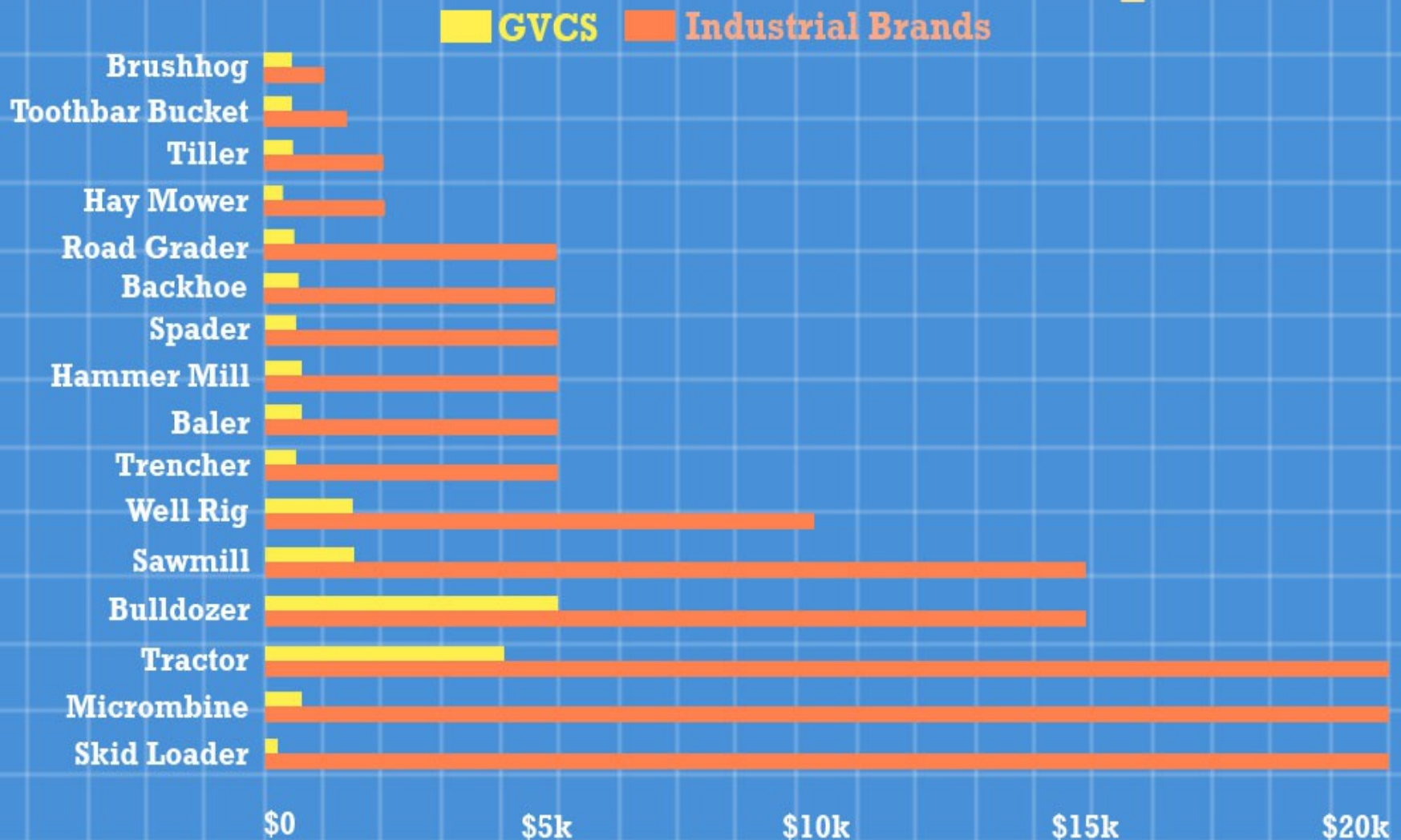
40

Industrial Machines



<http://opensourceecology.org/gvcs.php>

Our machines are 8x cheaper.

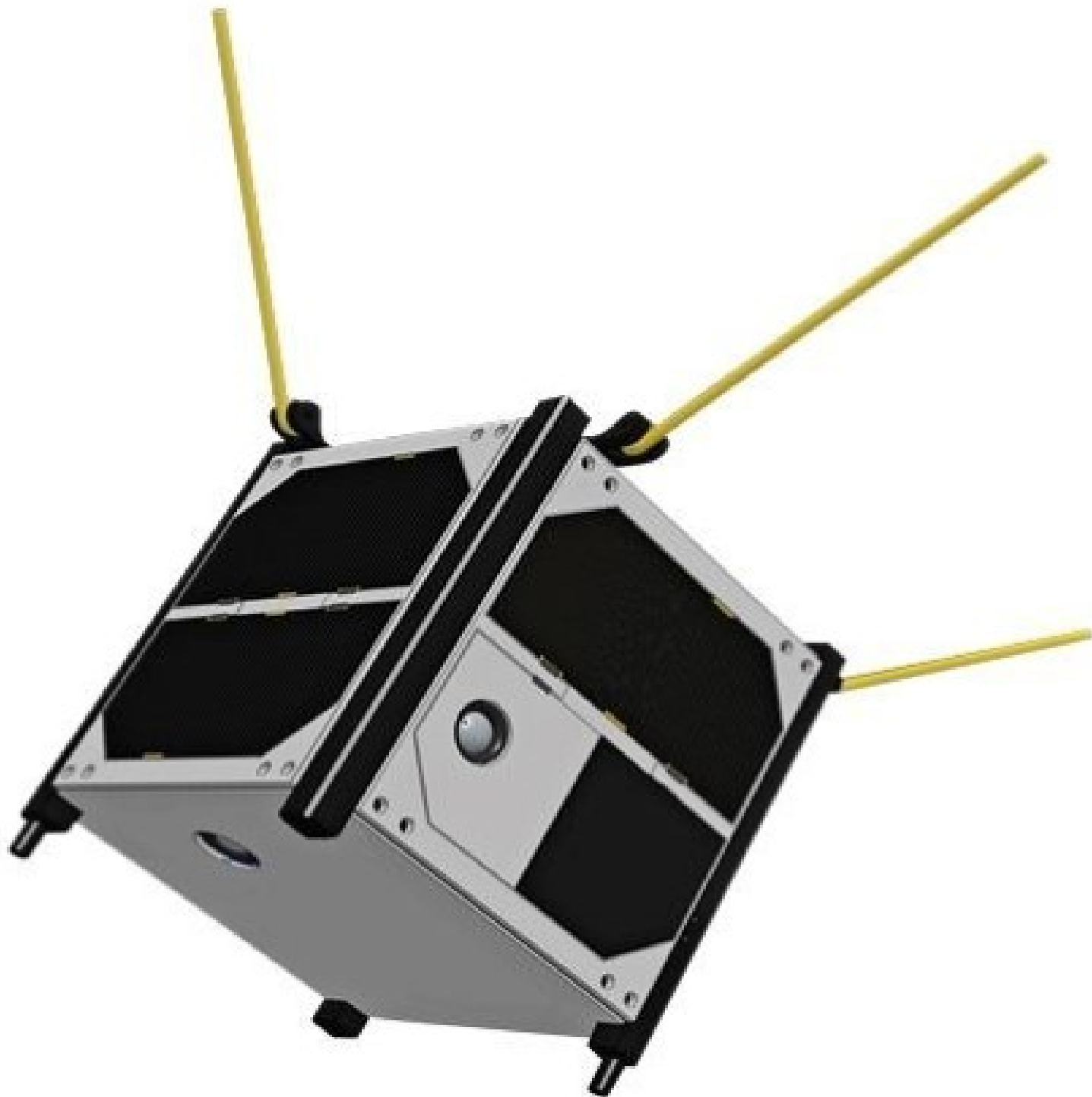


Bottom-up Scalability.

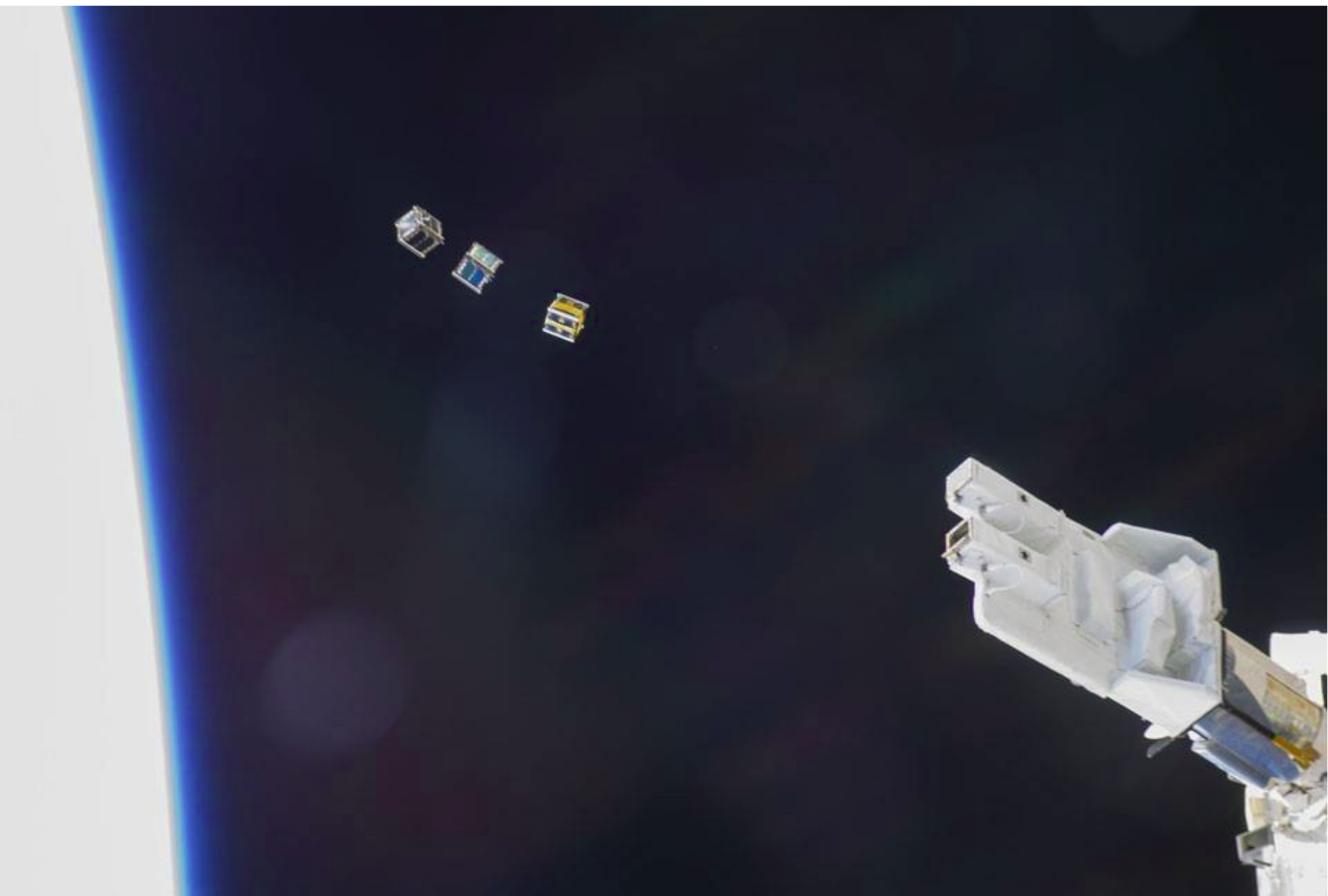


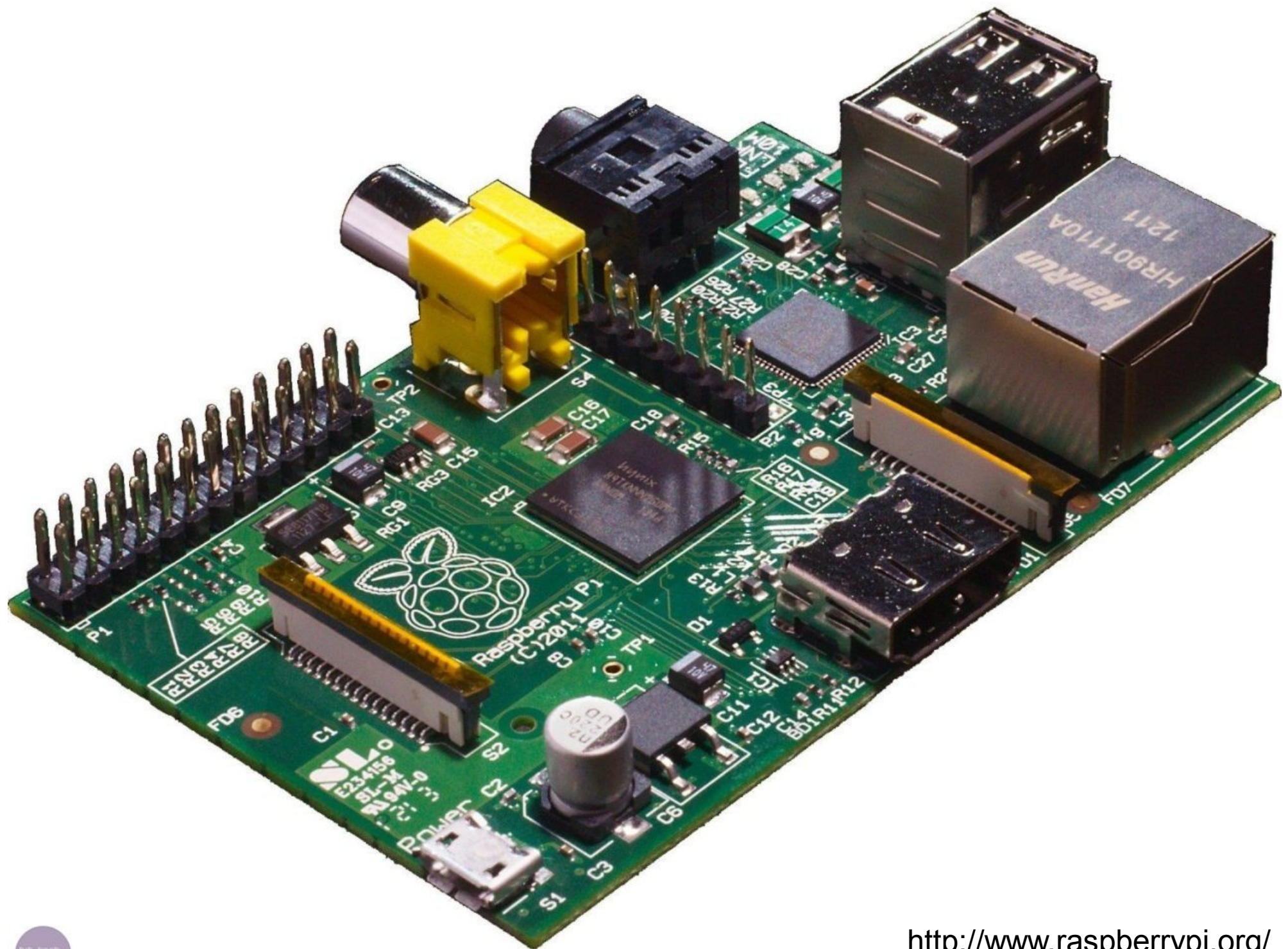
ARDUINO IS AN OPEN-SOURCE ELECTRONICS
PROTOTYPING PLATFORM BASED ON FLEXIBLE,
EASY-TO-USE HARDWARE AND SOFTWARE. IT'S
INTENDED FOR ARTISTS, DESIGNERS, HOBBYISTS
AND ANYONE INTERESTED IN CREATING
INTERACTIVE OBJECTS OR ENVIRONMENTS.

<http://arduino.cc/>



<http://en.wikipedia.org/wiki/ArduSat>

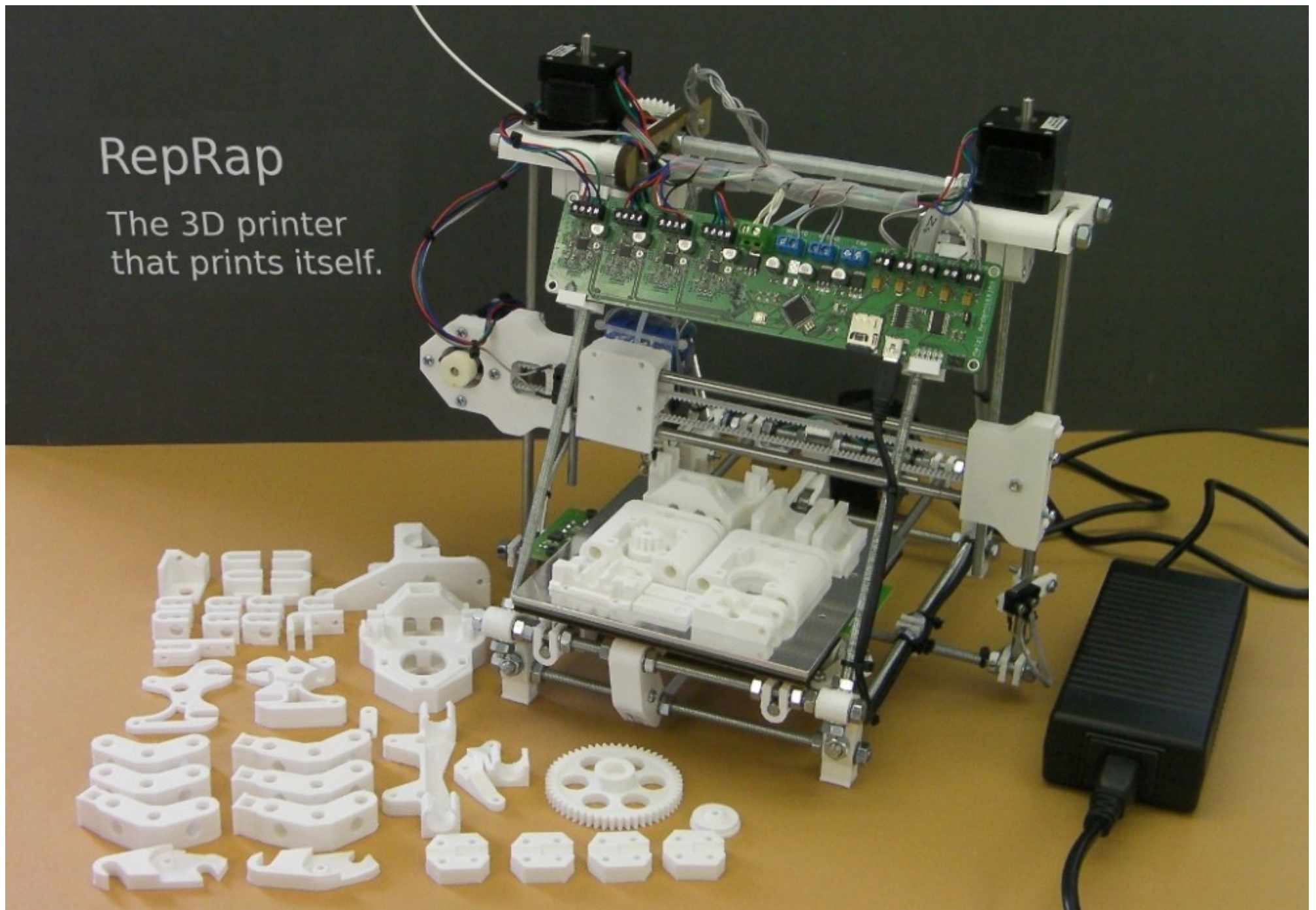




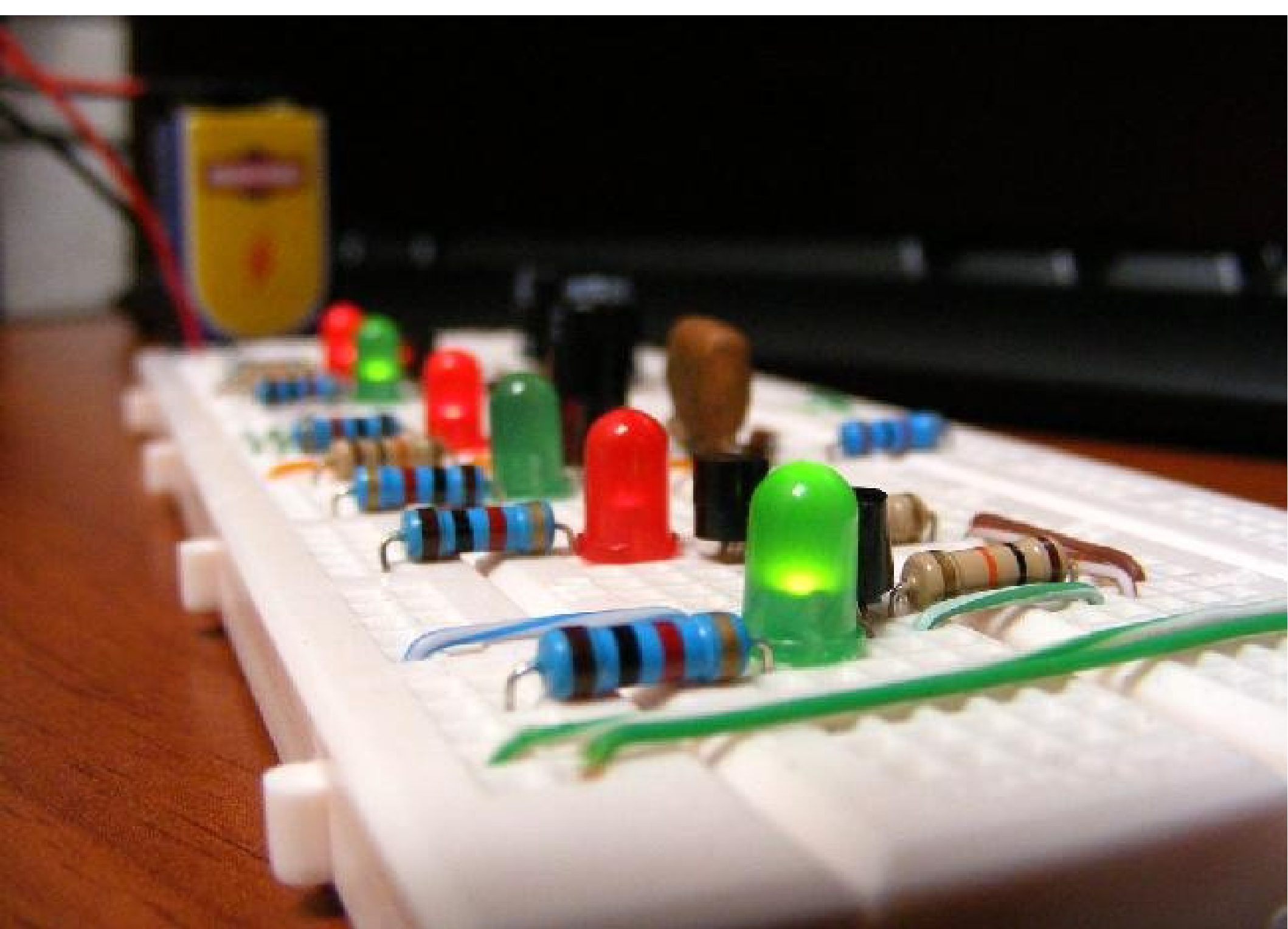
<http://www.raspberrypi.org/>

RepRap

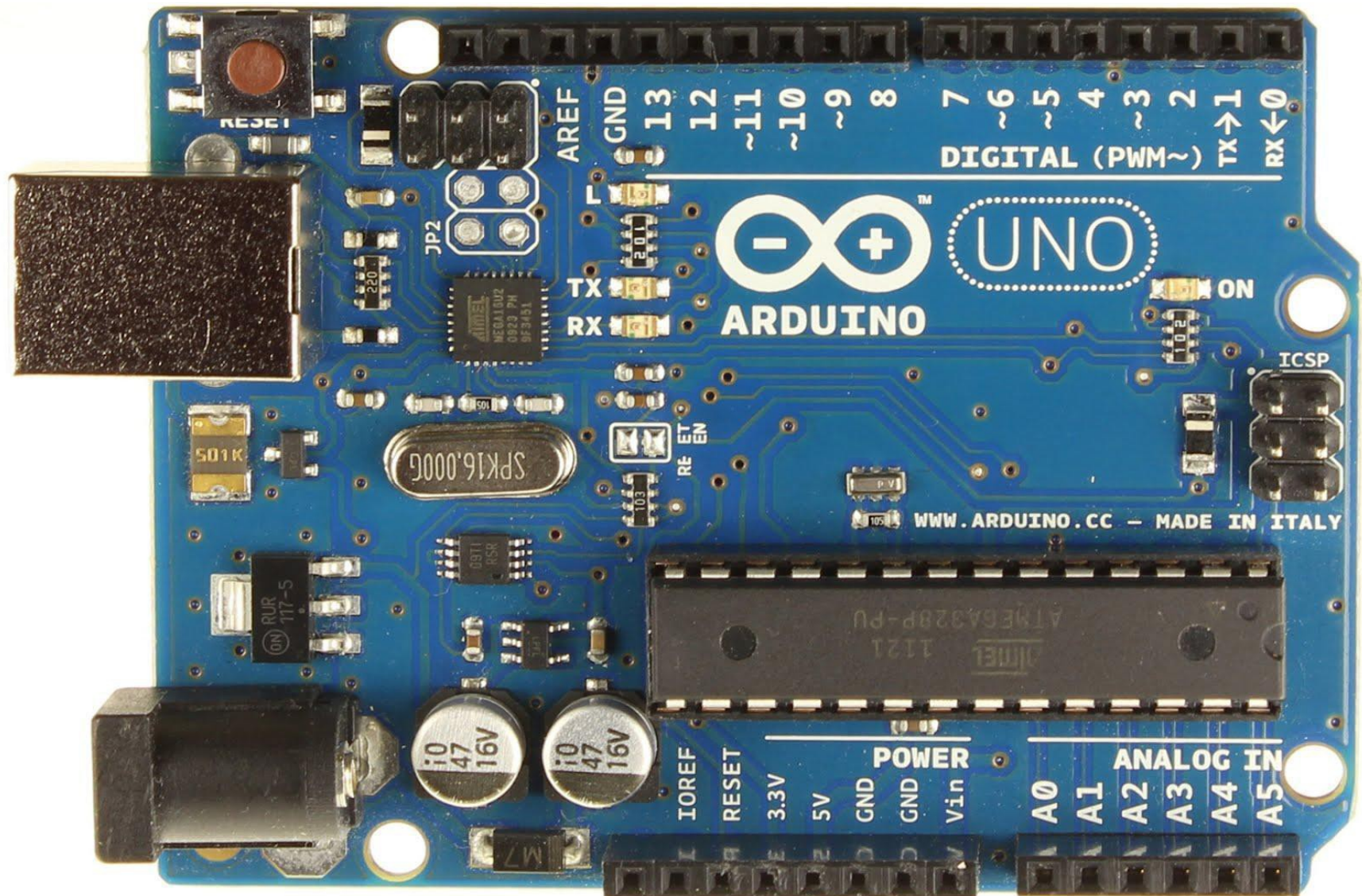
The 3D printer
that prints itself.



<http://reprap.org/>

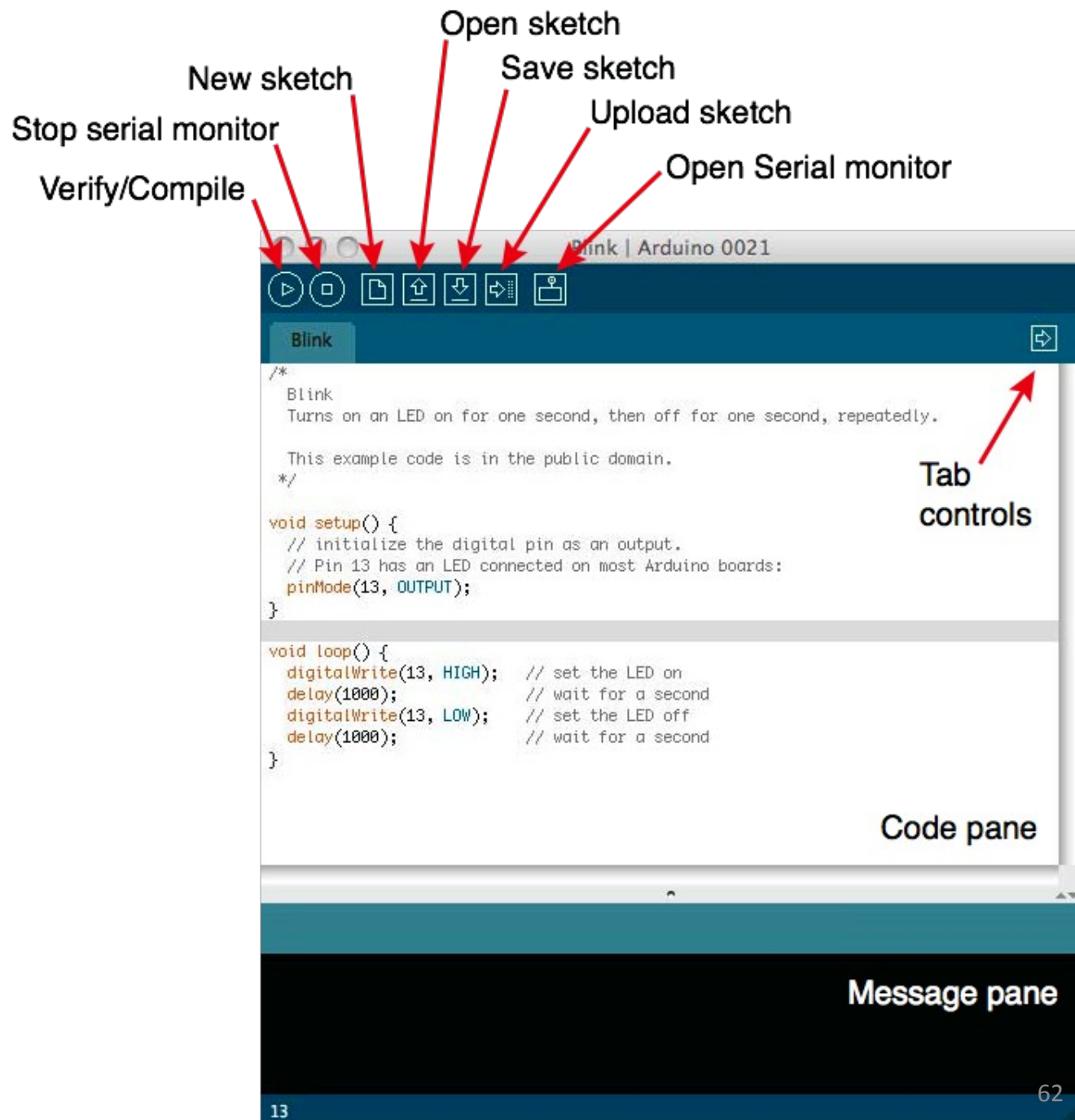


Arduino UNO

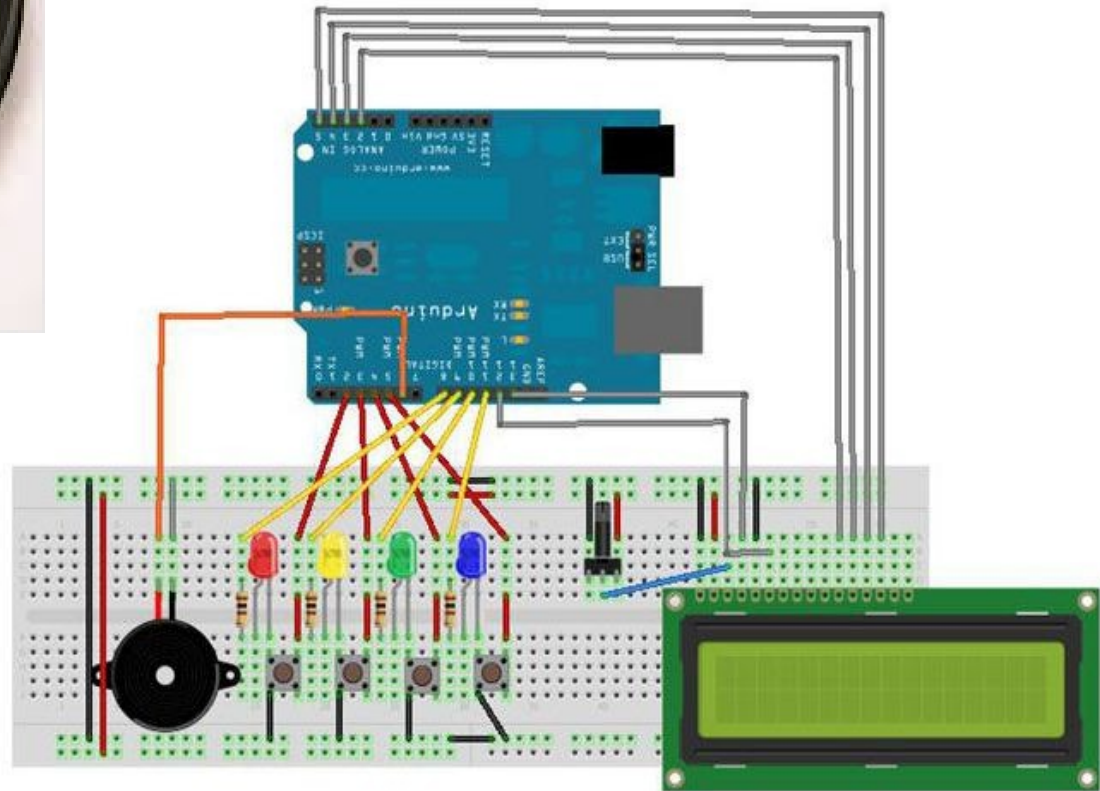


Arduino IDE

IDE = Integrated
Development
Environment

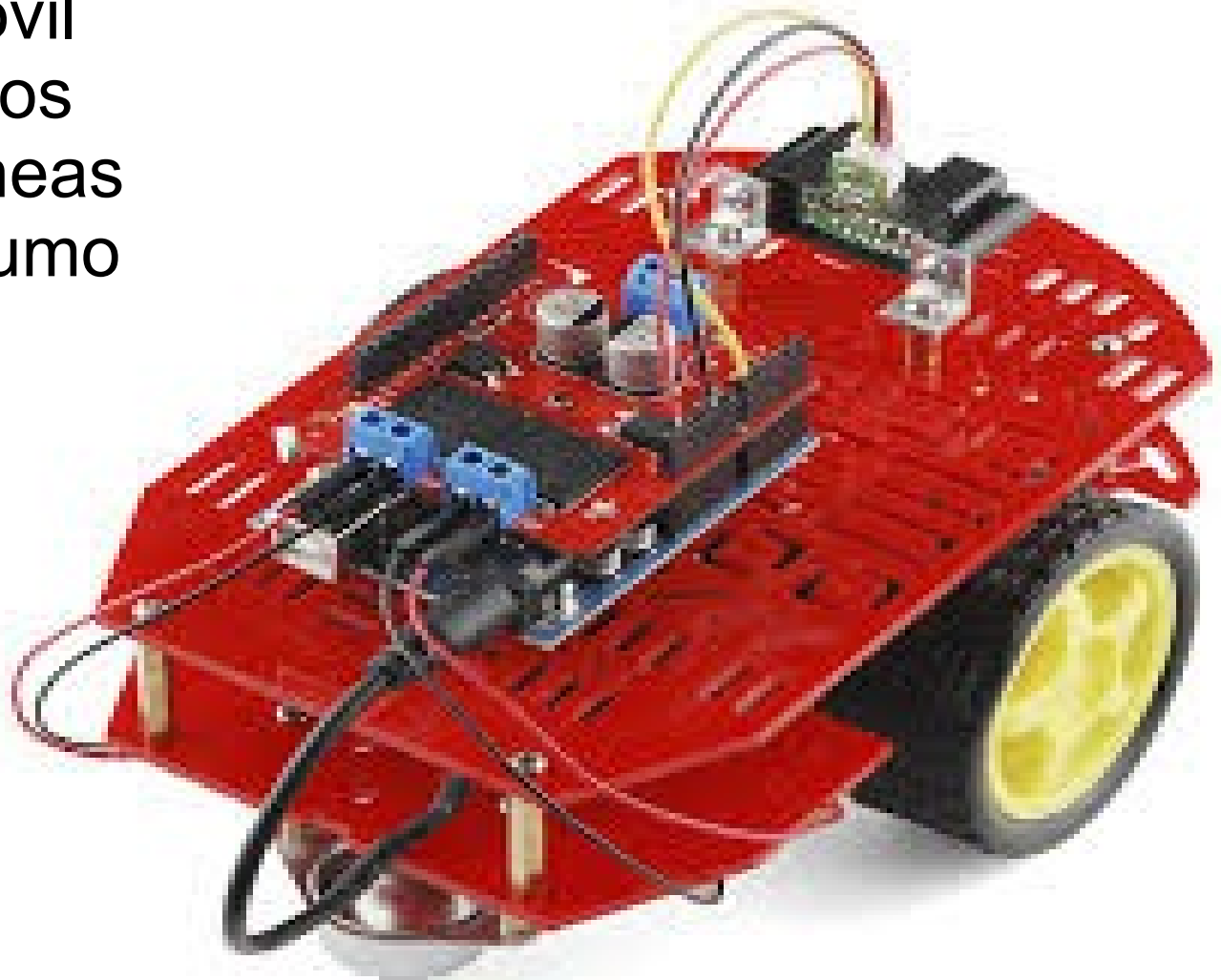


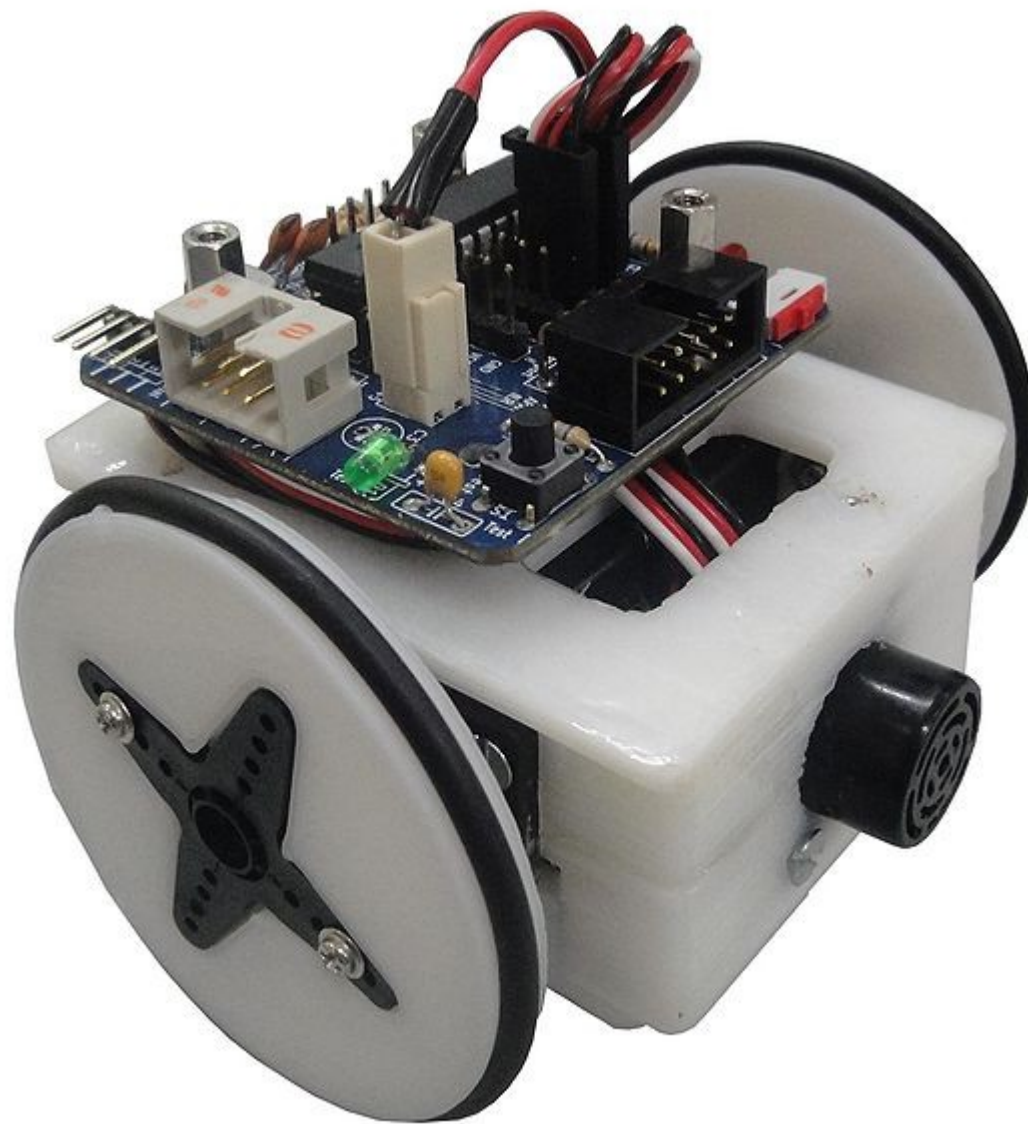
<http://arduino.cc/es/main/software>



Robots inteligentes

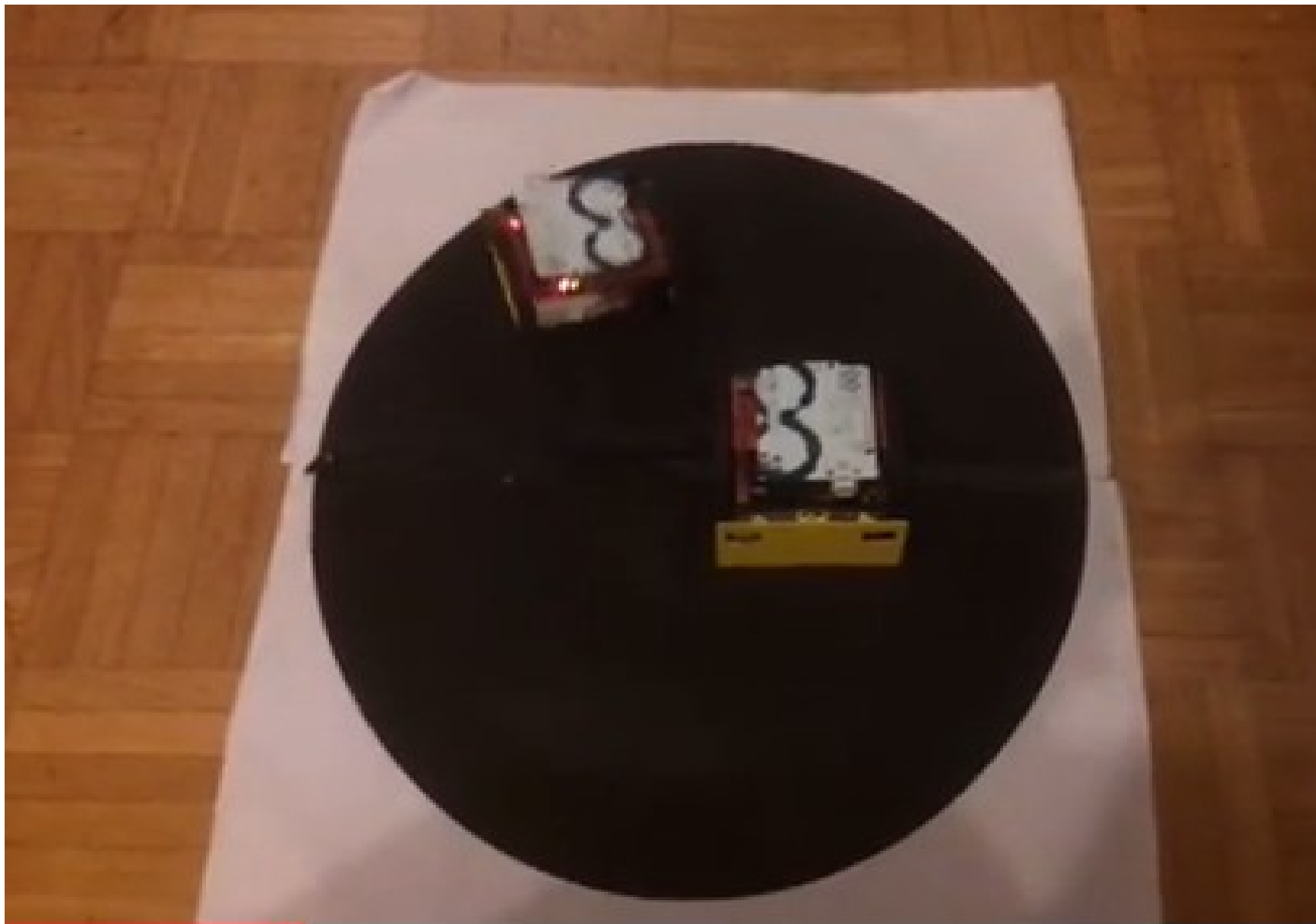
- Teledirigido móvil
- Evitar obstáculos
- Seguidor de líneas
- Luchador de sumo



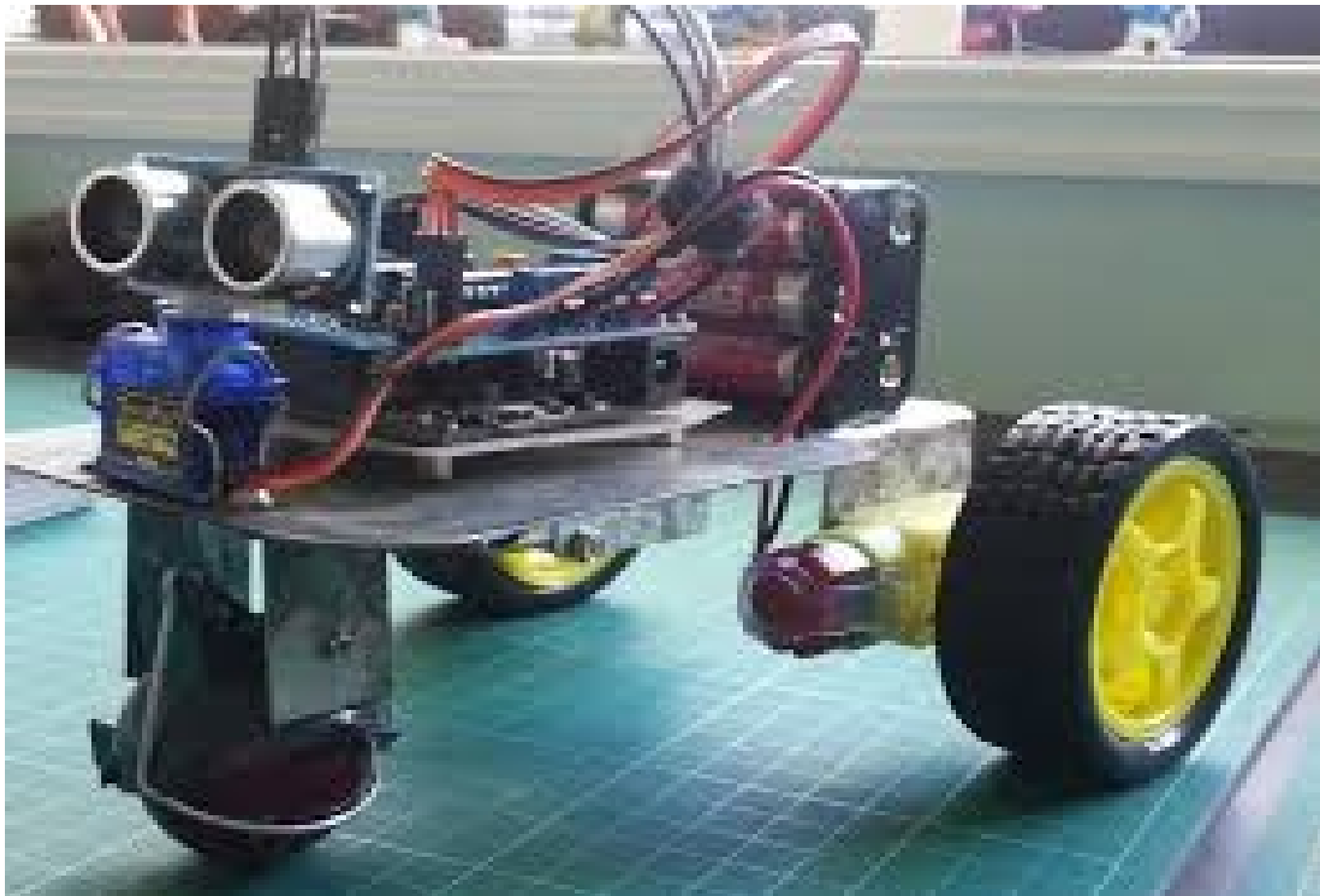




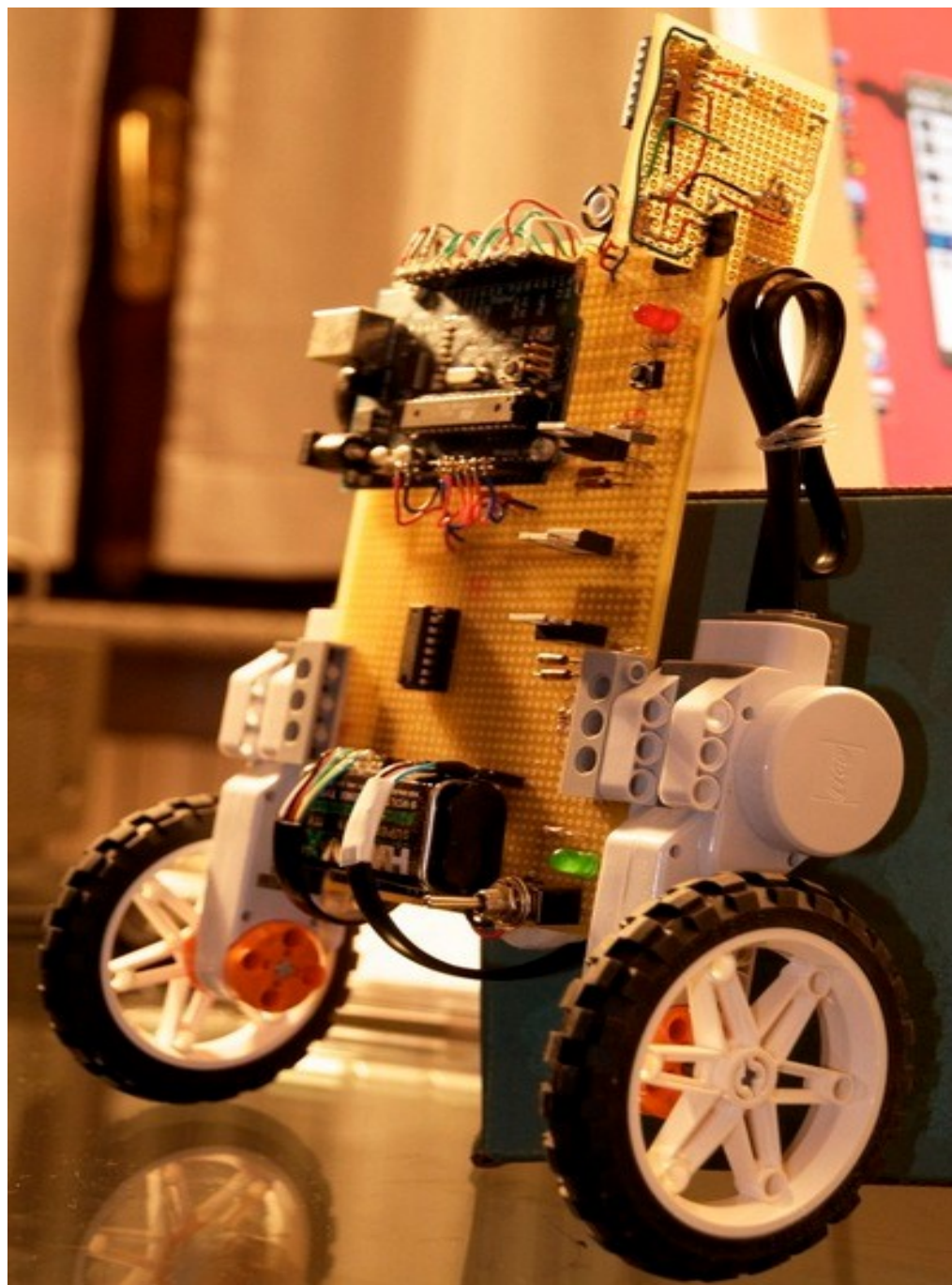
<https://www.youtube.com/watch?v=9cVSzB8otpU>



<https://www.youtube.com/watch?v=0BPBBWwLmTs>



<https://www.youtube.com/watch?v=ON1z2JY32Mg>



<http://hacknmod.com/hack/make-a-mini-segway-using-the-arduino/>



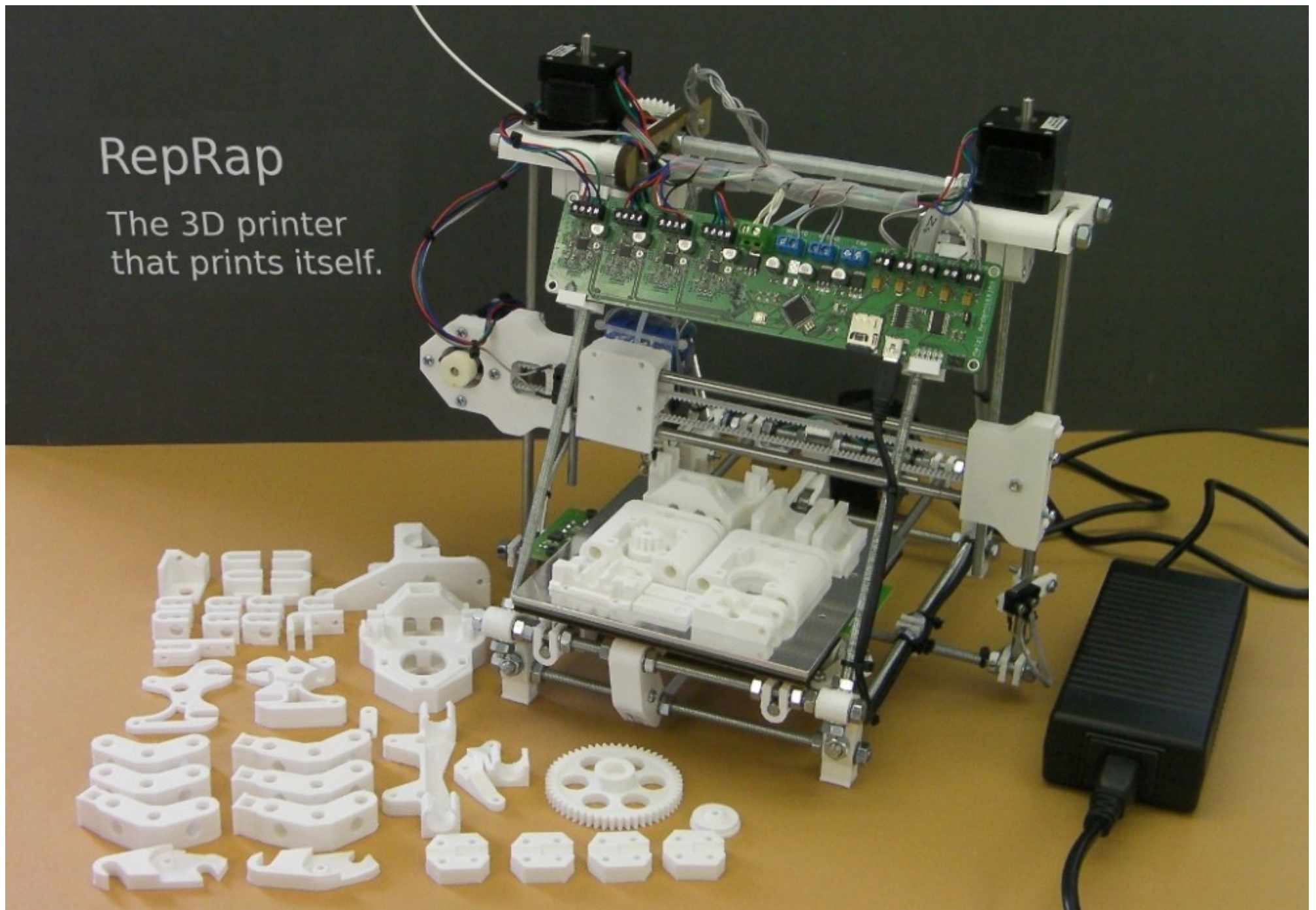
<https://www.youtube.com/watch?v=7L7oxoZEG-A>



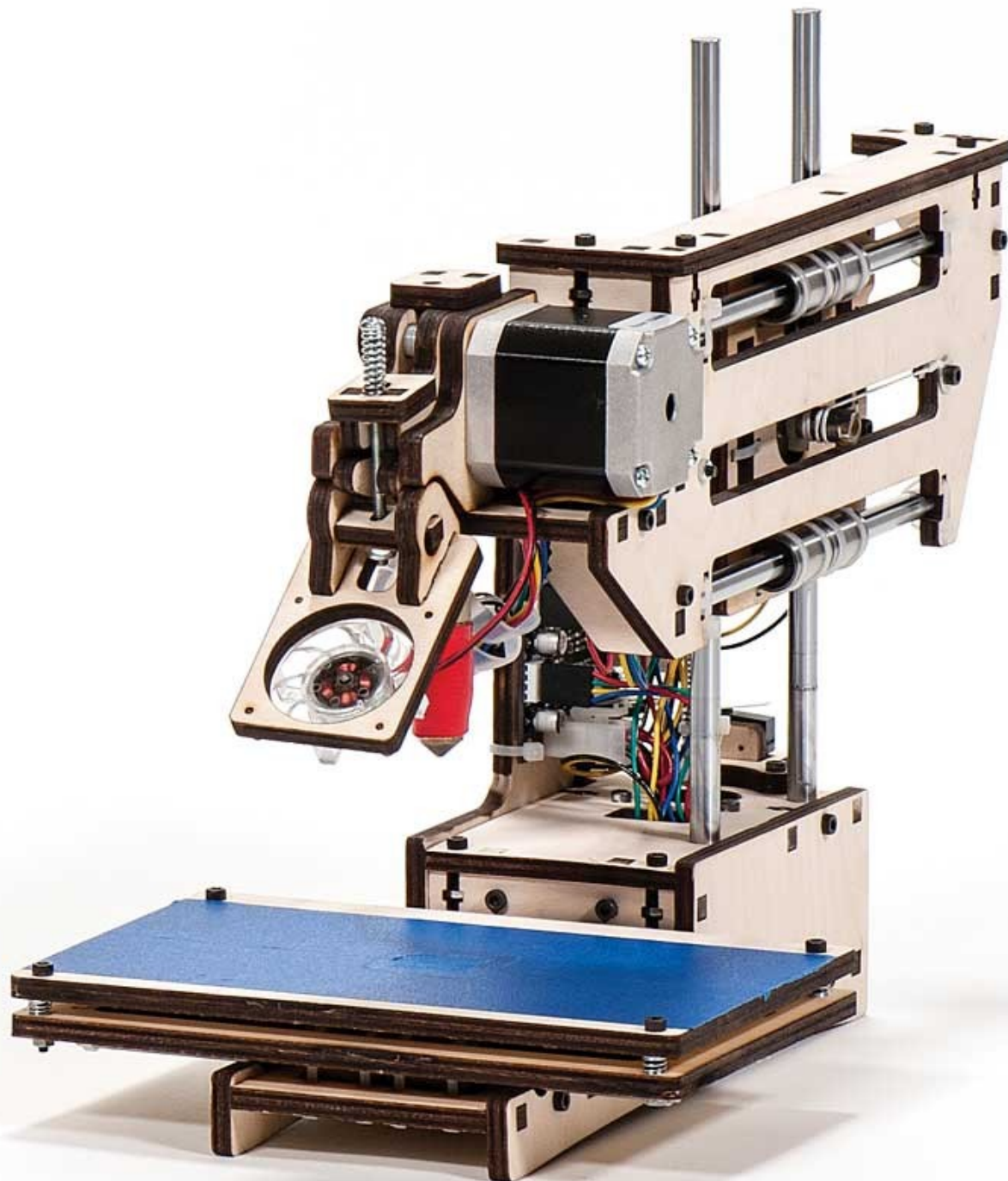
<http://www.aeroquadstore.com/>

RepRap

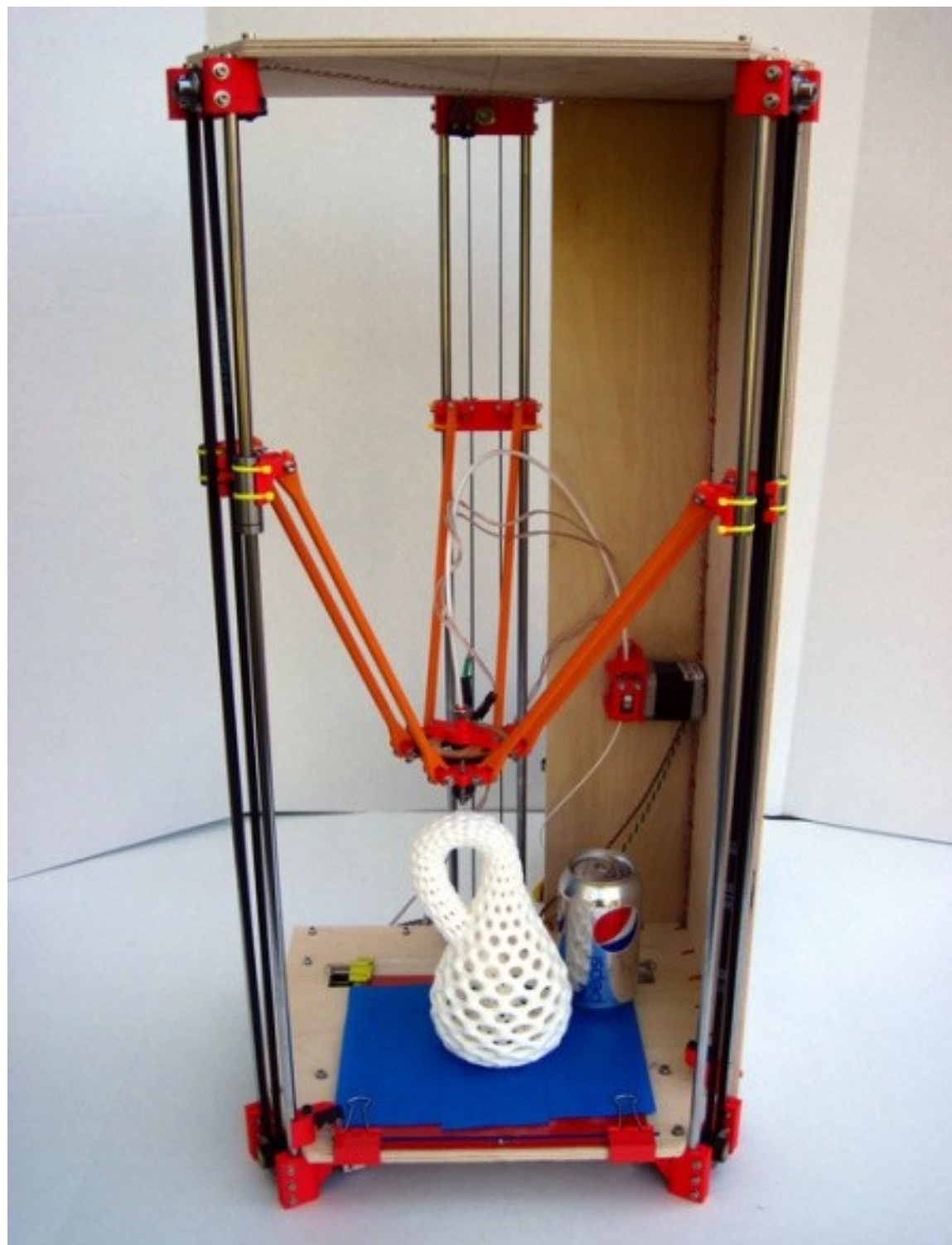
The 3D printer
that prints itself.



<http://reprap.org/>









<http://www.instructables.com/id/3D-Printed-Camera-OpenReflex/>



<http://kekado.zapto.org/kevin/open.html>



<http://www.instructables.com/id/NaCade-The-Naked-Raspberry-Pi-Arcade-Machine/>

MakerBot Thingiverse
#backtoschool
Challenge
Most Useful



Thingiverse Featured

Most Useful was based on the application of the design. The Back to Basics Drafting Set won for its intense focus on utility. The pencil case has two 30-60-90 triangles for drawing lines and angles, as well as tracing several radii. The two pencil toppers snap together to create a compass. Finally, the ruler has four scales: "a 1:10 and 1:50 engineering scale, and a 1:100 and 1:500 metric scale."

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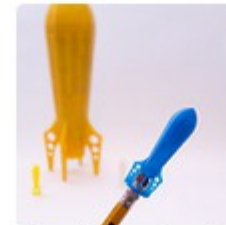
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Dissolvable



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Purple



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October 4, 2013 By Brian Benchoff · 6 Comments



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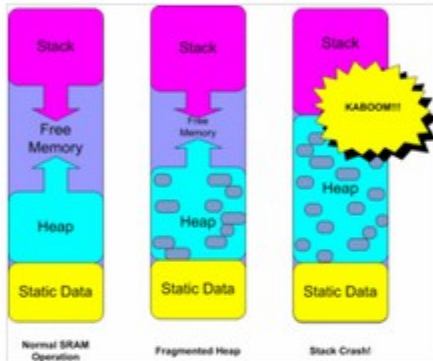


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Memories of an Arduino

How to get the most from your Arduino Memory



As your Arduino projects get more sophisticated, they tend to grow to the point where memory limitations can become a problem. This guide explains the different types of Arduino memory and how to use them most effectively.

Lesson 0. Getting Started

Learn Arduino, Lesson 0. Getting Started



Adafruit Proto Shield for Arduino

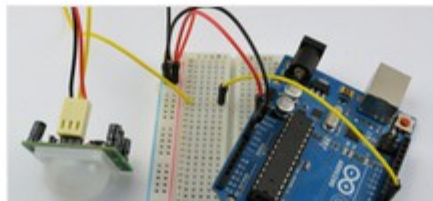
Arduino Prototyping



This is a design for an open-source prototyping shield for Arduino NG/Diecimila. It has tons of cool features, to make prototyping on your Arduino easy.

Arduino Lesson 17. Email Sending Movement Detector

Use an Arduino to send an email, whenever movement is detected with a PIR sensor.



Adafruit Arduino Selection Guide

Which Arduino is Right for Me?



This guide explains the differences between the various types of Arduinos and Arduino compatible microcontrollers and helps you to select the one that best fits your needs.

All About Arduino Libraries

How to install and use Arduino Libraries

Featured **Popular**

Light Painting with Raspberry Pi

Awesome photographic effects!



Light painting — a technique mixing photography with electronics — becomes astoundingly simple when Raspberry Pi is involved.

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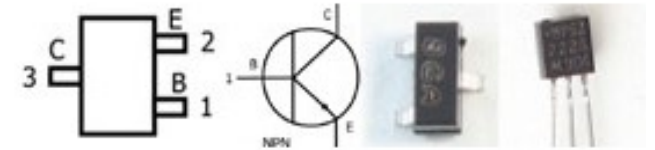
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A new open source hardware project every month



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DANGER

**PROTOTYPING
IN PROGRESS**

Our goal is to release a new open hardware project every month. This is a list of our projects that are currently in production. You can also see [in development projects](#), and [stuff we never got around to finishing](#). All the files and documentation are open source, feel free to reuse and share them. If you'd like to build a project yourself, [free PCBs](#) might be available.

This documentation is a wiki for anyone to edit. Please don't be shy, make corrections and contributions when you like.

<http://dangerousprototypes.com/>

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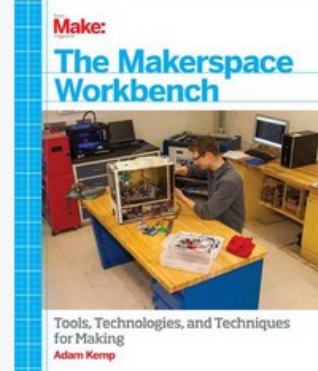
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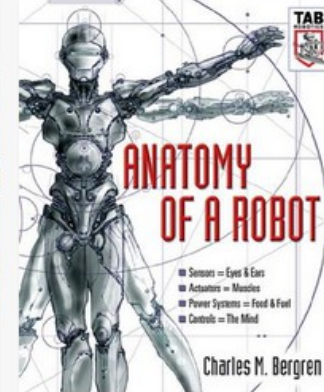
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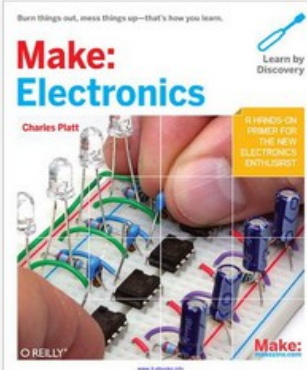
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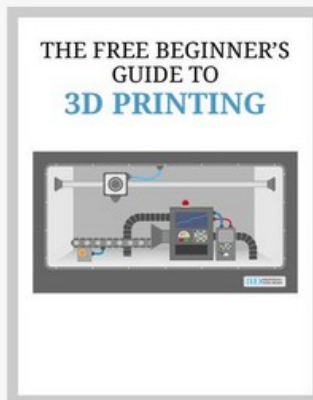
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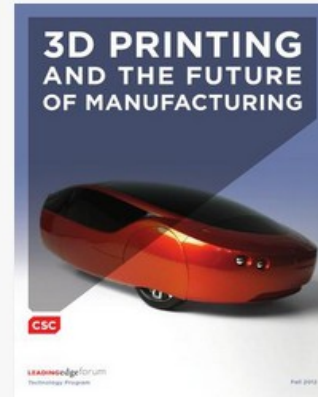
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