



- 6. Is the coffee too hot?
- 7. Is the party too loud?
- 8. Is the house too hot?
- 9. Is the food too good?
- 10. Is the view of the sea too good?
- 11. Is the sun too hot?
- 12. Is the water too cold?
- 13. Is the air too clean?
- 14. Is the sky too blue?
- 15. Is the grass too green?

Putting the web up
by tomorrow

ARDUINO

UNO

DISCLAIMER

do NOT try to make the things you'll see in the show without help from an adult, ask a professor, a senior fellow or your granddad

do NOT use this for medical applications, do not lick batteries, do not put your wet fingers into power-plugs, not swallow parts, wires are not candy...

Arduino

OPEN SOURCE HARDWARE - d.cuartielles@arduino.cc

WHO?

OPEN SOURCE HARDWARE - d.cuartielles@arduino.cc



WHEN?

from HCI to Interaction Design

WHAT?

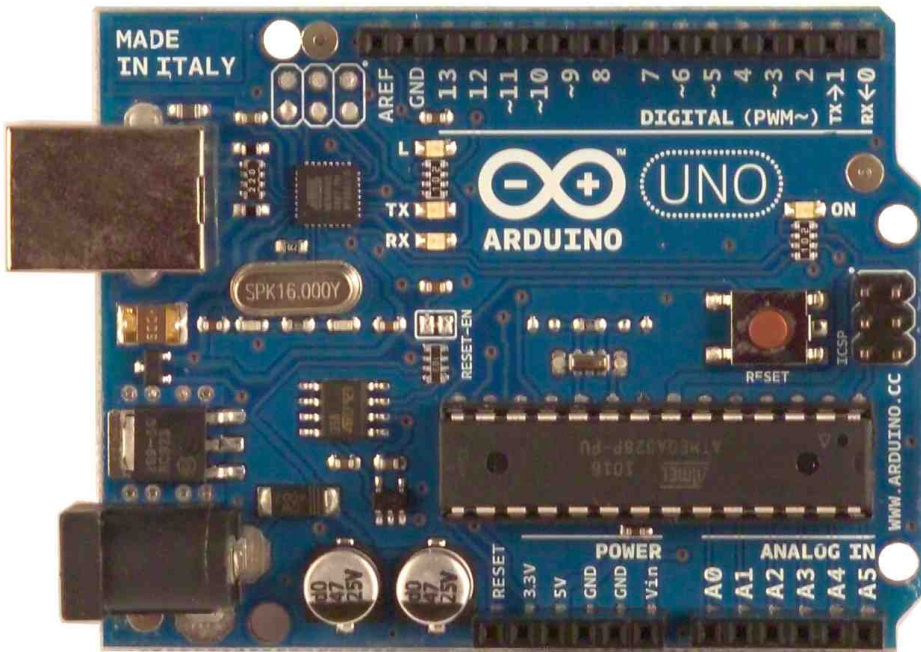
but ... what is that Arduino thing?

Arduino:

1) in nature Arduino appears as a blue printed circuit board. We call it **I/O board**, which may show up as machine-mounted artifact, or as *DIY kit*. It will run standalone, but also as an alternative peripheral to computers.

2) in the world of software, Arduino shows up as an **IDE** that allows the easy programming of the I/O board

3) it is an **educational method** including *DIY examples* for people to try out through tinkering and on-line collaboration



```
File Edit Sketch Tools Help
Blink
/*
Blink
Turns on an LED on for one second, then off for one second, repeatedly.

The circuit:
* LED connected from digital pin 13 to ground.

* Note: On most Arduino boards, there is already an LED on the board
connected to pin 13, so you don't need any extra components for this example.

Created 1 June 2005
By David Cuartielles

http://arduino.cc/en/Tutorial/Blink

based on an original by H. Barragan for the Wiring i/o board

*/

int ledPin = 13; // LED connected to digital pin 13

// The setup() method runs once, when the sketch starts
<
1
```

 search

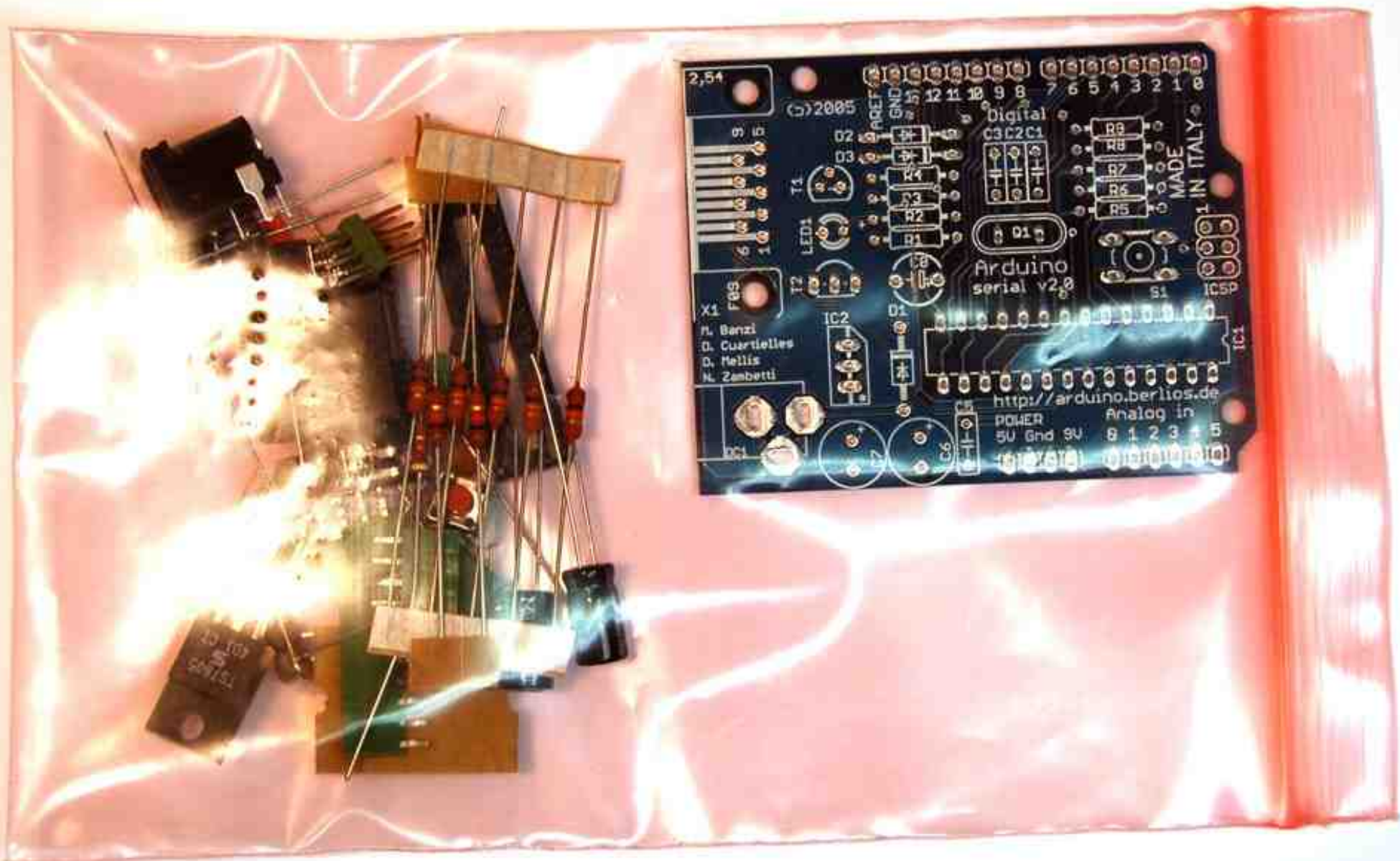
Buy Download Getting Started Learning Reference Hardware FAQ Blog » Forum » Playground »



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.

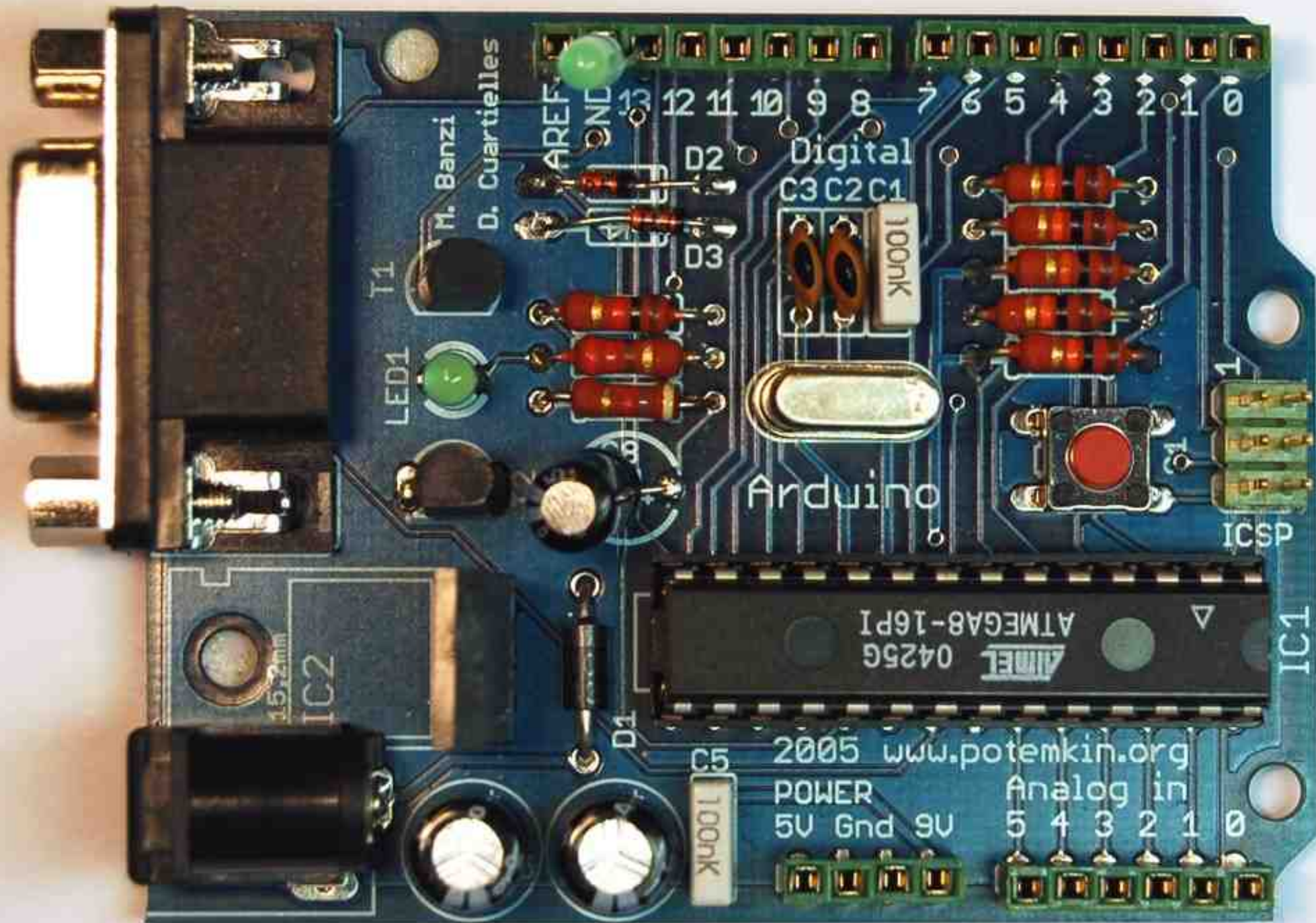
Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators. The microcontroller on the board is programmed using the Arduino programming language (based on Wiring) and the Arduino development environment (based on Processing). Arduino projects can be stand-alone or they can communicate with software on running on a computer (e.g. Flash, Processing, MaxMSP).

Arduino's Landscape

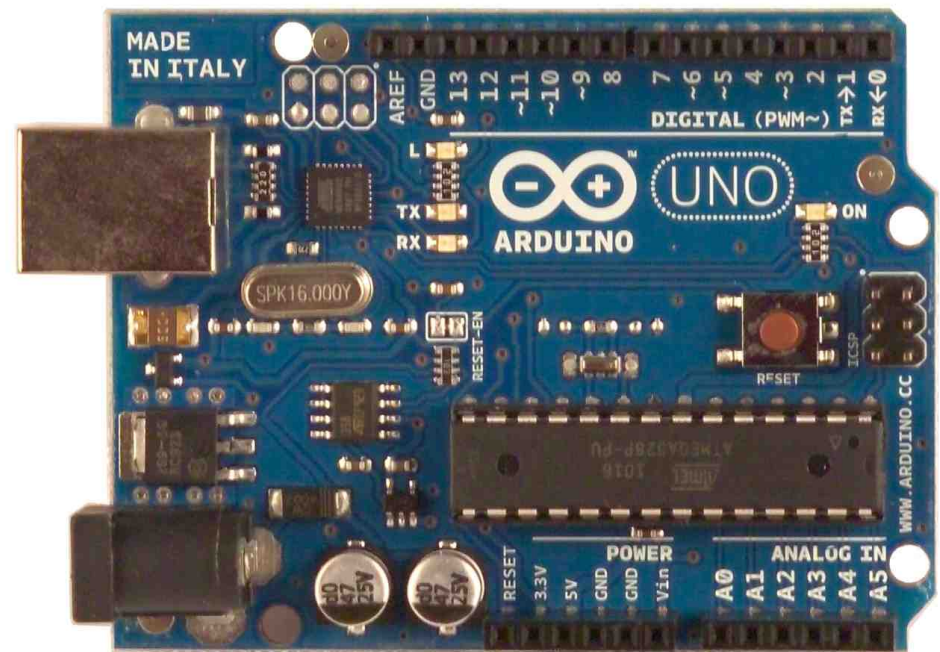
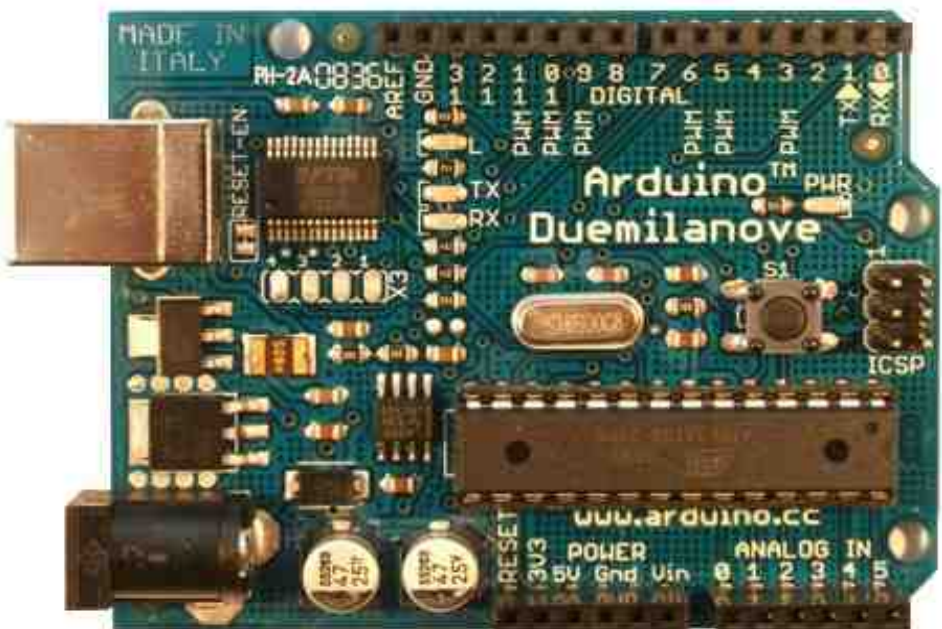
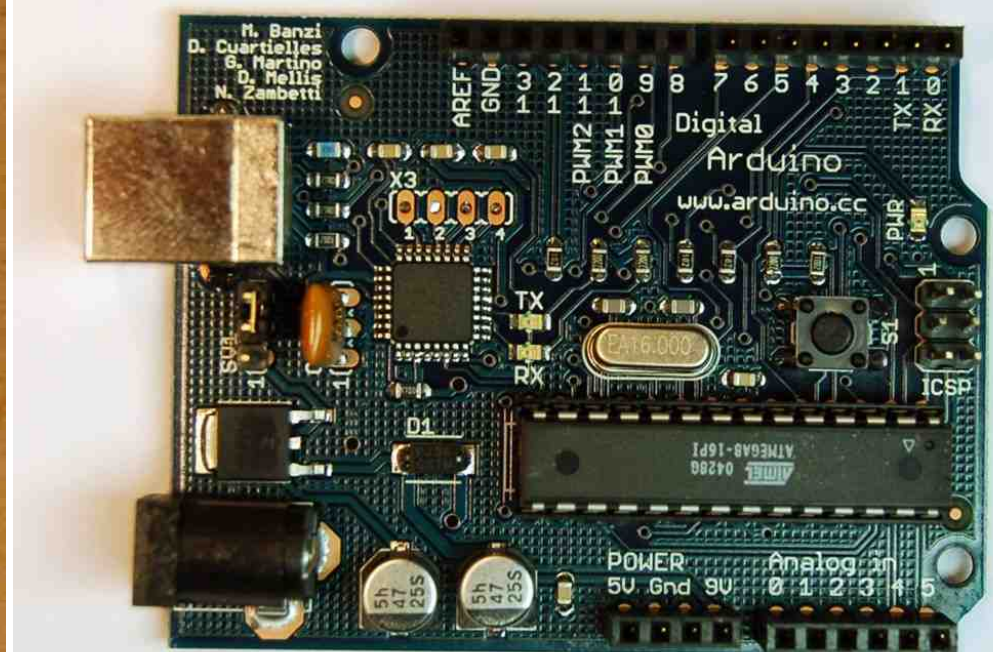
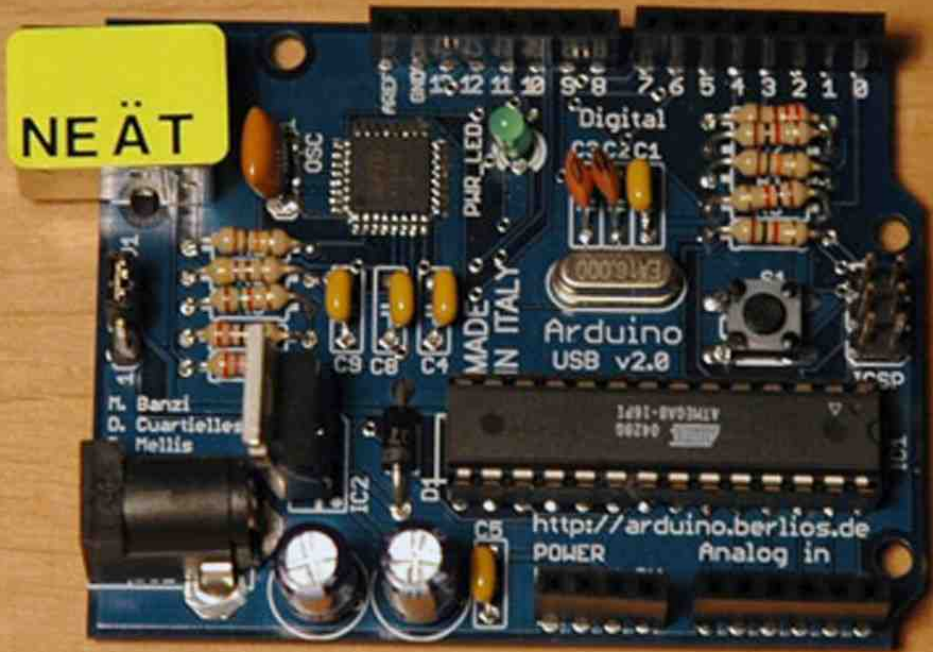


2,54
GND 12 11 10 9 8 7 6 5 4 3 2 1
Digital
C3 C2 C1
R9
R8
R7
R6
R5
MADE IN ITALY
Arduino
serial v2.0
IC1
IC2
D1
C6
C5
S1
LED1
T1
T2
X1
F89
N. Banzi
D. Cuartielles
D. Mellis
N. Zambetti
http://arduino.berlios.de
POWER Analog in
5V Gnd 9V 8 1 2 3 + 5

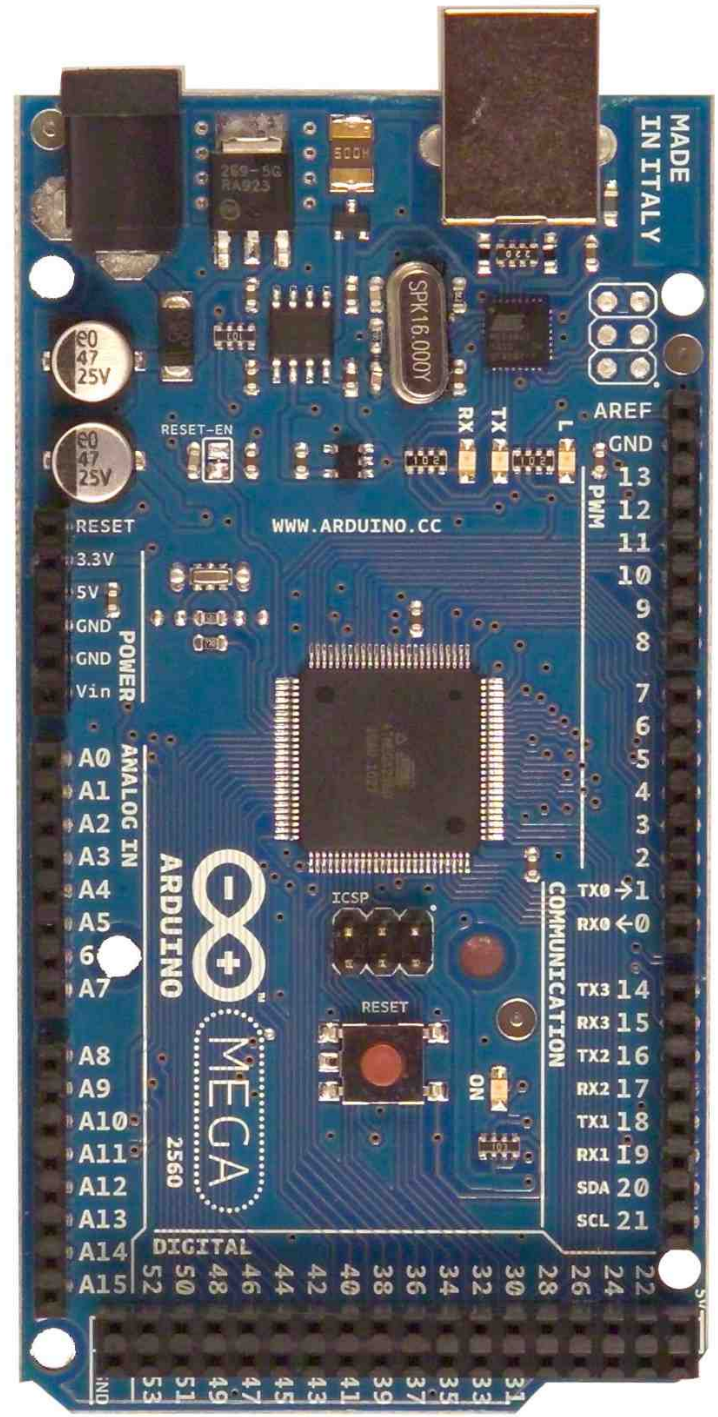
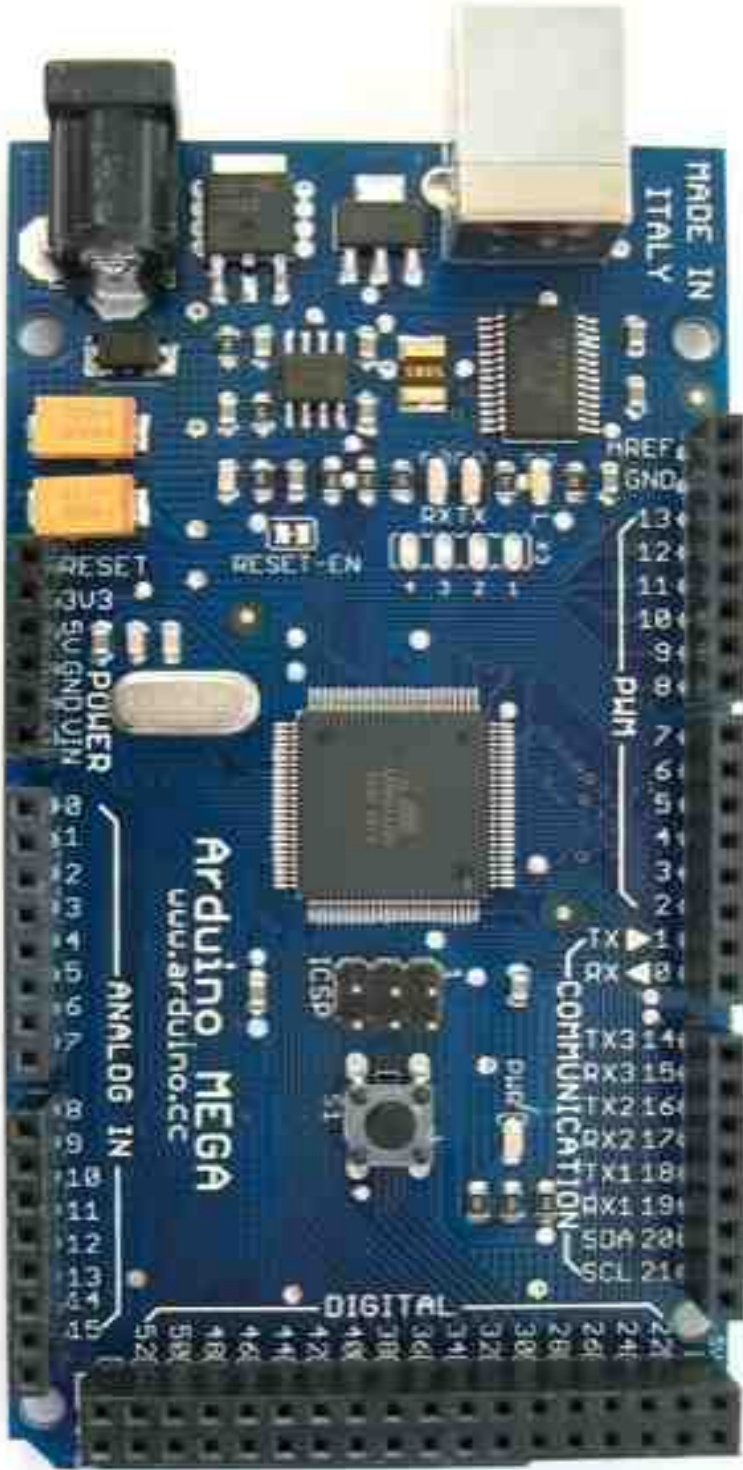
serial kit v2.0 – 2005 September



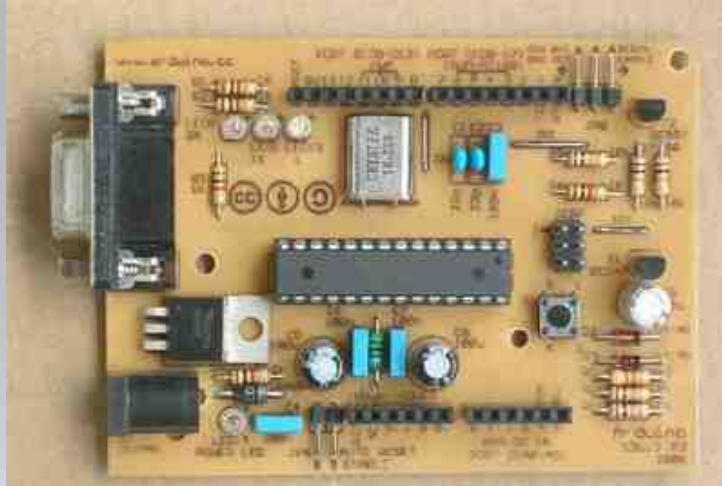
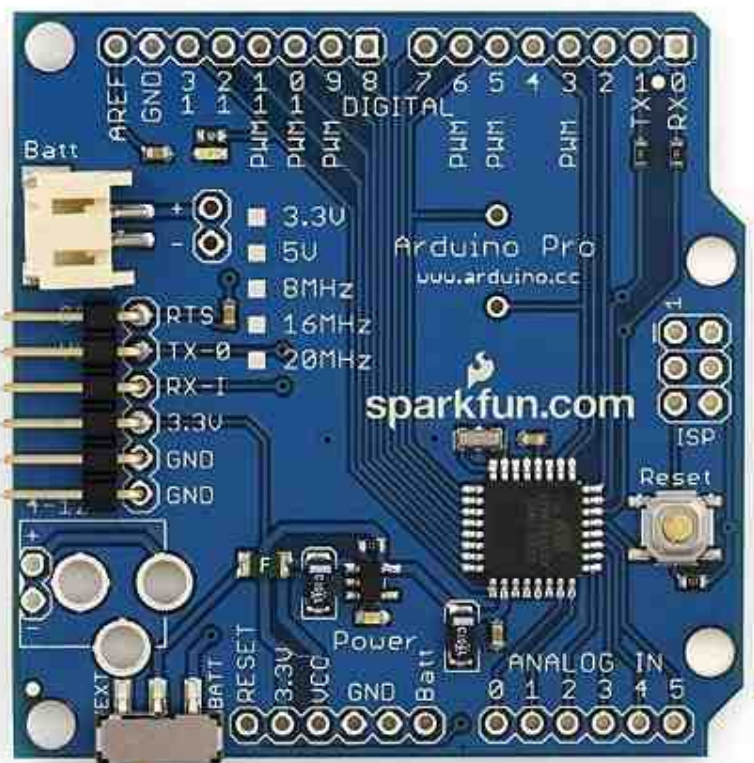
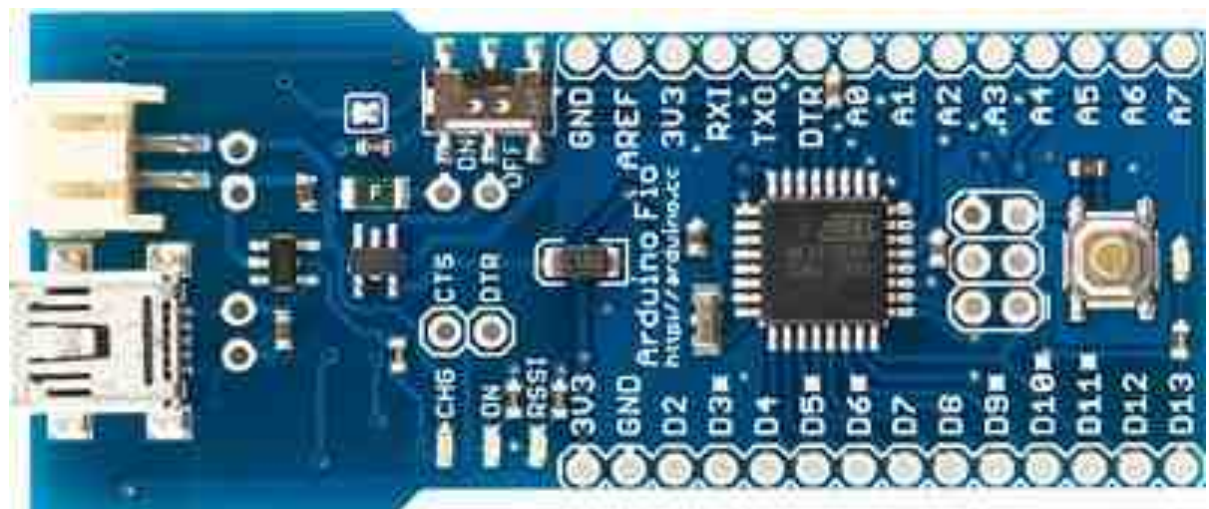
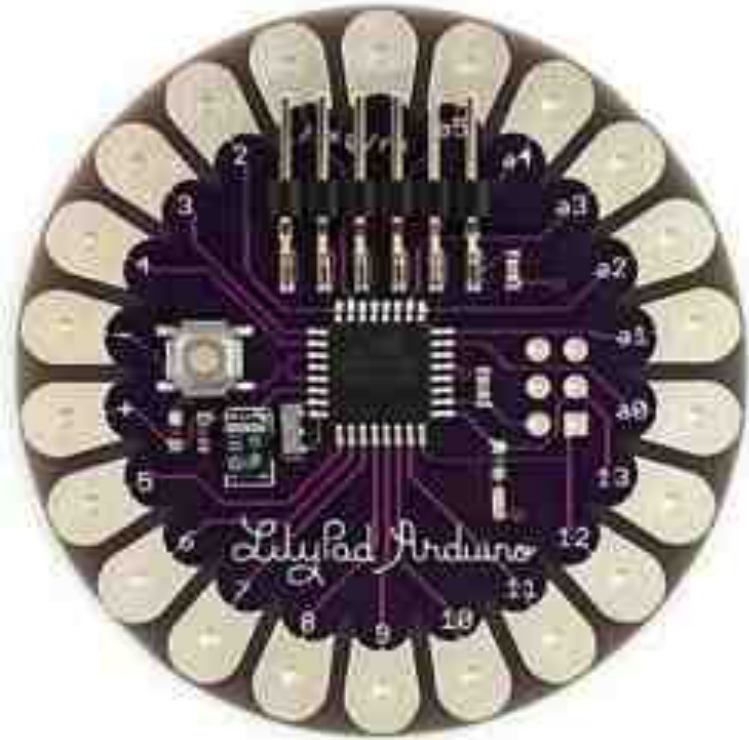
serial v1.0 – 2005 March



USB boards – 2006/2010



Mega (2009) vs. Mega2560 (2010)





Blink

/*

Blink

Turns on an LED on for one second, then off for one second, repeatedly.

The circuit:

* LED connected from digital pin 13 to ground.

* Note: On most Arduino boards, there is already an LED on the board connected to pin 13, so you don't need any extra components for this example.

Created 1 June 2005

By David Cuartielles

<http://arduino.cc/en/Tutorial/Blink>

based on an original by H. Barragan for the Wiring i/o board

*/

```
int ledPin = 13;    // LED connected to digital pin 13
```

```
// The setup() method runs once, when the sketch starts
```

<

Arduino

Arduino Tutorials

Here you will find a growing number of examples and tutorials for accomplishing specific tasks or interfacing to other hardware and software with Arduino. For instructions on getting the board and environment up and running, see the [Arduino guide](#).

Examples

Digital Output

- [Blinking LED](#)
- [Blinking an LED without using the delay\(\) function](#)
- [Dimming 3 LEDs with Pulse-Width Modulation \(PWM\)](#)
- [Knight Rider example](#)
- [Shooting star](#)

Digital Input

- [Digital Input and Output \(from ITP physcomp labs\)](#)
- [Read a Pushbutton](#)
- [Using a pushbutton as a switch](#)
- [Read a Tilt Sensor](#)

Analog Input

- [Read a Potentiometer](#)
- [Interfacing a Joystick](#)
- [Controlling an LED circle with a joystick](#)
- [Read a Piezo Sensor](#)
- [3 LED cross-fades with a potentiometer](#)
- [3 LED color mixer with 3 potentiometers](#)

Complex Sensors

- [Read an Accelerometer](#)
- [Read an Ultrasonic Range Finder \(ultrasound sensor\)](#)
- [Reading the qprox qt401 linear touch sensor](#)

Interfacing with Other Software

- [Introduction to Serial Communication \(from ITP physcomp labs\)](#)
- [Arduino + Flash](#)
- [Arduino + Processing](#)
- [Arduino + PD](#)
- [Arduino + MaxMSP](#)
- [Arduino + VVVV](#)
- [Arduino + Director](#)
- [Arduino + Ruby](#)
- [Arduino + C](#)

Tech Notes (from the forums or playground)

- [Software serial \(serial on pins besides 0 and 1\)](#)
- [L297 motor driver](#)
- [Hex inverter](#)
- [Analog multiplexer](#)
- [Power supplies](#)
- [The components on the Arduino board](#)
- [Arduino build process](#)
- [AVRISP mkII on the Mac](#)
- [Non-volatile memory \(EEPROM\)](#)
- [Bluetooth](#)
- [Zigbee](#)
- [LED as light sensor \(en Français\)](#)
- [Arduino and the Asuro robot](#)
- [Using Arduino from the command line](#)

- [GUIDE](#)
- [TUTORIALS](#)
- [REFERENCE](#)
- [HARDWARE](#)
- [SOFTWARE](#)
- [FORUM](#)
- [PLAYGROUND](#)
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- [HACKING](#)
- [FAQ](#)
- [BUY](#)

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[Blog »](#) | [Forum »](#) | [Playground »](#)

[Learning](#) [Examples](#) | [Foundations](#) | [Hacking](#) | [Links](#)

Examples

See the [foundations page](#) for in-depth description of core concepts of the Arduino hardware and software; the [hacking page](#) for information on extending and modifying the Arduino hardware and software; and the [links page](#) for other documentation.

Here's a [style guide](#) that helps with writing examples for beginners:

Basics

Simple programs that demonstrate basic Arduino commands. These are included with the Arduino environment; to open them, click the Open button on the toolbar and look in the [examples folder](#).

Digital I/O

- [Blink](#): turn an LED on and off.
- [Blink Without Delay](#): blinking an LED without using the `delay()` function.
- [Button](#): use a pushbutton to control an LED.
- [Button State Change](#): counting the number of button pushes
- [Debounce](#): read a pushbutton, filtering noise.
- [Tone](#): play a melody with a Piezo speaker.
- [Pitch follower](#): play a pitch on a piezo speaker depending on an analog input
- [Simple Keyboard](#): A three-key musical keyboard using force sensors and a piezo speaker.
- [Tone4](#): Play tones on multiple speakers sequentially using the `tone()` command.

Analog I/O

- [Analog Input](#): use a potentiometer to control the blinking of an LED.
- [Calibration](#): for analog sensor readings
- [Fading](#): uses an analog output (PWM pin) to fade an LED.
- [Smoothing](#): smooth multiple readings of an analog input.

Control Structures

Libraries

Examples from the libraries that are included in the Arduino software.

EEPROM Library

- [EEPROM Clear](#): clear the bytes in the EEPROM.
- [EEPROM Read](#): read the EEPROM and send its values to the computer.
- [EEPROM Write](#): stores values from an analog input to the EEPROM.

LiquidCrystal Library

- [Hello World](#) - displays "hello world!" and the seconds since reset
- [Blink](#) - control of the block-style cursor
- [Cursor](#) - control of the underscore-style cursor
- [Display](#) - quickly blank the display, without losing what's on it.
- [TextDirection](#) - control which way text flows from the cursor
- [Scroll](#) - scroll text left and right
- [Serial Input](#) - accepts serial input, displays it
- [SetCursor](#) - set the cursor position
- [Autoscroll](#) - shift text right and left

Servo Library



















- [Knob](#): control the shaft of a servo motor by turning a potentiometer.
- [Sweep](#): sweeps the shaft of a servo motor back and forth.

16.03.2010 at 13:08:22

Arduino: Forum

[Home](#) | [Help](#) | [Login](#) | [Register](#)

Arduino Forum

Forum Name	Last Post
 General	
 News Read about the latest happenings to Arduino <i>Moderator: Massimo Banzl</i>	 Yesterday at 18:57:53 In: Re: Mac OS X 10.6 Snow Le... By: AhrBee
 Frequently-Asked Questions For issues that don't fit in any other board.	 Today at 12:45:03 In: Re: PULSEIN Function Code... By: Groove
 Workshops Discussion about organising workshops around the world	 Today at 09:53:13 In: Re: UK Maker Faire 2010 By: TonyD
 Exhibition What you've made with Arduino.	 Today at 07:10:47 In: Re: I am porting Arduino... By: GorillaCoder
 Bar Sport General relax area. Write in any language you feel about stuff that doesn't necessarily have to do with electronics.	 Today at 09:52:31 In: Re: Turning on LED from S... By: Grumpy_Mike
 Hardware	
 Troubleshooting Help getting the Arduino board up and running.	 Today at 12:59:12 In: Re: Someone help with my... By: bonglimat
 Interfacing Using Arduino with electronic components, ICs, other microcontrollers, etc. <i>Moderator: follower</i>	 Today at 12:45:09 In: Re: RGB LED with VB 2008... By: ArduinoM
 Bugs & Suggestions Help us improve the Arduino hardware	 Today at 09:16:38 In: Re: 32 bits By: retrolefty

Info Center

We have **20035** registered members.
The newest member is **Blue87**.
You have **58** Personal Messages of which **12** are new.

||||| YaBB Administrator

||||| Global Moderator


(159.91.120.79), **stratosfear**
, **Forum Administrator**
(29.189), **Photo-Worx** (208.95.212.212),
, **hcue** (173.162.38.105), **dan.stoeckel**
(215), **econjack** (65.10.247.254), **kintel**
rengoor (62.80.252.115), **MrZ**
ederico Vanzati (79.44.159.126), **gport**
(89.169.96.60), **n00b** (80.47.220.161),
(50.58), **chuggins143** (76.225.134.3),
er (217.155.52.62), **graymalkin**
(93.32.160.64), **Combatraffi**


(79.50.10.20, 92.52.54.151, 78.25.22.53,
91.212.226.80, 217.111.0.10,
121.4.66.132, 152.18.152.190,
24.119.63.93, 72.14.199.117, 135.245.8.2)

MARCH 2010

Info Center

We have **32798** registered members.
The newest member is **madaerodog**.
You have **73** Personal Messages of which **15** are new.

 YaBB Administrator

 Global Moderator

le0380, george_graves, koghe, wayoda,
key, carlesia, JustinAckermann, flapjackboy,
monJ, Lars Jacobsen, Iesto, Joghurt, Sebelec,
ick

Forum Jump

Arduino Forum » Powered by YaBB 2.2.3!
YaBB © 2000-2008. All Rights Reserved.



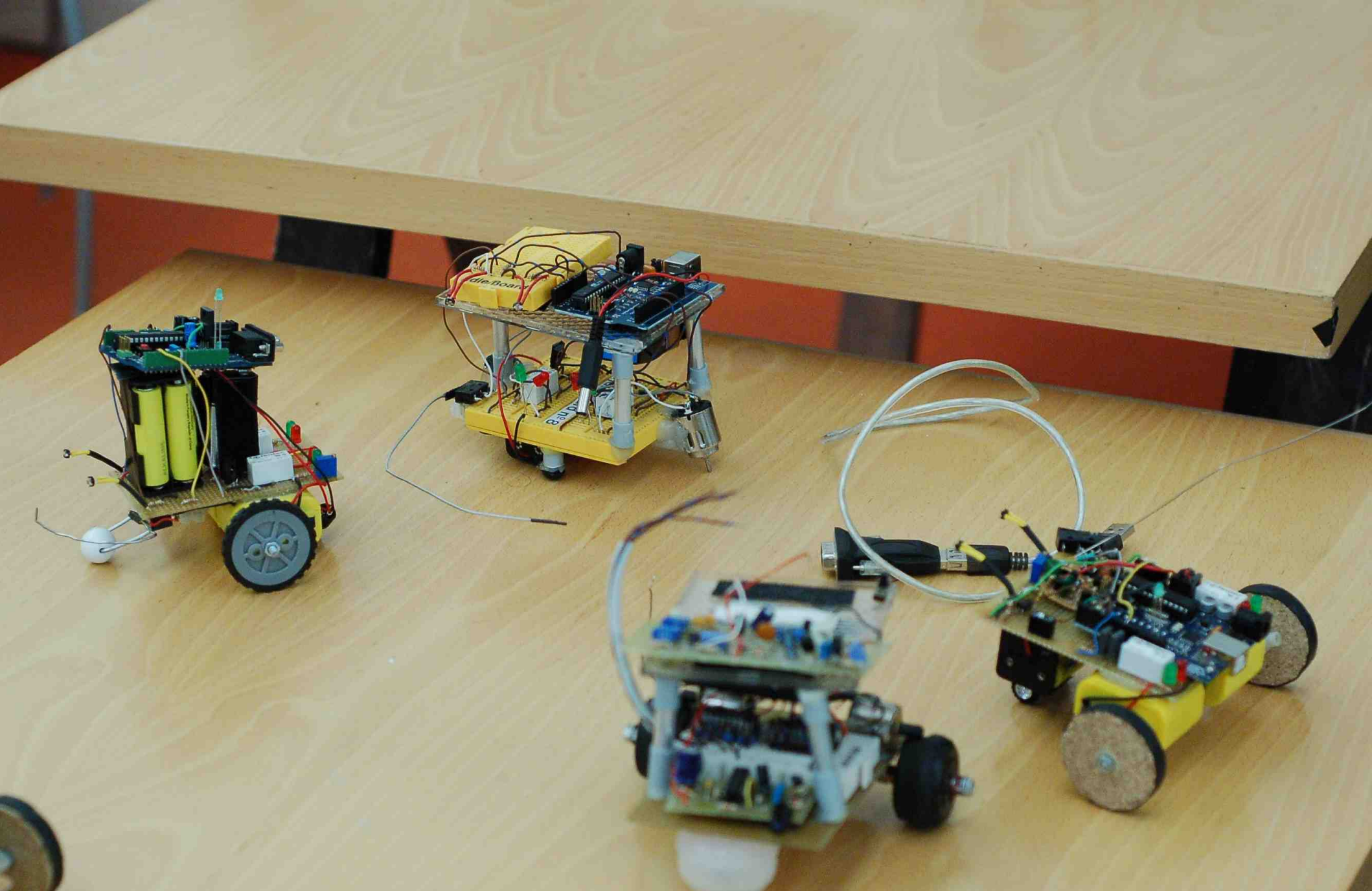
NOVEMBER 2010

HOW?

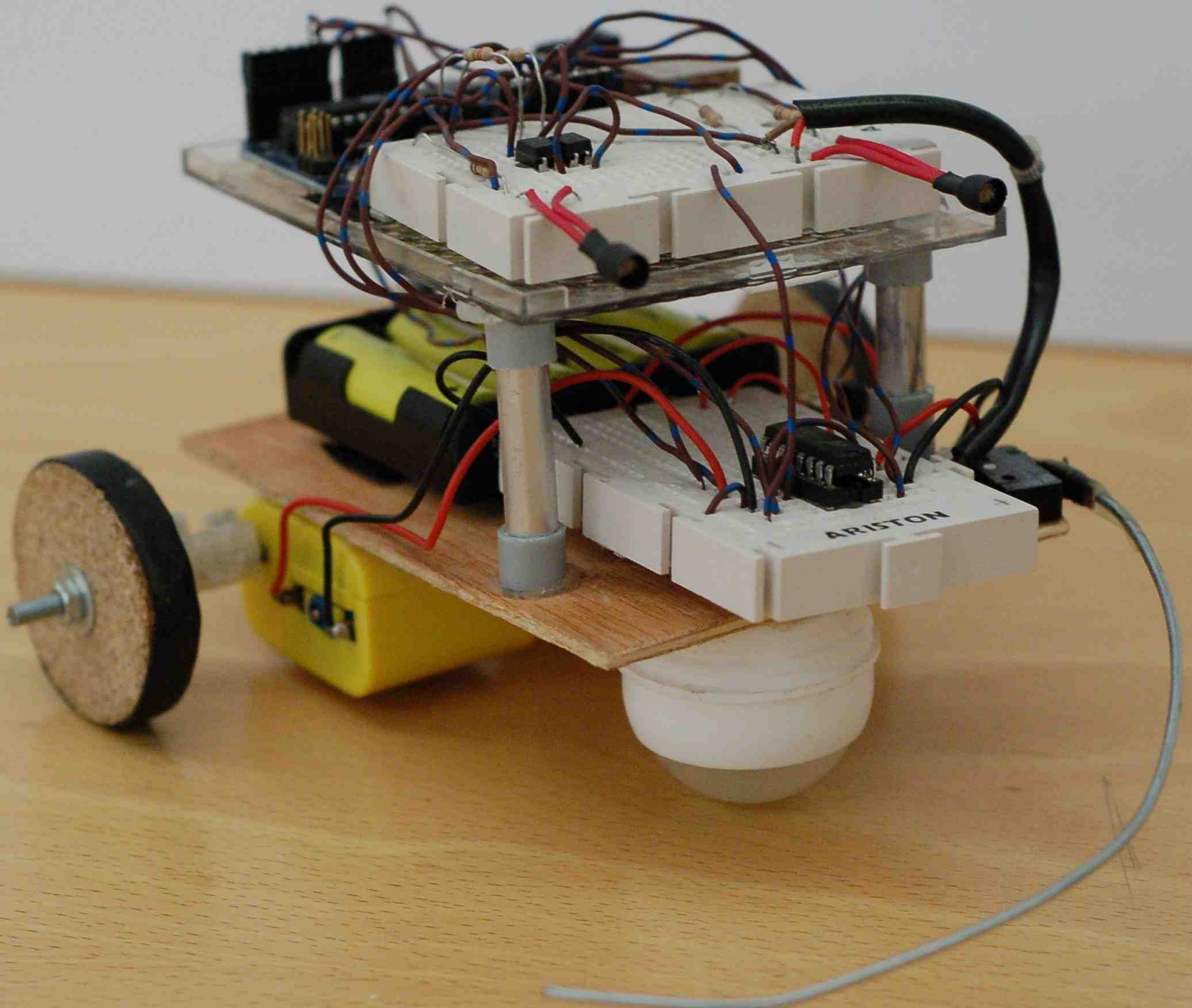
In the series: think - build - try - burn - ...



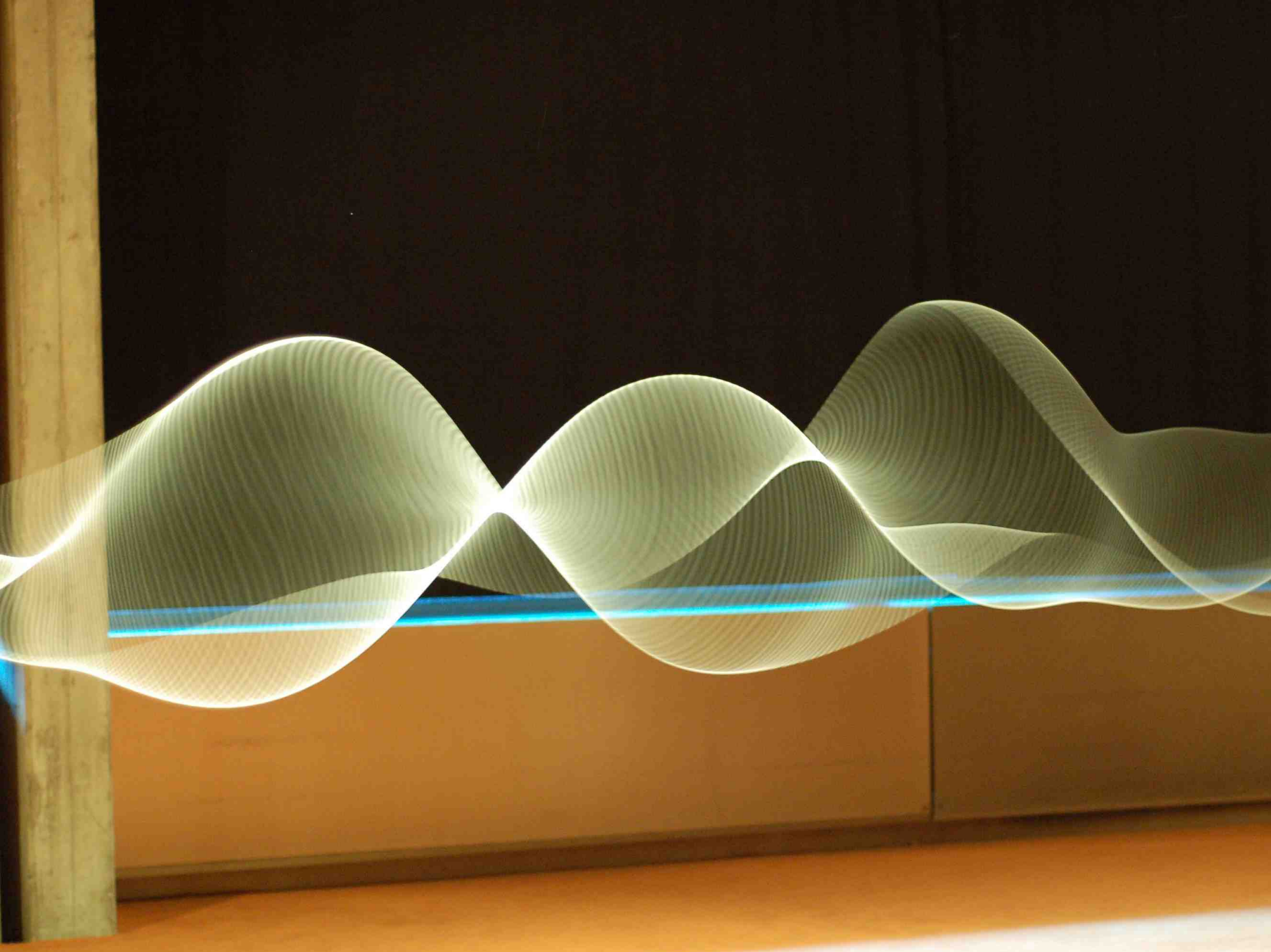
CHINESE ROBOTNAUTS

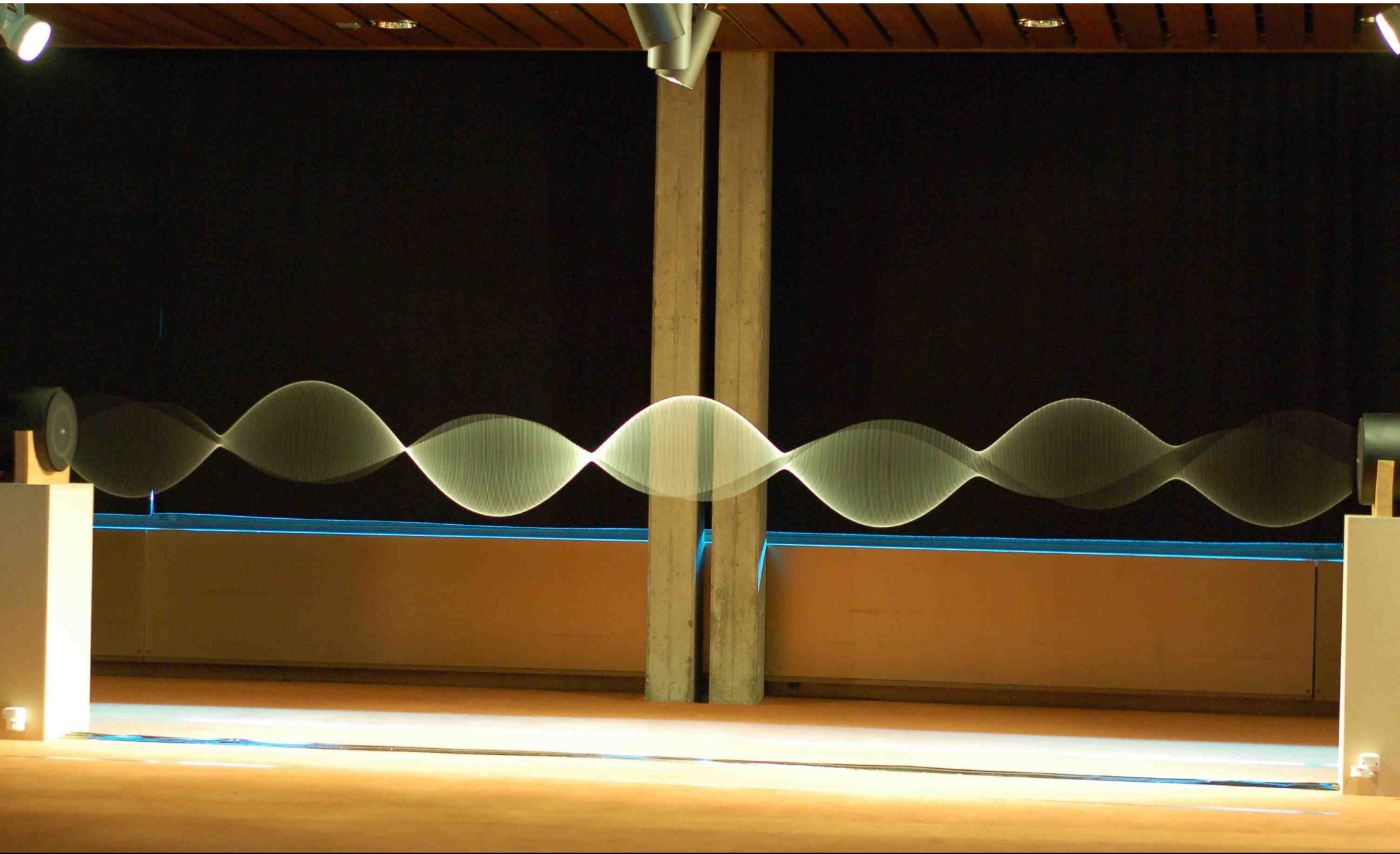


SPANISH COUNTER-ACT

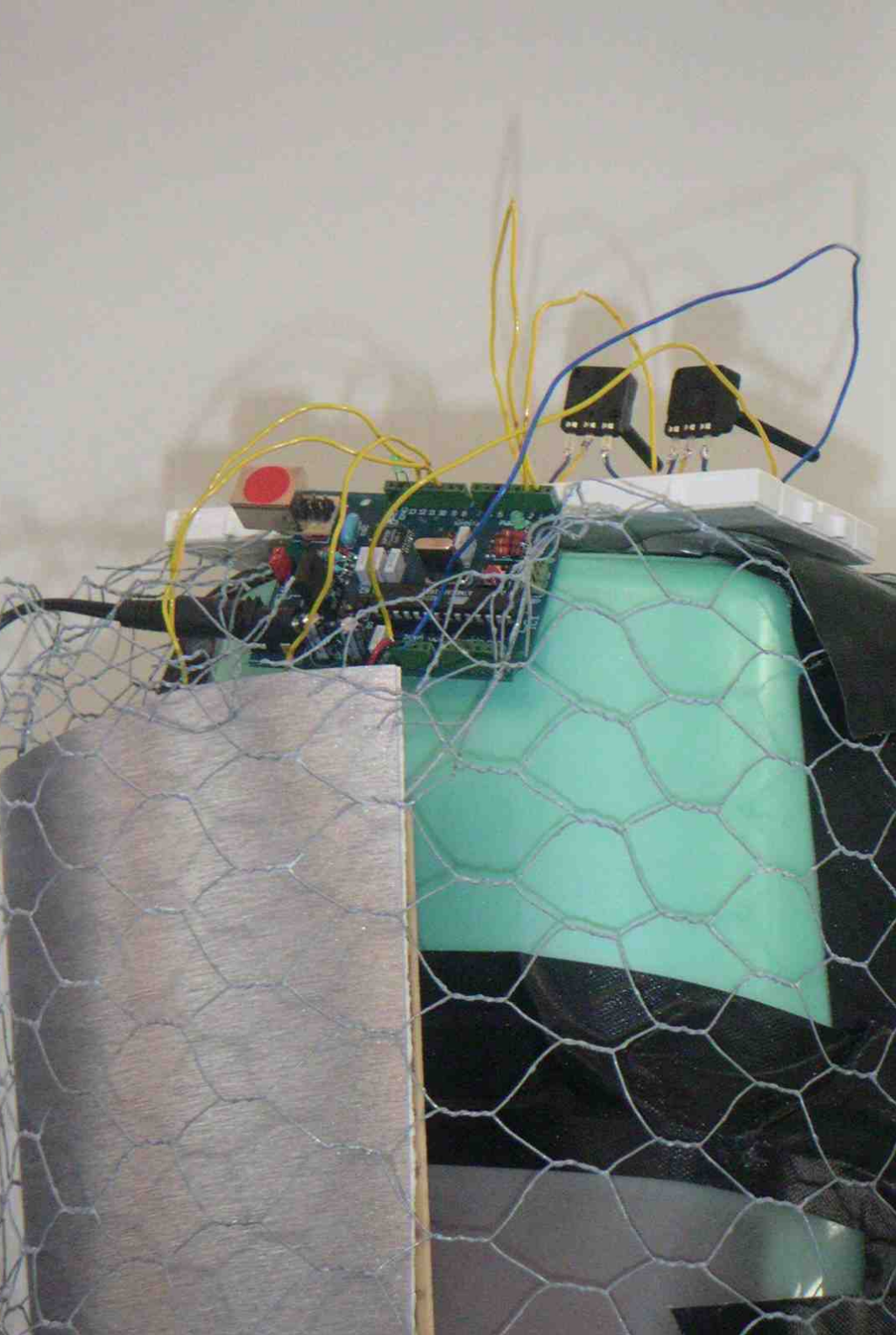


Robot by J.C. Alonso – Madrid – 2006 May





WAVES





XSENSE



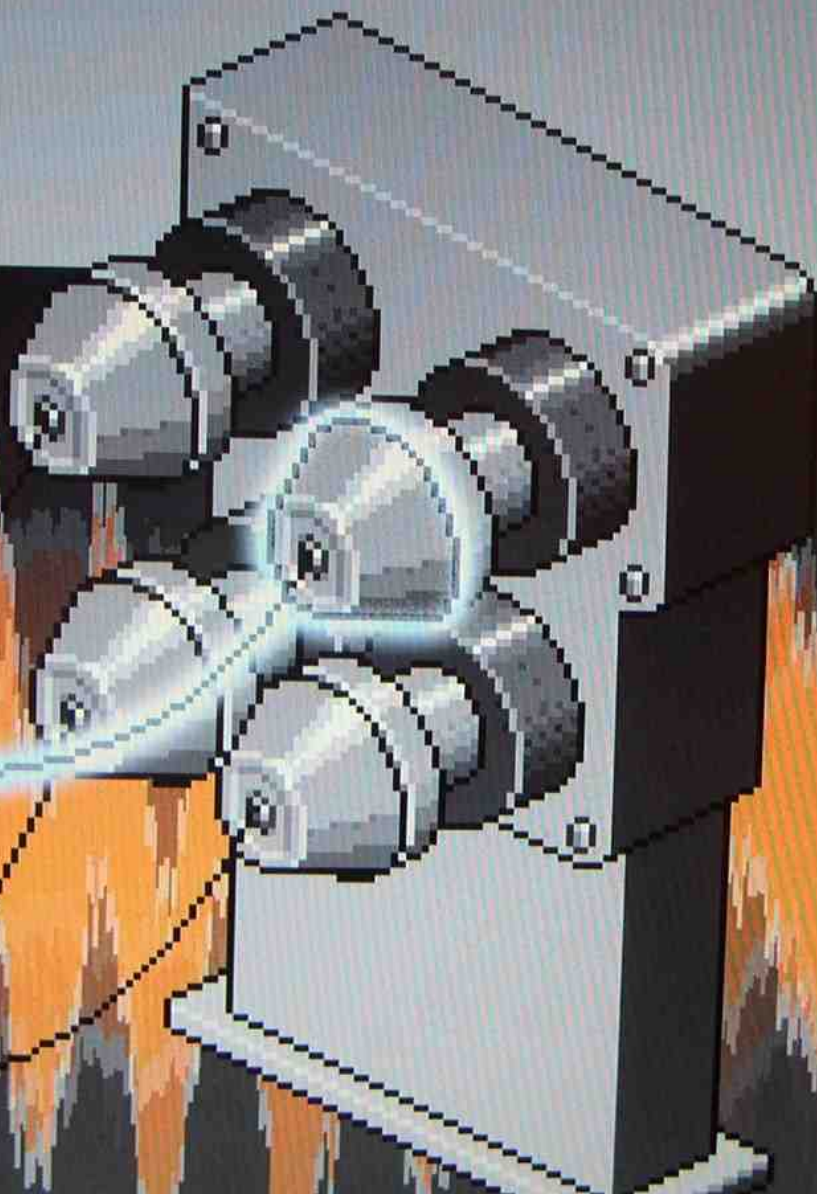
Chair, P. Ståln, M. Hannerstig, C. Flindt – K3 – 2006 April



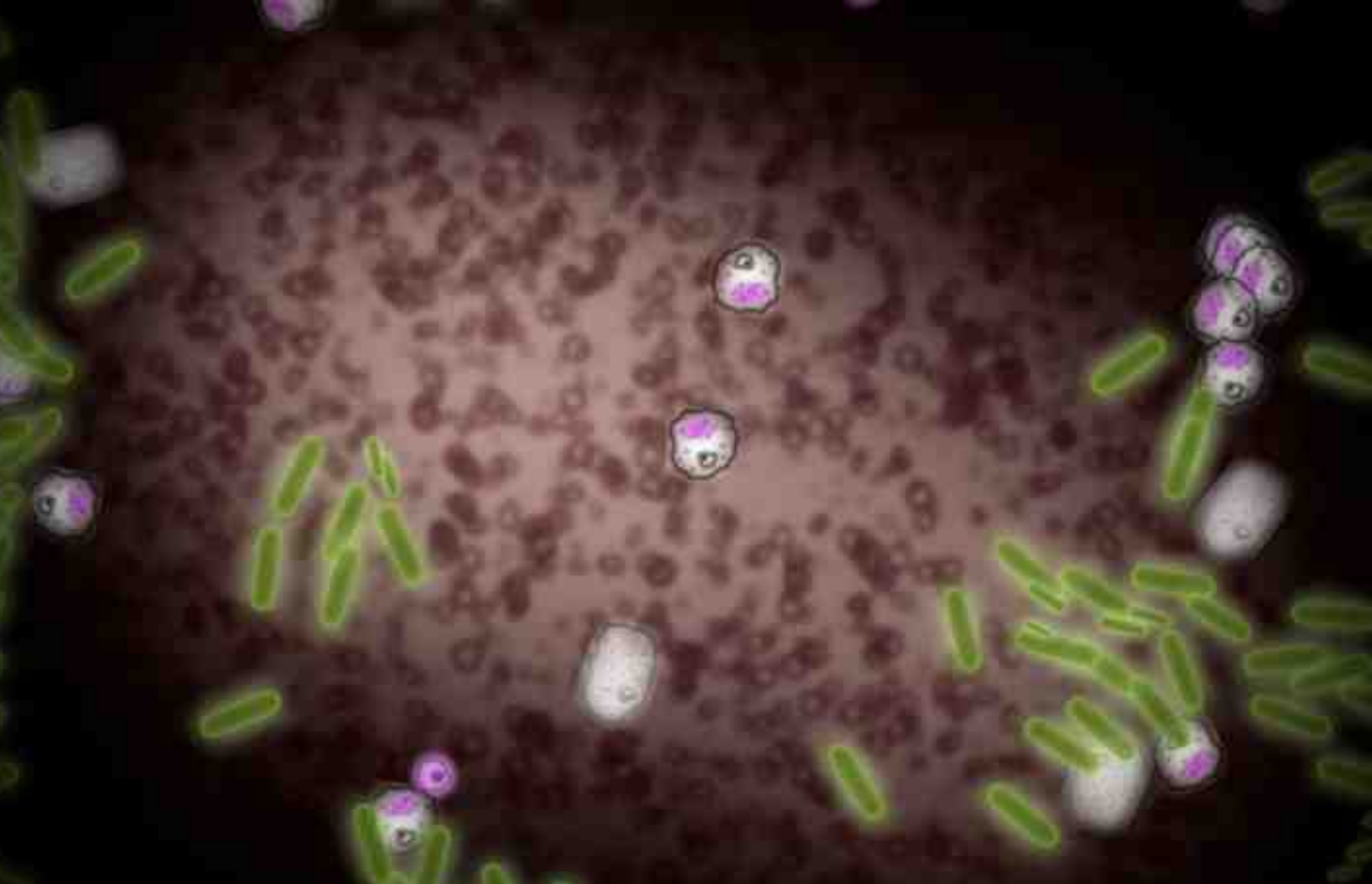
Dancing Aids – London Design Research Conference – 2006 July

THE INVOLUNTARY DANCE MACHINE

An electric piece by Peter Hansén, Monica Richter,
Robert Nyberg & Ossian Sunesson.
All students at K3, Malmö högskola 2005.



INVOLUNTARY DANCE



SECONDARY SCHOOL PROJECTS

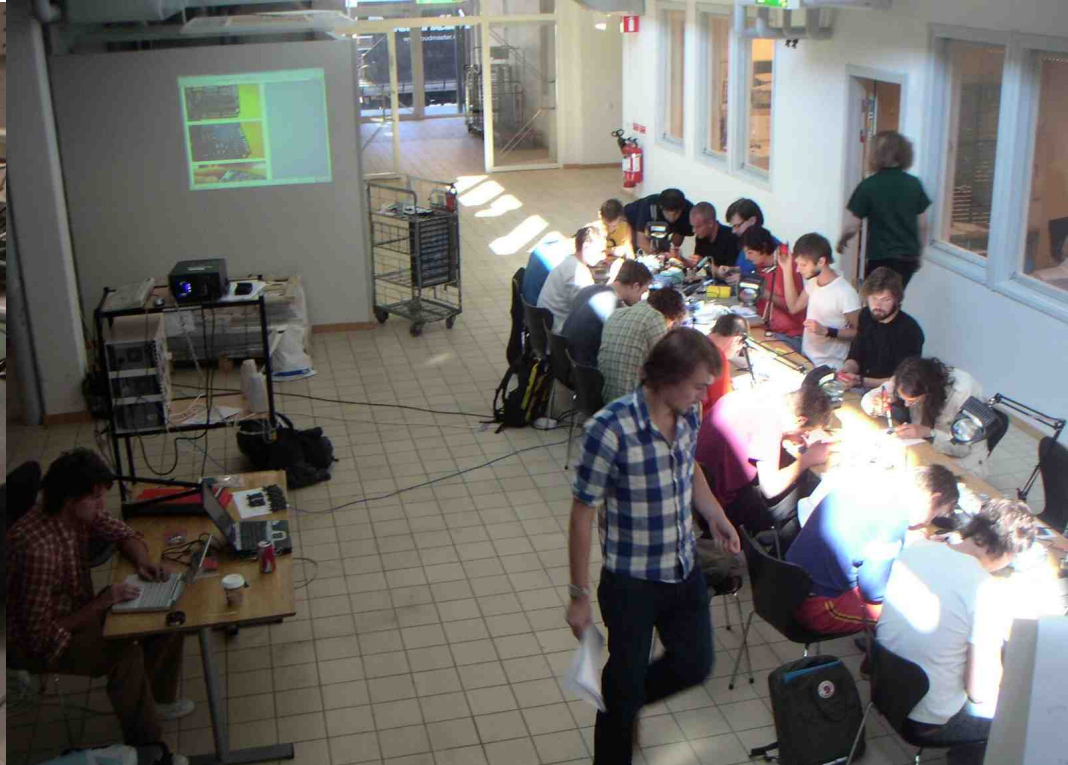
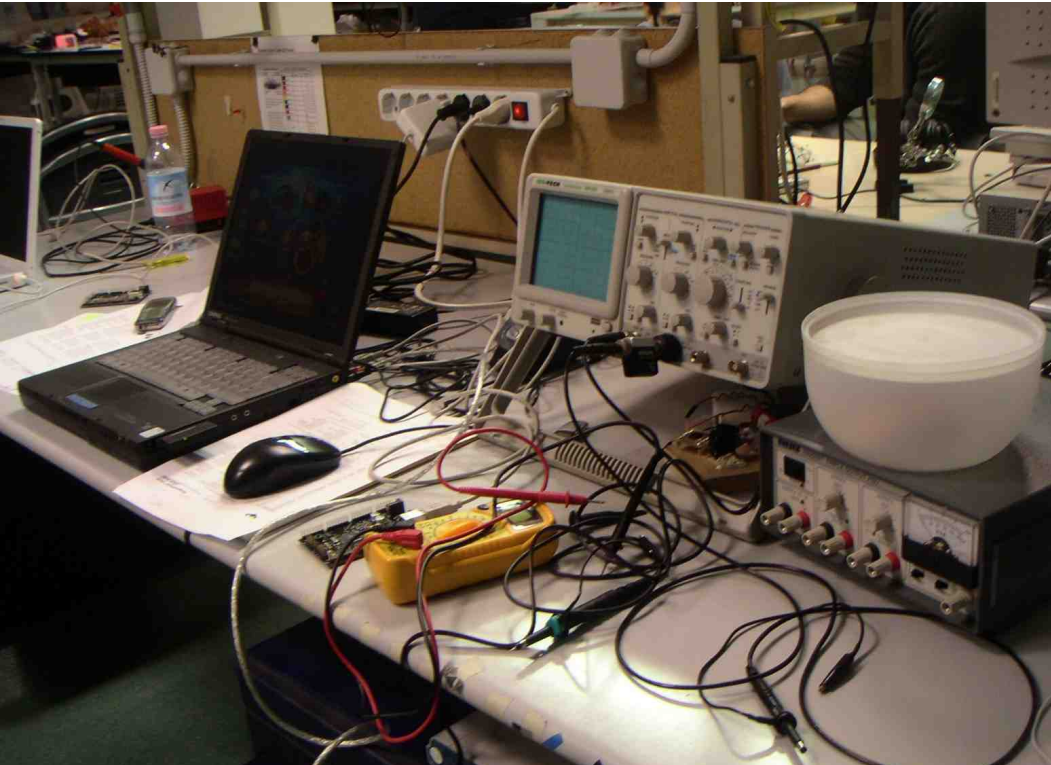
What has changed:

since we started March 2005, there are many things that changed, but the most important is how it has affected people, their environments and the way they communicate

Laboratory:

*place where people meet for creating as a community.
In order to create one you will need people, ideas, and
tools*

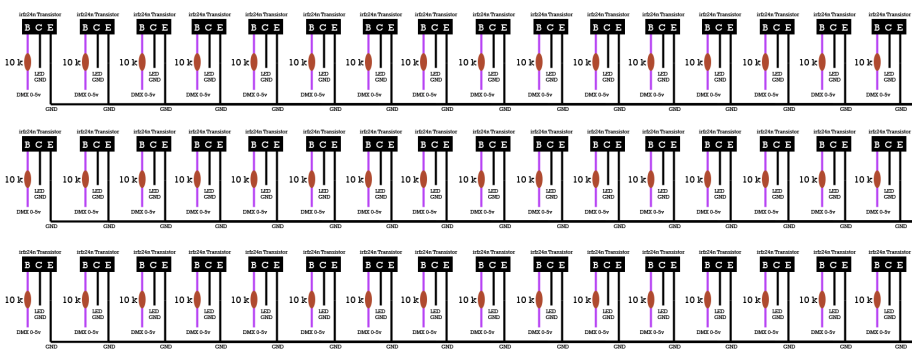
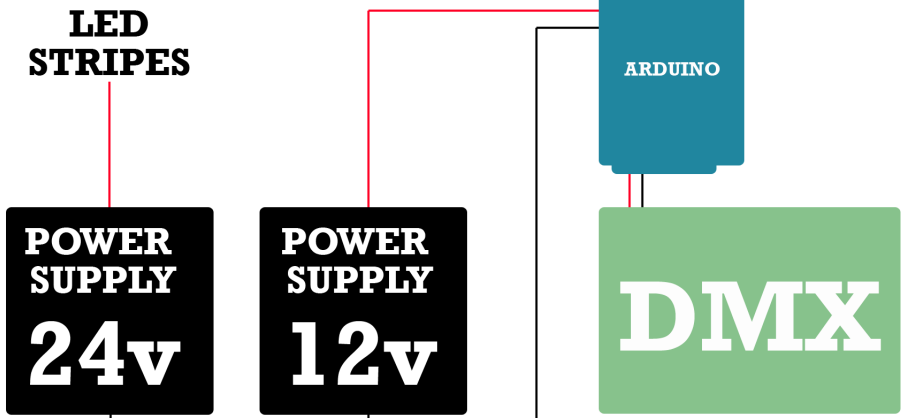
Arduino is an example for a tool



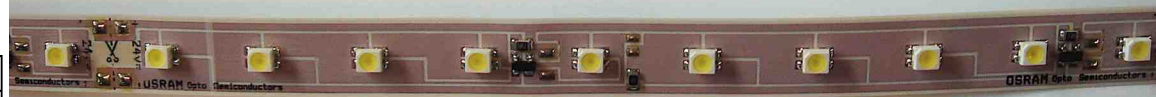
Ways how people communicate:

non-conventional languages arise from the users' understanding of the tools

Pictures, drawings, sketches... allow communication at a different level



Where the fuck to cut this fucker?



Here or here ?

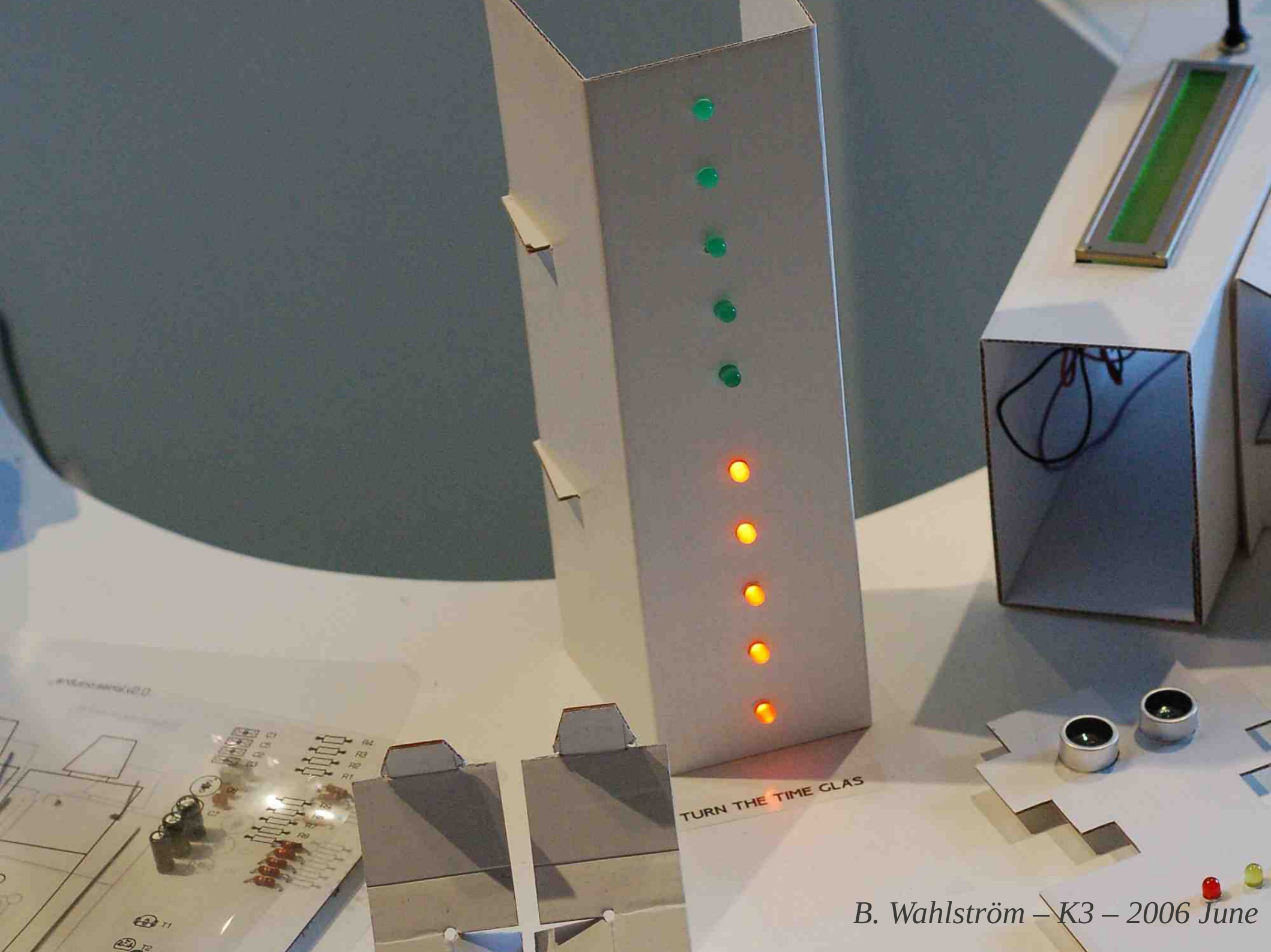
Is it even possible?



M. Hannerstig, P. Salin – K3 – 2006 April

The idea of prototyping:

*we can now express interactivity through interaction,
and not stop at the discursive level*



TURN THE TIME GLAS

Open Hardware:

the open hardware licensing establishes the freedom for anyone to copy the PCB design and firmware and to create derivative works based on the others

take a look at: <http://freedomdefined.org/OSHW>

*just remember the hardware paradox: **it cannot be completely free**, but documentation can*

WHAT?

back to the WEB issue

WEBSITE

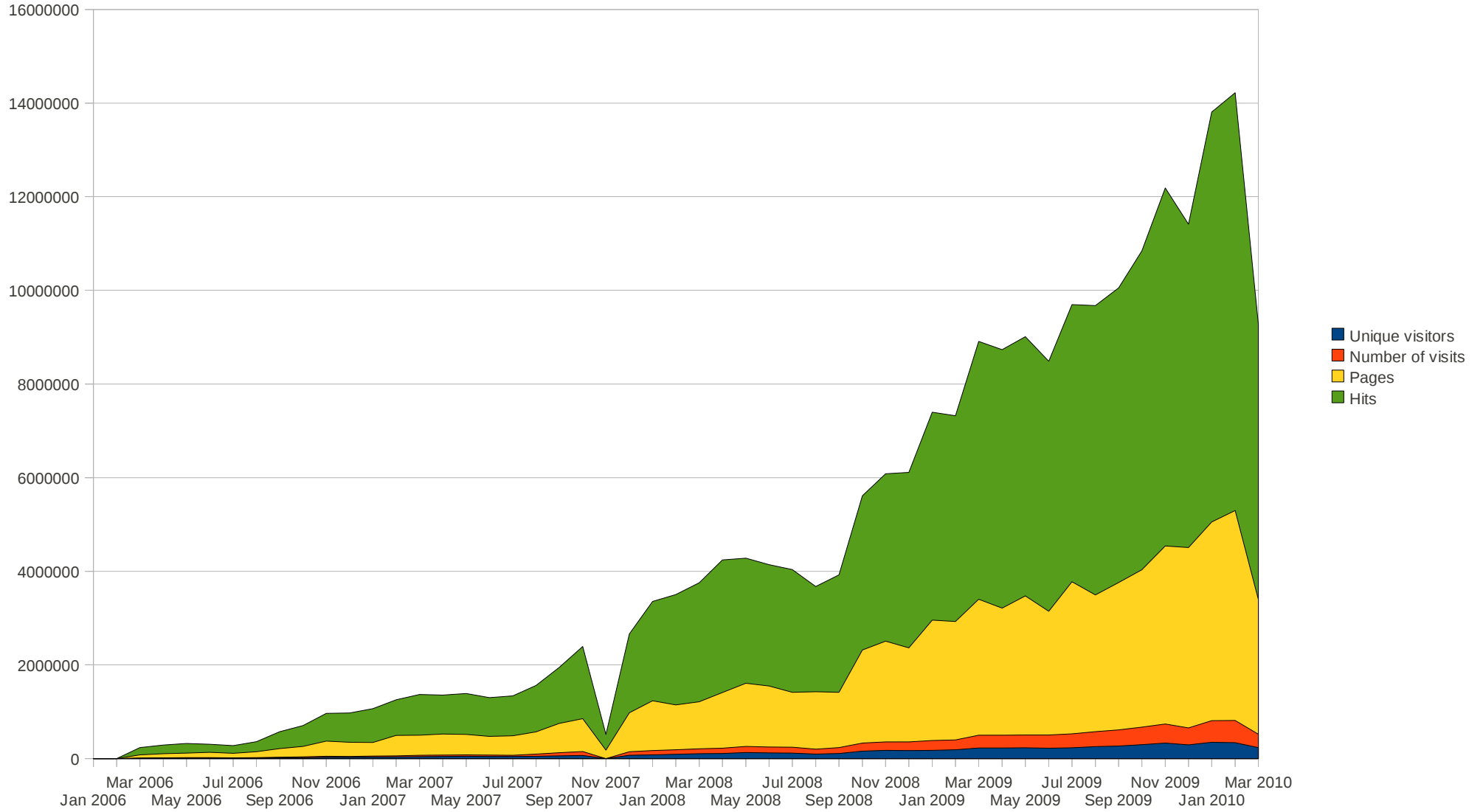
- Registered as open source project at Berlios, April 2005
- Domain registered in October 2005
- Hosted originally at Site5.com
- Moved to ServInt during 2008
- Moved to Google Code Dec 2008 (but kept downloads)
- Downloads moved out of the server in January 2010
- Moved to GitHub September 2010 (but kept downloads at Google Code)

STRUCTURE

- REFERENCE
- FORUM (over 31.000 registered users)
- BLOG
- PLAYGROUND
- EMAIL lists:
 - developers@arduino.cc
 - team@arduino.cc
 - Some languages (but not all!!)

Arduino Web Stats

Visits 2006-2010



Pages-URL (Top 25) - Full list - Entry - Exit

9488 different pages-uri

	Viewed	Average Size	Entry	Exit	
/cgi-bin/yabb2/YaBB.pl	1672306	13.92 KB	200170	221216	
/	574408	17.29 KB	223643	108658	
/blog/	275686	19.63 KB	66106	65518	
/latest.txt	170737	5 Bytes	52059	57360	
/en/Tutorial/HomePage	151829	12.76 KB	9760	11505	
/en/Reference/HomePage	122595	14.38 KB	8202	8097	
/en/Main/Software	108421	16.17 KB	17810	21518	
/en/Main/Hardware	99217	9.12 KB	5325	9082	
/en/Guide/HomePage	93576	5.08 KB	5314	4482	
/en/Main/Buy	78242	16.97 KB	5608	22823	
/playground/Main/InterfacingWithHardware	73128	87.59 KB	7529	10859	
/en/Main/ArduinoBoardDuemilanove	55534	17.67 KB	11748	13469	
/playground/	37024	13.44 KB	3352	3166	
/en/Reference/Extended	31227	17.16 KB	1772	2232	
/en/Reference/Libraries	28149	11.16 KB	1131	1741	
/en/Guide/Windows	24801	10.57 KB	2075	3785	
/en/Reference/Serial	22569	6.59 KB	771	846	
/en/Main/ArduinoBoardMega	21846	16.44 KB	5067	5565	
/playground/Main/HomePage	18399	14.16 KB	127	131	
/en/Tutorial/Foundations	17296	4.96 KB	485	526	
/en/Guide/Environment	16633	19.77 KB	927	1989	
/en/Tutorial/LiquidCrystal	16307	11.56 KB	1826	3087	
/en/Reference/LiquidCrystal	15882	7.41 KB	1492	1133	
/playground/Main/SimilarBoards	15124	29.62 KB	1185	2678	
/en/Main/FAQ	15075	11.90 KB	701	1739	
Others:	1539730	16.66 KB	177042	228019	

Operating Systems (Top 10) - Full list/Versions - Unknown

Operating Systems

Windows	
Macintosh	
Linux	
Unknown	
BSD	
Symbian OS	
Sun Solaris	
Unknown Unix system	
Sony PlayStation Portable	
Nintendo Wii	
Others	

Browsers (Top 10) - Full list/Versions - Unknown

Browsers

Browsers	Grabber
Firefox	No
MS Internet Explorer	Nn

Operating Systems (Top 10) - Full list/Versions - Unknown

Operating Systems		Hits	Percent
Windows		10024880	70.4 %
Macintosh		1987109	13.9 %
Linux		1449055	10.1 %
Unknown		742019	5.2 %
BSD		6769	0 %
Symbian OS		5337	0 %
Sun Solaris		2924	0 %
Unknown Unix system		1542	0 %
Sony PlayStation Portable		784	0 %
Nintendo Wii		175	0 %
Others		100	0 %

Browsers (Top 10) - Full list/Versions - Unknown

Browsers		Grabber	Hits	Percent
Firefox		No	6306410	44.3 %
MS Internet Explorer		No	3816419	26.8 %
Google Chrome		No	1306296	9.1 %
Safari		No	1063746	7.4 %
Unknown		?	550284	3.8 %
Opera		No	415938	2.9 %
HTTrack		Yes	296297	2 %
Mozilla		No	227808	1.6 %
Wget		Yes	107553	0.7 %
Netscape		No	24137	0.1 %
Others			105806	0.7 %

Connect to site from

Origin		Pages	Percent	Hits	Percent
Direct address / Bookmark / Link in email...		1357213	56.2 %	1548843	56.3 %
Links from an Internet Search Engine - Full list		856902	35.5 %	874832	31.8 %
- Google	813691 825293				
- Google (Images)	28186 33322				
- Yahoo!	7778 8768				
- Stumbleupon (Social Bookmark)	2298 2314				
- Unknown search engines	1398 1401				
- Windows Live	1190 1294				
- Google (Groups)	325 327				
- Scroogle	246 246				
- Baidu	243 261				
- Ask	236 237				
- Yandex	213 262				
- AltaVista	187 187				
- AOL	142 143				
- Dogpile	115 115				
- Seznam	87 87				

ardui... https... http... Gmai... TC Big ... Ardu... NYU... Surv... cPan... cP Stati... cP Stati... Dow...

arduino.cc:2082/awstats.pl?month=02&year=2010&output=main&config=arduino.cc&lang=en&frame=main&index

io CCEMX / ... Terms - Researc... david@blushing... basecamp Box.net GReader food azrotator Piled Higher and... Other

Countries (Top 25) - Full list

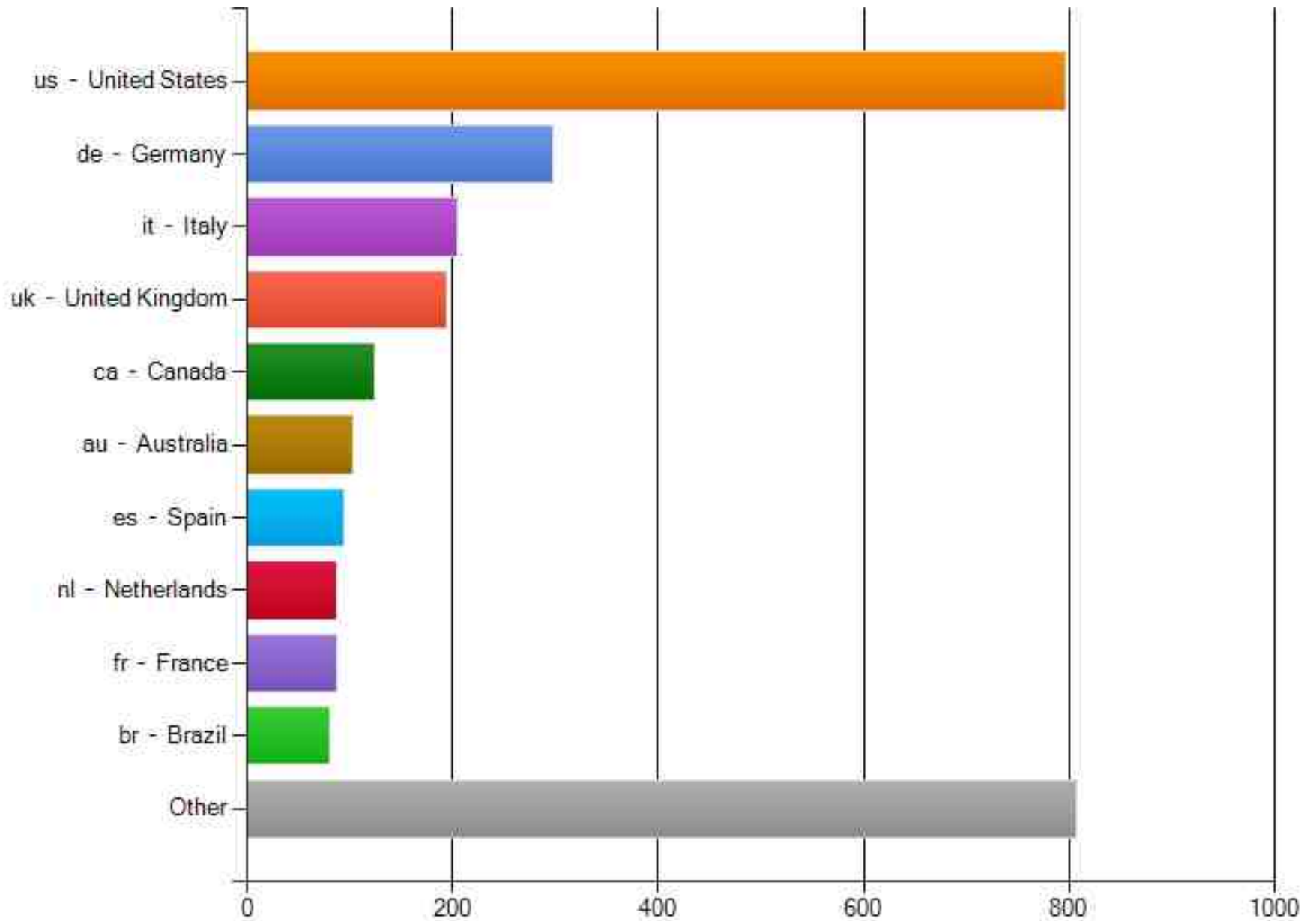
Countries		Pages	Hits	Bandwidth	
United States	us	1658191	4431765	42.80 GB	
Germany	de	610078	1182362	15.85 GB	
Italy	it	339334	913732	7.63 GB	
Great Britain	gb	295205	953180	7.83 GB	
Canada	ca	200925	596298	5.92 GB	
Switzerland	ch	196297	272180	3.76 GB	
European-country	eu	177845	512927	5.42 GB	
France	fr	158456	448332	4.41 GB	
Spain	es	153936	453094	4.76 GB	
Netherlands	nl	133370	374757	3.66 GB	
Australia	au	91404	272078	2.64 GB	
Sweden	se	80061	236162	2.34 GB	
Russian Federation	ru	76538	174803	2.89 GB	
Japan	jp	74052	172520	2.63 GB	
Brazil	br	64332	209800	2.32 GB	
Denmark	dk	57801	174498	1.50 GB	
Finland	fi	53567	153386	1.61 GB	
India	in	52890	186221	1.80 GB	
Poland	pl	52206	139789	1.47 GB	
Portugal	pt	46382	152534	1.46 GB	
Mexico	mx	45729	139386	1.60 GB	
Belgium	be	42191	125525	1.28 GB	
Norway	no	40422	148063	964.73 MB	
Austria	at	38106	99291	1.05 GB	
China	cn	35992	93534	1.30 GB	
Others		520431	1604477	17.57 GB	

Hosts (Top 25) - Full list - Last visit - Unresolved IP Address

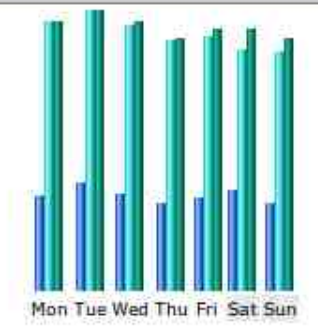
Hosts : 0 Known, 370036 Unknown (unresolved ip)
338137 Unique visitors

	Pages	Hits	Bandwidth	
80.218.150.103	128919	128926	2.14 GB	24 Feb
63.196.84.211	86360	87182	679.83 MB	10 Feb
87.17.224.234	82897	83388	655.63 MB	23 Feb
77.189.63.93	68969	69258	2.23 GB	14 Feb
77.189.91.238	56076	56406	1.79 GB	20 Feb
77.12.112.157	30559	31525	288.73 MB	05 Feb
193.197.160.34	29063	30150	268.16 MB	26 Feb
80.218.148.247	27120	27120	487.89 MB	28 Feb
77.189.48.13	25108	25265	201.43 MB	28 Feb
87.147.45.205	22027	22043	257.13 MB	27 Feb
38.99.98.26	19196	19196	138.54 MB	27 Feb
77.189.52.223	15381	15435	608.26 MB	21 Feb
77.189.14.217	15350	15657	142.72 MB	27 Feb
77.189.73.131	14501	15238	302.03 MB	13 Feb
77.189.29.28	14386	14880	424.51 MB	14 Feb
68.102.149.139	14005	14505	140.39 MB	22 Feb
72.14.199.117	13058	13058	211.22 MB	24 Feb
82.14.242.130	12540	12905	138.66 MB	09 Feb

Where do you live?

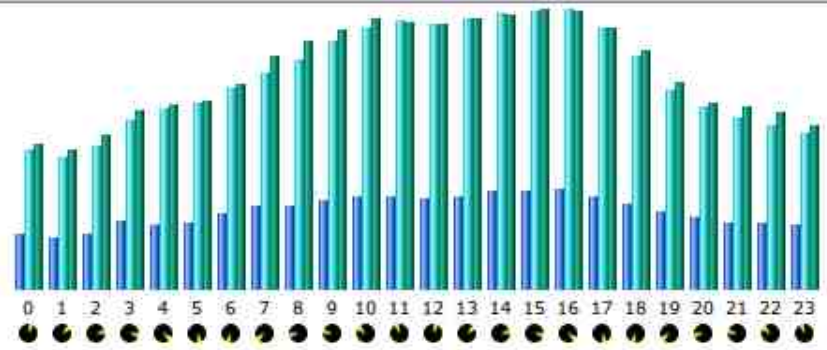


Days of week



Day	Pages	Hits	Bandwidth
Mon	189217.25	532407.75	5.31 GB
Tue	213431	554000.50	5.55 GB
Wed	192494.50	525935.50	5.33 GB
Thu	174810.75	493222.75	5.01 GB
Fri	183162.25	502158.50	5.19 GB
Sat	197638.25	476307.75	5.20 GB
Sun	173181.25	471140.75	5.02 GB

Hours



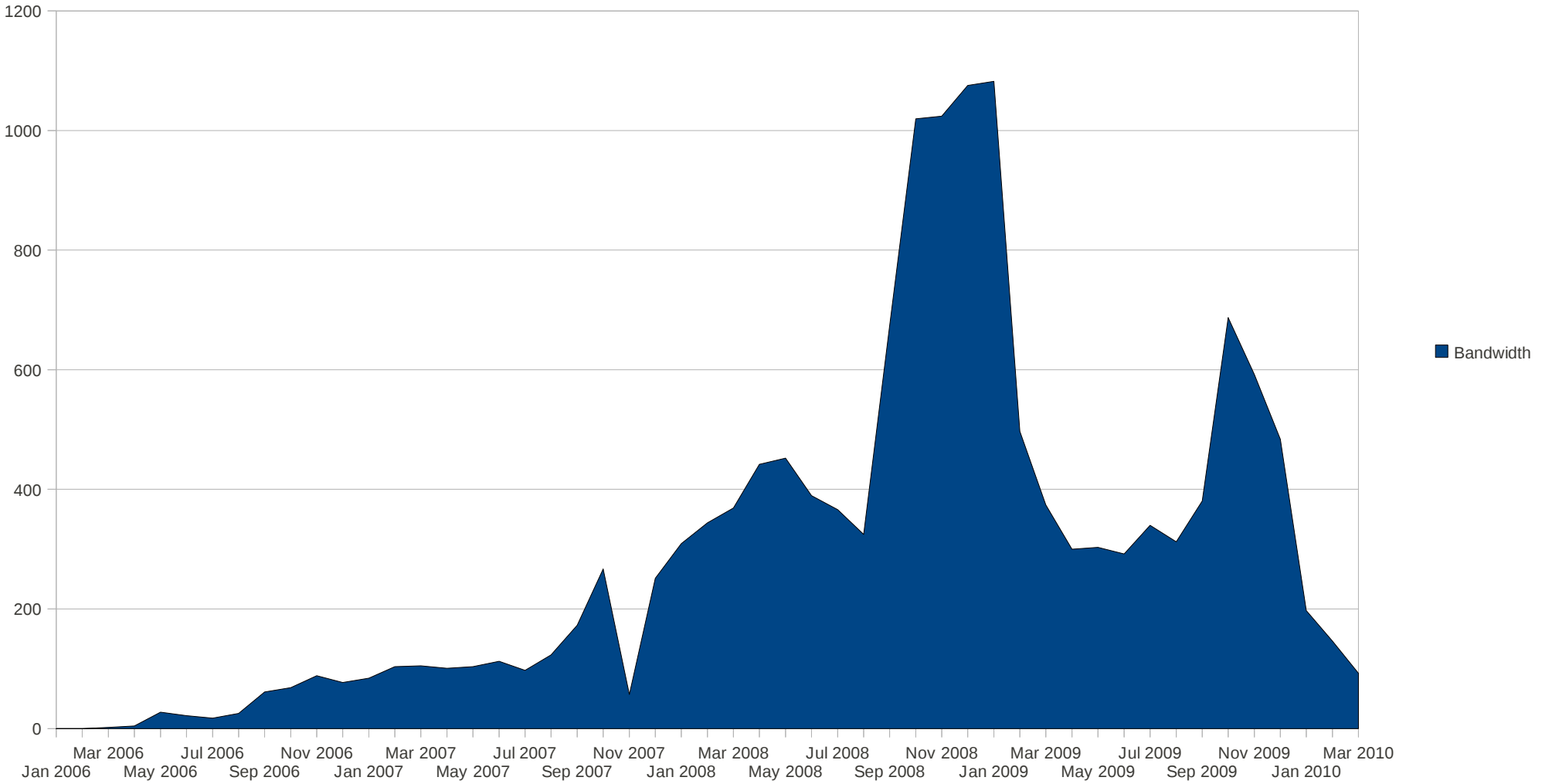
Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	157289	385324	4.05 GB	12	252254	735624	7.39 GB
01	143321	371035	3.89 GB	13	260247	753031	7.55 GB
02	155150	398476	4.30 GB	14	274168	765724	7.66 GB
03	193460	473384	4.98 GB	15	275852	772553	7.79 GB
04	185908	503144	5.14 GB	16	280238	778606	7.72 GB
05	187068	516456	5.24 GB	17	263470	728477	7.30 GB
06	213315	559135	5.73 GB	18	240759	647885	6.64 GB
07	231747	603800	6.53 GB	19	218871	556162	5.78 GB
08	232910	637876	6.88 GB	20	199806	508476	5.18 GB
09	249520	688323	7.19 GB	21	190126	478457	5.09 GB

DOWNLOADS

- Nowadays hosted at Google Code and at files.arduino.cc

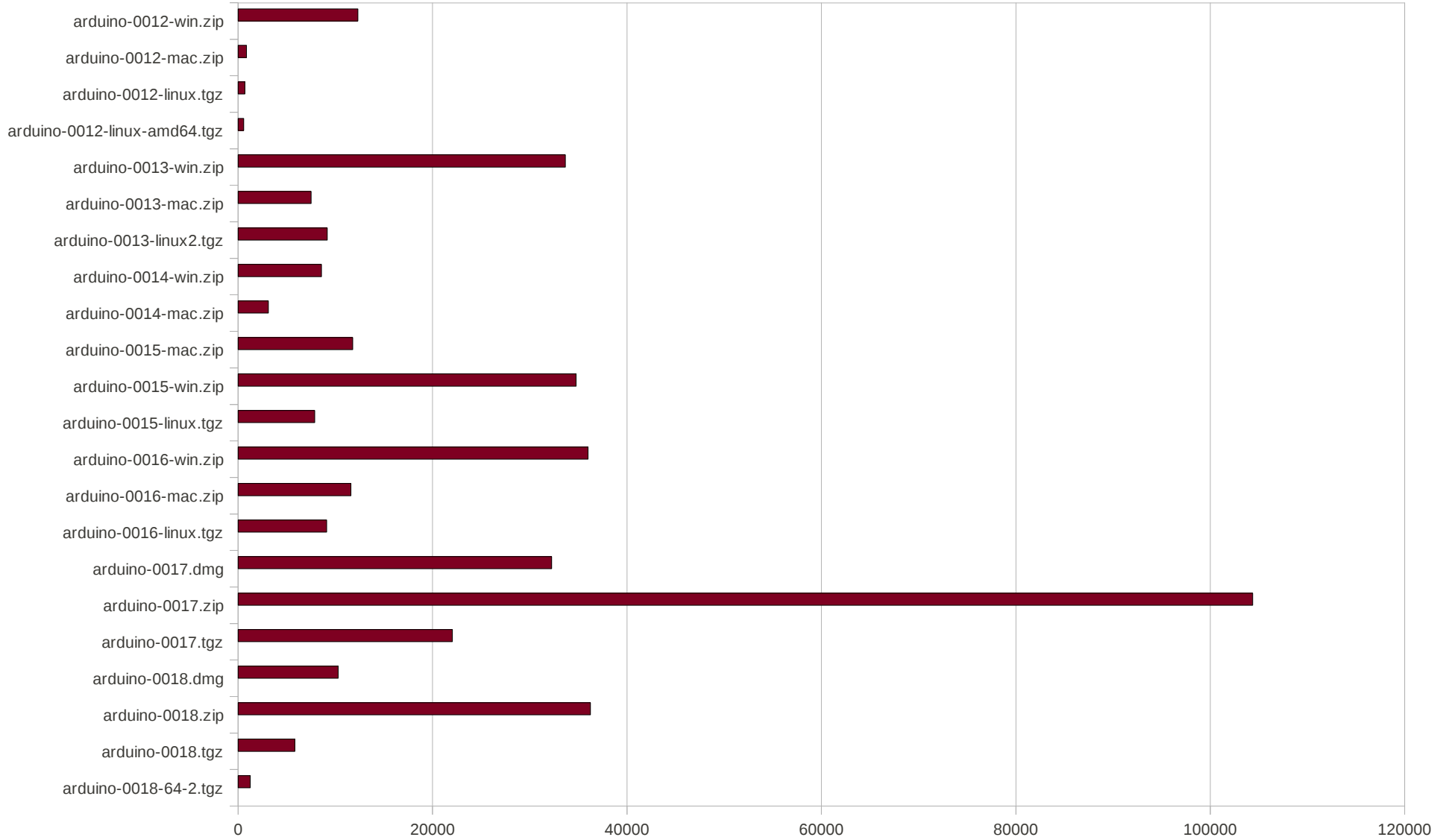
Arduino Web Stats

Bandwidth 2006-2010



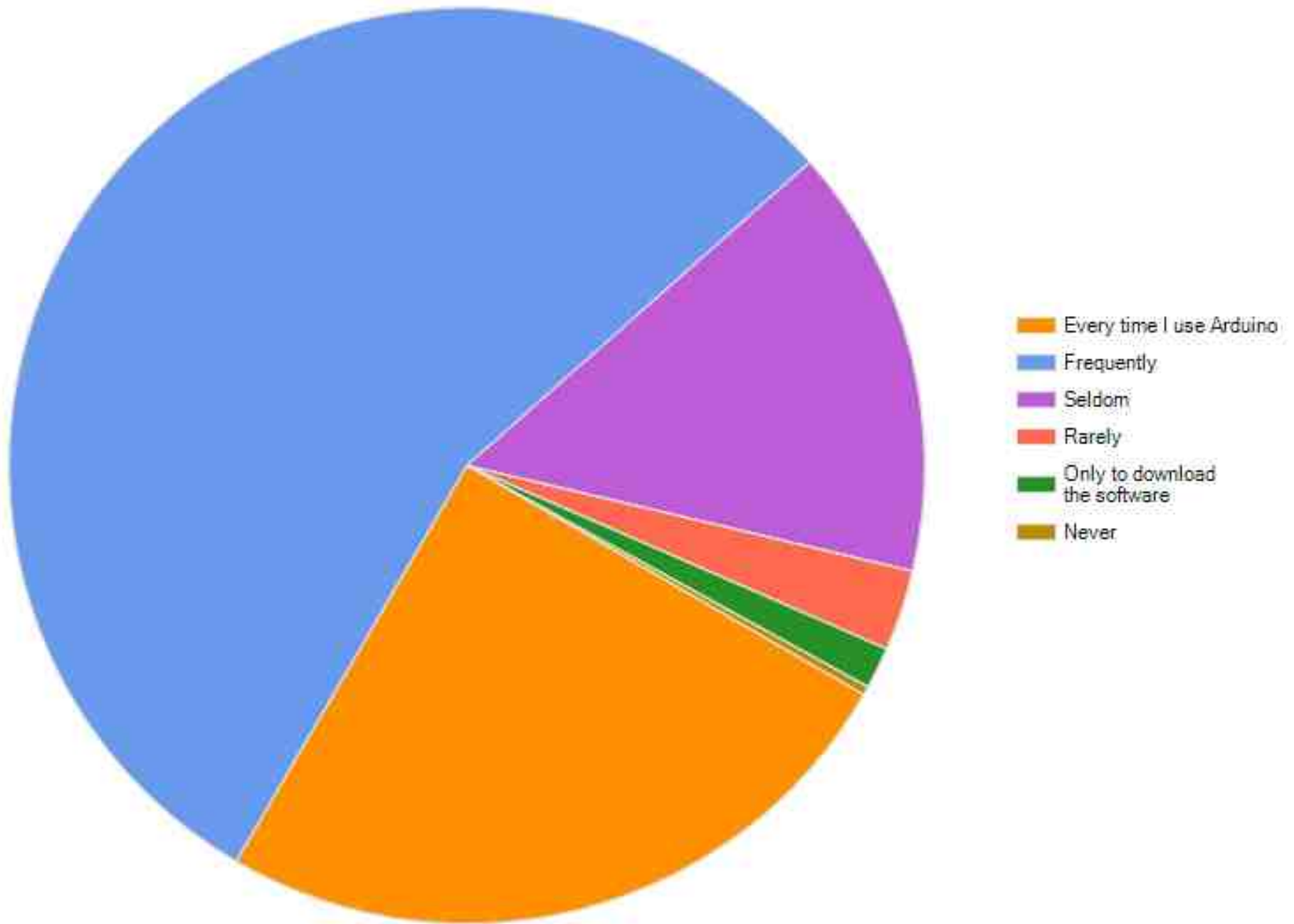
Arduino IDE stats

Downloads 2009-2010

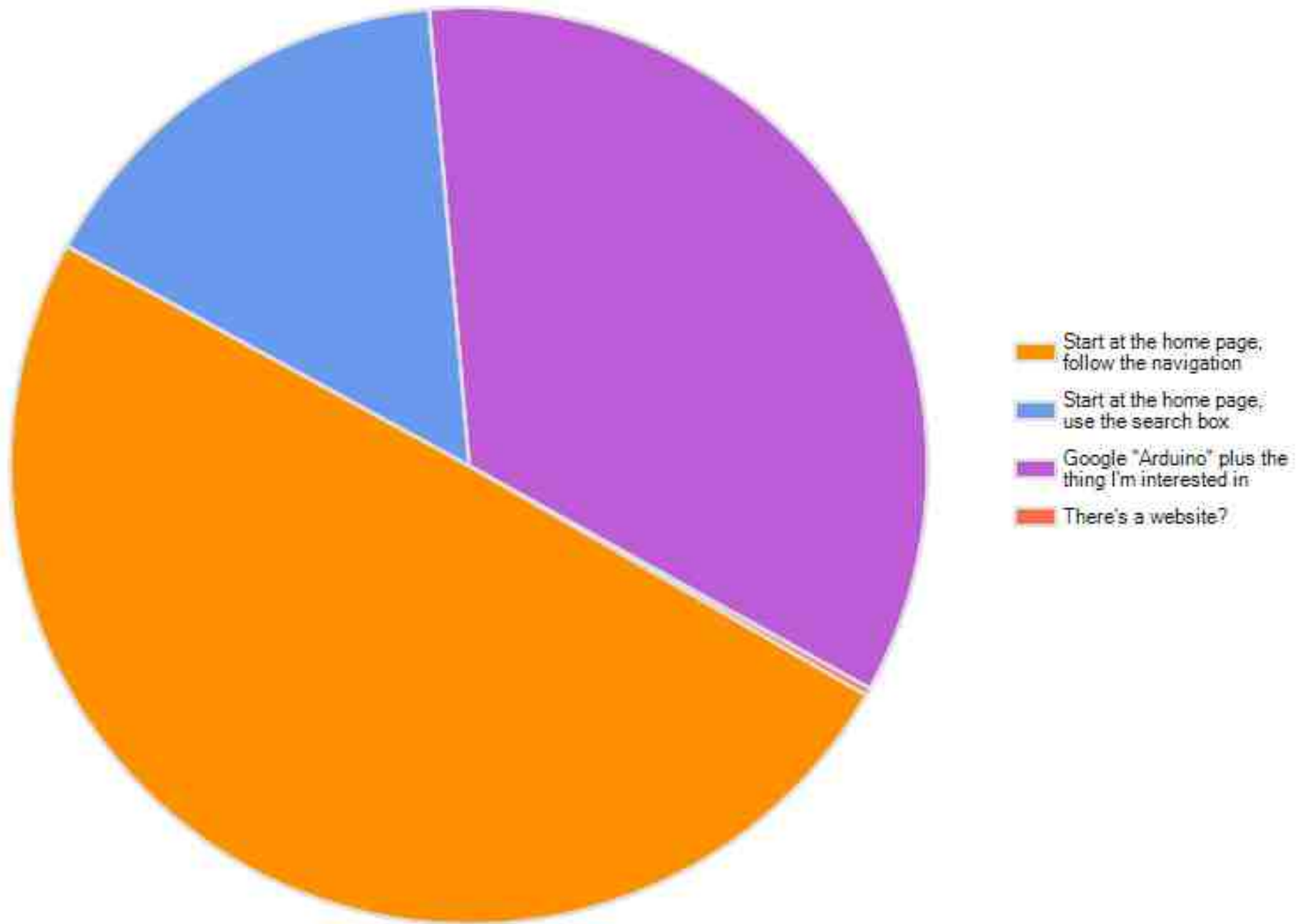


WHAT DO PEOPLE THINK?

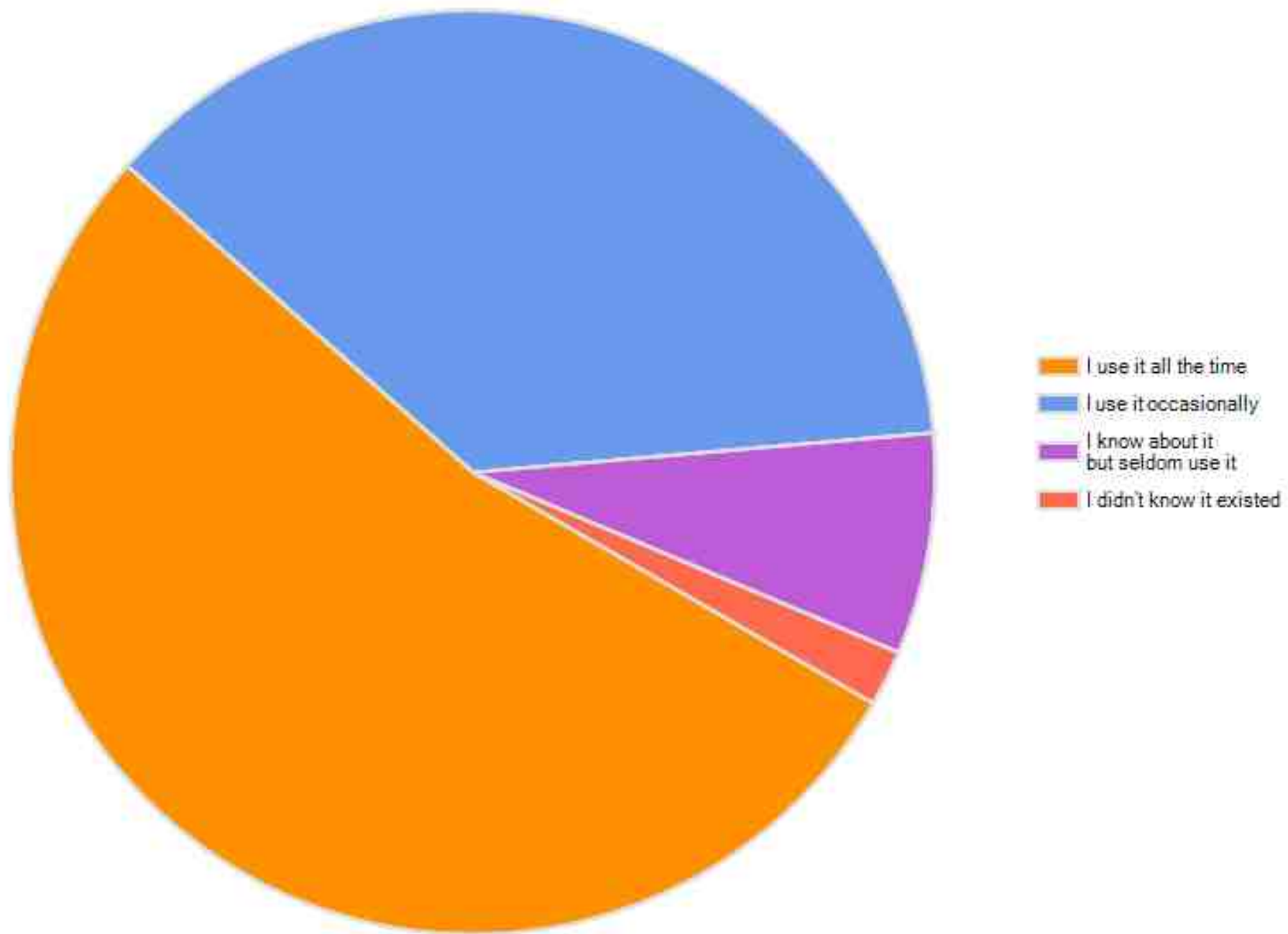
How frequently do you use the Arduino website?



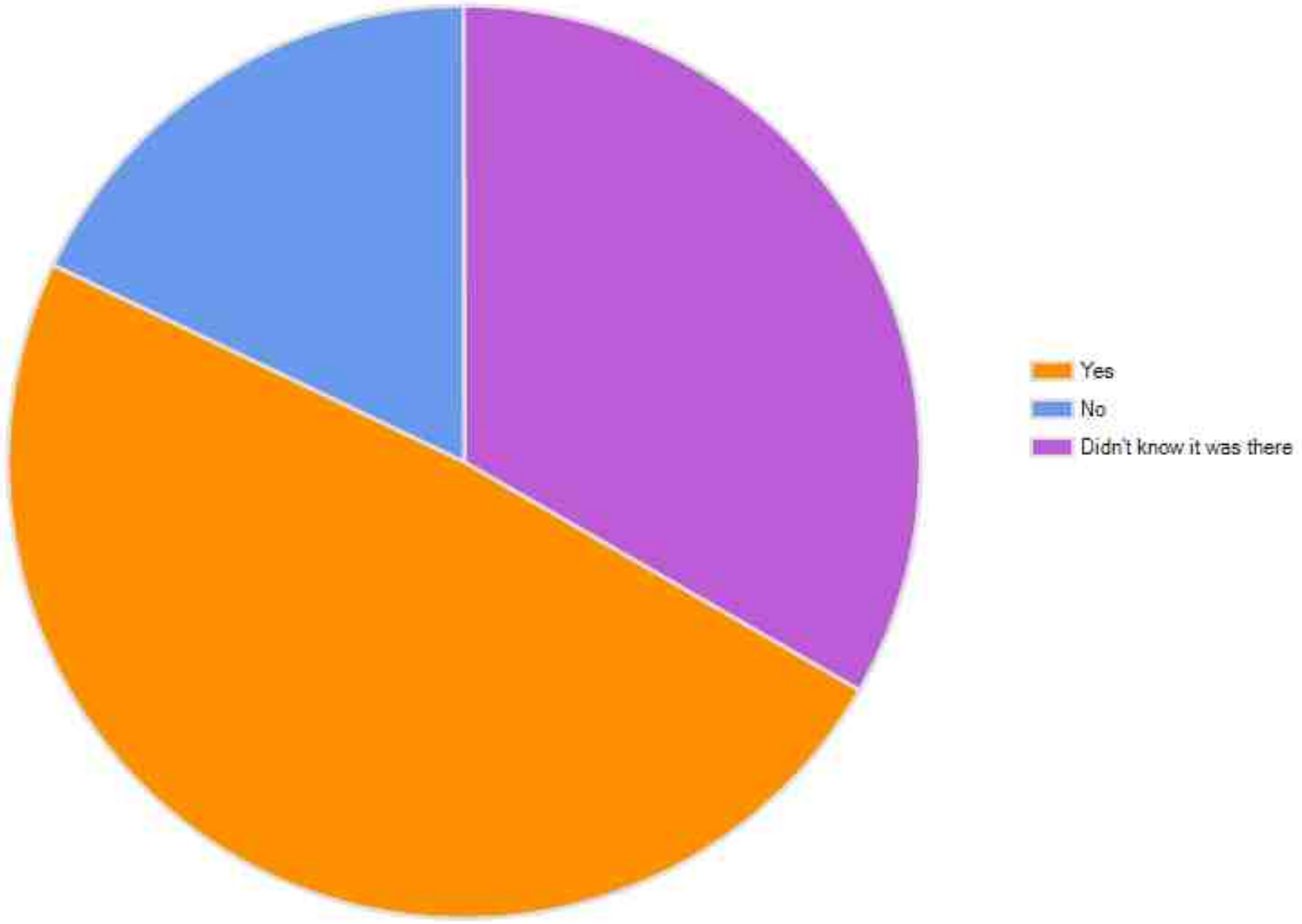
How do you most commonly access the website



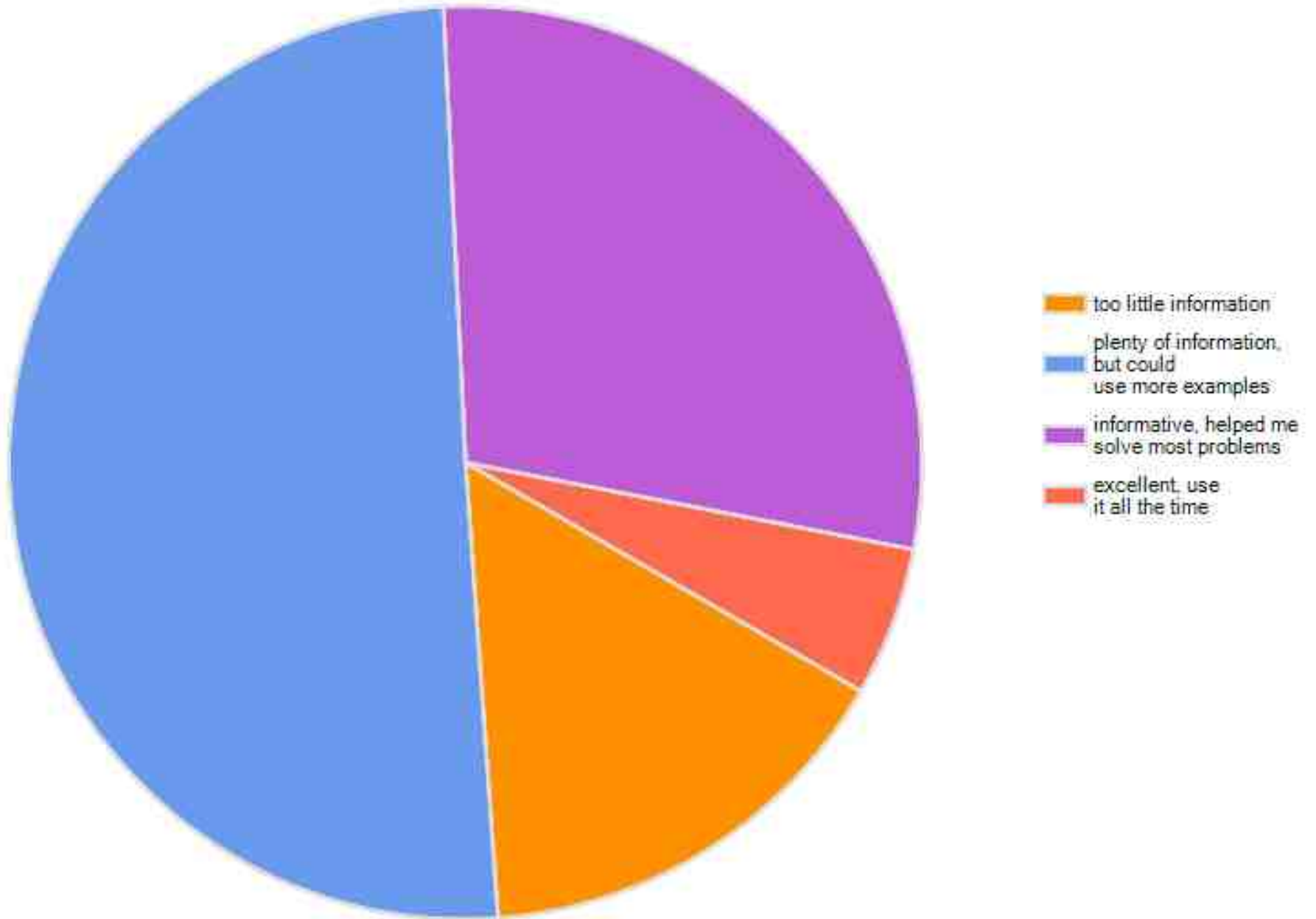
How familiar are you with the Reference section of the website



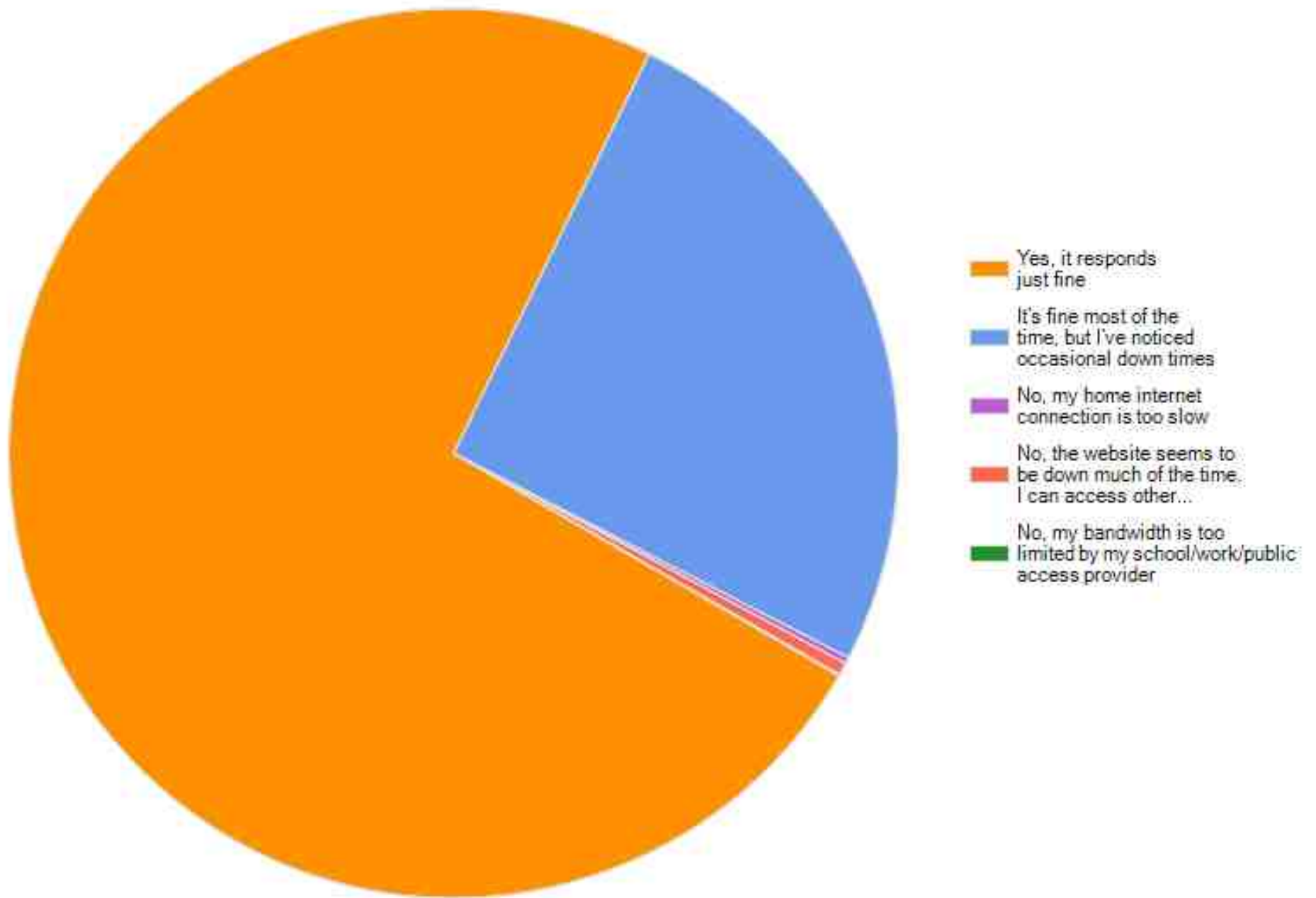
Have you used the Arduino Reference which is hosted locally on your computer (accessible through the Help menu of the Arduino software)?



How useful is Arduino Reference which is hosted locally on your computer?



Are you able to successfully access the arduino.cc website?



WHAT WE HAVE DONE SO FAR

- **public workshops**, not so much talking, but a lot of hacking
- made the online services **grow on demand**
- be **eager to change** things if people asked:
 - example with the license,
 - example with the wiki,
 - example with the playground,
 - example with the hardware
- keep loyal to the project's spirit: **accessible technology**

WHAT WE HAVE DONE SO FAR

- **join forces** with other projects and pay back for the help
- **might be late, but try to make it perfect:** Arduino is based on an aging technology, we have somehow managed to extend its life by entering a different type of user-base
- **create a strong brand** in the most traditional sense: something people can trust, that performs well the thing it does but still offers the chance to experiment
- **pay for things if needed**, even pay to get the chance to open source things. This brings interesting developers to work with you for a fraction of their real price, because they understand they make it for the good of others

WHAT I WOULD CHANGE

- nowadays the most important tool to start a community is a community server
- You want to be able of integrating different services together and add as you grow
- Handle user profiles, and has an admin UI that allows adding new services and subscribing users to it
- In Arduino we are in the situation of having to build our own after 5 years of mashing up different things together

WHAT WE THINK

- dude, this is about making people like you because you are the best, not because this is a free alternative

Microsoft's hardball campaign to chase software pirates

Its army of agents dwarfs efforts by other firms in widening global dragnet

BY ASHLEE VANCE

As the sun rose over the mountains circling Los Reyes, a town in the Mexican state of Michoacán, one morning in March 2009, a caravan of more than 300 law enforcement agents set out on a raid. All but the lead vehicle turned off their headlights to evade lookouts for La Familia Michoacana, the Mexican cartel that controls the drug trade. This time, the police were not hunting for a secret stash of drugs, guns or money. Instead, they looked to crack down on La Familia's growing counterfeit software ring.

The police reached the house, barreled and found rooms crammed with about a dozen machines used to copy CDs and make counterfeit versions of software like Microsoft Office and Xbox video games.

The raid added to a body of evidence forming La Familia's expansion into counterfeit software as a low-risk, high-complement to drugs, bribery and kidnapping. The group even stamps the software it produces with "FMM," for Familia Michoacana, alongside its original brand of marijuana.

The arrival of organized crime on the software scene has raised worries at Microsoft, Symantec and other security firms. In South America, the companies appear to have seen a surge in networks rivaling those of the drug cartels, said an anti-piracy chief.





Jim Zemlin

Executive Director - Linux Foundation

THE LINUX FOUNDATION
COLLABORATION SUMMIT

problems tend to be most
ns where there is less
or Microsoft's products.
software like the Linux
em take aim at these
osoft also faces growing
m Google, which gives
rival to consumers and
version at prices far be-
soft typically receives.

an make tens
arge presses.
g, each press
markers on
of his time
about six
nd patterns.
rkings with
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low what is
"We love Microsoft's heavy-handed-
ness," said Jim Zemlin, the executive di-
rector of the Linux Foundation, a non-
profit organization. "We want 100
percent of the people using Windows to
pay for it, because in those places where
you have a lot of pirated use of Windows,
we don't have any cost advantage."

Arduino

OPEN SOURCE HARDWARE - d.cuartielles@arduino.cc

