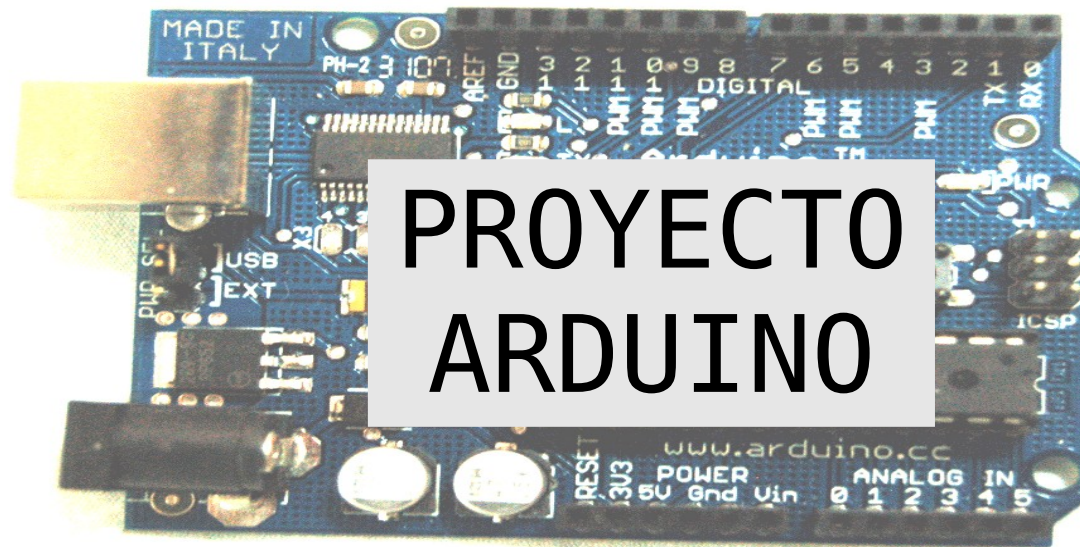


II jornadas
de reflexión,
investigación
y desarrollo
de
TECNOLOGÍAS LIBRES



Diecimila – 2007 November

Lunes 07 de Julio de 2008.

Hora: 10:30 am

Ponente: David Cuartielles (Universidad de Mälmo Suecia)

Área: Hardware Libre

ATENCIÓN

NO intenten reproducir las cosas que verán durante la próxima hora sin la ayuda de un adulto, consulten a su profe, un colega senior, o a su papá

NO use esto para aplicaciones médicas, no chupe baterías, no ponga sus dedos mojados en el enchufe, los cables de colores no son serpentinas de caramelo...

MANUAL DE USO

ésta no es una presentación al uso, no hablaré sobre tecnología entendida desde el punto de vista de un ingeniero

no esperen ver nada más allá del sentido común, no se asusten si de pronto derivo hacia temas inconexos, si programo ejemplos “live”, muestro videos, conecto con youtube, o si suena mi teléfono a mitad de charla...

MANUAL DE USO II

*... no es que sea descortés, es mi forma
de trabajar*

HIGH is FIVE

NIVEL ALTO ES CINCO VOLTIOS

HABLANDO SOBRE ARTE Y TECNOLOGÍA – D. CUARTIELLES

```
/* HIGH is FIVE */
```

```
VOID SETUP() {
```

```
  PROPOSICIONES();
```

```
}
```

```
// DECLARACIÓN DE VARIABLES - ARDUINO
```

```
VOID LOOP() {
```

```
  EJEMPLOS();
```

```
}
```

```
RETURN - CONCLUSIONES
```

```
/* HIGH is FIVE */
```

```
VOID SETUP() {
```

```
  PROPOSICIONES();
```

```
}
```

```
// DECLARACIÓN DE VARIABLES - ARDUINO
```

```
VOID LOOP() {
```

```
  EJEMPLOS();
```

```
}
```

```
RETURN - CONCLUSIONES
```

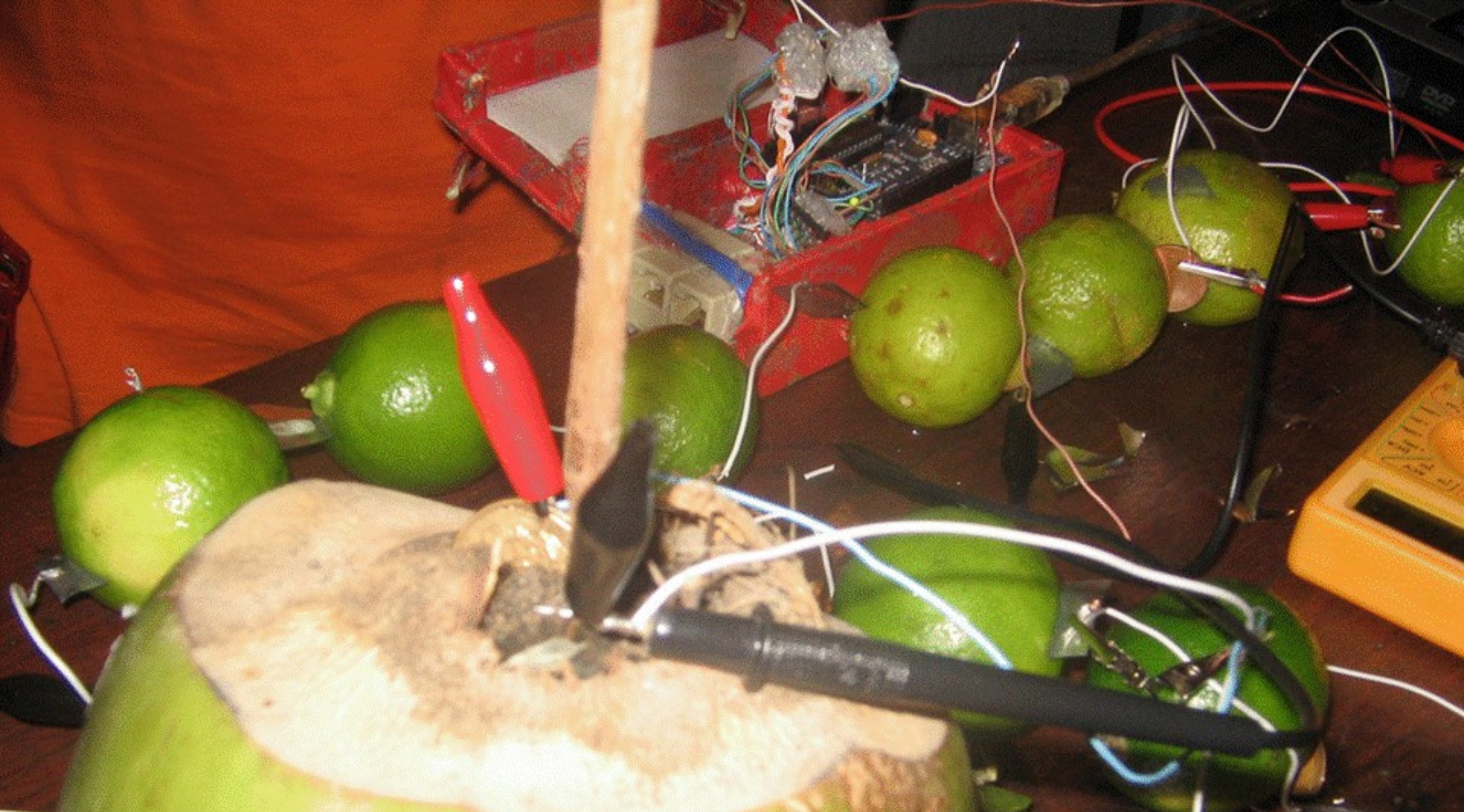
Y, ADEMÁS, HARDWARE LIBRE



CUANDO HABLO DE “NOSOTROS”

VOID SETUP()

UN PAR DE PROPOSICIONES SOBRE LA INTERACTIVIDAD



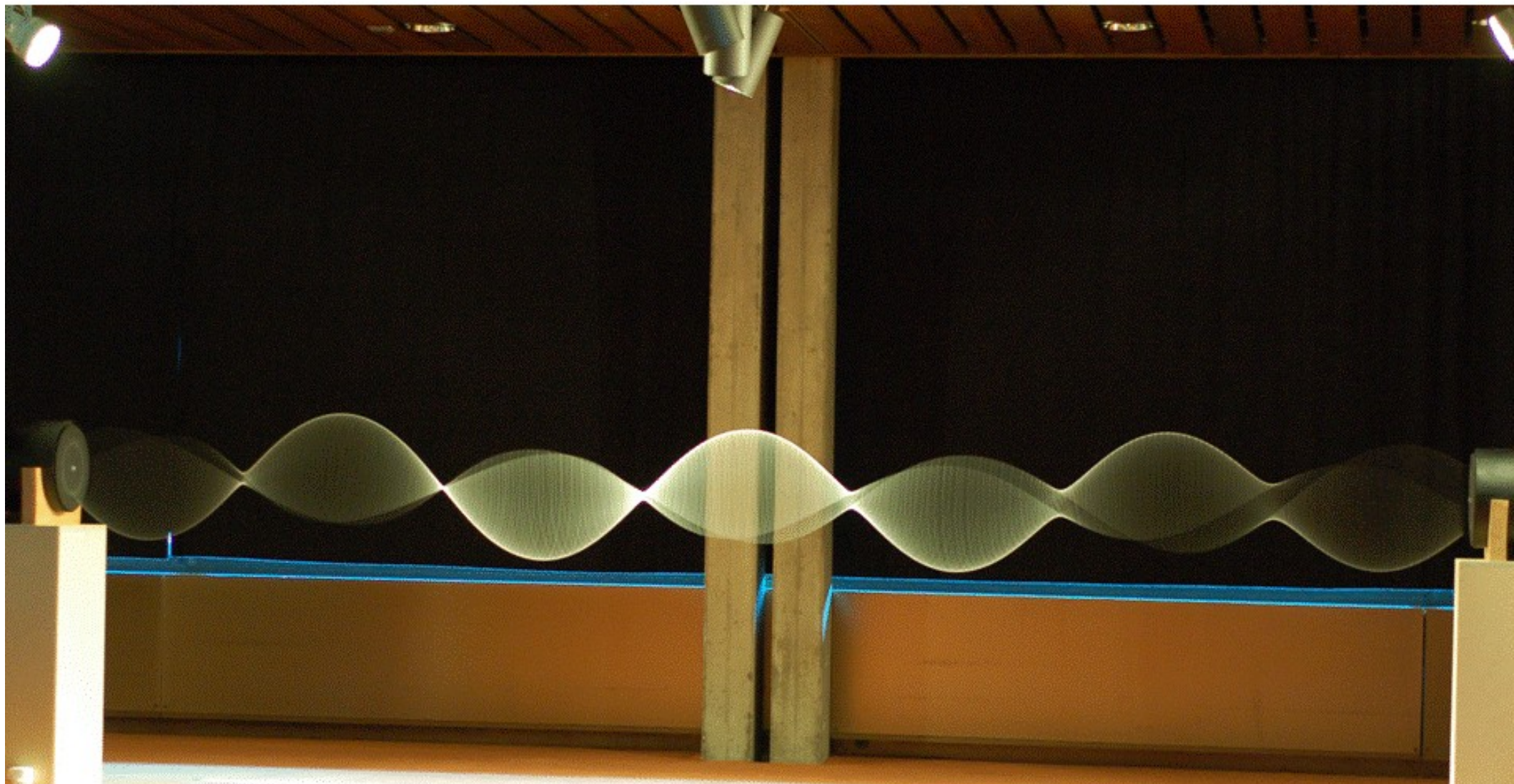
PROPOSICIÓN #1

TEC. CERRADAS FRENAN EL DESARROLLO



PROPOSICIÓN #2

NUEVAS TEC. → PATRONES DE USO



PROPOSICIÓN #3

EL DISEÑO INTERACTIVO ES...

la creación de relaciones
funcionales entre nosotros
(humanos) y la tecnología

DISEÑO INTERACTIVO

la creación de relaciones
estéticas entre nosotros
(humanos) y la tecnología

DISEÑO INTERACTIVO

la creación de relaciones
controversas entre nosotros
(humanos) y la tecnología

DISEÑO INTERACTIVO

la cre

com

(bu

battle NOW

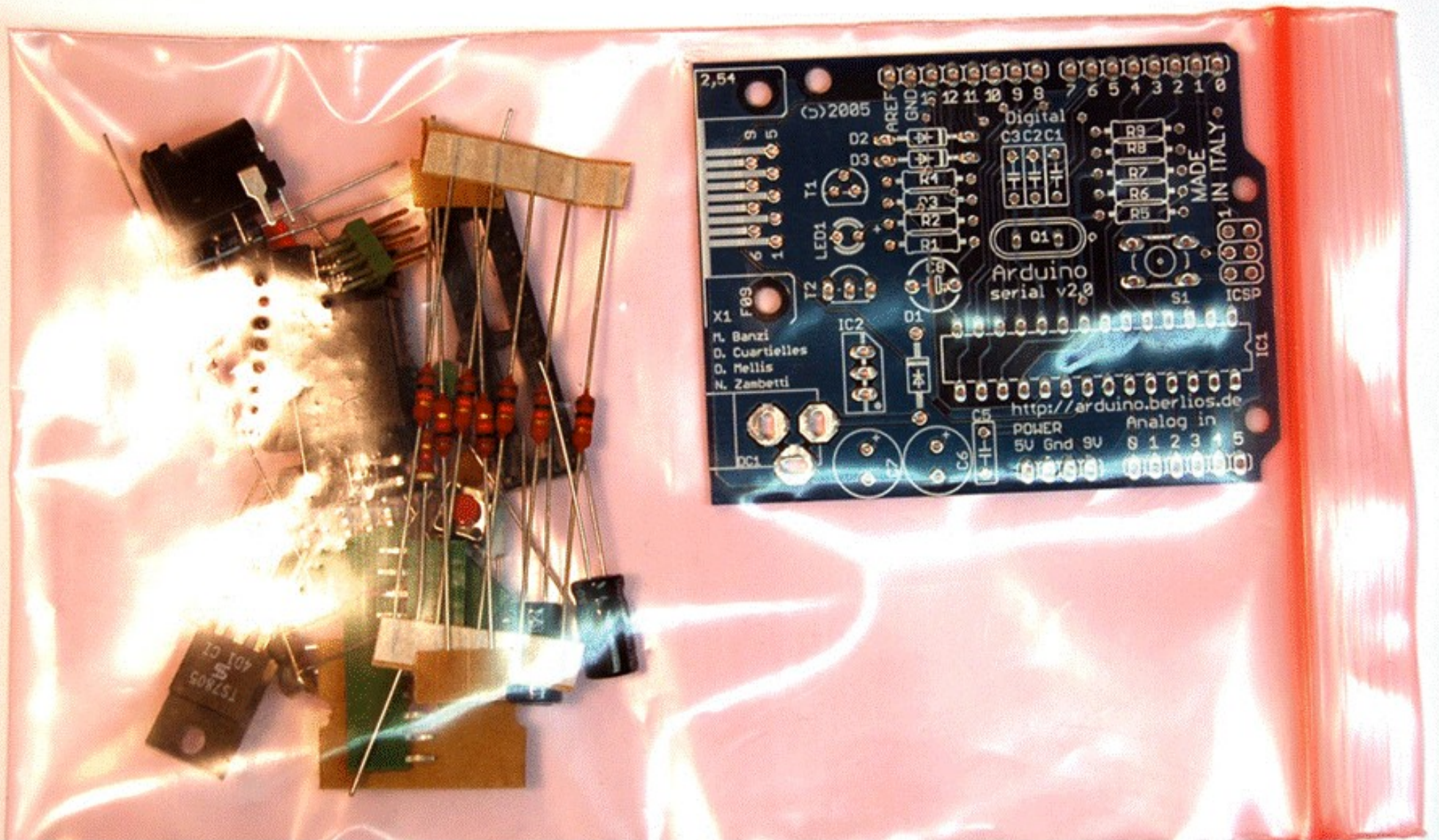
Wii vs iPhone

ros

via



DISEÑO INTERACTIVO



ARDUINO – NADA DE LO ANTERIOR

VARIABLES

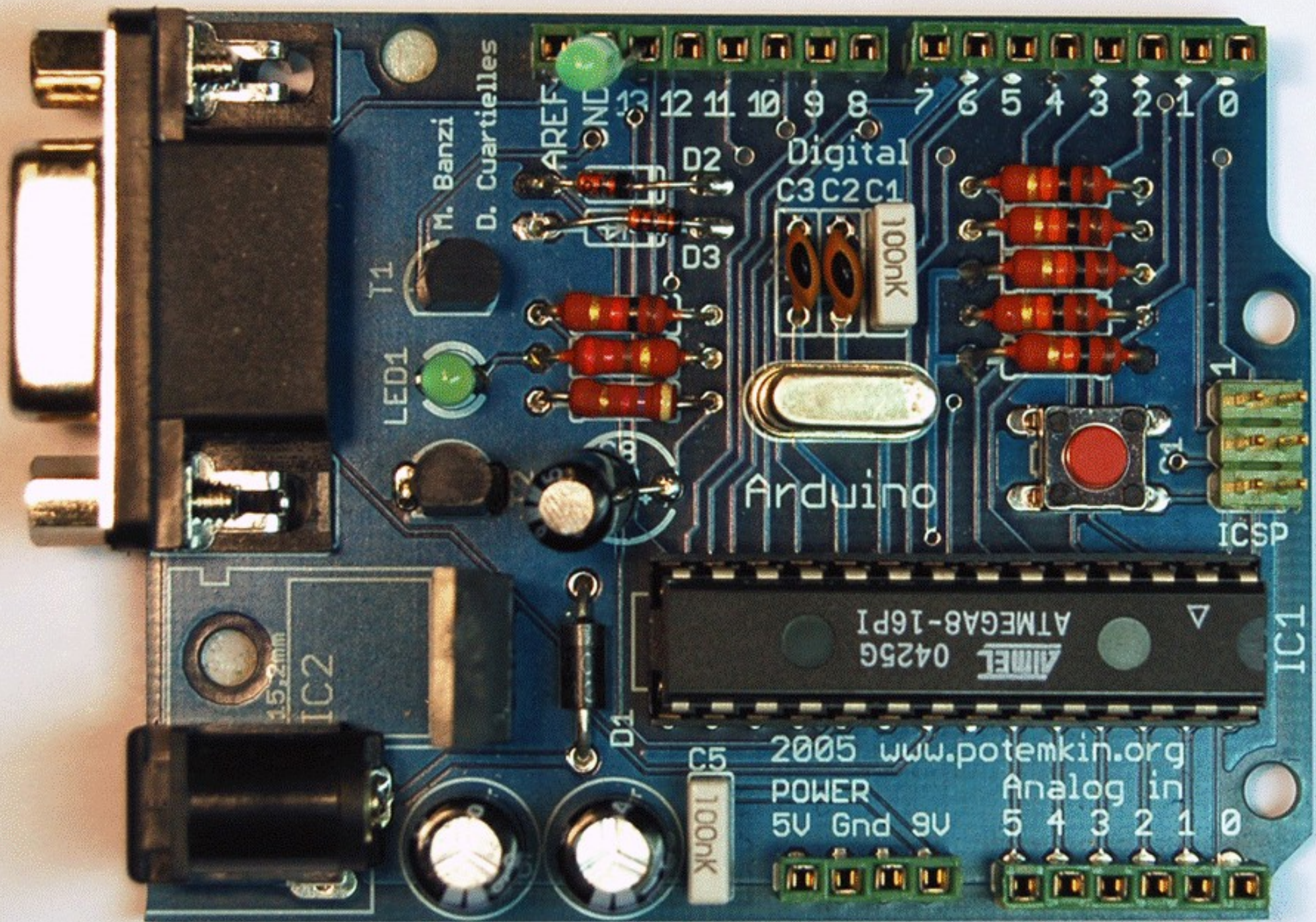
ESOS PEQUEÑOS ESPACIOS DE LA MEMORIA

Arduino:

1) *Arduino aparece en la forma de un circuito impreso de color azul. Lo llamamos **placa E/S** (I/O board), y puede aparecer como un dispositivo montado a máquina o como un kit DIY. Funciona de forma autónoma o como un periférico alternativo a nuestros PCs*

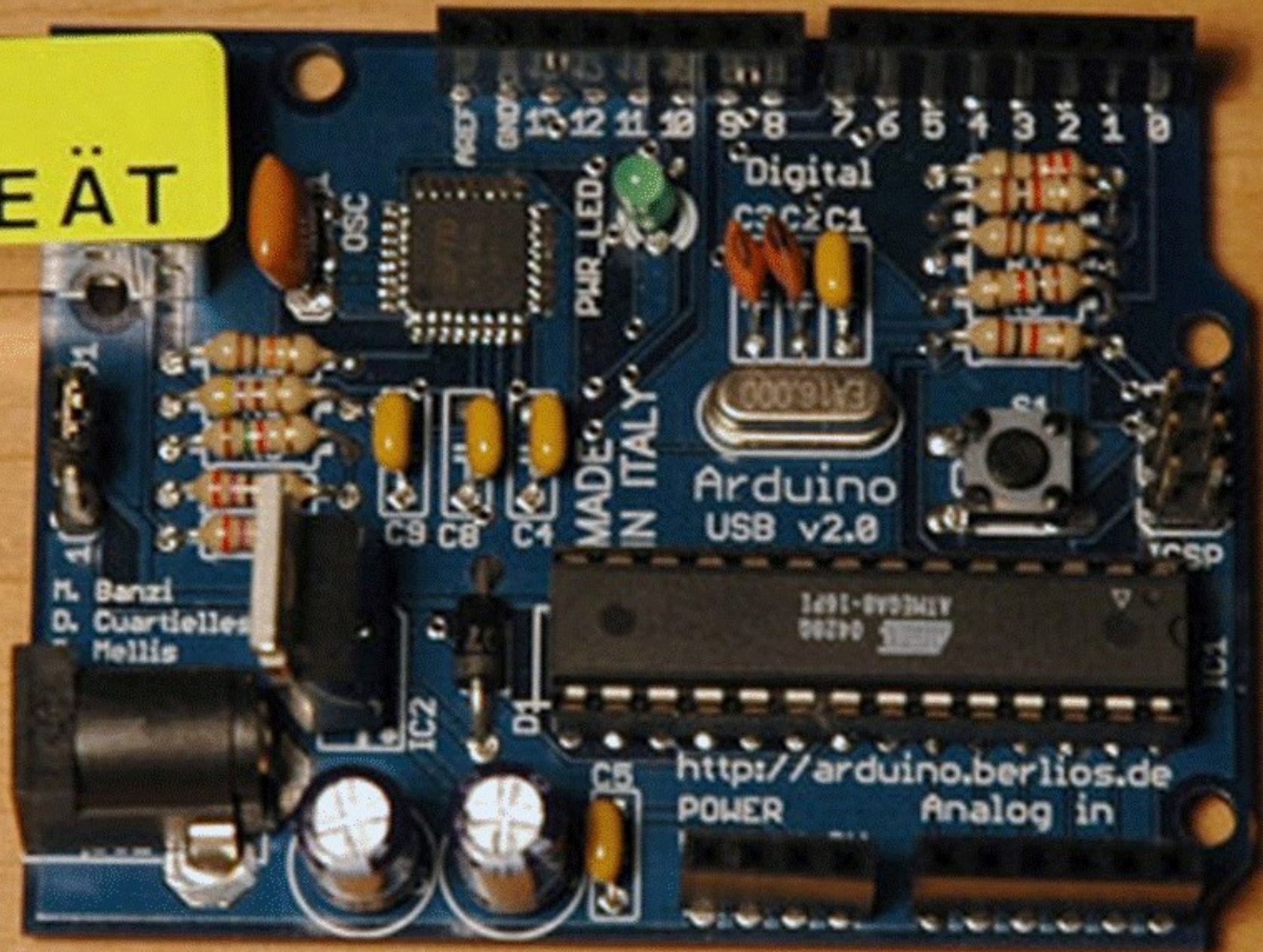
2) *en el mundo del software, Arduino es un **IDE** que permite programar de forma fácil y rápida la placa E/S*

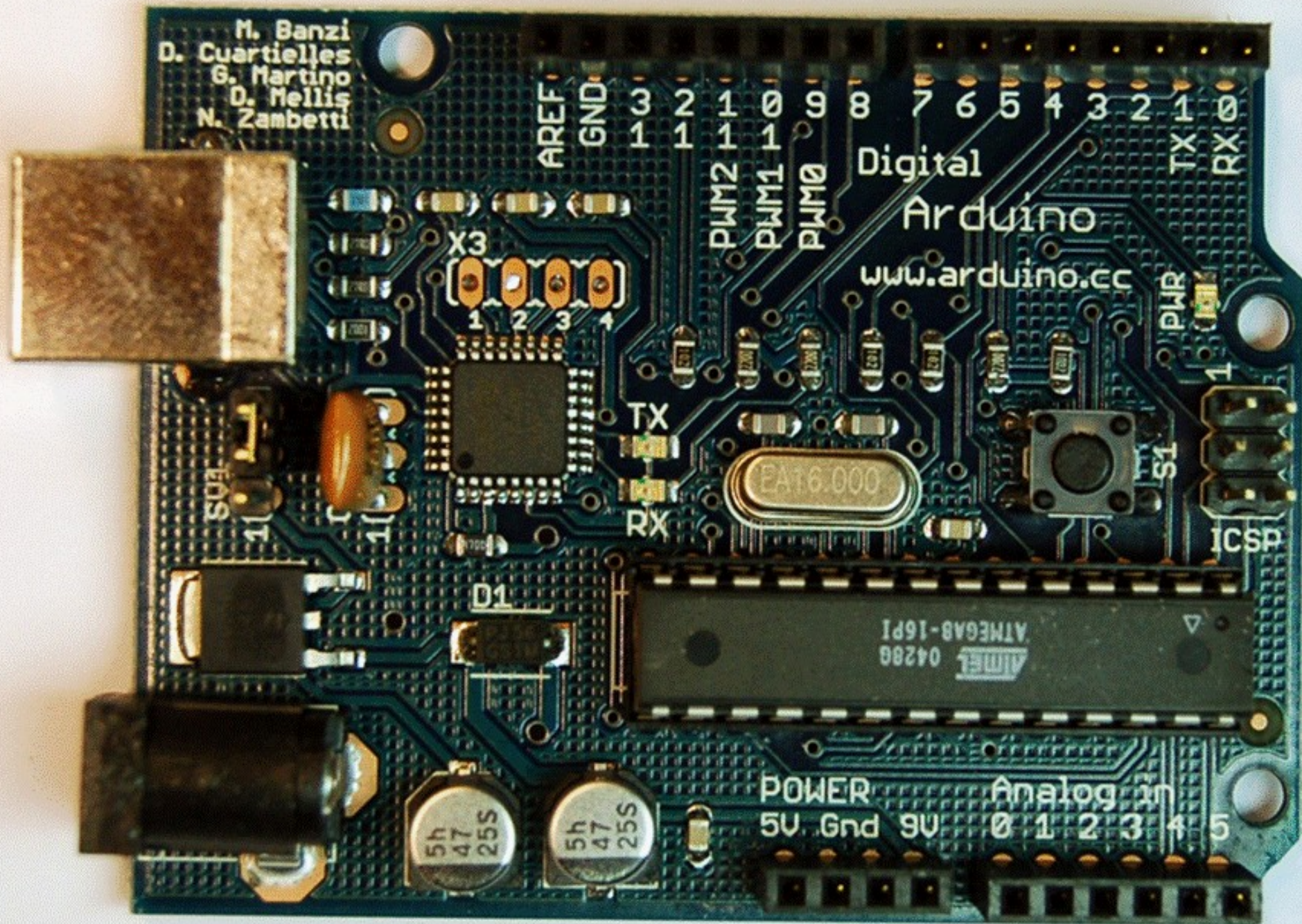
3) *es un **método educativo** incluyendo ejemplos tipo DIY para aprender a través del cacharreo y la colaboración “on-line”*



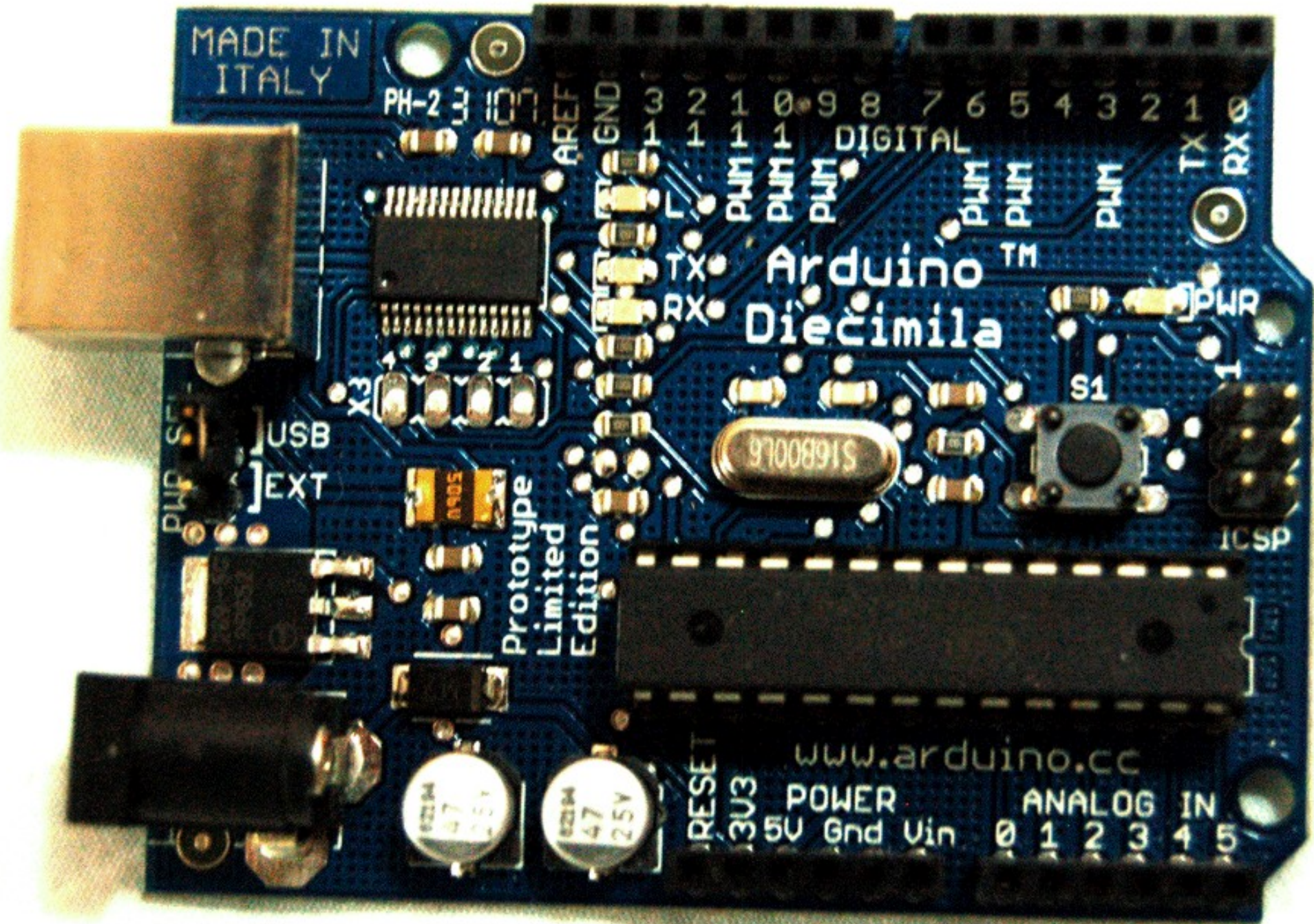
serial v1.0 – 2005 March

NE ÄT

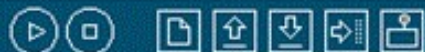




USB pre-mounted v2.0 – 2006 February



Diecimila – 2007 November



led_blink

```
/* Blinking LED
 * -----
 *
 * turns on and off a light emitting diode(LED) connected to a digital
 * pin, in intervals of 2 seconds. Ideally we use pin 13 on the Arduino
 * board because it has a resistor attached to it, needing only an LED
 *
 * Created 1 June 2005
 * copyleft 2005 DojoDave <http://www.0j0.org>
 * http://arduino.berlios.de
 *
 * based on an original by H. Barragan for the Wiring i/o board
 */

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

void setup()
{
  pinMode(ledPin, OUTPUT); // sets the digital pin as output
}

void loop()
{
  digitalWrite(ledPin, HIGH); // sets the LED on
  delay(1000);                // waits for a second
  digitalWrite(ledPin, LOW);  // sets the LED off
  delay(1000);                // waits for a second
}
```


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 \(en Francais\)](#)
- [Arduino and the Asuro robot](#)
- [Using Arduino from the command line](#)

- GUIDE
- TUTORIALS
- REFERENCE
- HARDWARE
- SOFTWARE
- FORUM
- PLAYGROUND
- EXHIBITION
- HACKING
- FAQ
- BUY

Hey, David Cuartielles, you have 5 messages, 0 are new.

Arduino **09.02.07 at 18:47:07**

News: Latest info can be found on the YaBB Chat and Support Community.

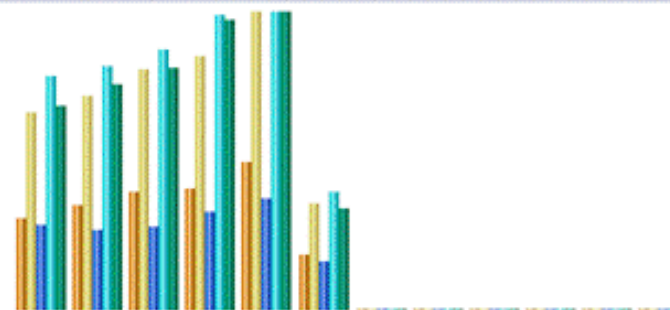
[Home](#)
[Help](#)
[Search](#)
[Members](#)
[Update session](#)
[Profile](#)
[Notification](#)
[Logout](#)

Arduino Forum

Forum name	Last post	Topics	Posts
General			
News Read about the latest happenings to arduino <i>Moderators: Massimo Banzi, mellis</i>	16.01.07 at 12:20:11 In: Arduino in LA By: David Cuartielles	45	158
Frequently Asked questions For issues that don't fit in any other board. <i>Moderators: Massimo Banzi, mellis</i>	Today at 08:49:17 In: Re: LED spot bulbs and ar... By: Daniel	293	1291
Workshops Discussion about organising workshops around the world <i>Moderators: Massimo Banzi, mellis</i>	06.02.07 at 14:00:37 In: Re: Arduino a Centro y Su... By: David Cuartielles	38	204
Exhibition What you've made with Arduino. <i>Moderators: Massimo Banzi, mellis</i>	Yesterday at 18:23:52 In: Re: Arduino for Heartbeat... By: theinfonaut	11	40
Bar Sport General relax area. Write in any language you feel about stuff that doesn't necessarily have to do with electronics. <i>Moderator: Massimo_Banzi</i>	31.01.07 at 23:31:30 In: Re: Arduino Robotics Proj... By: rogwabbit	27	67

- Statistics of:**
arduino.cc
- Summary
 - When:**
 - Monthly history
 - Days of month
 - Days of week
 - Hours
 - Who:**
 - Countries
 - Full list
 - Hosts
 - Full list
 - Last visit
 - Unresolved IP Address
 - Authenticated users
 - Full list
 - Last visit
 - Robots/Spiders visitors
 - Full list
 - Last visit
 - Navigation:**
 - Visits duration
 - Files type
 - Viewed
 - Full list
 - Entry
 - Exit
 - Operating Systems
 - Versions
 - Unknown
 - Browsers
 - Versions
 - Unknown
 - Referrers:**
 - Origin
 - Referring search engines
 - Referring sites
 - Search
 - Search Keyphrases

Monthly history



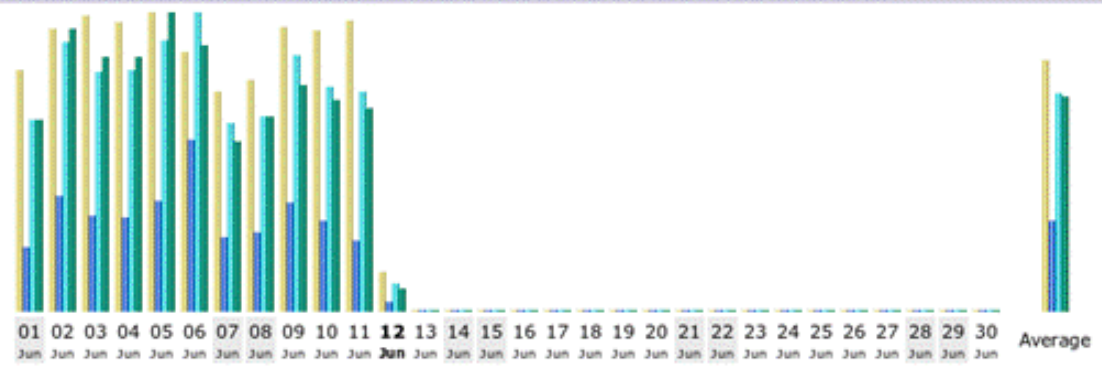
Jan 2008 Feb 2008 Mar 2008 Apr 2008 May 2008 **Jun 2008** Jul 2008 Aug 2008 Sep 2008 Oct 2008 Nov 2008 Dec 2008

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2008	79119	171226	1234208	3353618	309.10 GB
Feb 2008	91402	186886	1145305	3501393	344.04 GB
Mar 2008	102799	209713	1210673	3752178	368.90 GB
Apr 2008	105652	220203	1410959	4241552	441.79 GB
May 2008	128099	258877	1608719	4278449	452.07 GB
Jun 2008	48810	92514	701541	1696769	153.86 GB
Jul 2008	0	0	0	0	0
Aug 2008	0	0	0	0	0
Sep 2008	0	0	0	0	0
Oct 2008	0	0	0	0	0
Nov 2008	0	0	0	0	0
Dec 2008	0	0	0	0	0
Total	555881	1139419	7311405	20823959	2069.75 GB

Days of month

- Statistics of:**
arduino.cc
- Summary
 - When:**
 - Monthly history
 - Days of month
 - Days of week
 - Hours
 - Who:**
 - Countries
 - Full list
 - Hosts
 - Full list
 - Last visit
 - Unresolved IP Address
 - Authenticated users
 - Full list
 - Last visit
 - Robots/Spiders visitors
 - Full list
 - Last visit
 - Navigation:**
 - Visits duration
 - Files type
 - Viewed
 - Full list
 - Entry
 - Exit
 - Operating Systems
 - Versions
 - Unknown
 - Browsers
 - Versions
 - Unknown
 - Referrers:**
 - Origin
 - Referring search engines
 - Referring sites
 - Search
 - Search Keyphrases

Days of month



Day	Number of visits	Pages	Hits	Bandwidth
01 Jun 2008	7408	41444	124227	11.41 GB
02 Jun 2008	8692	75129	174424	16.92 GB
03 Jun 2008	9090	61612	154611	15.23 GB
04 Jun 2008	8871	60925	155914	15.20 GB
05 Jun 2008	9167	71349	175663	17.83 GB
06 Jun 2008	7959	111256	193231	15.92 GB
07 Jun 2008	6728	47343	121503	10.12 GB
08 Jun 2008	7111	51316	126483	11.63 GB
09 Jun 2008	8732	70633	165421	13.50 GB
10 Jun 2008	8642	58707	145722	12.59 GB
11 Jun 2008	8931	46067	142042	12.16 GB
12 Jun 2008	1183	5760	17528	1.35 GB
13 Jun 2008	0	0	0	0
14 Jun 2008	0	0	0	0
15 Jun 2008	0	0	0	0
16 Jun 2008	0	0	0	0
17 Jun 2008	0	0	0	0

Statistics of:
arduino.cc

- Summary
- When:**
- Monthly history
- Days of month
- Days of week
- Hours
- Who:**
- Countries
- Full list
- Hosts
- Full list
- Last visit
- Unresolved IP Address
- Authenticated users
- Full list
- Last visit
- Robots/Spiders visitors
- Full list
- Last visit
- Navigation:**
- Visits duration
- Files type
- Viewed
- Full list
- Entry
- Exit
- Operating Systems
- Versions
- Unknown
- Browsers
- Versions
- Unknown
- Referrers:**
- Origin
- Referring search engines
- Referring sites
- Search
- Search Keyphrases

Connect to site from				
Origin	Pages	Percent	Hits	Percent
Direct address / Bookmarks	133948	60 %	166290	61.8 %
Links from a NewsGroup				
Links from an Internet Search Engine - Full list	63678	28.5 %	67732	25.2 %
- Google	57119	58203		
- Google (Images)	4136	4582		
- Yahoo!	834	892		
- Windows Live	349	435		
- del.icio.us (Social Bookmark)	329	329		
- Google (cache)	323	2655		
- Stumbleupon (Social Bookmark)	160	160		
- MSN Search	76	76		
- Unknown search engines	52	55		
- AltaVista	40	40		
- Scroogle	39	39		
- Excite	26	26		
- Google (Groups)	22	22		
- AOL	21	22		
- Dogpile	20	20		
- Sapo	16	16		
- Ask	14	14		
- GoodSearch	12	12		
- Searchalot	10	10		
- ix quick	9	9		
- Yandex	9	11		
- Baidu	8	50		
- Index	7	7		
- Swik (Social Bookmark)	6	6		
- alice.it	5	5		
- Others	36	36		

Statistics of:
arduino.cc

Summary

When:
Monthly history
Days of month
Days of week
Hours

Who:
Countries
Full list
Hosts
Full list
Last visit
Unresolved IP Address

Authenticated users
Full list
Last visit

Robots/Spiders visitors
Full list
Last visit

Navigation:
Visits duration
Files type
Viewed
Full list
Entry
Exit

Operating Systems
Versions
Unknown

Browsers
Versions
Unknown

Referrers:
Origin
Referring search engines
Referring sites

Search
Search Keyphrases

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

3606 different pages-url

Pages-URL	Viewed	Average size	Entry	Exit
/cgi-bin/yabb2/YaBB.pl	233777	36.95 KB	18392	20640
/blog/	54506	13.11 KB	12976	13430
/	53008	14.98 KB	26752	11352
/en/Tutorial/HomePage	16771	10.67 KB	970	1212
/en/Reference/HomePage	13096	14.91 KB	835	893
/en/Main/Hardware	12888	7.30 KB	680	1146
/en/Guide/HomePage	11096	8.85 KB	829	1179
/en/Main/Buy	10532	8.44 KB	710	2780
/en/Main/Software	10488	9.93 KB	1636	1508
/playground/Main/InterfacingWithHardware	8151	40.96 KB	586	1003
/playground/	6448	11.15 KB	664	576
/en/Main/ArduinoBoardDiecimila	5381	15.49 KB	957	1242
/en/Hacking/HomePage	4724	10.63 KB	179	488
/playground/Site/SideBar/	3364	532 Bytes	1	1
/en/Reference/Extended	3306	16.64 KB	178	222
/playground/Site/SideBar	3019	991 Bytes	3	2
/playground/Main/SimilarBoards	2743	16.72 KB	111	382
/files/arduino-0011-win.zip	2688	31.04 MB	95	868
/es/	2592	12.51 KB	945	329
/en/Guide/Windows	2500	11.68 KB	202	435
/es/Main/AllRecentChanges	2455	148.51 KB	605	677
/en/Reference/Libraries	2313	8.81 KB	72	121
/playground/Projects/ArduinoUsers	2275	48.55 KB	501	752
/en/Main/FAQ	2242	7.69 KB	91	163
/en/Main/ArduinoBoardNano	2068	8.94 KB	346	426
Others	229110	242.07 KB	23198	30305

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

VOID LOOP()

ITERA: PIENSA, CONSTRUYE, PRUEBA, QUEMA, PIENSA, CONSTRUYE . . .



NUEVA TEC. → PATRONES DE INTERACC.



CASO: ALCOPHONE (2004)

Sony Ericsson

A1 CONTROL

PHONEBOOK

ADD NUMBER

HELP

QUIT

EL INTERFACE

Sony Ericsson

Connected
Press a key to scan res

Sony Ericsson



You need to drink more

NOT ENOUGH BABY

Sony Ericsson



Sony Ericsson

AI CONTROL

Johan
Anders
Pelle
Orjan
Gurra

AHORA SI QUE SI

LG Cell Phone with Breathalyzer gaining popularity

BOOKMARK | Print | Rated: 81% by 54 user(s).

Thursday October 27, 2005 8:58 AM CDT - By: Junga Song



The world's first sports car phone with alcohol Breathalyzer has gotten tremendous popularity in Korea. The cell phone by LG was a big hit from the beginning mainly because its outward appearance of a sports. Equipped with an alcohol measurement sensor, the LG-SD410, LG-KP4100, and LG-LP4100 have sold over 200,000 in the four months that it has been available, and is still selling around 1500 per day.



Having an alcohol measurement device attached to something like a cell phone is nothing but brilliant, especially among younger crowds who regularly drink after work or school and like to party. To use the sensor an intoxicated individual simply opens the phone and blows on the sensor, the LCD will tell you whether your level of alcohol in your blood is safe to drive.

Besides the alcohol measurement feature of this cell phone it is equipped with an advanced remote control for your TV, DVD and karaoke machine, etc. These two functions make this sports car phone appealing to most youths.

According to the National Center for Injury and Prevention Control, Alcohol-related motor vehicle crashes kill someone every 31 minutes and non-fatally injure someone every two minutes in the US. Maybe, it's time to bring this technology to North America?

NOSOTROS LO HICIMOS, LG LO VENDIÓ

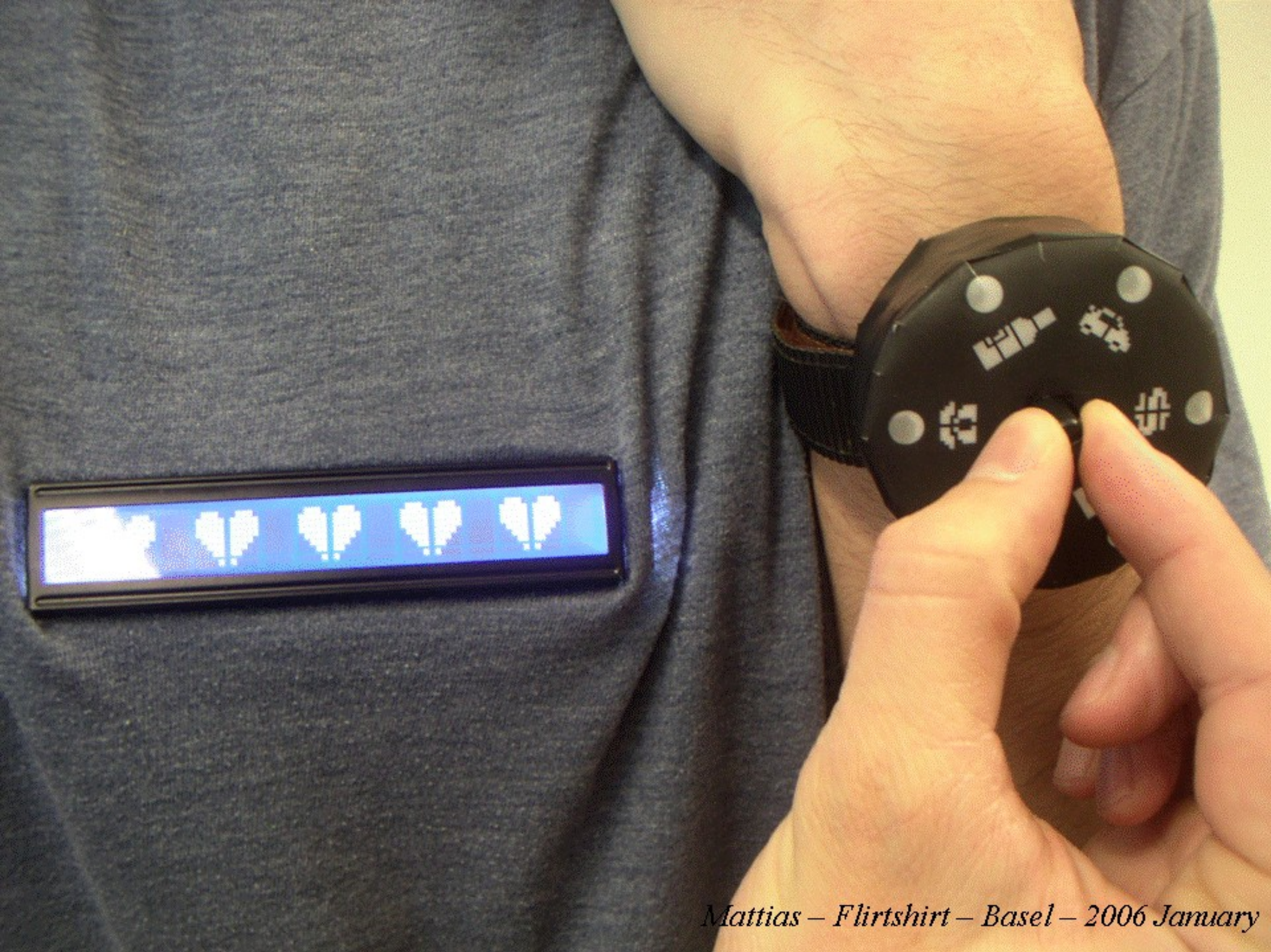
[Windows BREW Ja](#)
Mobile Application D
Vouchers
www.visionmobile.co

[Find Breath Teste](#)
Compare & Rate Our
DrElectronics.info

[The EU i-Travel Pr](#)
location based and c
www.i-travelproject.co

[VoIP Phones](#)
Complete range avail
www.voiptalk.org/pho

Add
Jump
Ads by



Mattias – Flirtshirt – Basel – 2006 January

THE INVOLUNTARY DANCE MACHINE

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



HISTORIA DEL BAILARÍN INVOLUNTARIO



Dancing Aids – Goteborg's Science Fair – 2005 June



Dancing Aids – London Design Research Conference – 2006 July





POR UN PUÑADO DE VOLTIOS



LOS INSECTOS DE LA CAMA DE LORCA





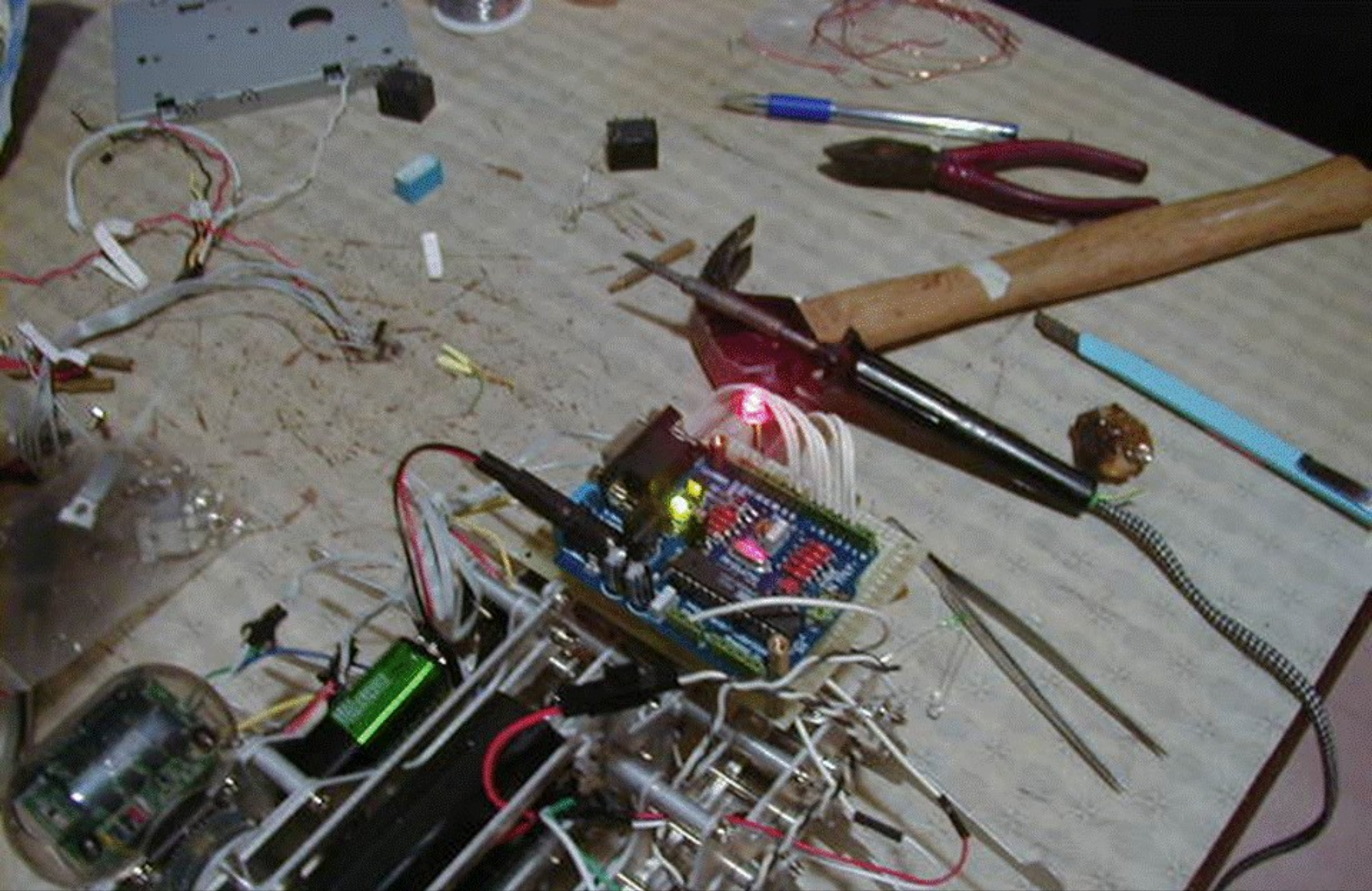






EL COMPUESTO DE OBRAS





EL ROBOT QUE VINO DE CHINA

RETURNO 0

EL PROCESO DE CREACIÓN

Qué ha cambiado:

desde que comenzamos en Marzo del 2005 hay muchas cosas que han cambiado, si bien lo más importante es la manera en que afecta a la gente, a su entorno y la forma en que comunican sus ideas

Laboratorio:

lugar de encuentro donde crear en comunidad.

*De cara a generar un laboratorio se necesita
gente, ideas y herramientas*

Arduino es un ejemplo de herramienta



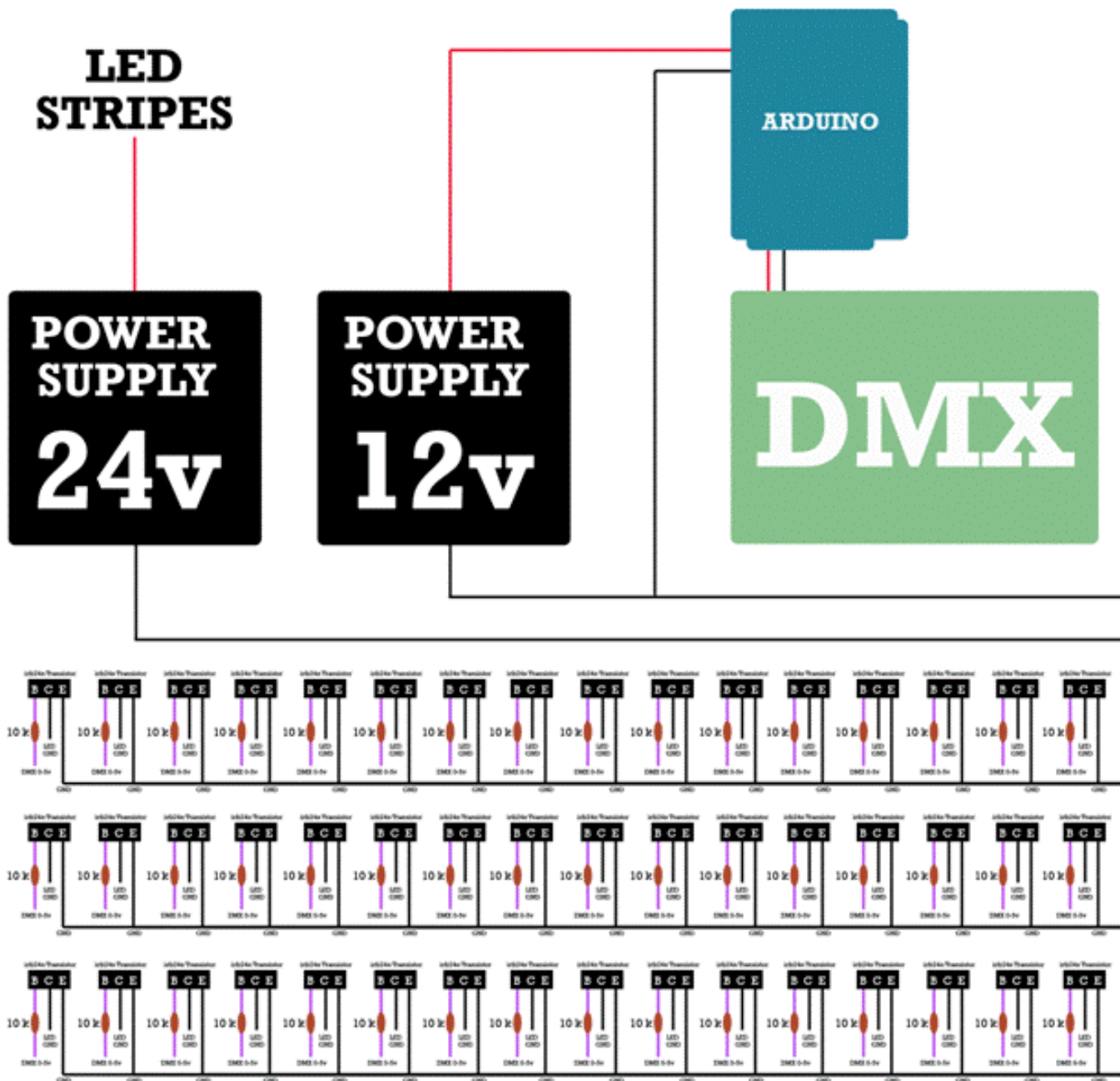


Laboratory at K3 – Malmö – 2005

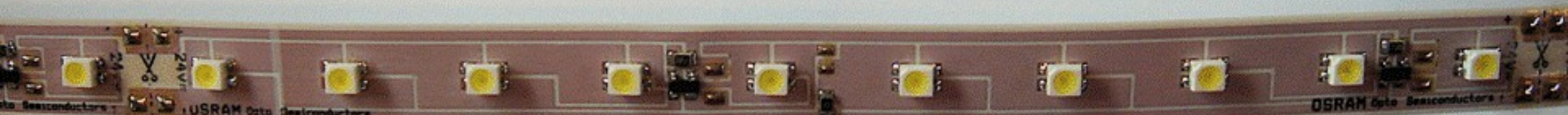
Formas en que la gente comunica:

lenguajes no convencionales surgen de la forma en la que los usuarios comprenden y adoptan las herramientas

pictogramas, bocetos, ilustraciones... nos permiten comunicar a un nivel diferente



Where the fuck to cut this fucker?



Here or here ?

Is it even possible?



Chair, P. Stalin, M. Hammerstig, C. Flindt – K3 – 2006 April

Prototipar como concepto:

gracias a nuevos tipos de herramientas de software y hardware podemos expresar la interactividad a través de interacción, y no parar a nivel discursivo



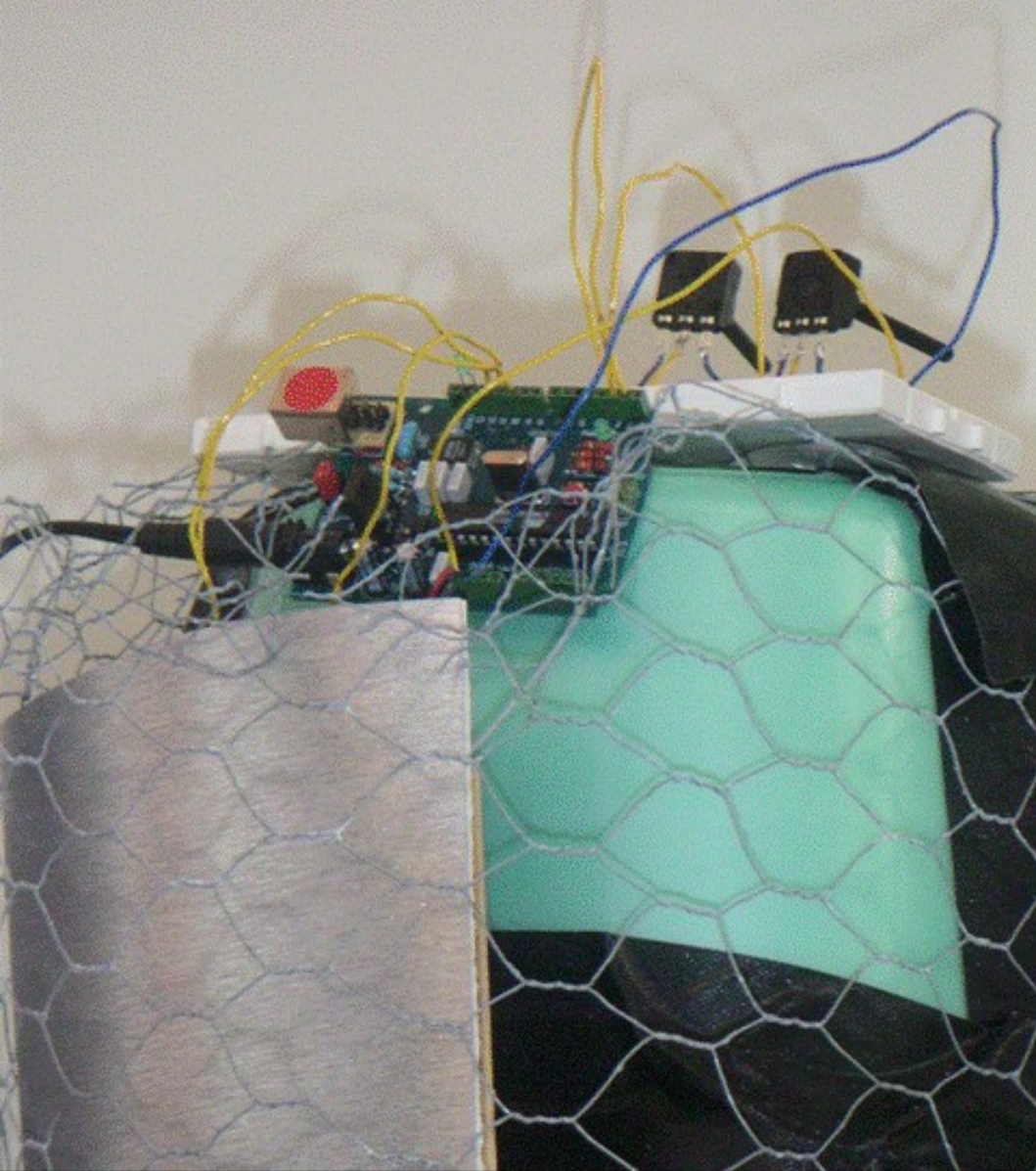
DISEÑANDO A TRAVÉS DE PROTOTIPOS



DISEÑANDO A TRAVÉS DE PROTOTIPOS



DISEÑANDO A TRAVÉS DE PROTOTIPOS



DISEÑANDO A TRAVÉS DE PROTOTIPOS

RETURN 1

ABIERTO NO ES COMO LO DE 24/7

NICE to COPY

COPIAR ES BUENA COSA

FILOSOFÍA DE COPIA, DESARROLLO EMERGENTE DISTRIBUIDO

Open Source Hardware:

la licencia de hardware de fuente abierta establece la libertad de copia del diseño del circuito electrónico y del firmware, así como la creación de obras derivadas basadas en los anteriores

HARDWARE DE FUENTE ABIERTA

GROUND is ZERO

NIVEL BAJO ES CERO VOLTIOS

F.P.T.R. – FORMULE PREGUNTAS TERRIBLEMENTE RÁPIDO

ATENCIÓN – NO TENGO TARJETA

para más información:

D. Cuartielles

http://1scale1.com

http://arduino.cc

david.cuartielles@mah.se