



Taller Arduino

Proyecto Gnomoduino

Taller Arduino – Proyecto Arduino

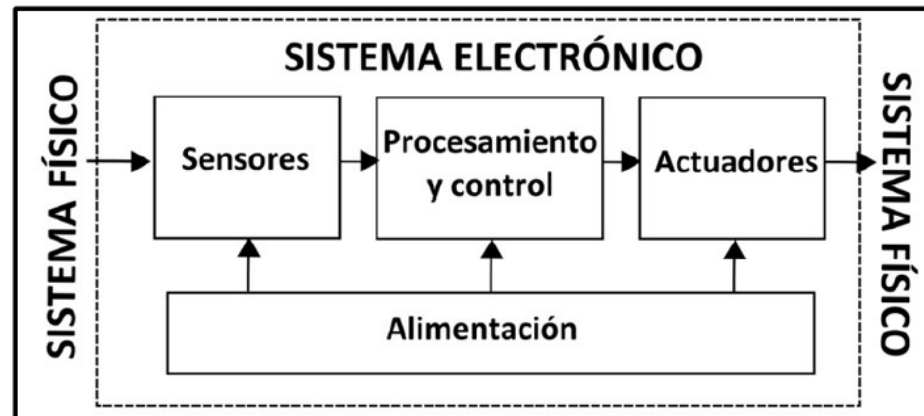
- Presentación del concepto Arduino.
- Elementos para Arduino.
- *Shields* para arduino.
- Otros sistemas de control.

- Proyectos Arduino.
- Proyecto Gnomodduino.

Presentación concepto Arduino

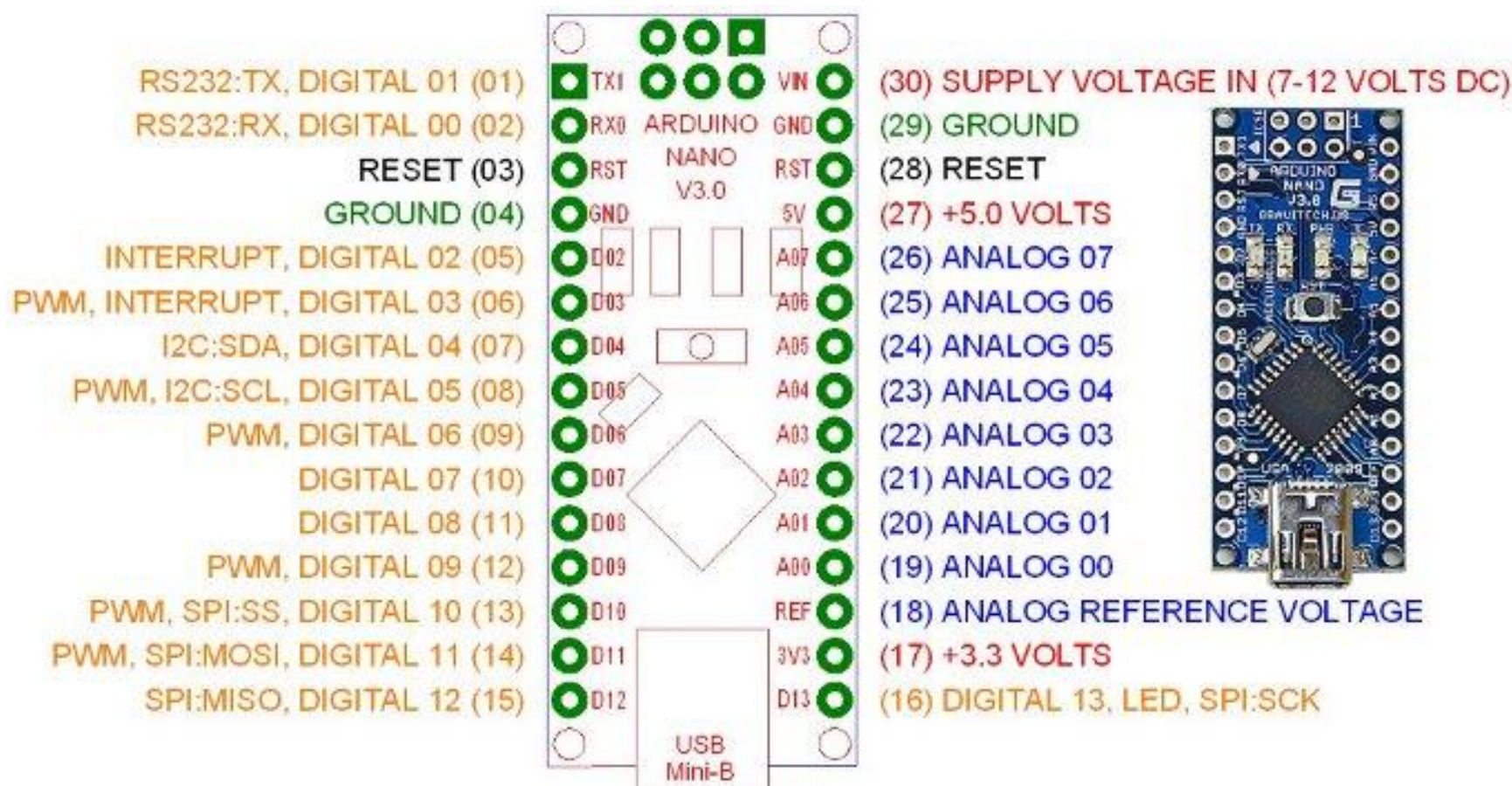
Datos interés Arduino nano V3.0

- Controlador ATmega328P de la marca ATMEL
- Comunicación Serial, I2C(TWI), SPI, Pines
- Alimentación entre 6 y 20v (7 a 12v) y >250mA
- Conexión USB (regulada a 5v y 500mA)
- Salidas voltaje 3,3v (50mA) y 5v (40mA)
- 14 (0 a 13) pines e/s digitales (5v y 40mA). También uso 6 pines PWM
- 6 (0 a 5) pines entrada analógica (0 a 5v). También uso 6 pines e/s digital (14 a 19)



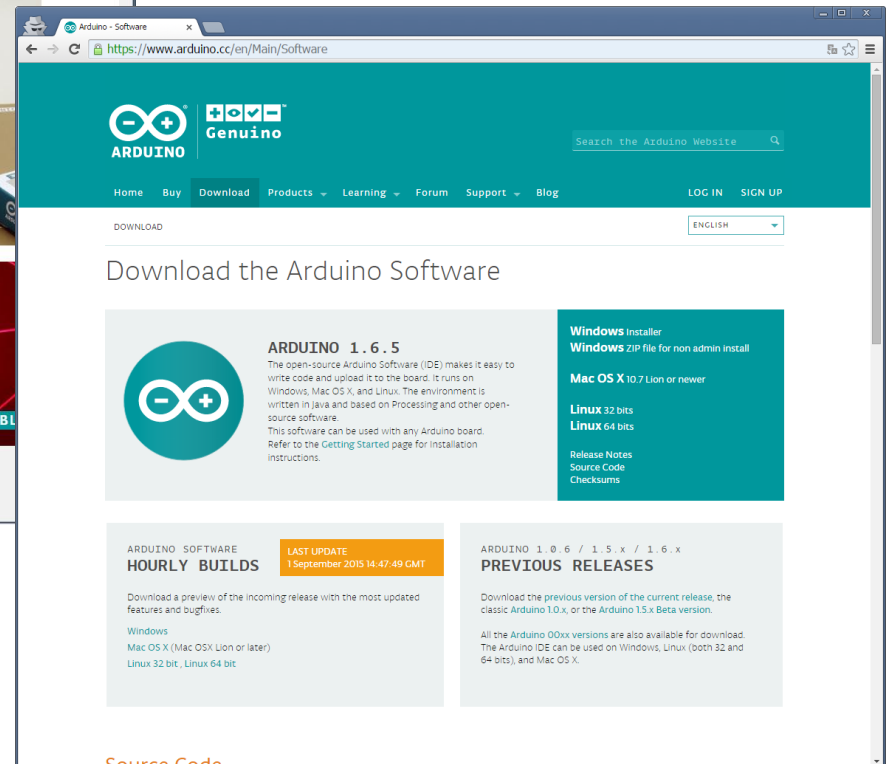
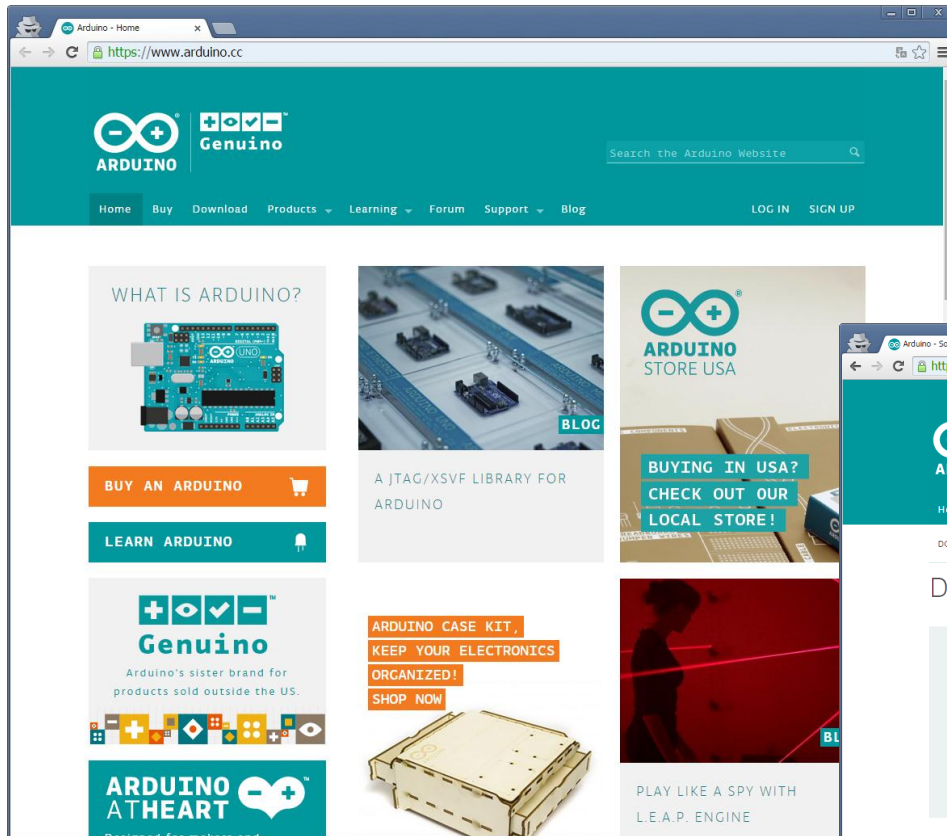
Presentación concepto Arduino

Esquema Arduino nano V3.0



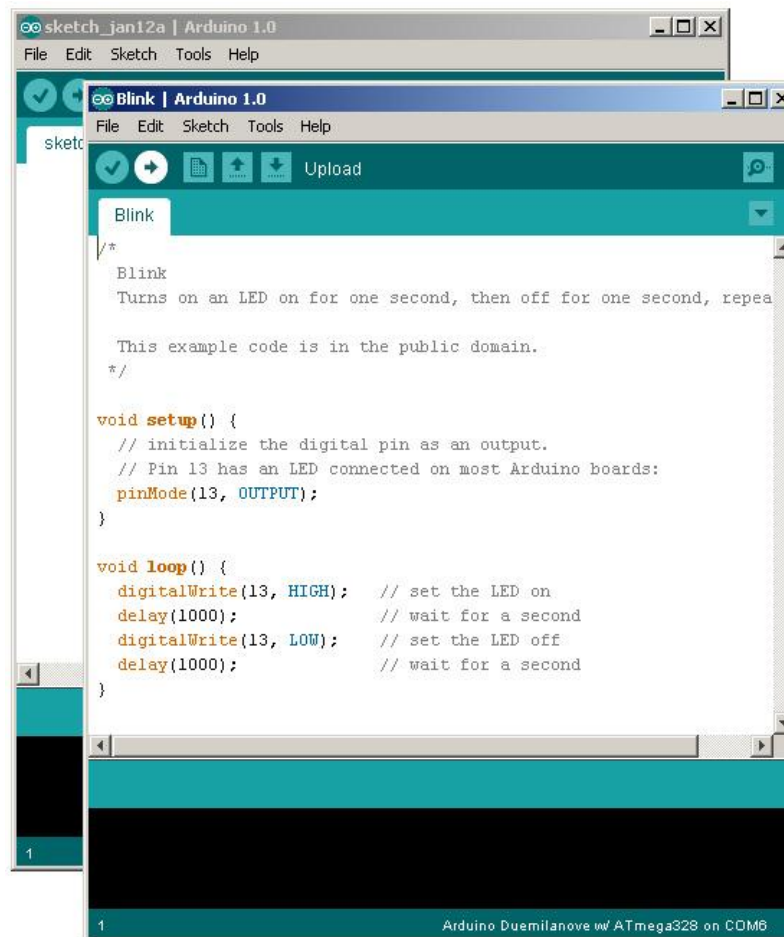
Presentación concepto Arduino

Página web Arduino
www.arduino.cc



Presentación concepto Arduino

API Arduino



The image shows a screenshot of the Arduino IDE interface. The main window displays the 'Blink' sketch, which is a standard example for controlling an LED. The code is written in C++ and includes comments explaining its function. The IDE's menu bar (File, Edit, Sketch, Tools, Help) and toolbar (containing icons for opening files, saving, and uploading) are visible at the top. The status bar at the bottom indicates the board is 'Arduino Duemilanove w/ ATmega328 on COM6'.

```
sketch_jan12a | Arduino 1.0
File Edit Sketch Tools Help

Blink | Arduino 1.0
File Edit Sketch Tools Help
Upload

Blink
/*
 * Blink
 * Turns on an LED on for one second, then off for one second, repeating.
 *
 * This example code is in the public domain.
 */

void setup() {
  // initialize the digital pin as an output.
  // Pin 13 has an LED connected on most Arduino boards:
  pinMode(13, OUTPUT);
}

void loop() {
  digitalWrite(13, HIGH); // set the LED on
  delay(1000);             // wait for a second
  digitalWrite(13, LOW);  // set the LED off
  delay(1000);             // wait for a second
}

1
Arduino Duemilanove w/ ATmega328 on COM6
```

Presentación concepto Arduino

Placa Arduino UNO



Presentación concepto Arduino

Placa Arduino nano V3.0



Presentación concepto Arduino

Placa Mini Arduino Pro



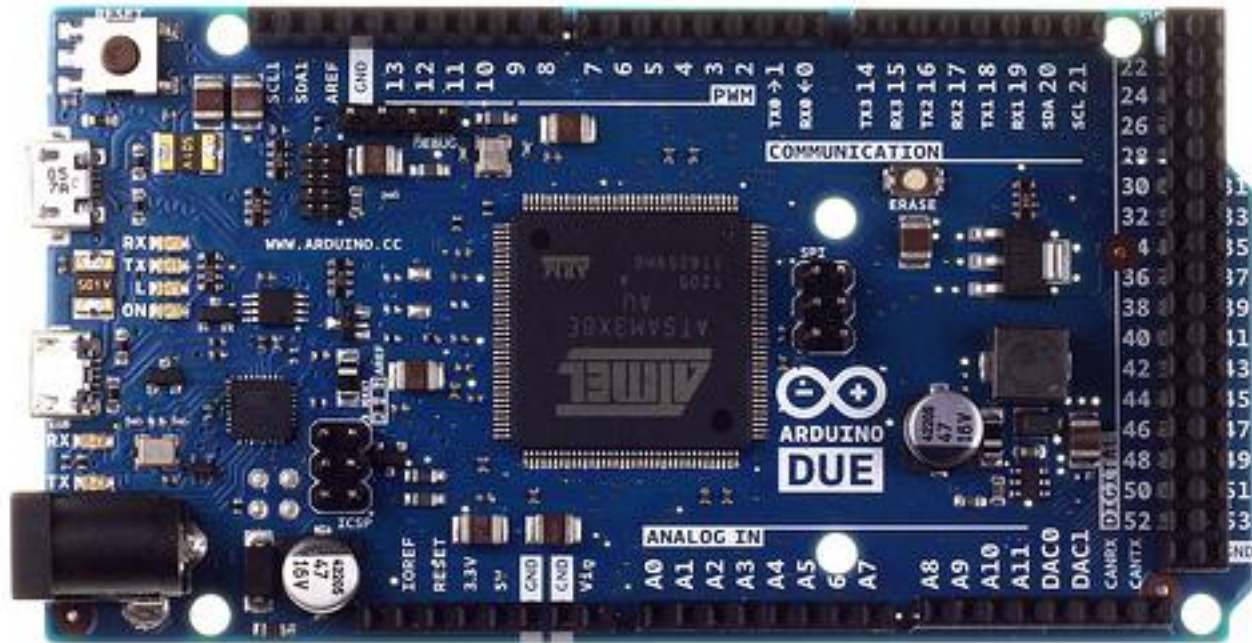
Presentación concepto Arduino

Placa Arduino Mega



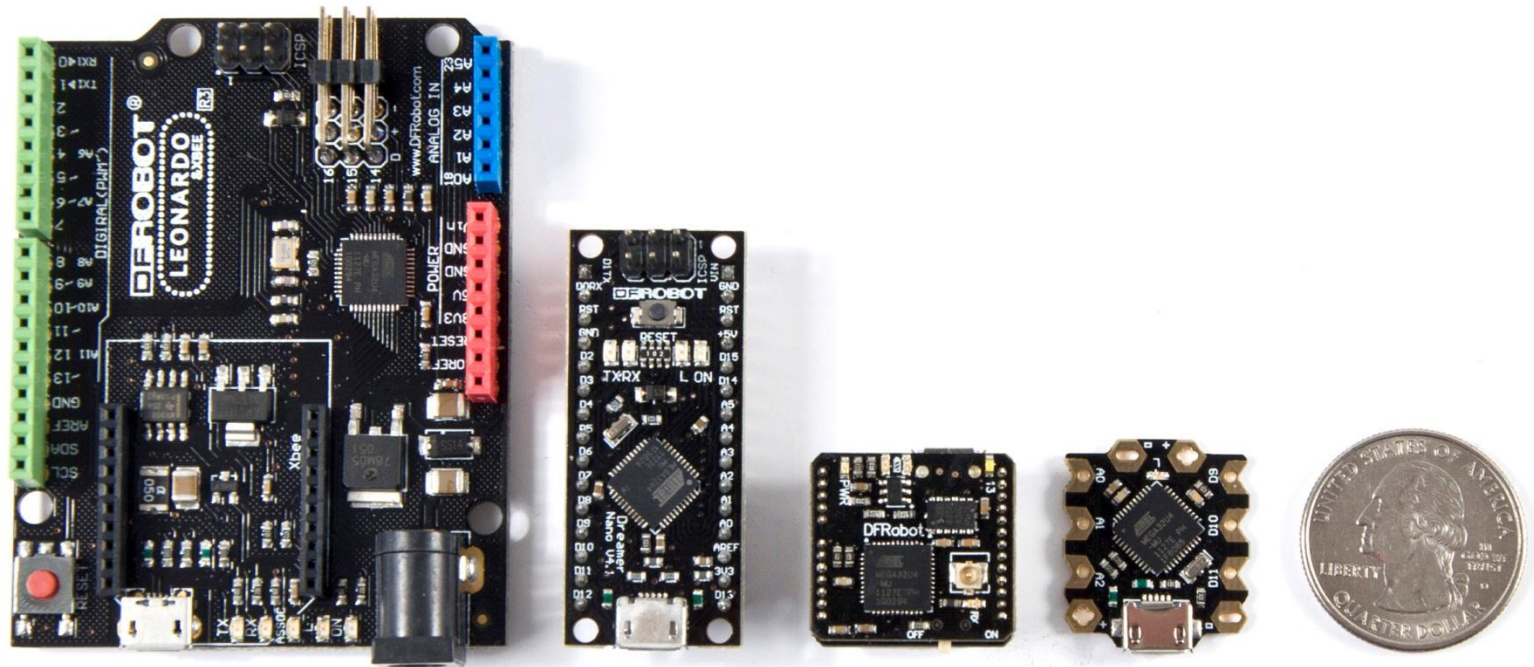
Presentación concepto Arduino

Placa Arduino Due



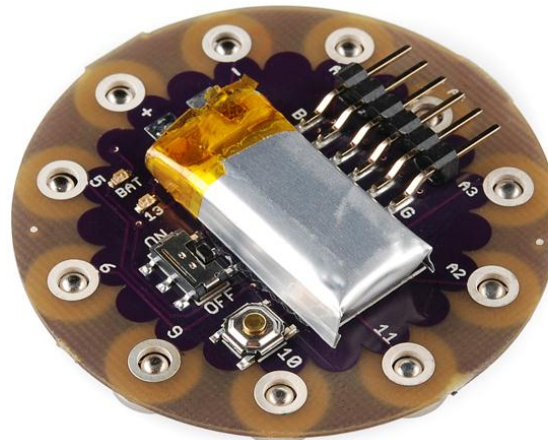
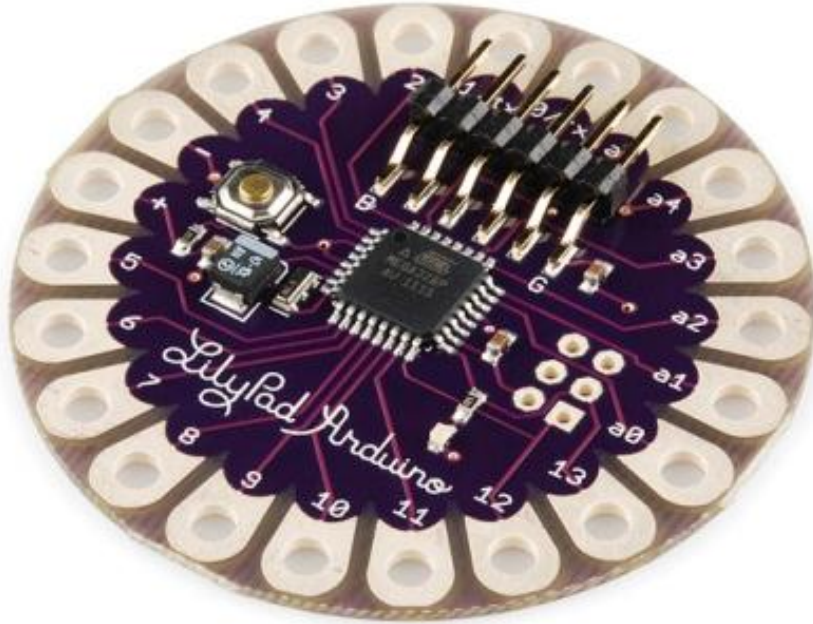
Presentación concepto Arduino

Placas Arduino DFRobot



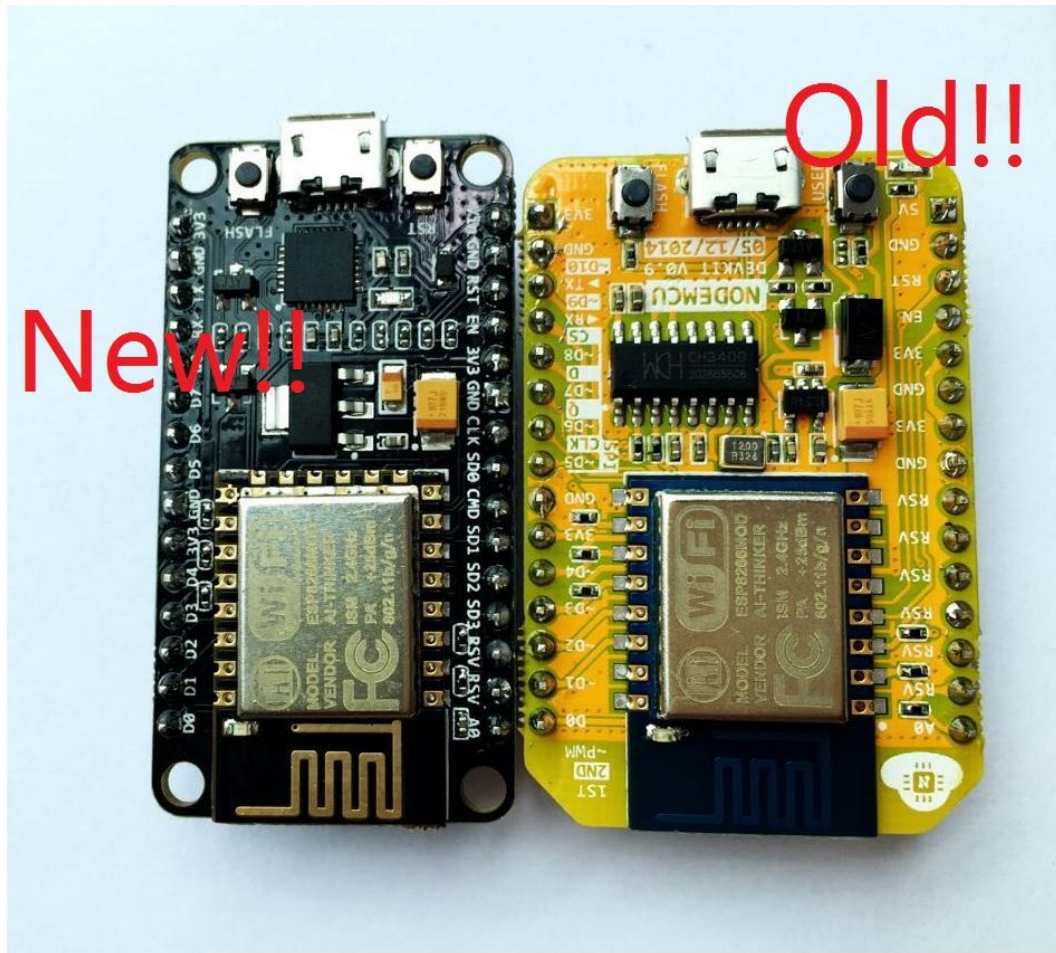
Presentación concepto Arduino

Placas Arduino LilyPad



Presentación concepto Arduino

Placas Arduino Wifi Nodemcu (Lenguaje LUA)

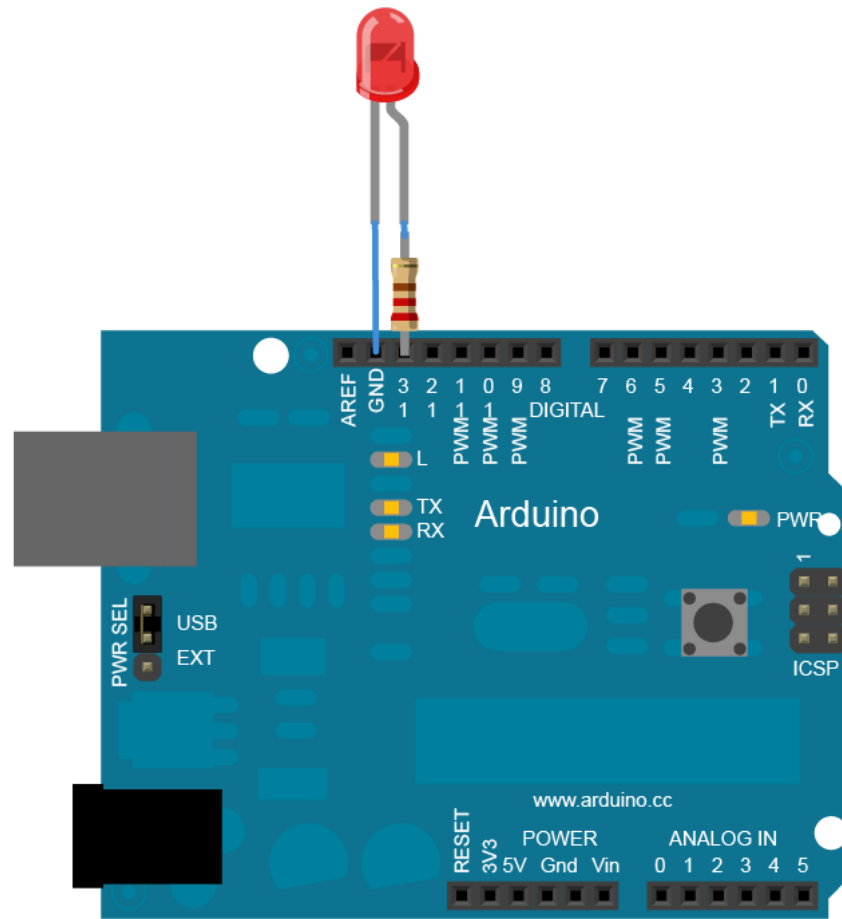


Presentación concepto Arduino

	Arduino UNO	Lilypad Arduino	Arduino Mega 2560	Arduino Fio	Arduino ADK	Arduino PRO	Arduino Nano
Prestaciones							
Microcontroller	ATmega328V	ATmega168V ATmega328V	ATmega256	ATmega328P	ATmega2560	ATmega328V	ATmega168 ATmega328
Operating Voltage	5 V	2.7-5.5 V	5V	3.3V	5V	5 V	5 V
Input Voltage (recommended)	7-12V	2.7-5.5 V	7-12V	3.35 -12 V	7-12V	7-12V	7-12 V
Input Voltage (limits)	6-20V		6-20V		6-20V	6-20V	6-20 V
Input Voltage for Charge				3.7 - 7 V			
Digital I/O Pins	14 (of which 6 provide PWM output)	14 (of which 6 provide PWM output)	54 (of which 15 provide PWM output)	14 (of which 6 provide PWM output)	54 (of which 15 provide PWM output)	14 (of which 6 provide PWM output)	14 (of which 6 provide PWM output)
Analog Input Pins	6	6	16	8	16	6	8
DC Current per I/O Pin	40 mA	40 mA	40 mA	40 mA	40 mA	40 mA	40 mA
DC Current for 3.3V Pin	50 mA		50 mA		50 mA	50 mA	
Flash Memory	32 KB (ATmega328) of which 0.5 KB used by bootloader)	16 KB (of which 2 KB used by bootloader)	256 KB of which 8 KB used by bootloader	32 KB (of which 2 KB used by bootloader)	256 KB of which 8 KB used by bootloader	32 KB (ATmega328) of which 0.5 KB used by bootloader)	16 KB (ATmega168) or 32 KB (ATmega328) of which 2 KB used by bootloader
SRAM	2 KB	1 KB	8 KB	2 KB	8 KB	2 KB	1 KB (ATmega168) or 2 KB (ATmega328)
EEPROM	1 KB	512 bytes	4 KB	1 KB	4 KB	1 KB	512 bytes (ATmega168) or 1 KB (ATmega328)
Clock Speed	16 MHz	8 MHz	16 MHz	8 MHz	16 MHz	16 MHz	16 MHz

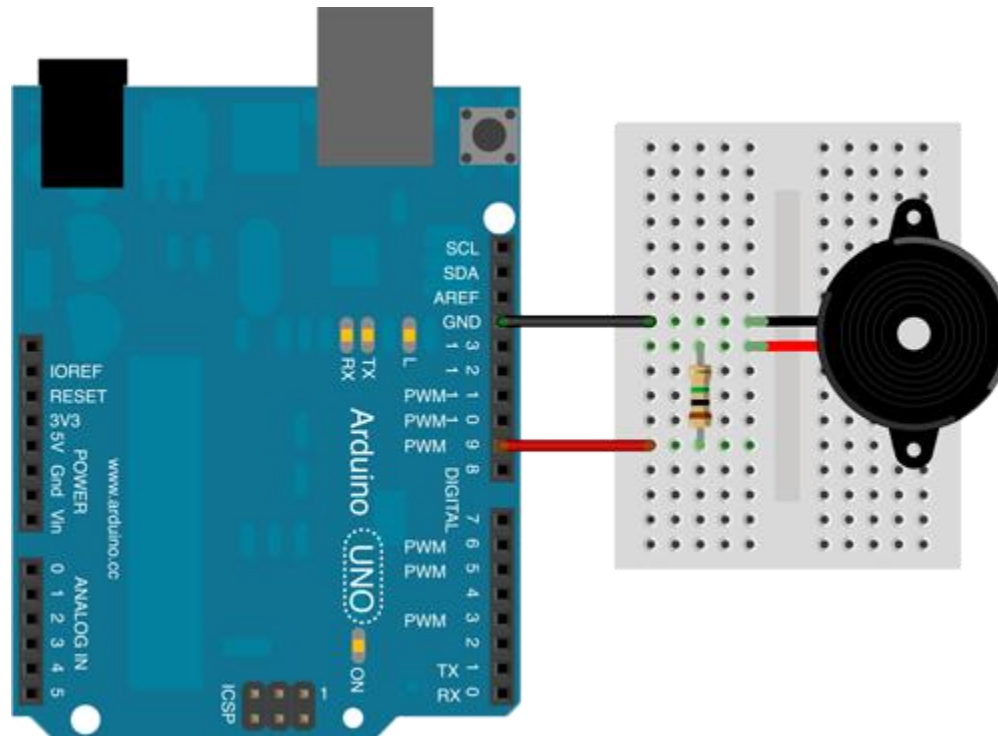
Elementos para Arduino

Conexión LED + Ley de Ohm ($V=IR$)



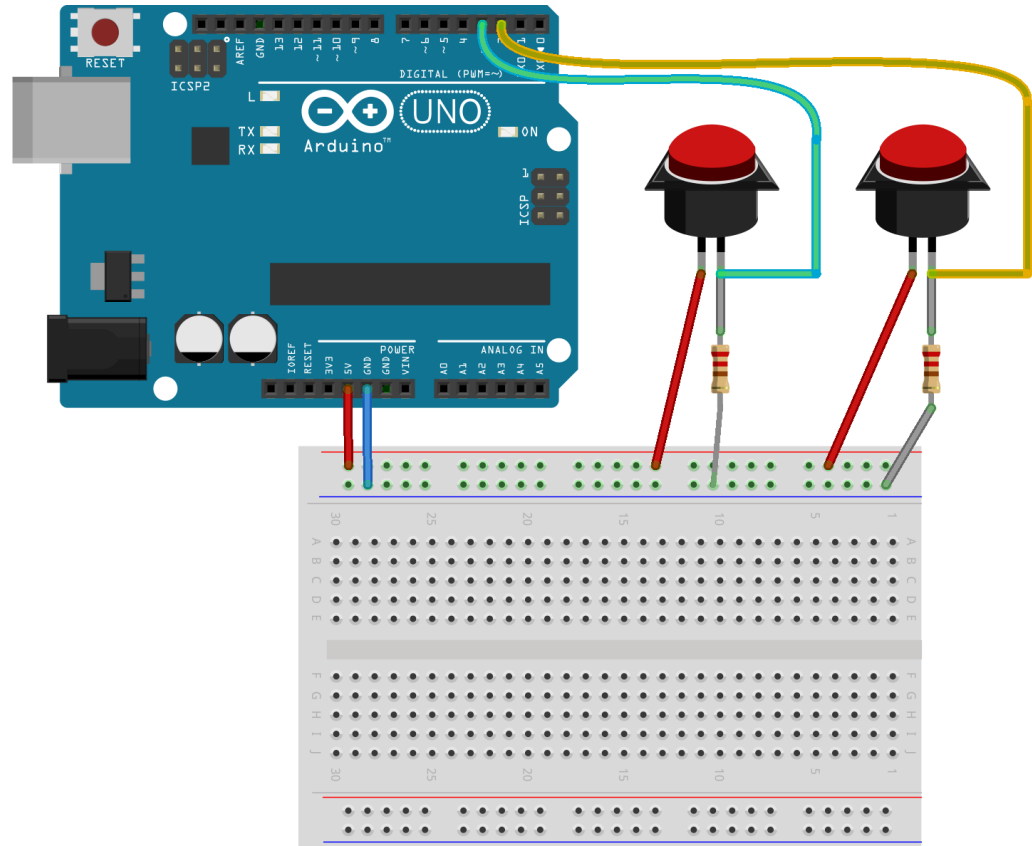
Elementos para Arduino

Conexión zumbador



Elementos para Arduino

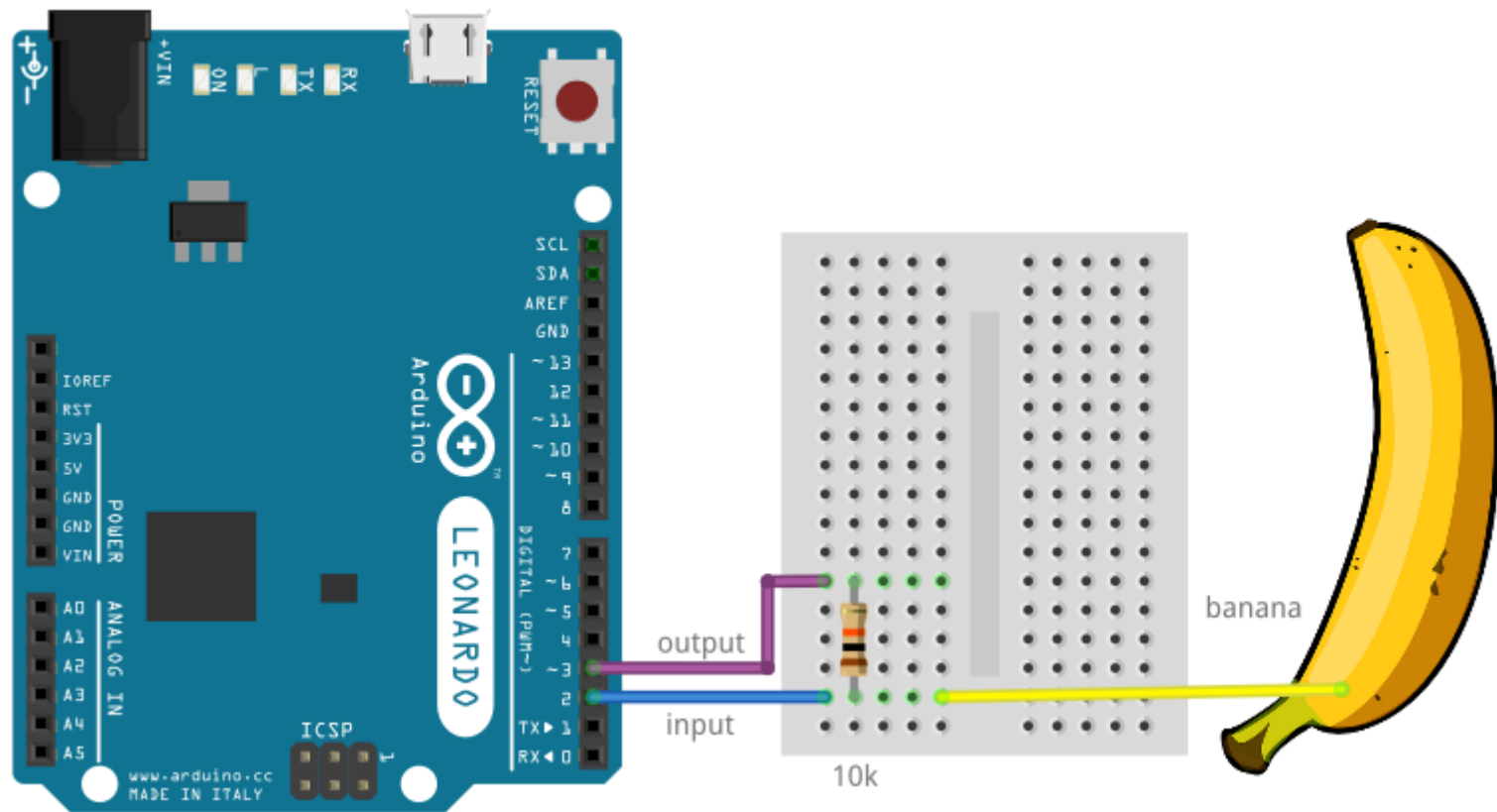
Conexión pulsadores



fritzing

Elementos para Arduino

Conexión pulsador capacitivo



Elementos para Arduino

Módulo emisor-receptor Infrarrojo



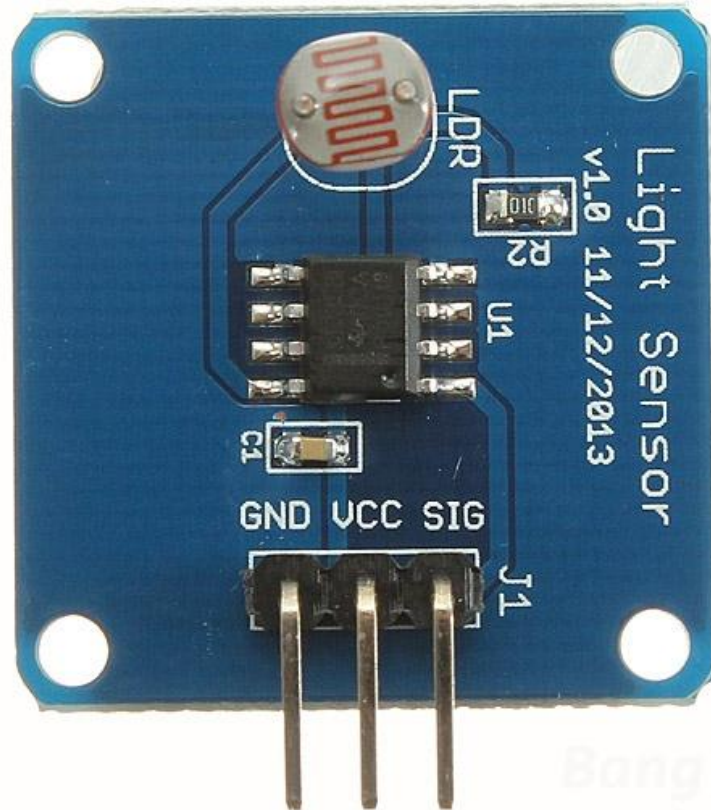
Elementos para Arduino

Módulo emisor-receptor ultrasonidos



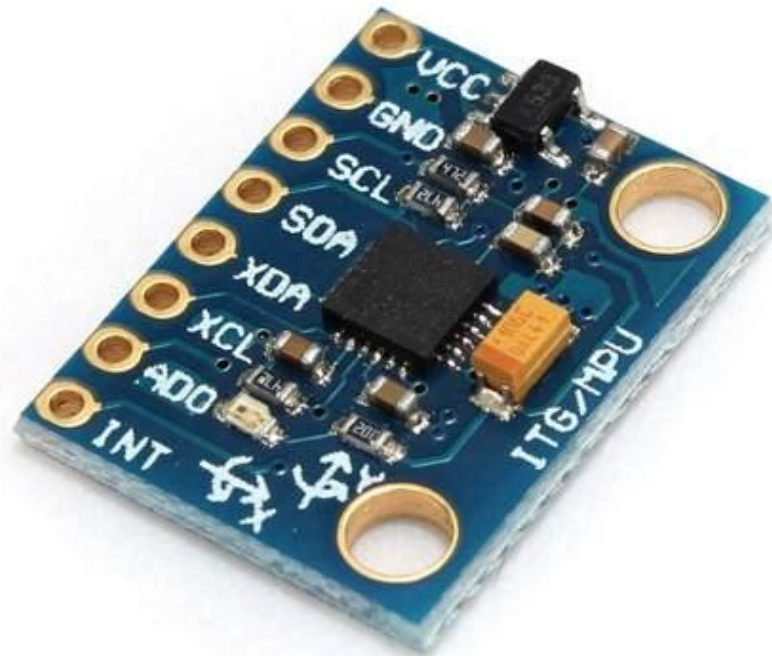
Elementos para Arduino

Modulo sensor luz



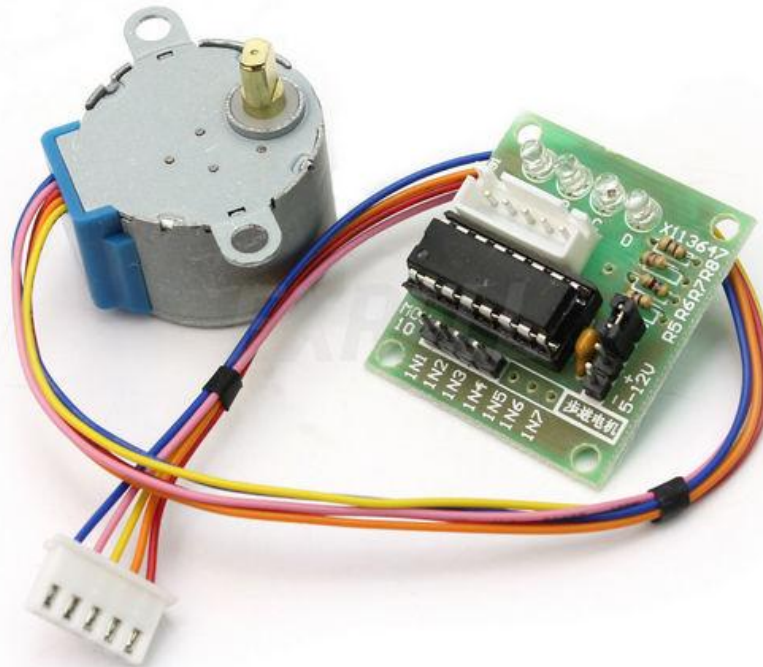
Elementos para Arduino

Módulo acelerómetro



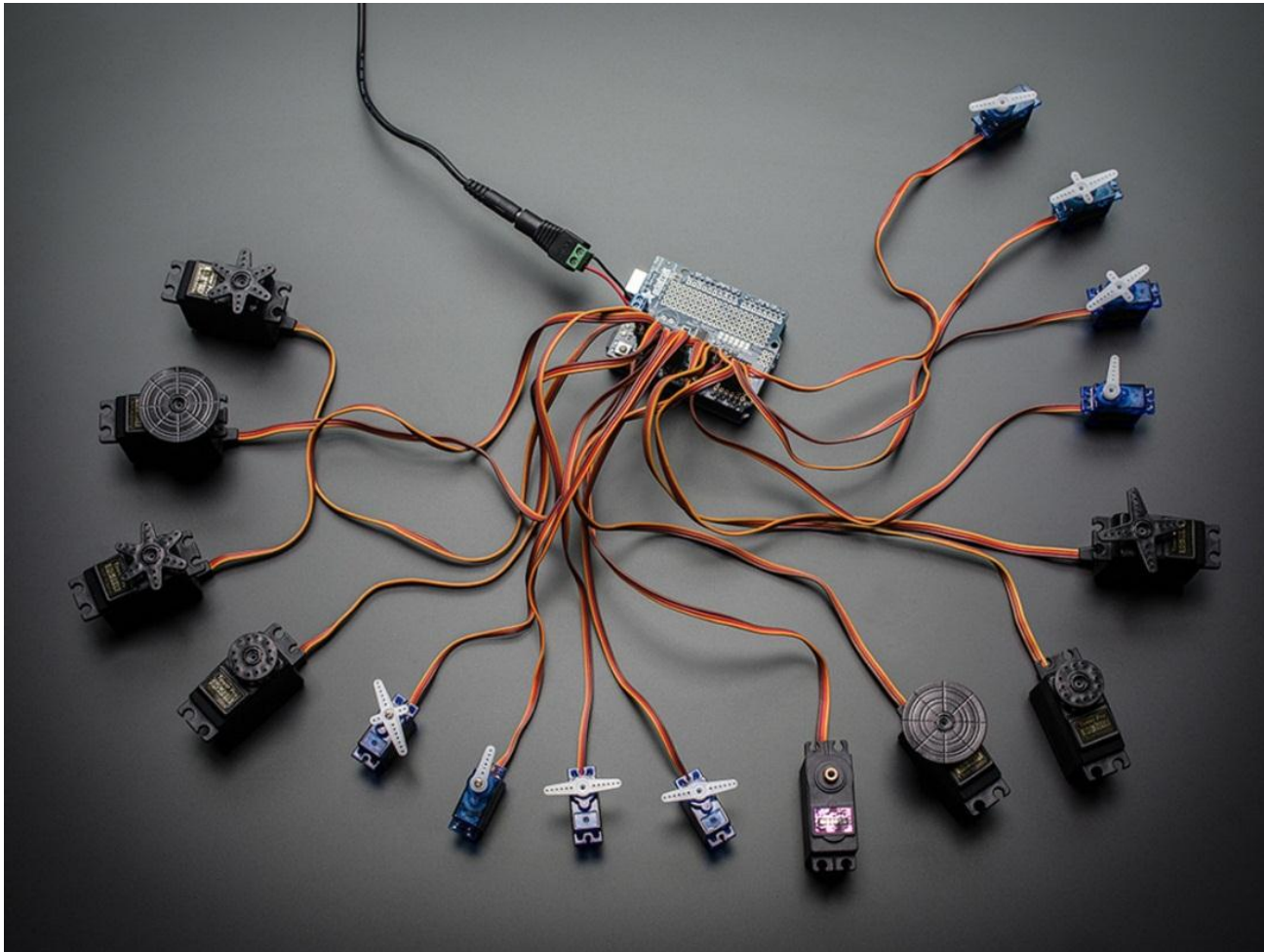
Elementos para Arduino

Motor Steper + módulo conexión



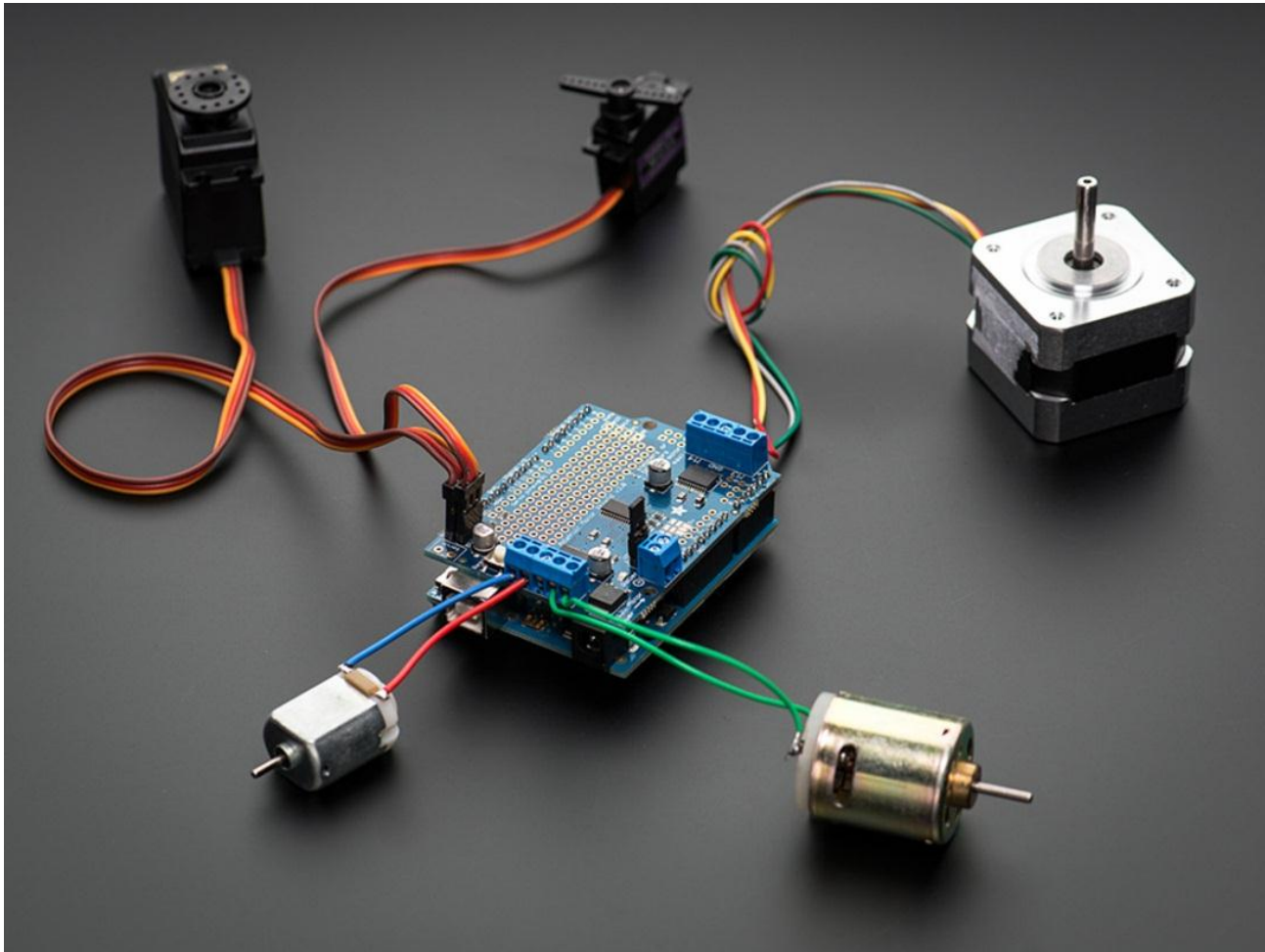
Elementos para Arduino

Servos



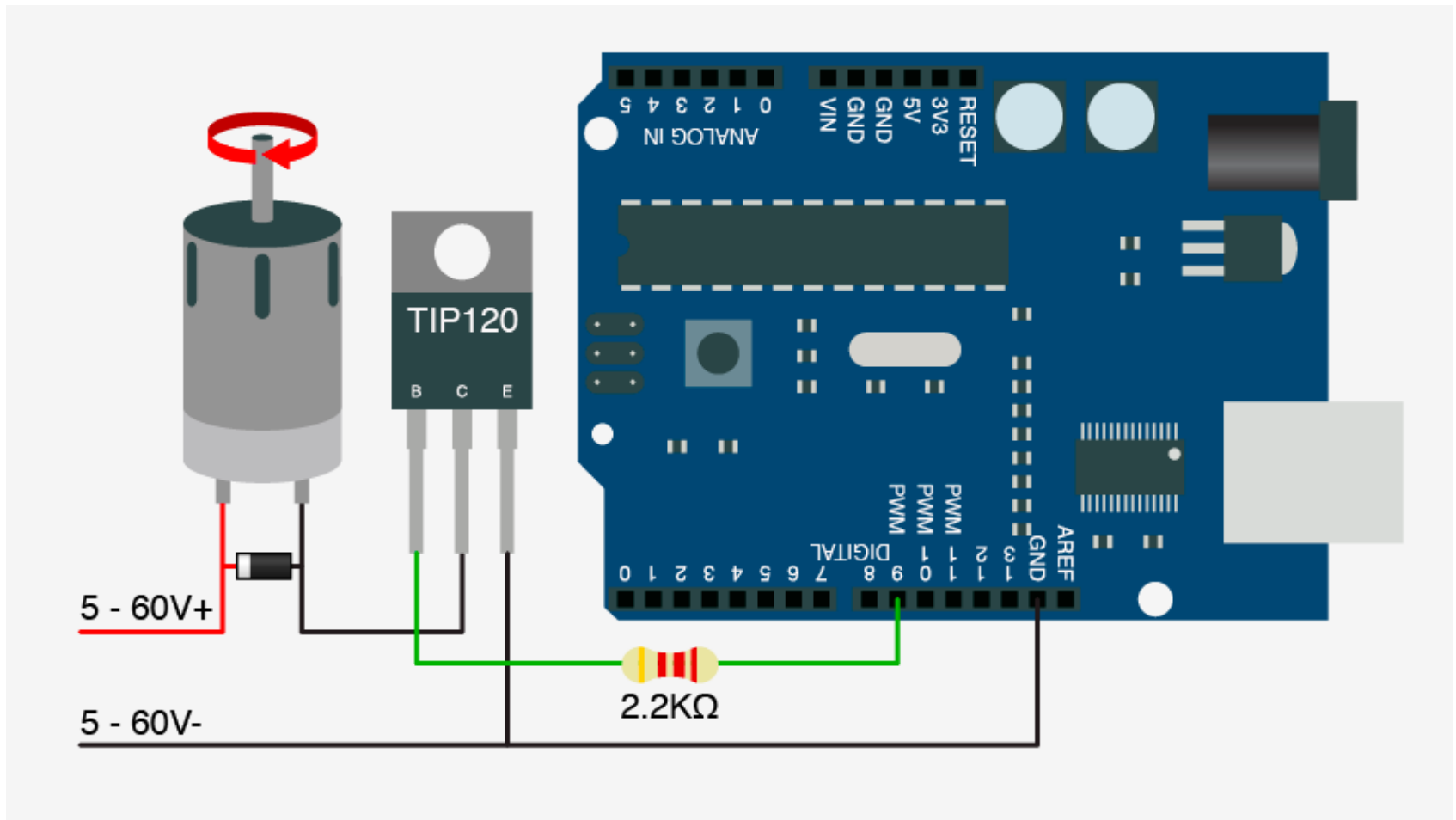
Elementos para Arduino

Motores y servos



Elementos para Arduino

Esquema conexión motor



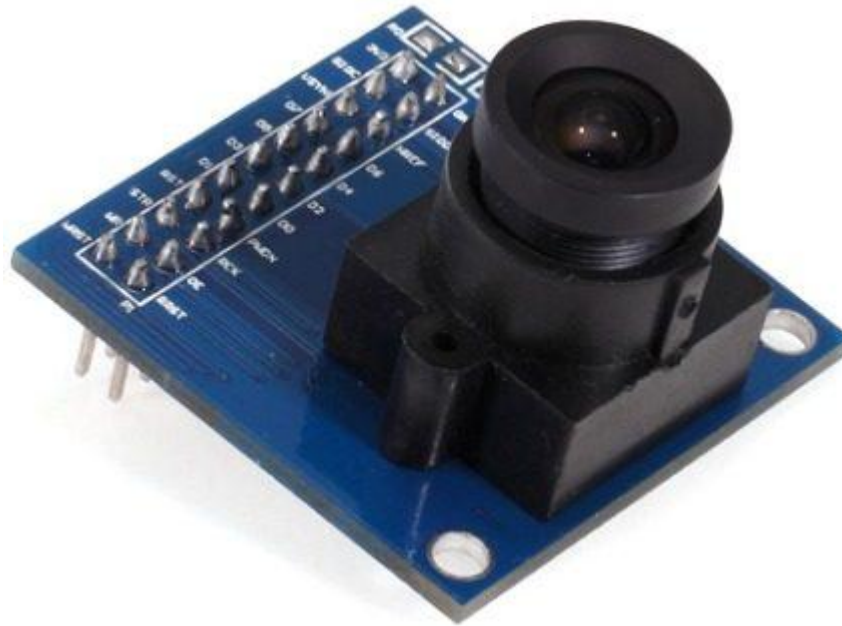
Elementos para Arduino

Módulo pantalla LCD 16x2



Elementos para Arduino

Módulo cámara VGA



Elementos para Arduino

Módulo sensor sonido



Elementos para Arduino

Módulo sensor humedad y temperatura



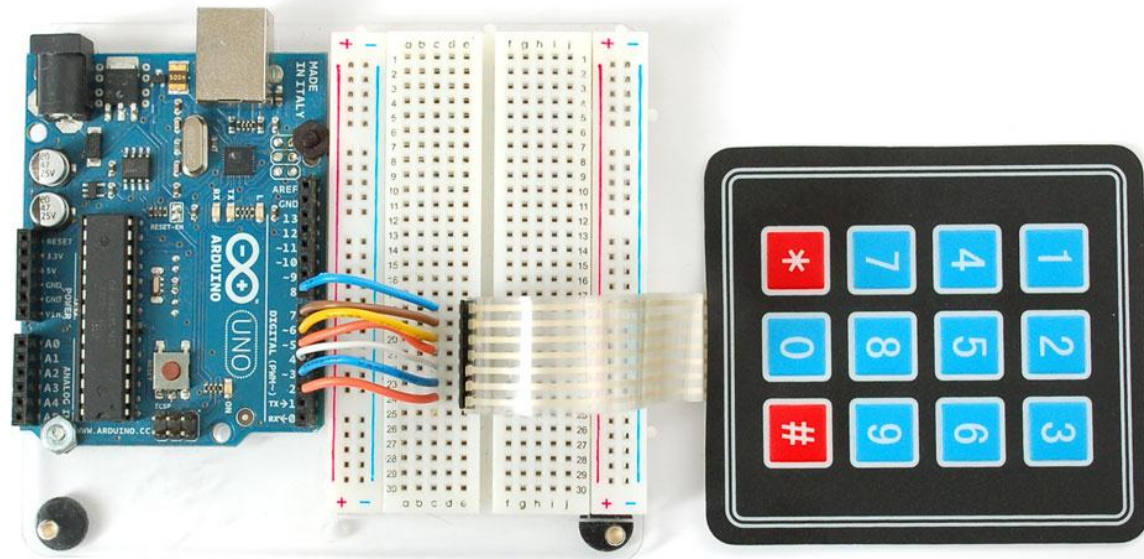
Elementos para Arduino

Módulos Reles



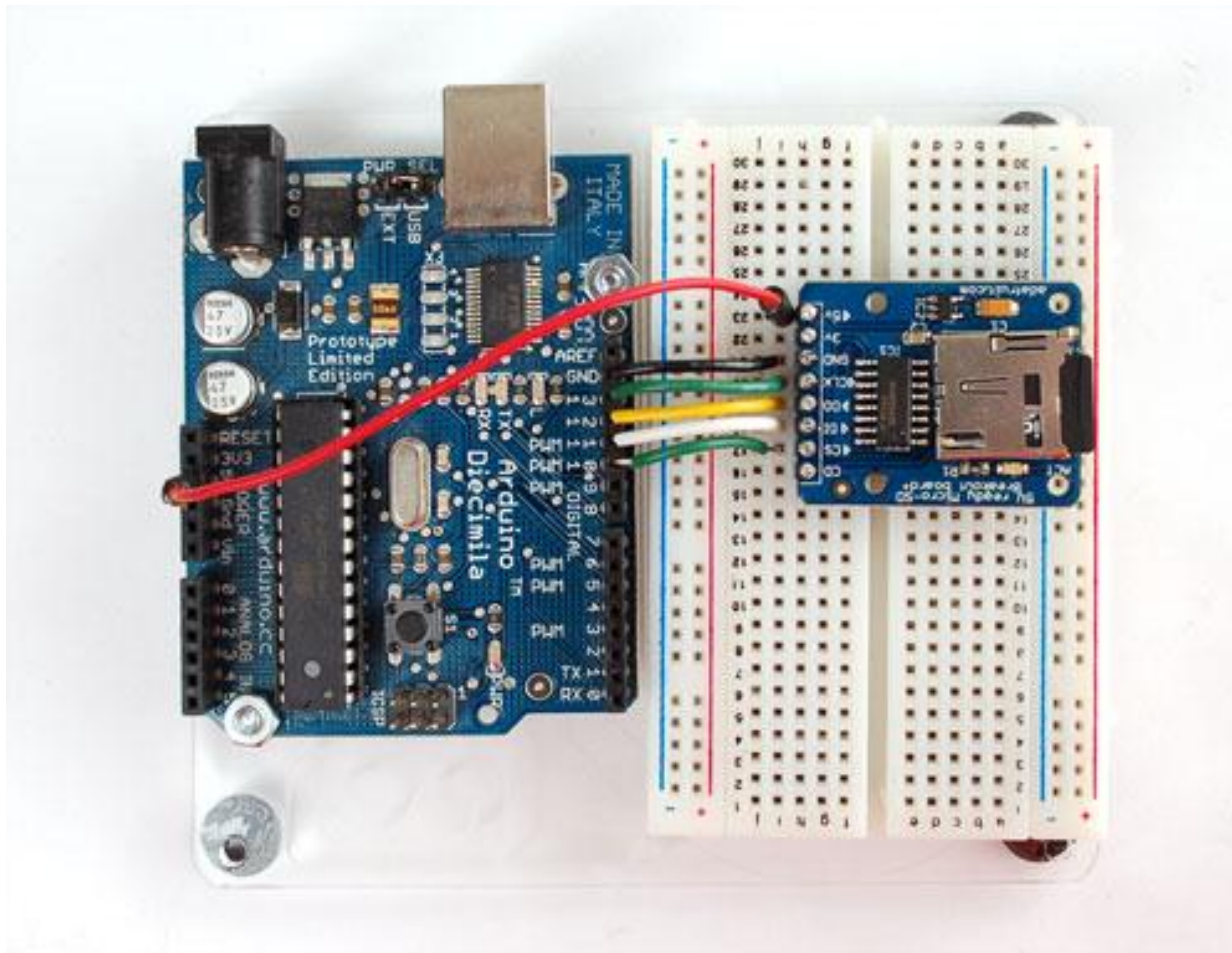
Elementos para Arduino

Módulo Teclado



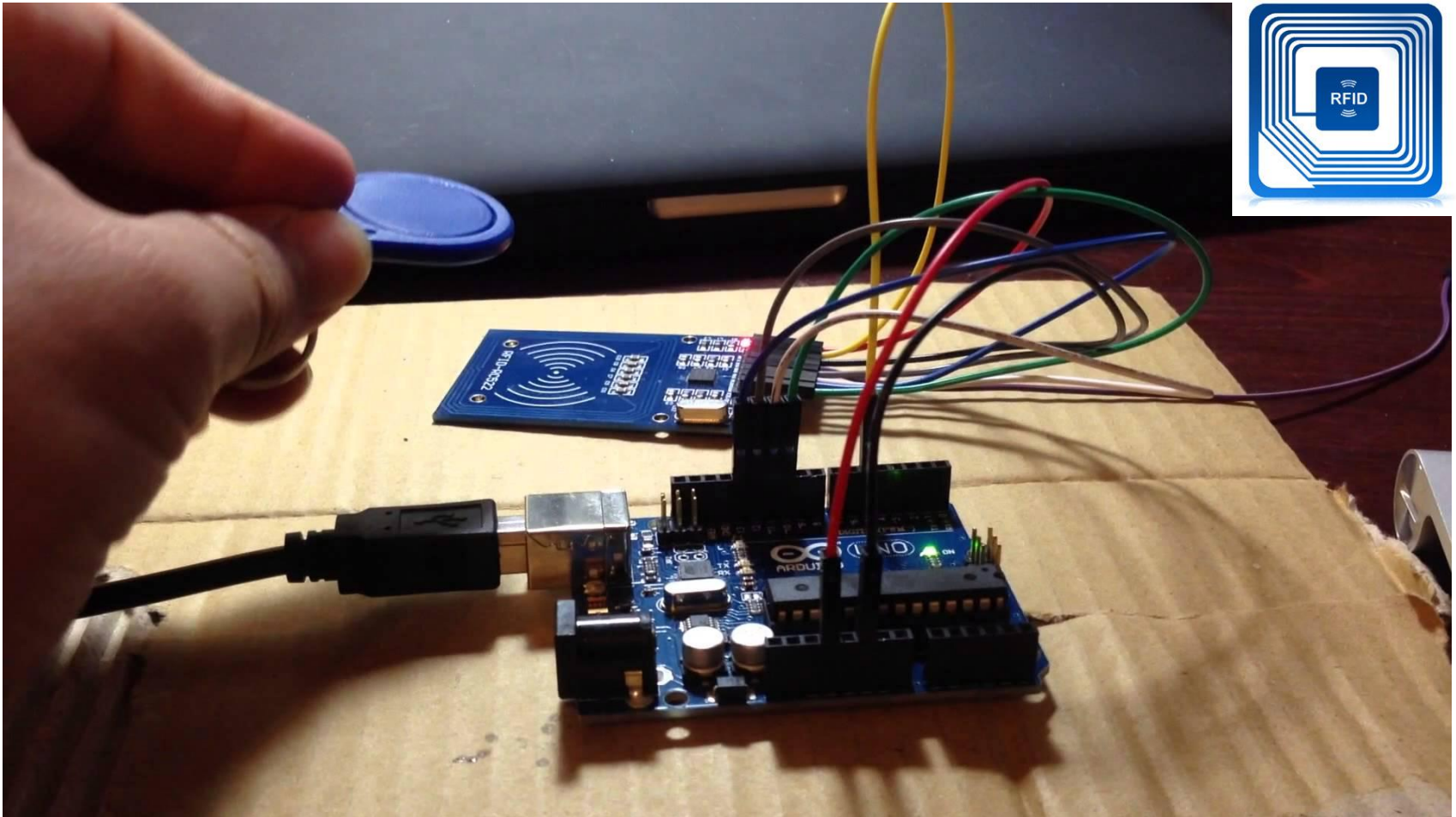
Elementos para Arduino

Módulo tarjeta microSD



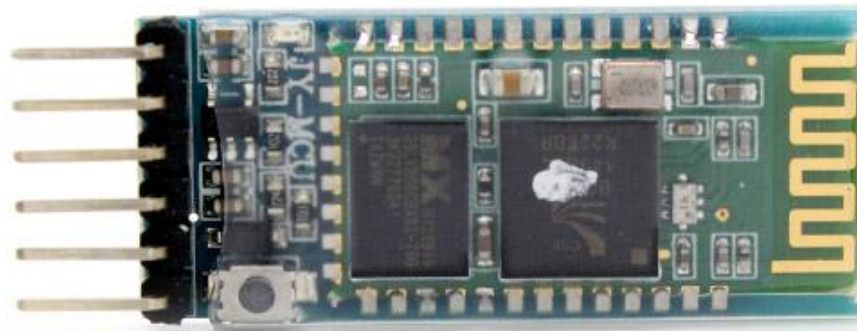
Elementos para Arduino

Módulo receptor RFID



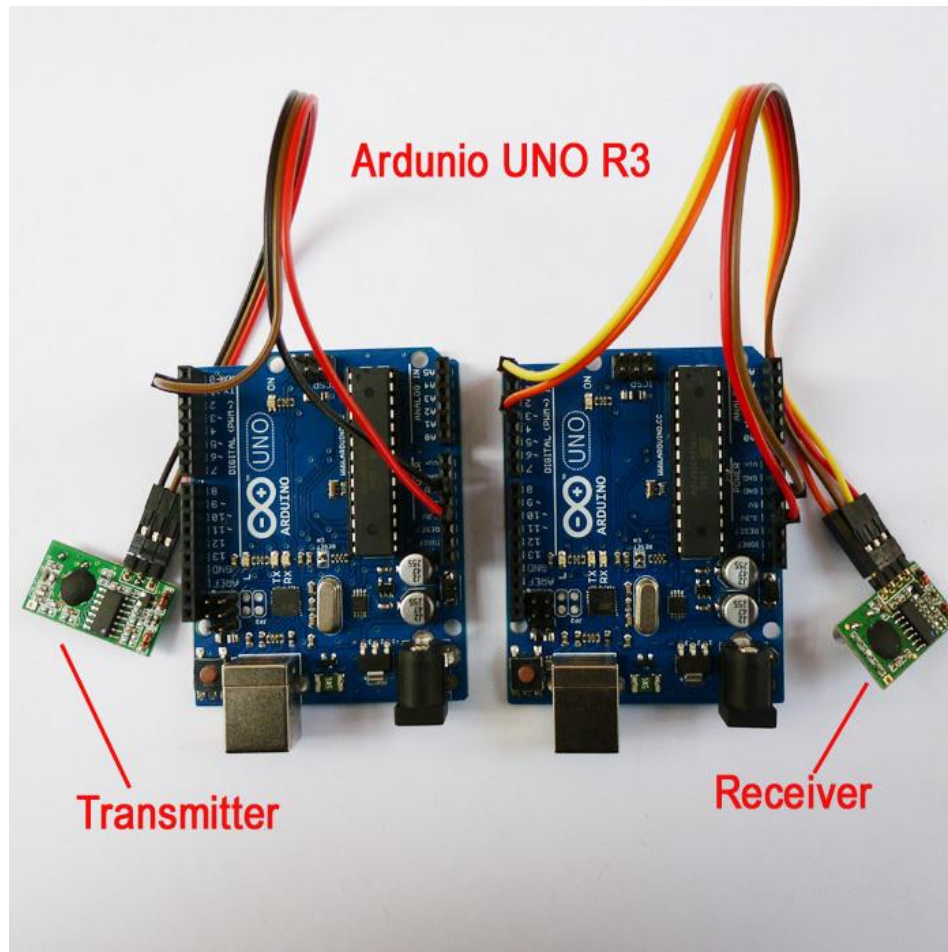
Elementos para Arduino

Módulo conexión Bluetooth



Elementos para Arduino

Módulos de radio-frecuencia (433MHz)



Elementos para Arduino

Módulos wifi



ESP-01



ESP-02



ESP-03



ESP-04



ESP-05



ESP-06



ESP-07



ESP-08



ESP-09



ESP-10



ESP-11

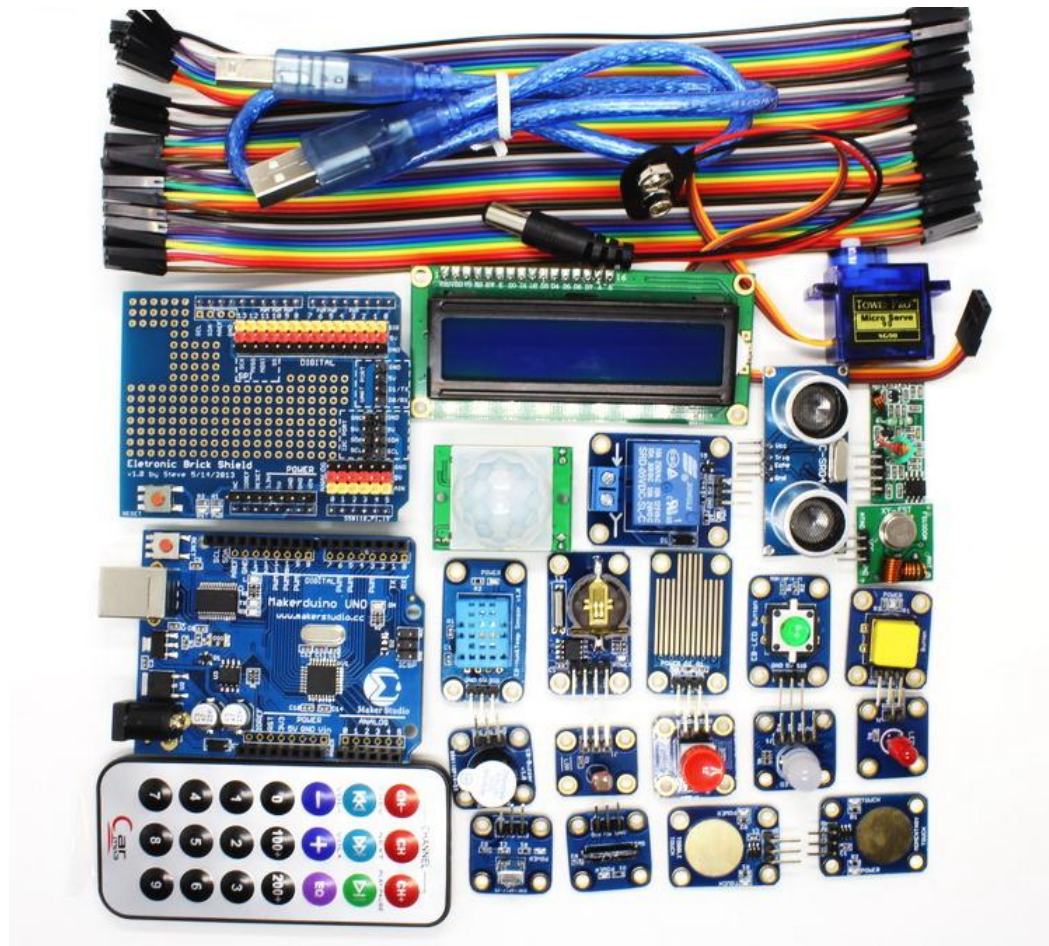
Elementos para Arduino

Módulos (general)



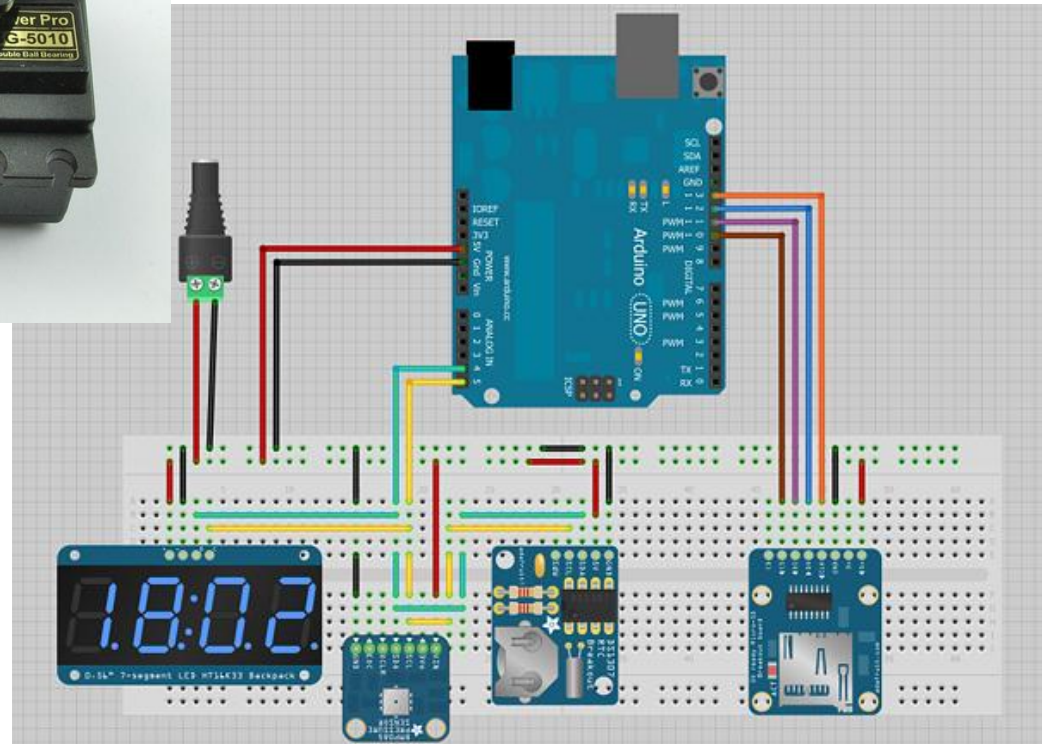
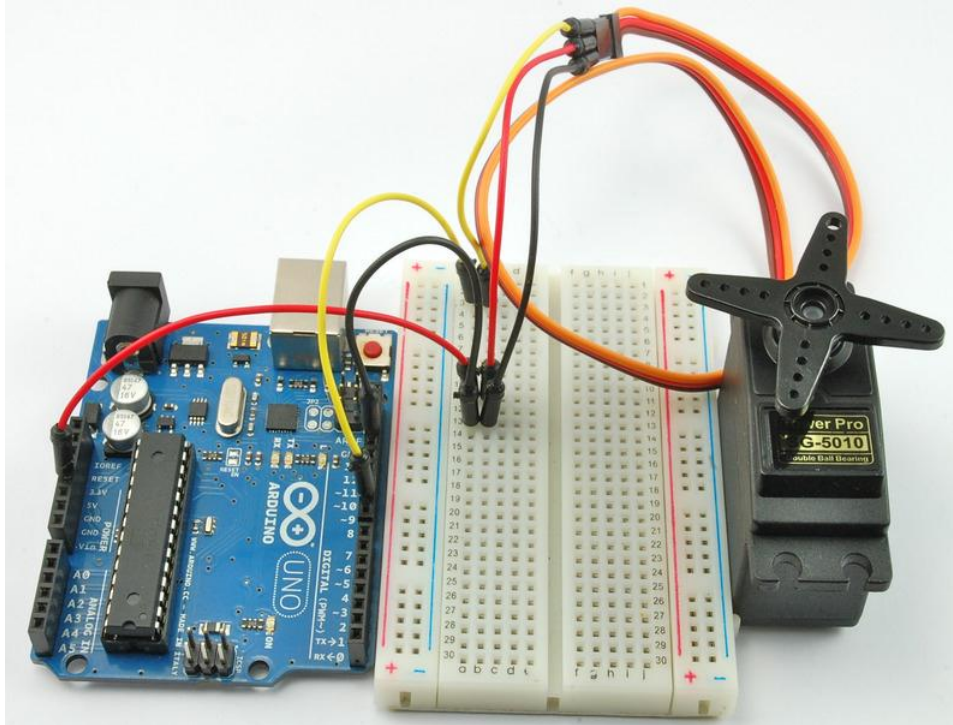
Elementos para Arduino

Pack Arduino



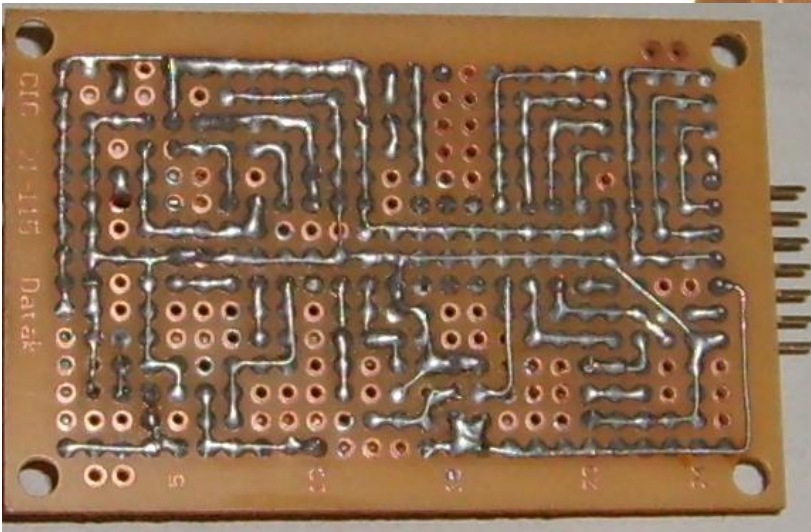
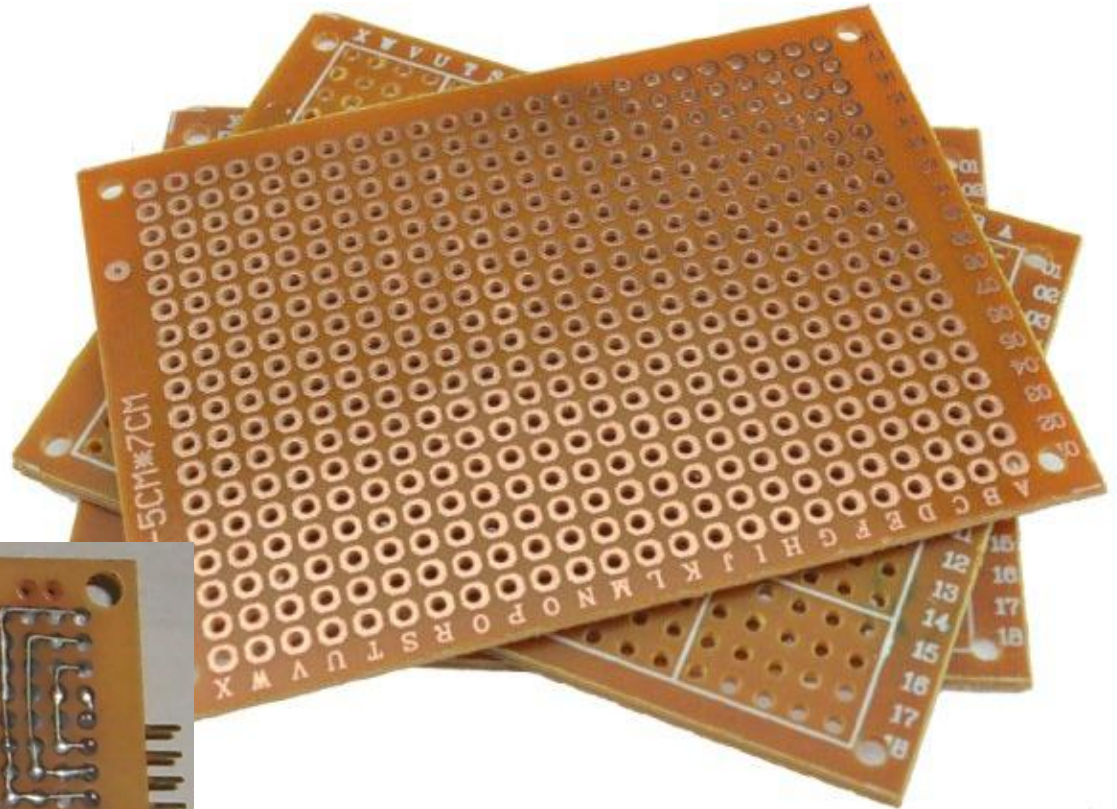
Elementos para Arduino

Breadboard



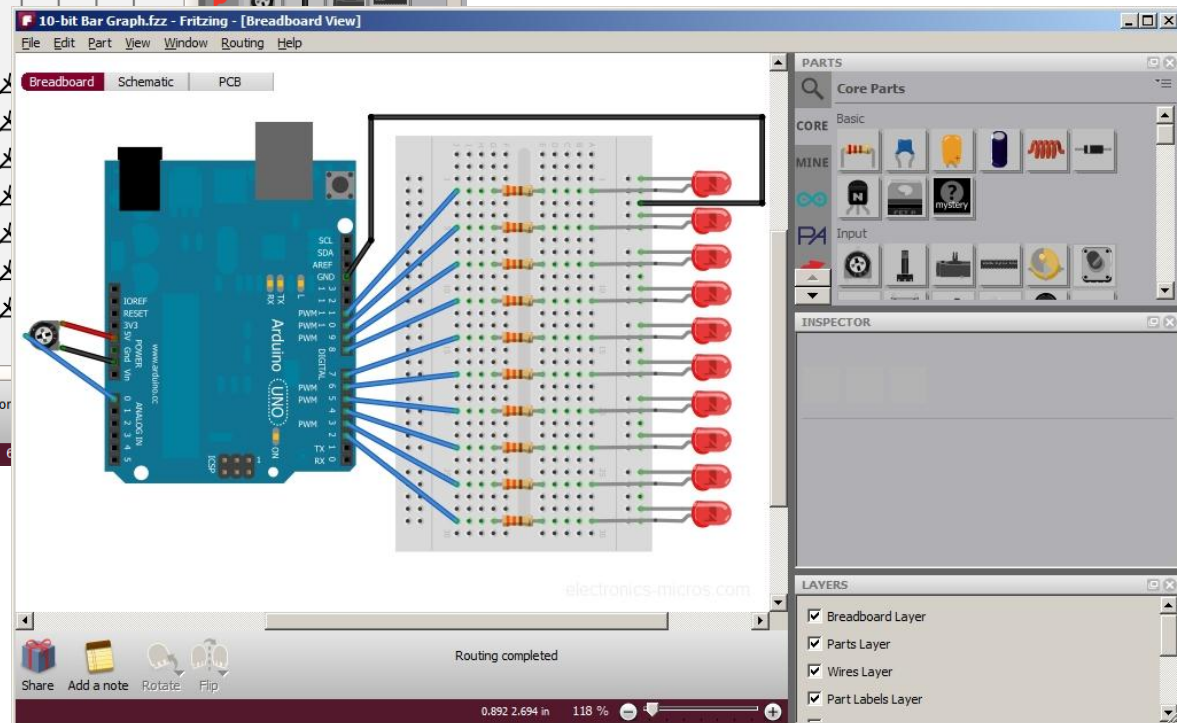
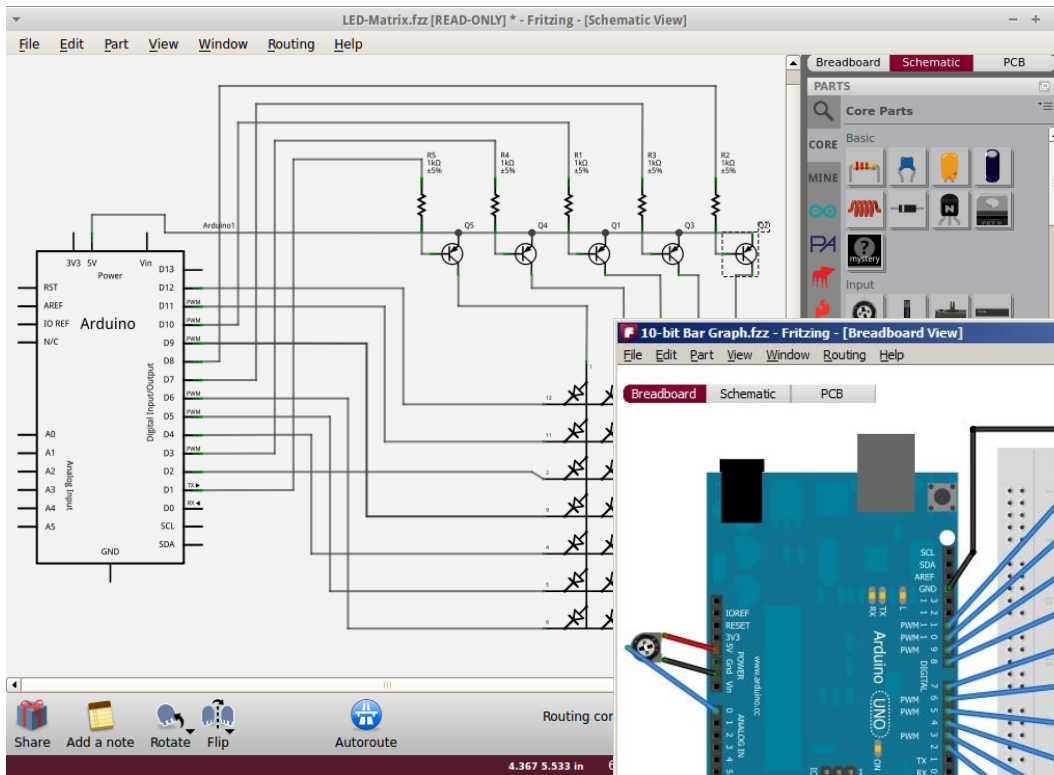
Elementos para Arduino

Placas PCB perforadas



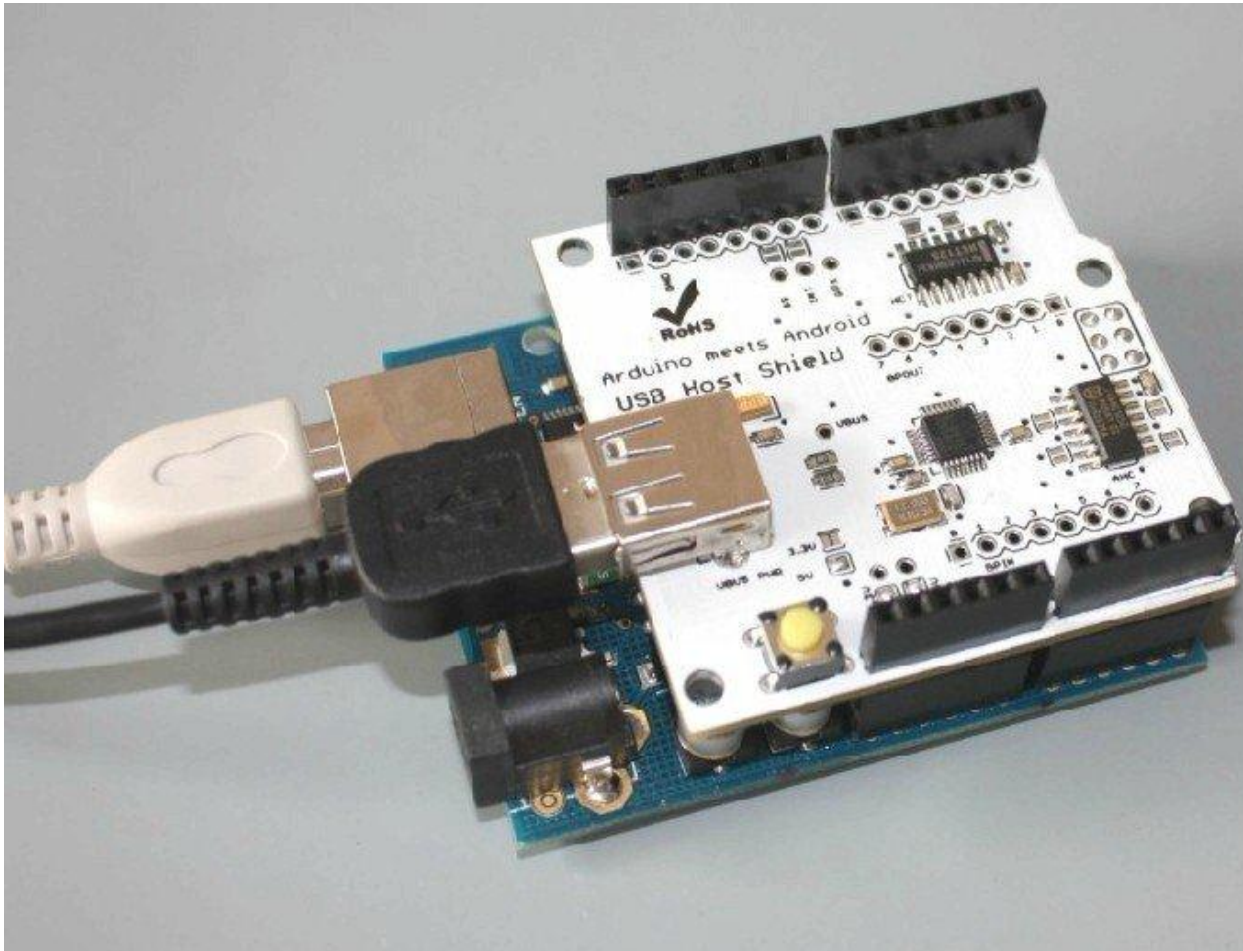
Elementos para Arduino

Diagramas Arduino



Shields para Arduino

Shield USB



Shields para Arduino

Shield Pantalla TFT + Pantalla



Shields para Arduino

Shield GSM



Shields para Arduino

Shield Codificación de audio



Shields para Arduino

Shield Red + microSD



Shields para Arduino

Shield Wifi



Shields para Arduino

Shield Xbee Radio-frecuencia



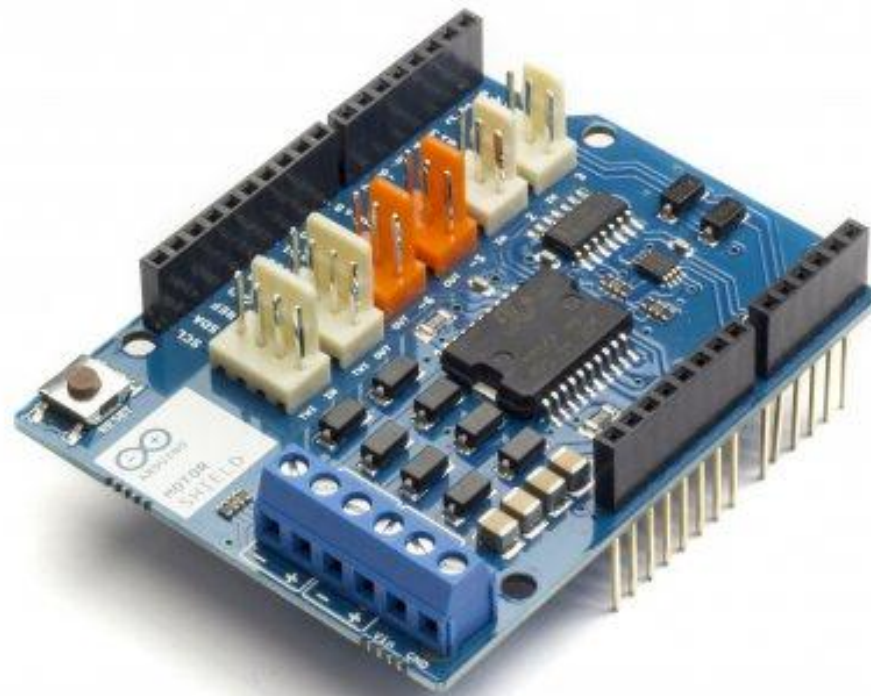
Shields para Arduino

Shield GPS + microSD



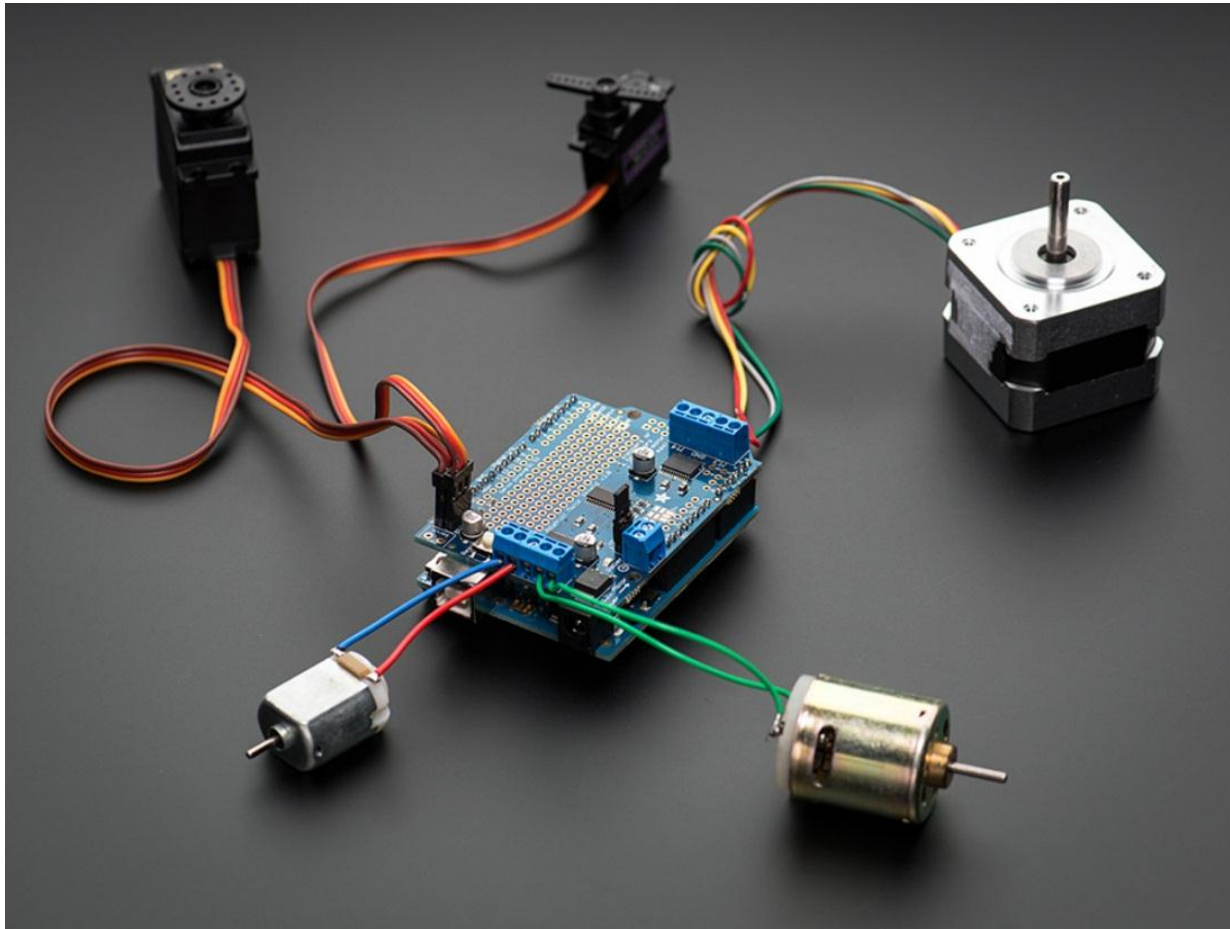
Shields para Arduino

Shield Motor



Shields para Arduino

Shield Motor



Otros sistemas de control



Raspberry Pi 2



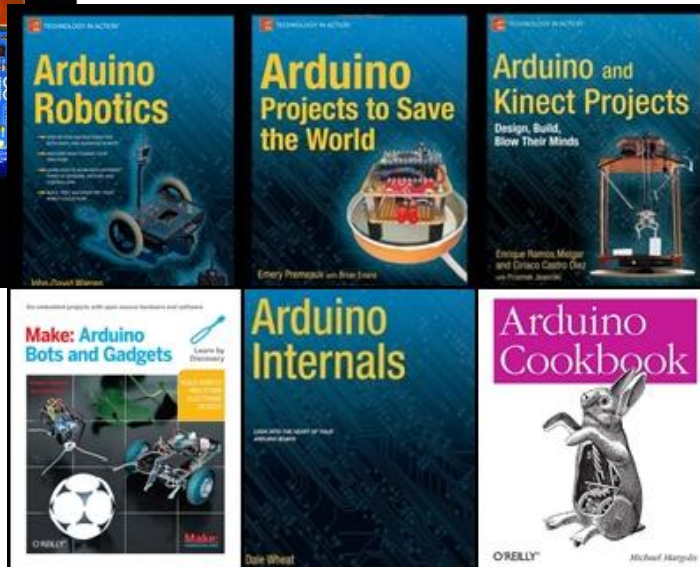
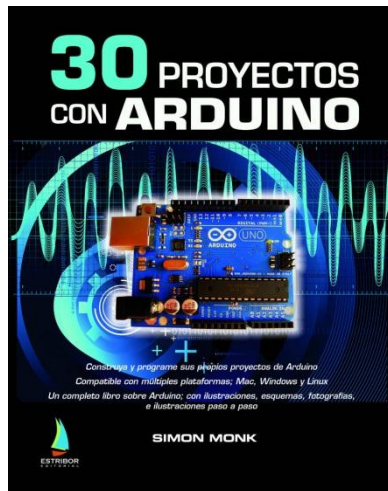
Arduino YUN

Otros sistemas de control

Name	Arduino Uno	Raspberry Pi	BeagleBone
Model Tested	R3	Model B	Rev A5
Price	\$29.95	\$35	\$89
Size	2.95"x2.10"	3.37"x2.125"	3.4"x2.1"
Processor	ATMega 328	ARM11	ARM Cortex-A8
Clock Speed	16MHz	700MHz	700MHz
RAM	2KB	256MB	256MB
Flash	32KB	(SD Card)	4GB(microSD)
EEPROM	1KB		
Input Voltage	7-12v	5v	5v
Min Power	42mA (.3W)	700mA (3.5W)	170mA (.85W)
Digital GPIO	14	8	66
Analog Input	6 10-bit	N/A	7 12-bit
PWM	6		8
TWI/I2C	2	1	2
SPI	1	1	1
UART	1	1	5
Dev IDE	Arduino Tool	IDLE, Scratch, Squeak/Linux	Python, Scratch, Squeak, Cloud9/Linux
Ethernet	N/A	10/100	10/100
USB Master	N/A	2 USB 2.0	1 USB 2.0
Video Out	N/A	HDMI, Composite	N/A
Audio Output	N/A	HDMI, Analog	Analog

Proyectos Arduino

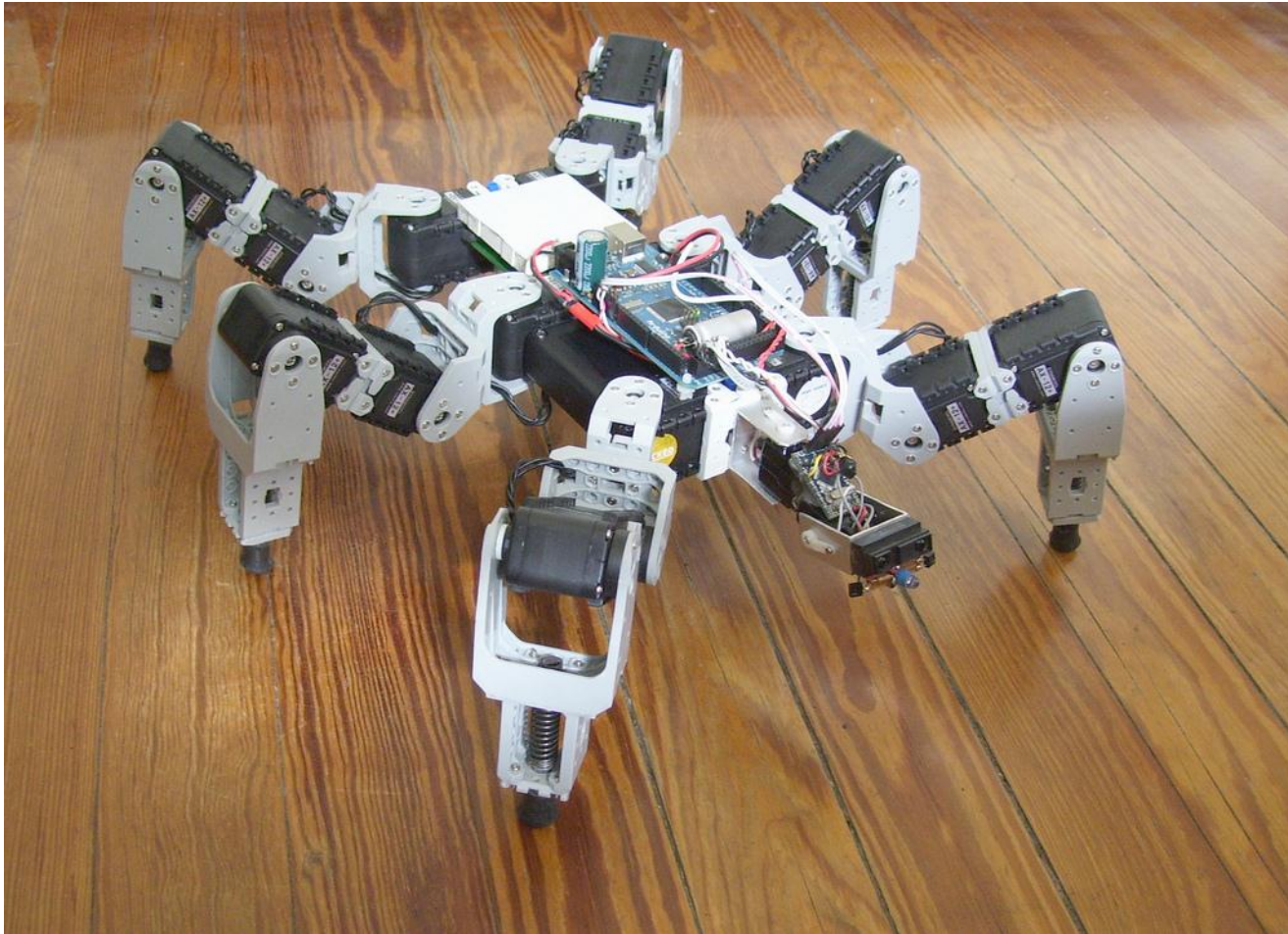
<http://playground.arduino.cc/Es/Projects>



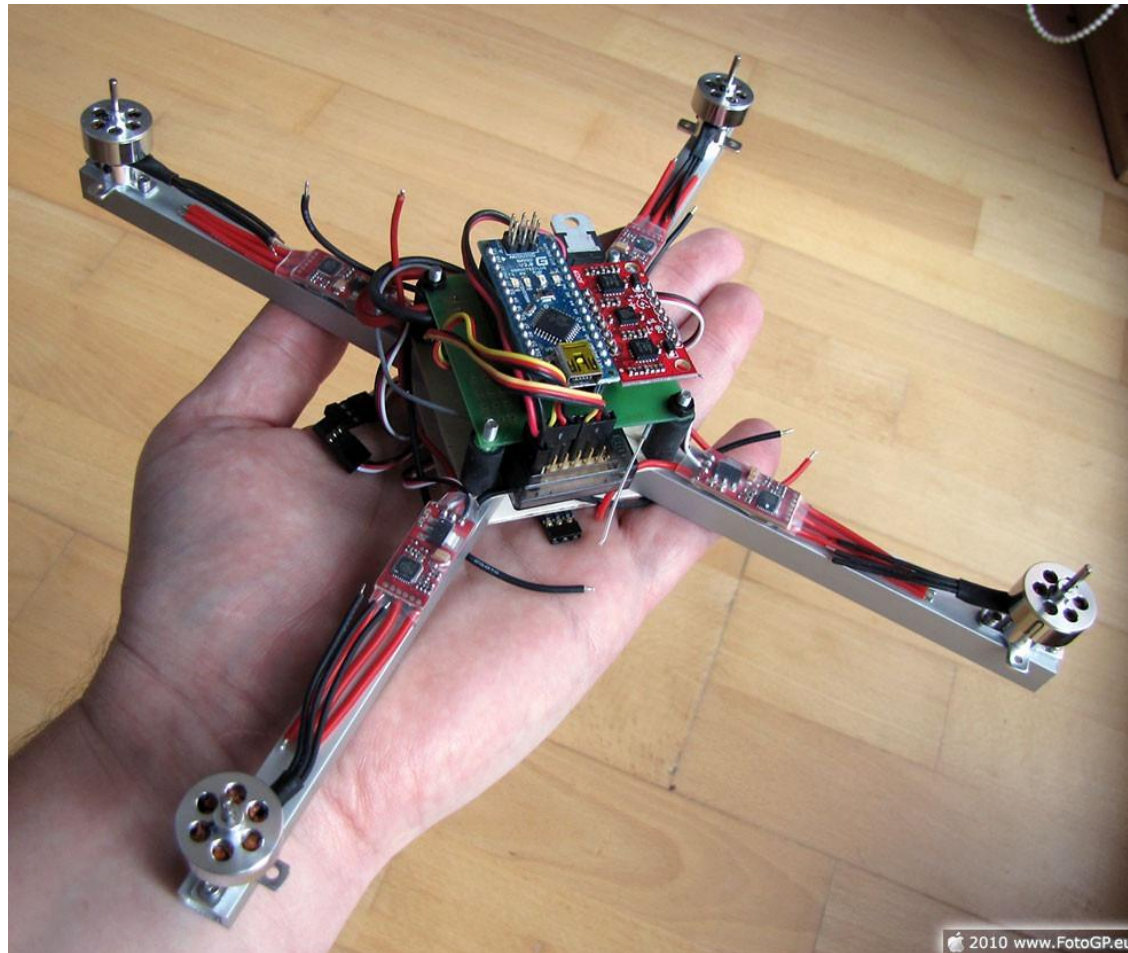
Proyectos Arduino



Proyectos Arduino



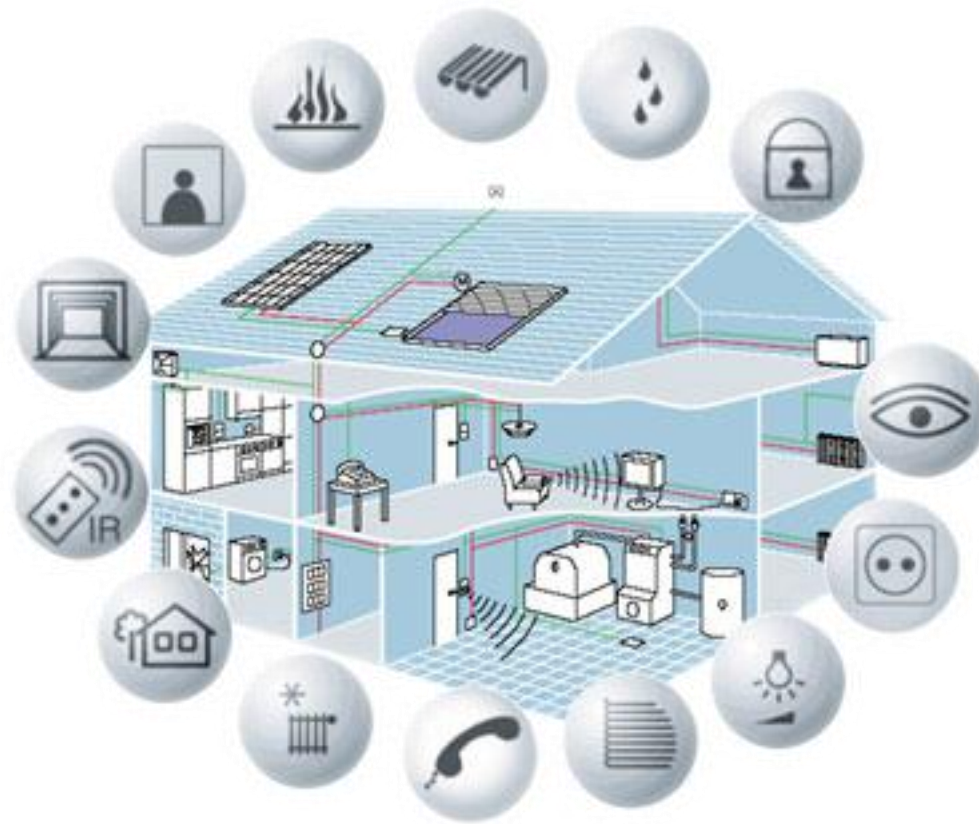
Proyectos Arduino



Proyectos Arduino



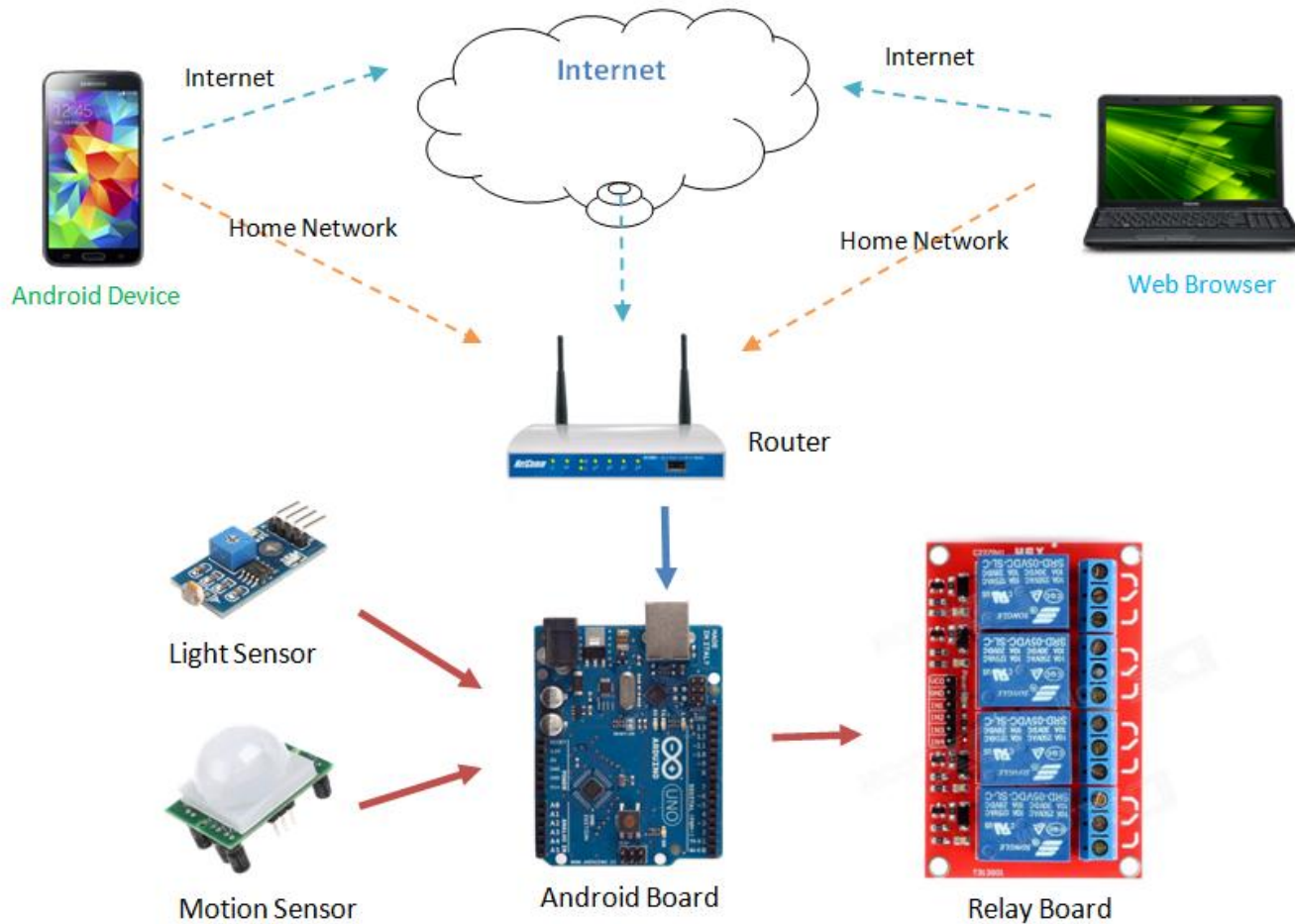
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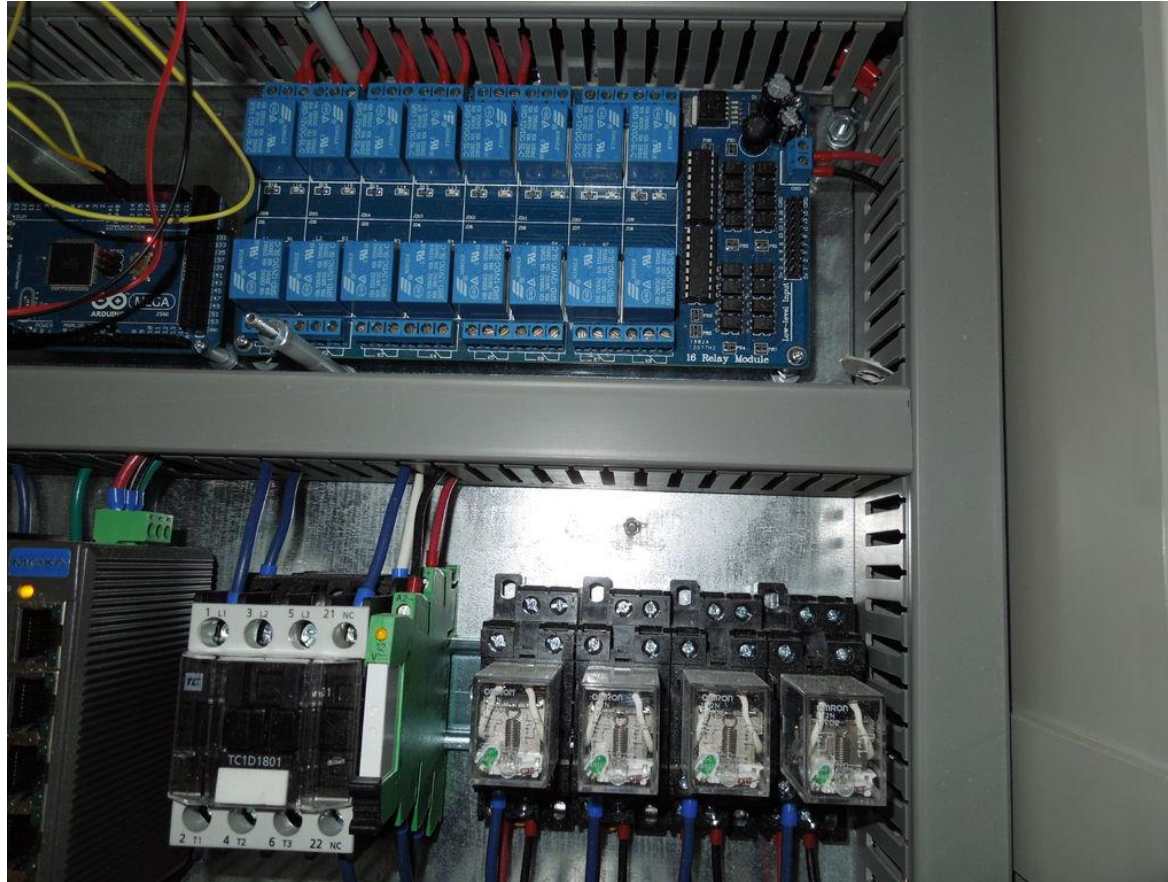
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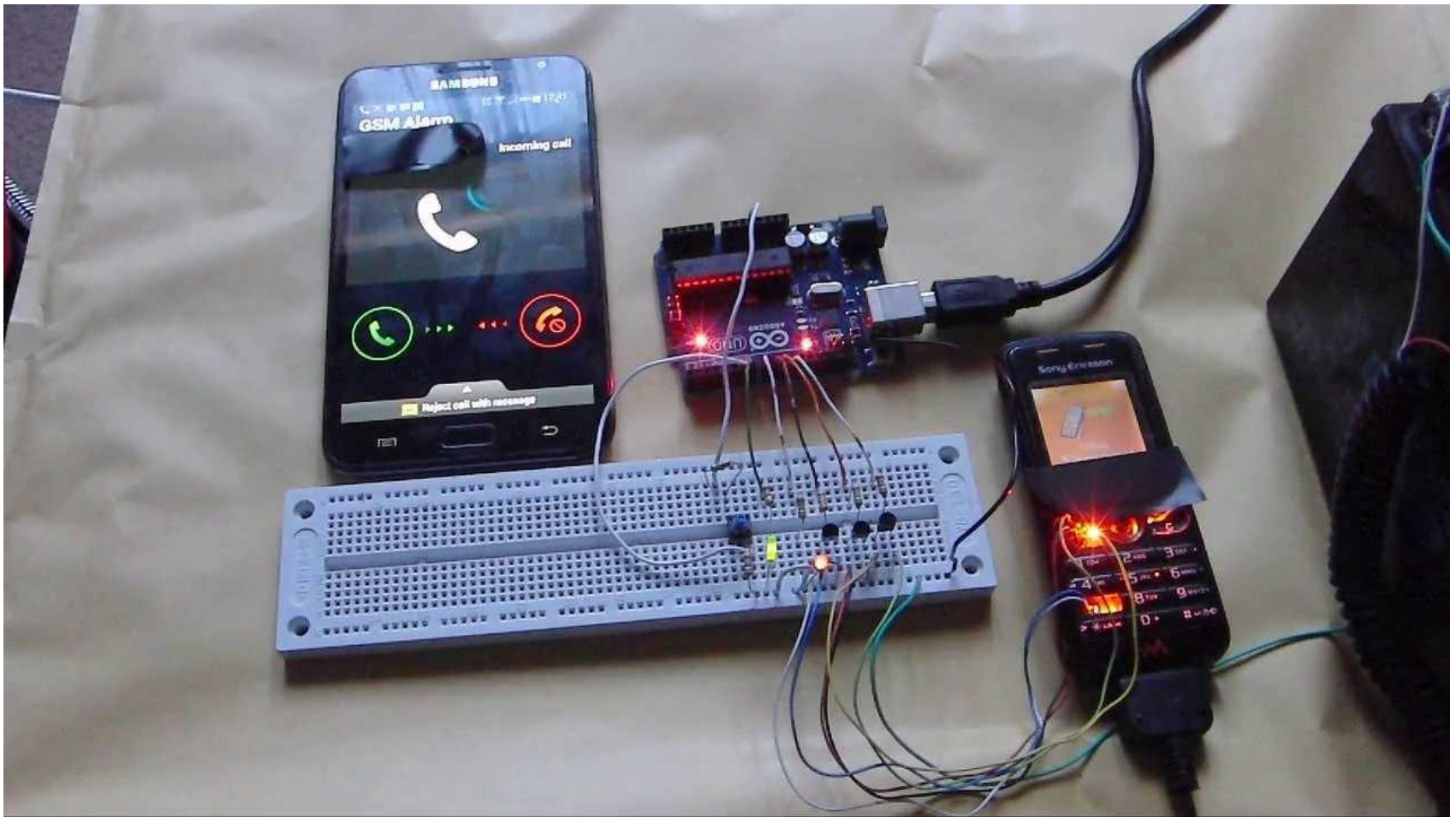
Proyectos Arduino



Proyectos Arduino



Proyectos Arduino



Proyectos Arduino



Proyectos Arduino



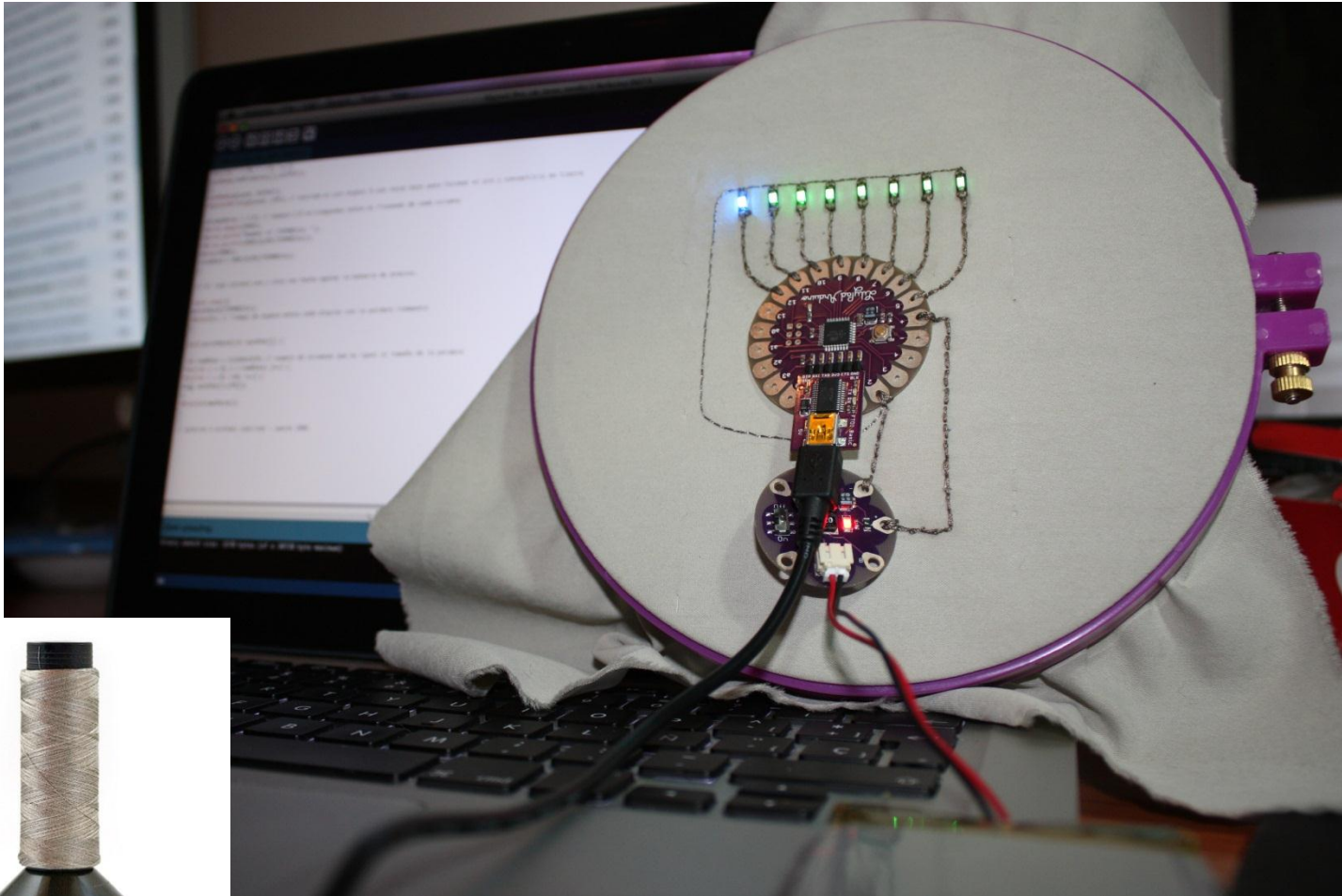
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Proyectos Arduino



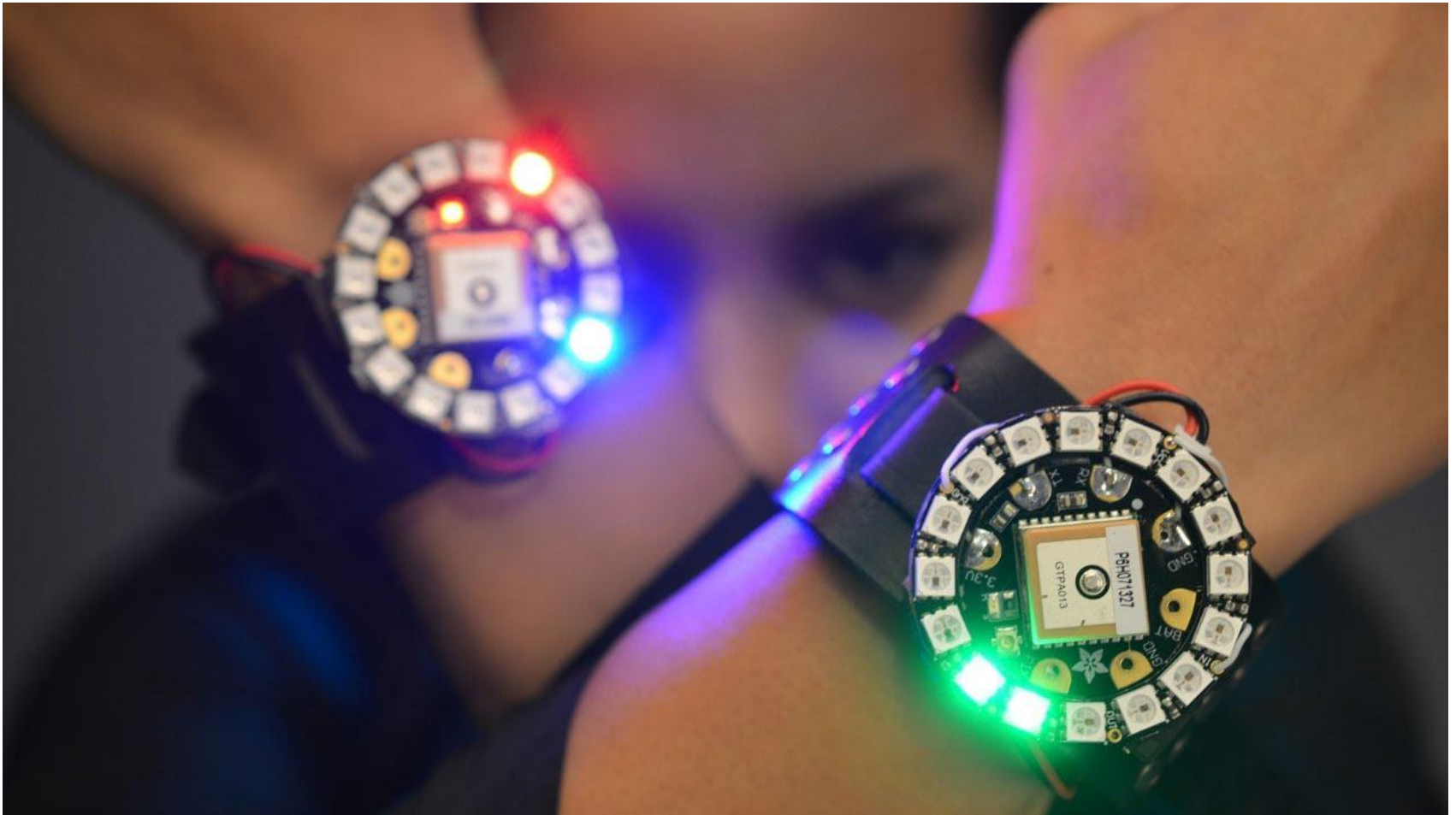
Proyectos Arduino



Proyectos Arduino



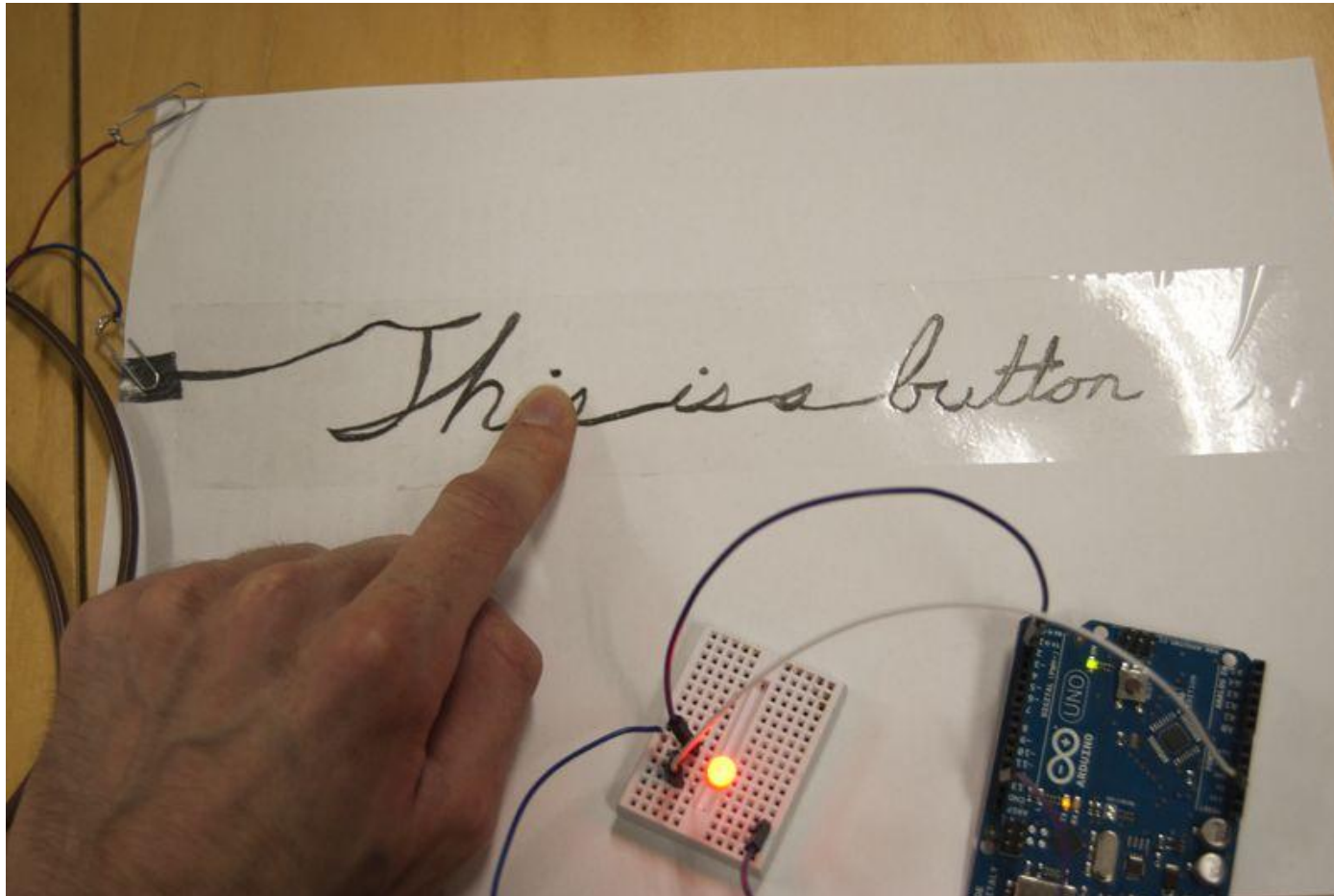
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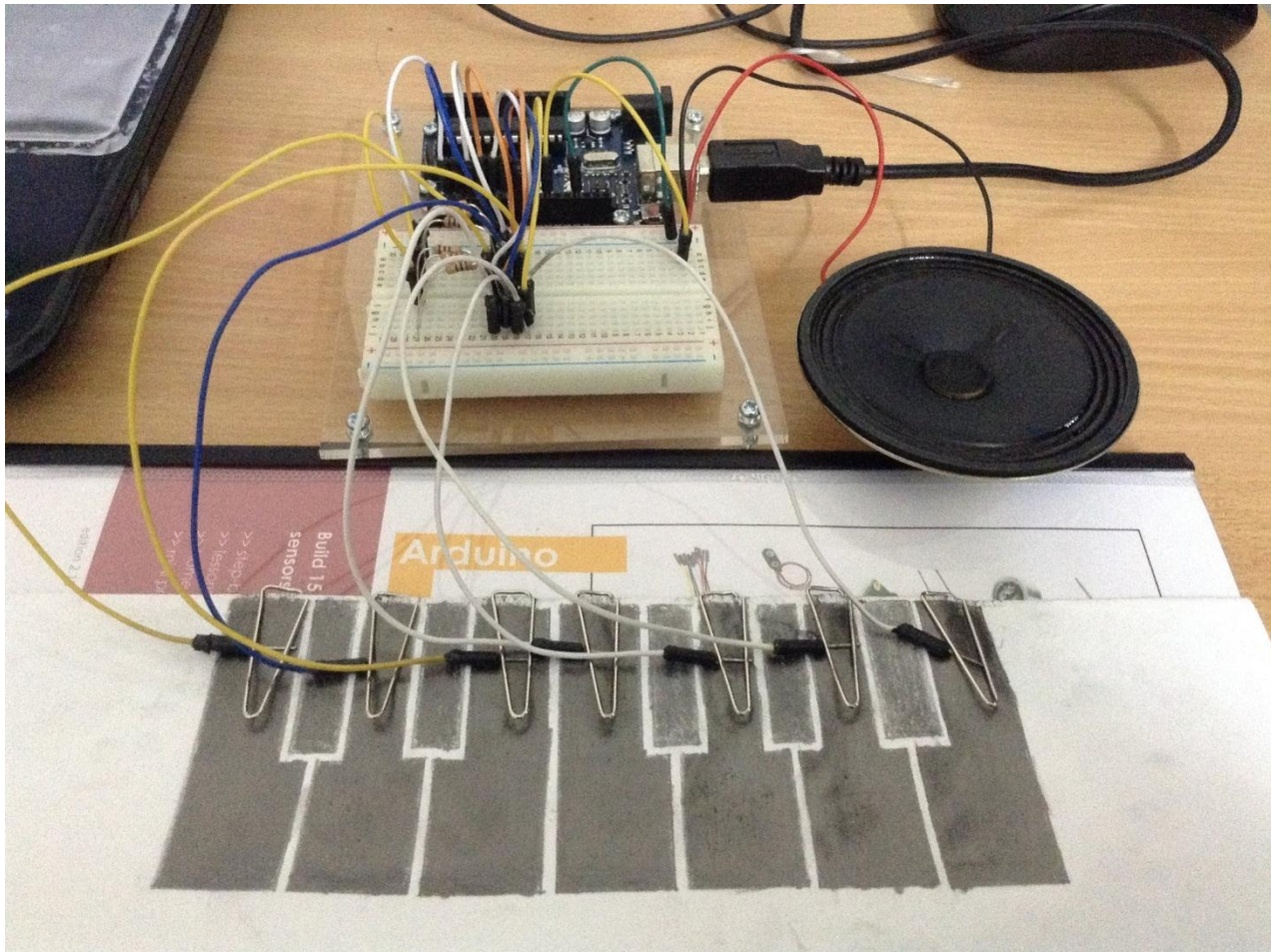
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Proyectos Arduino



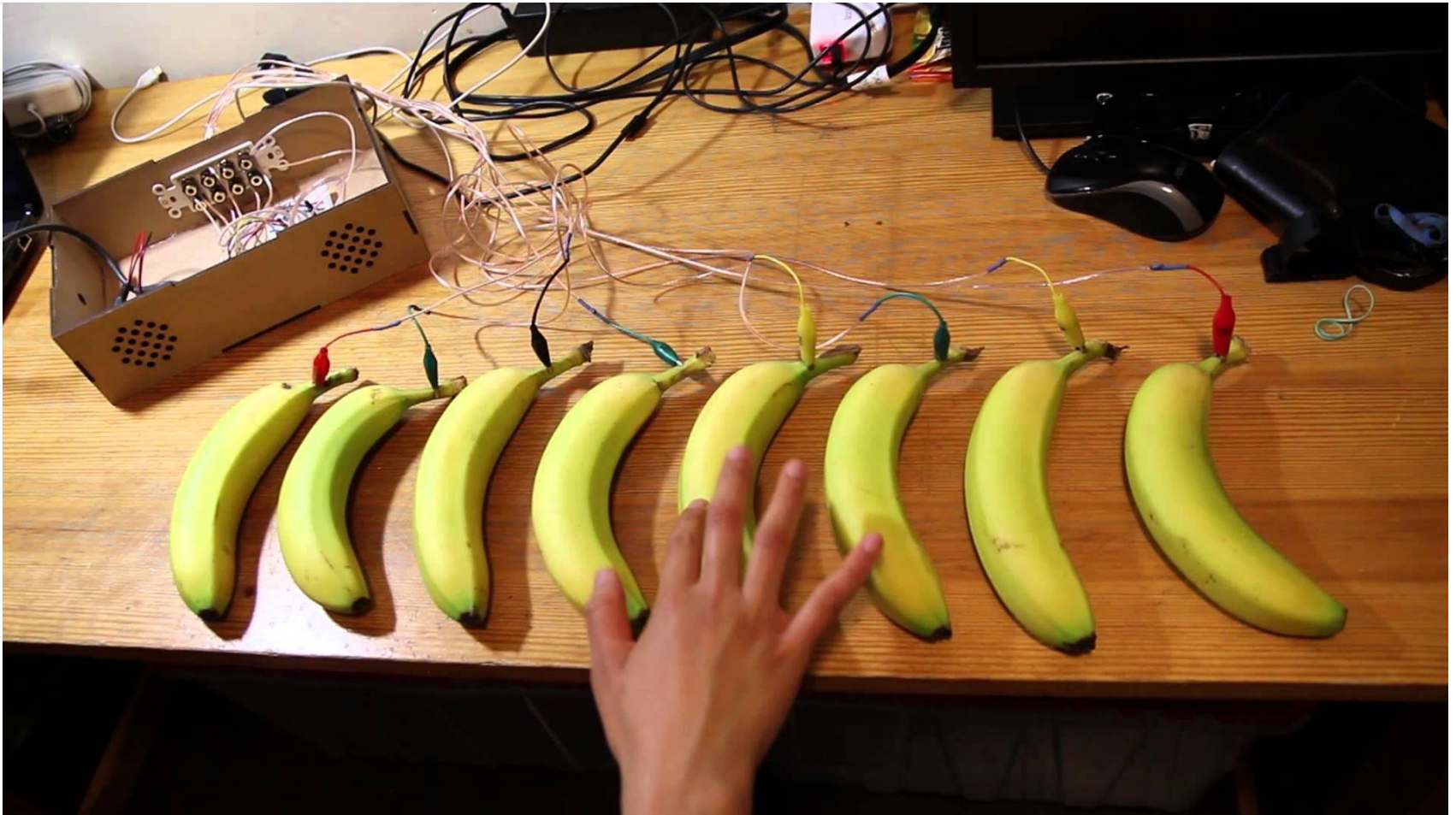
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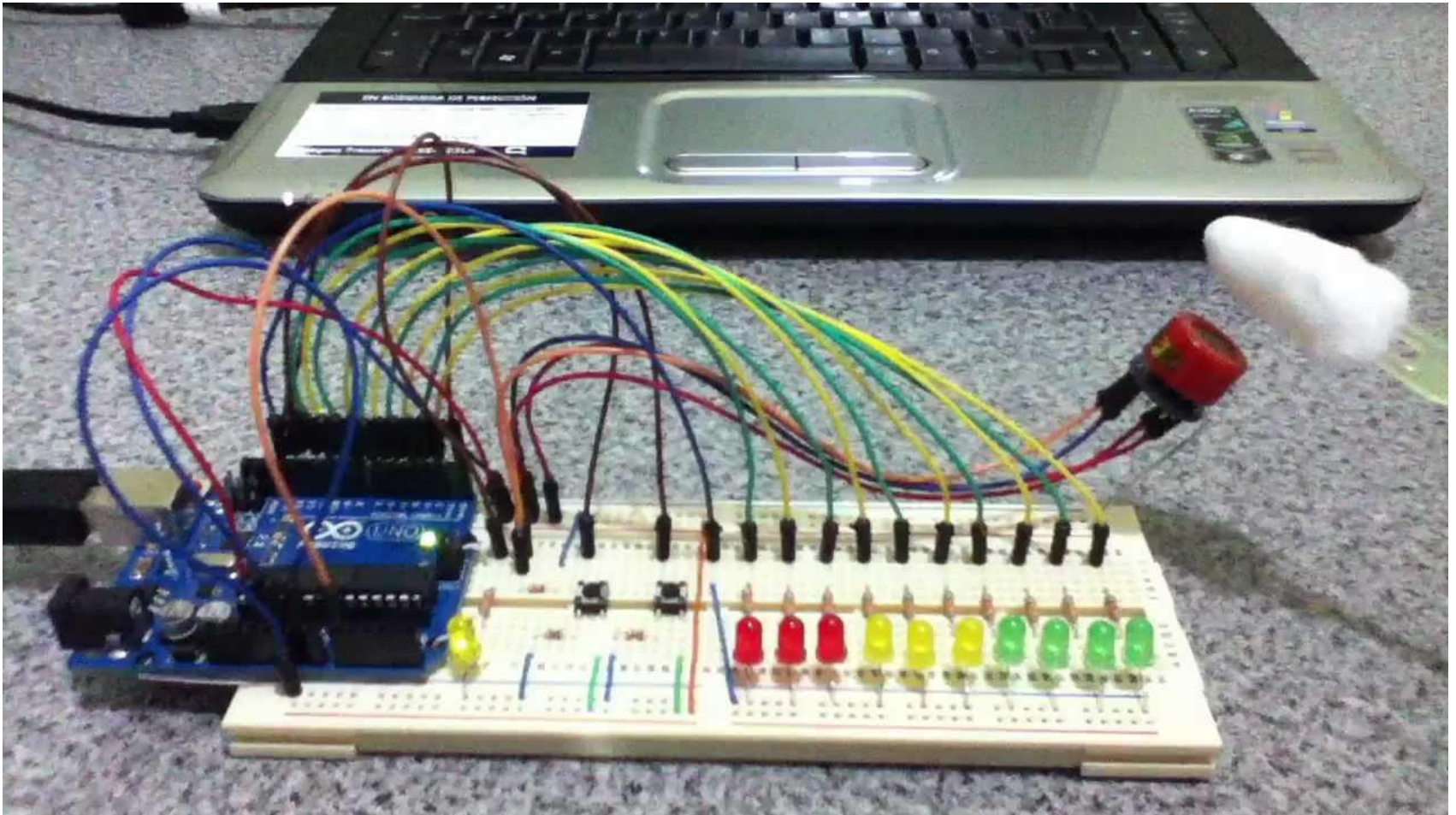
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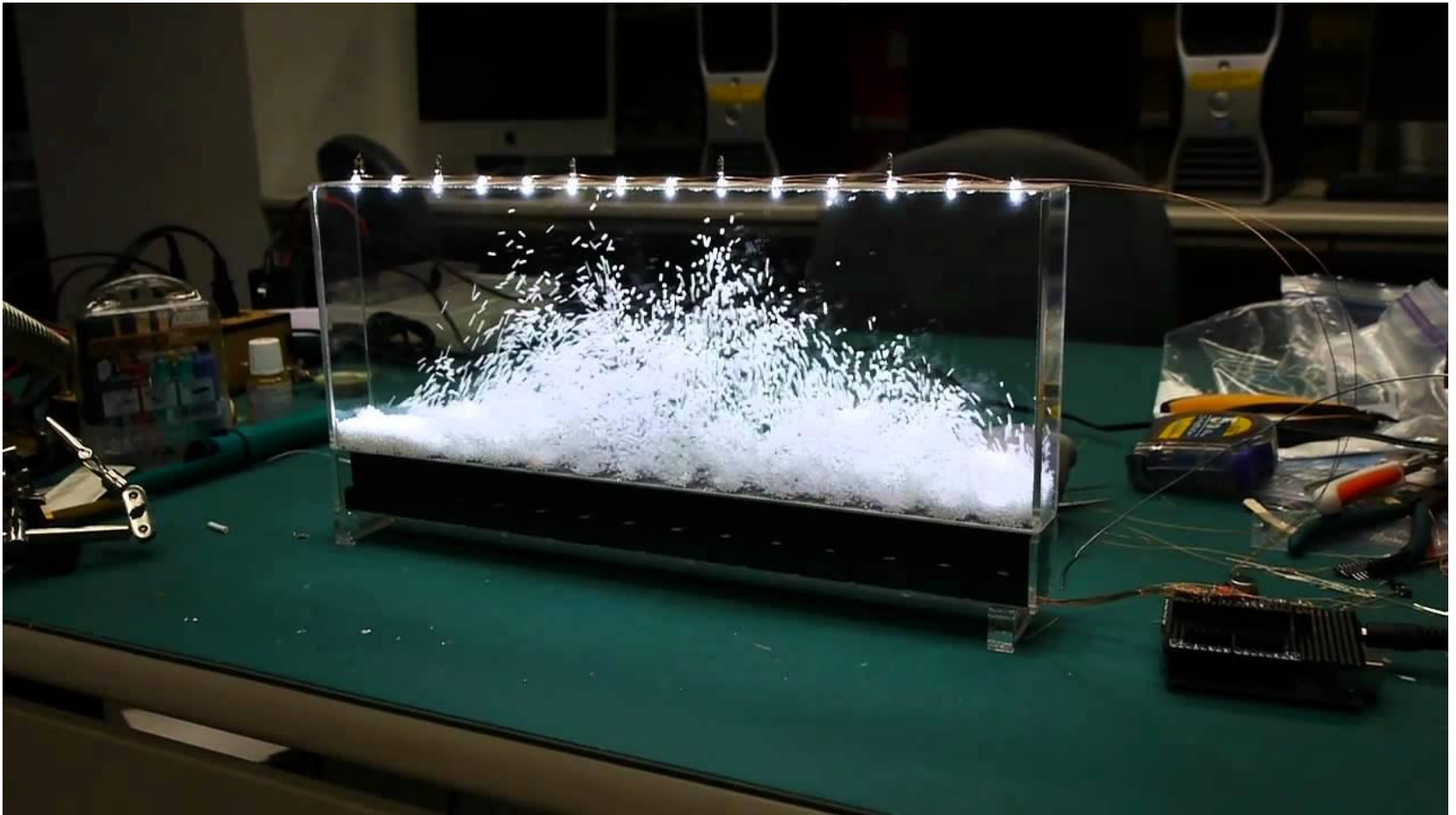
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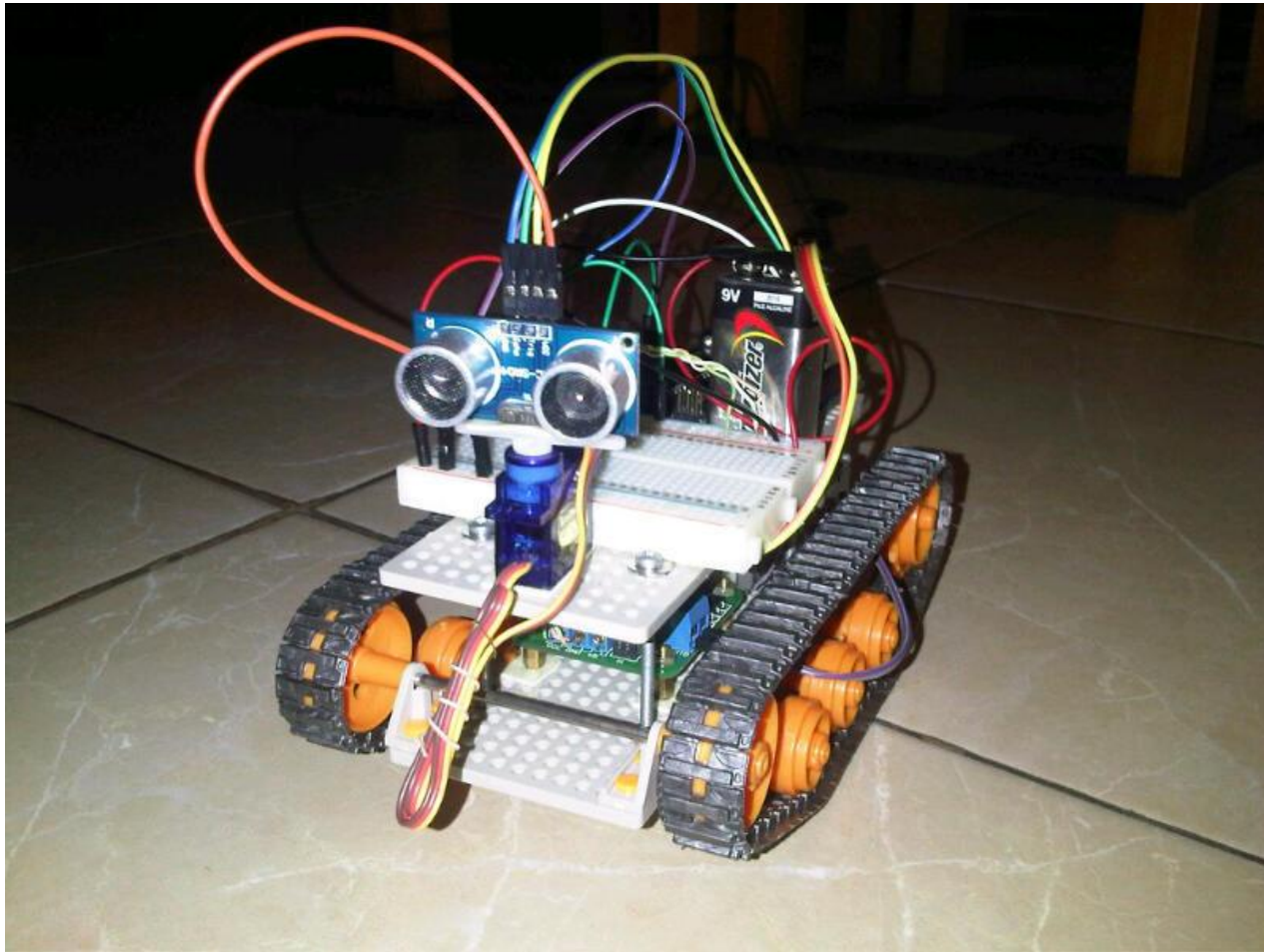
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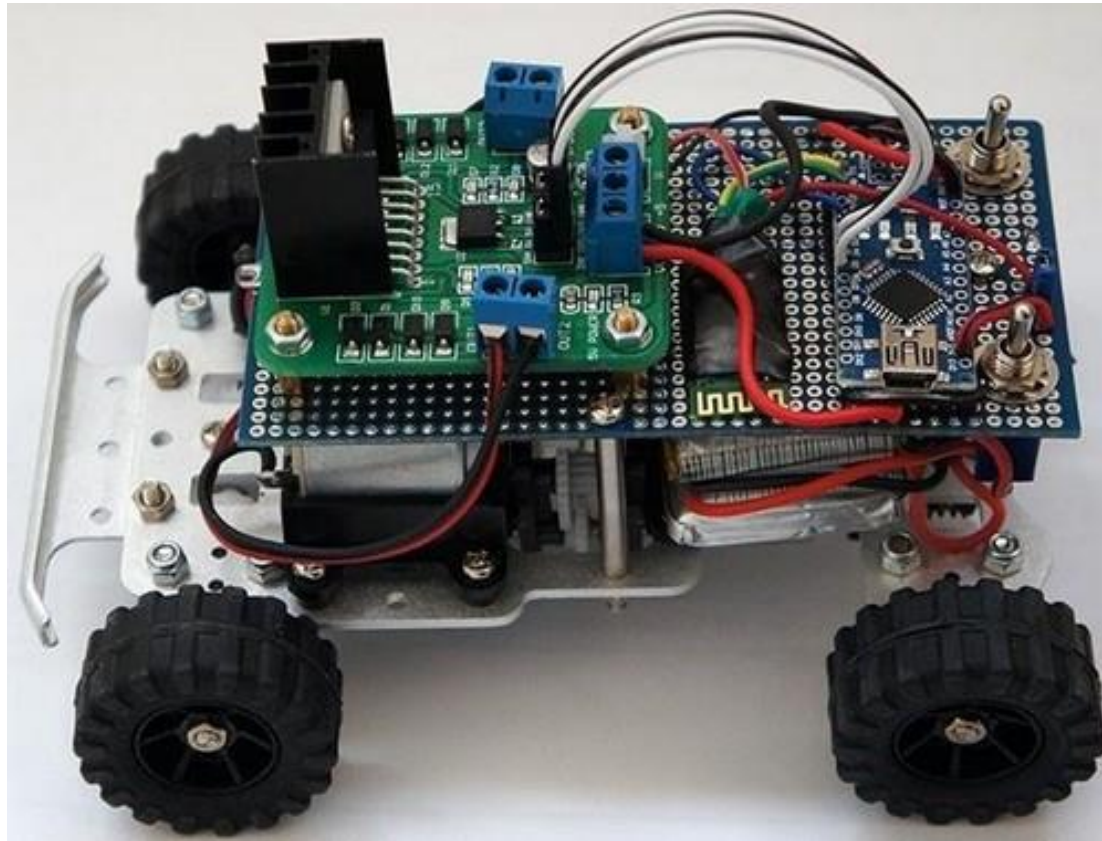
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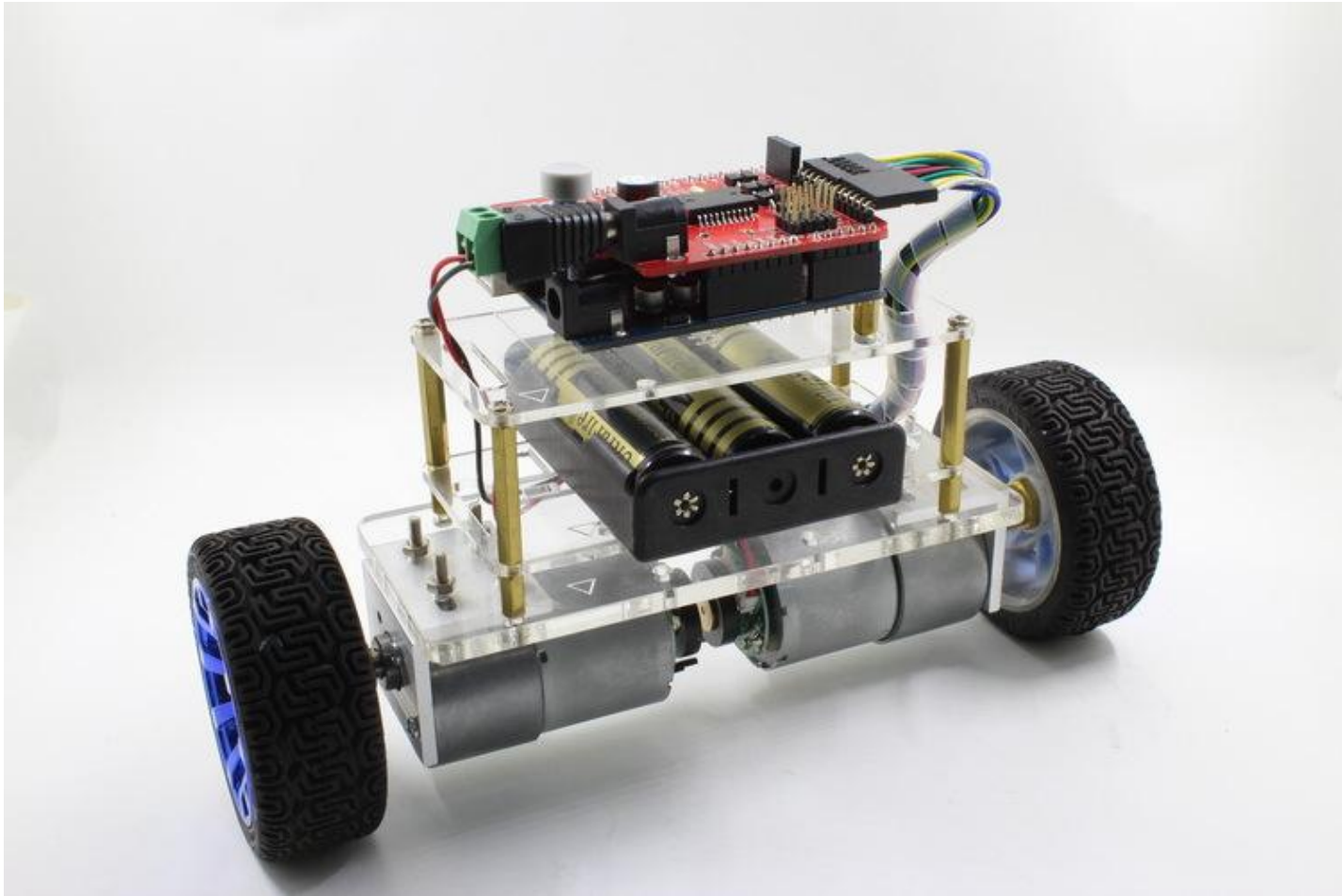
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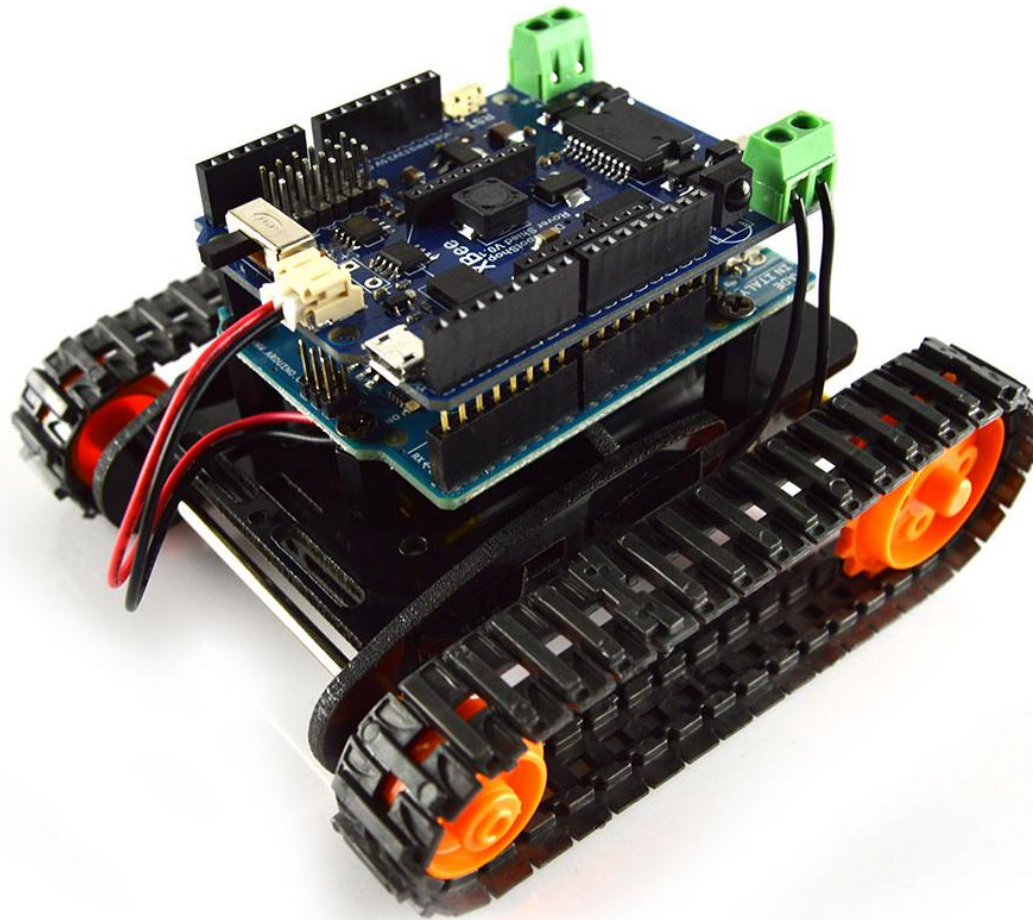
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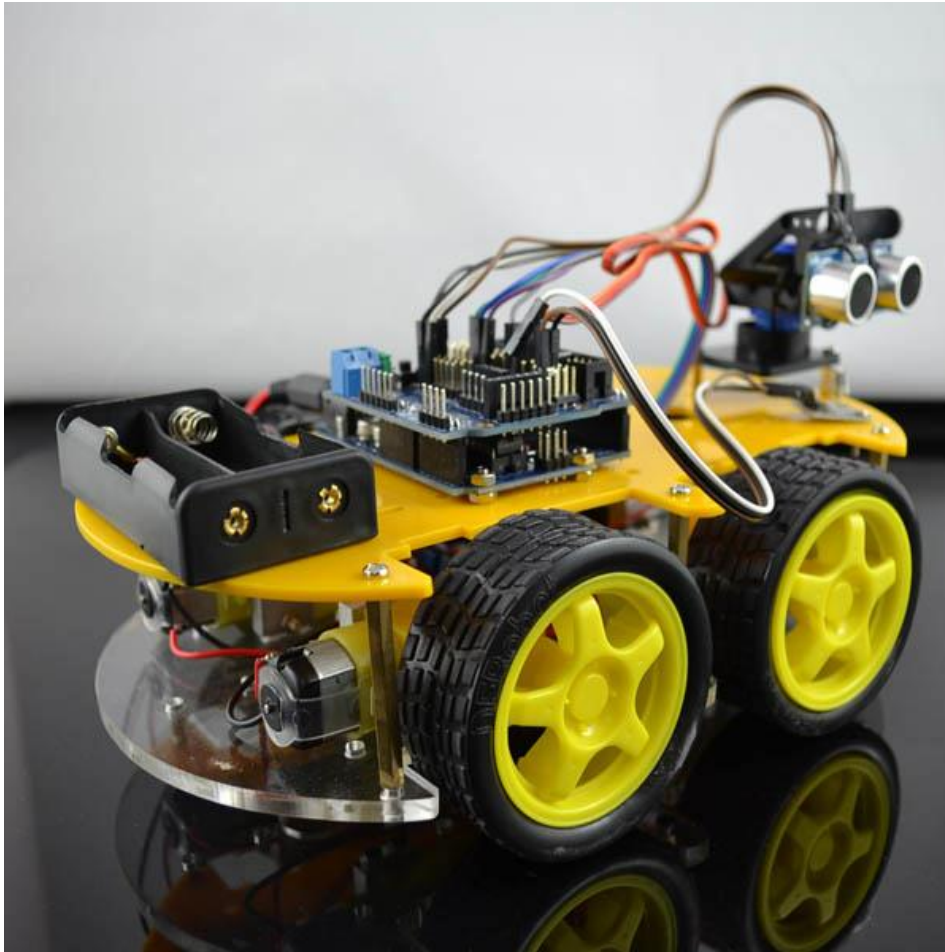
Proyectos Arduino



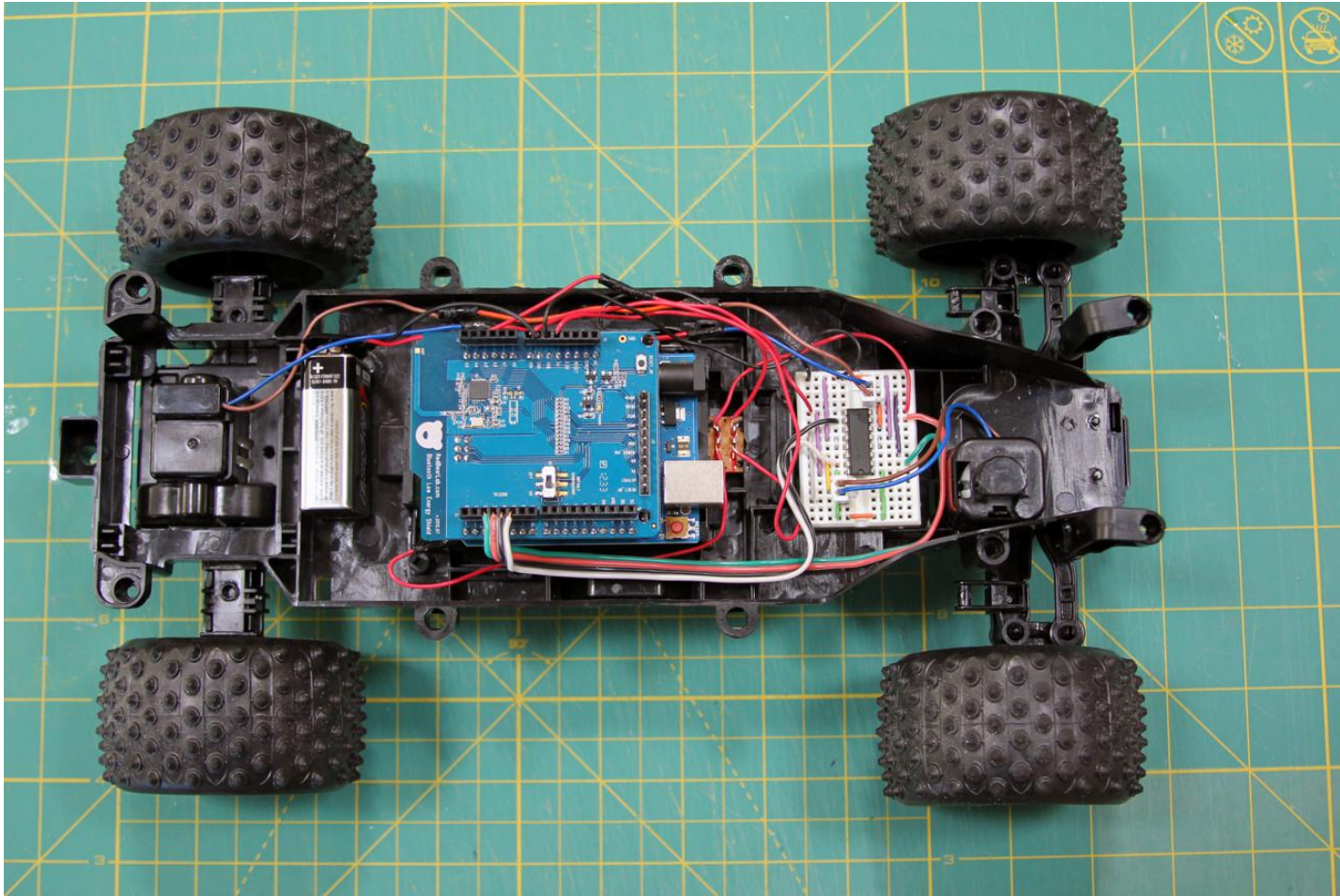
Proyectos Arduino



Proyectos Arduino



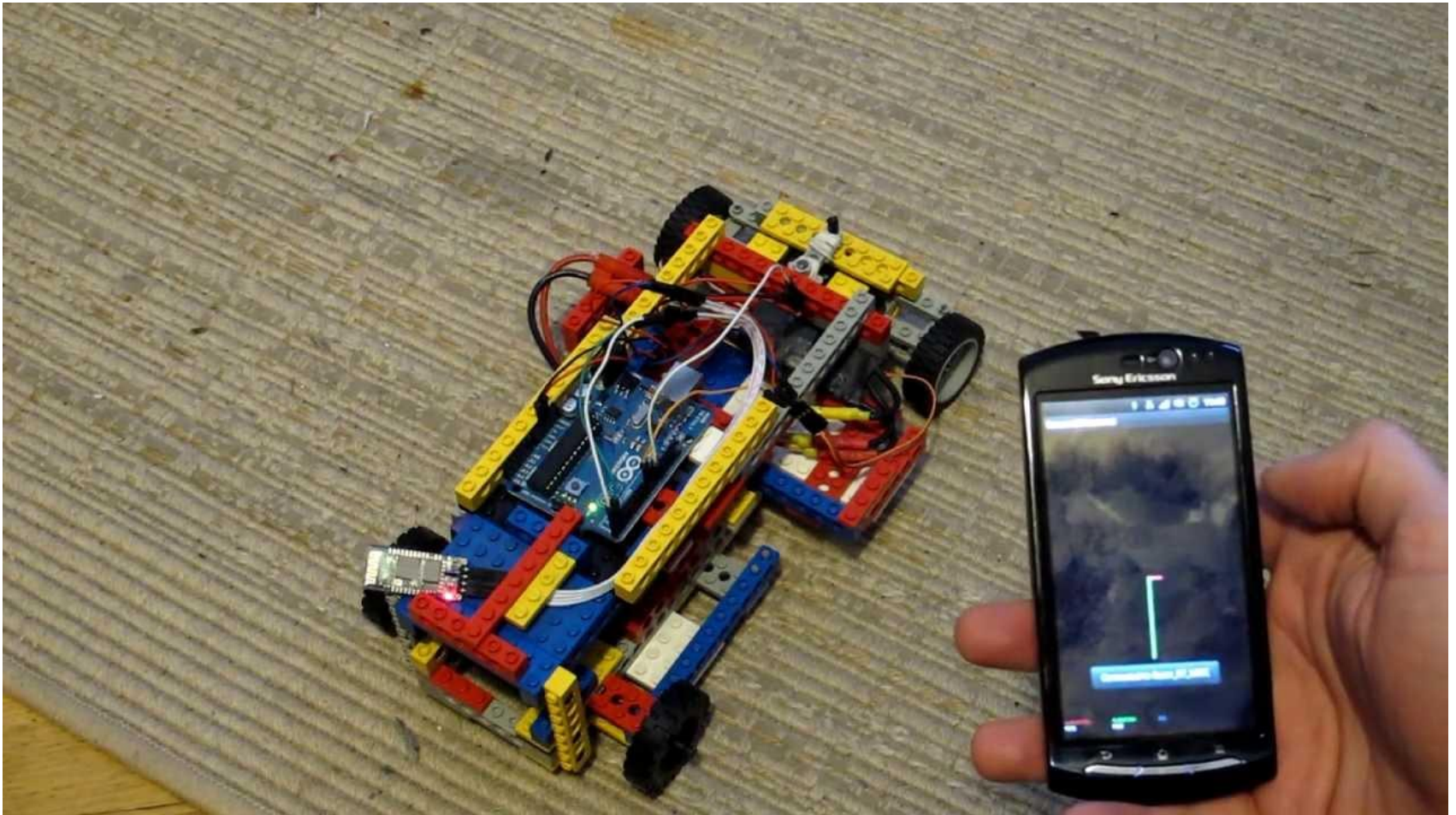
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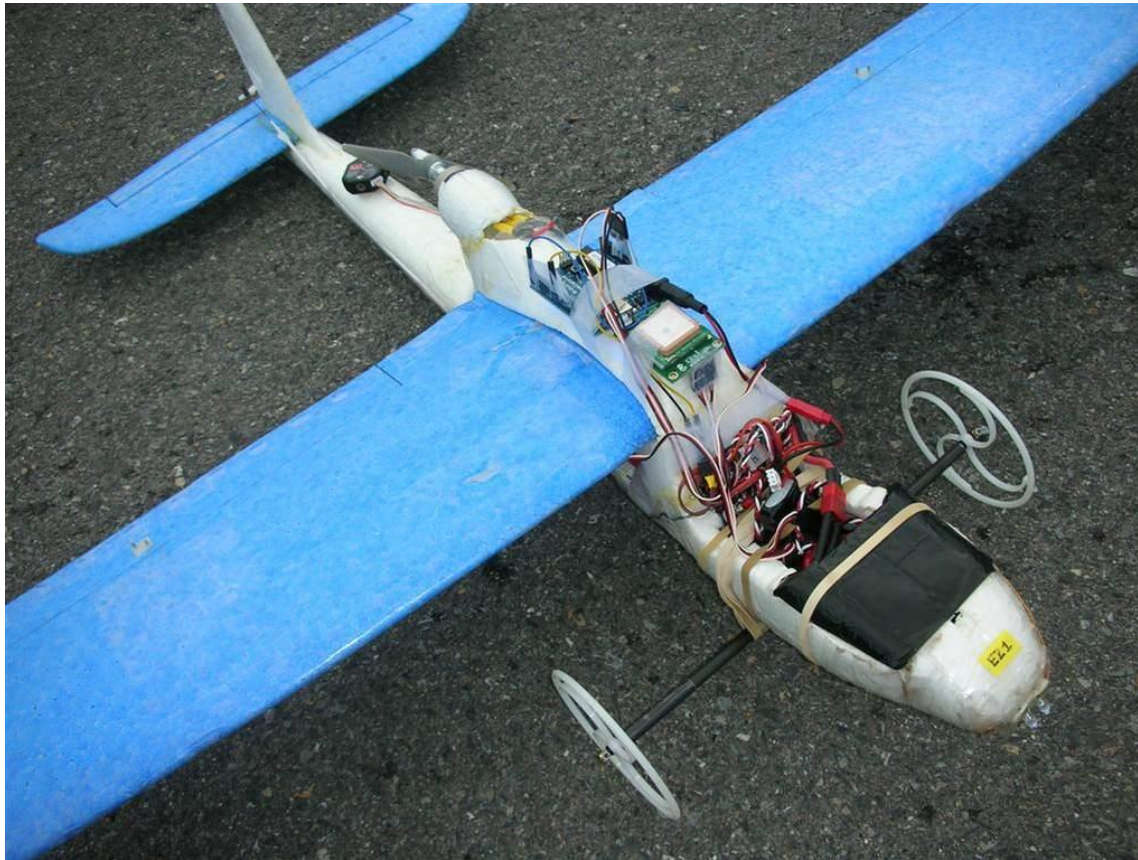
Proyectos Arduino



Proyectos Arduino



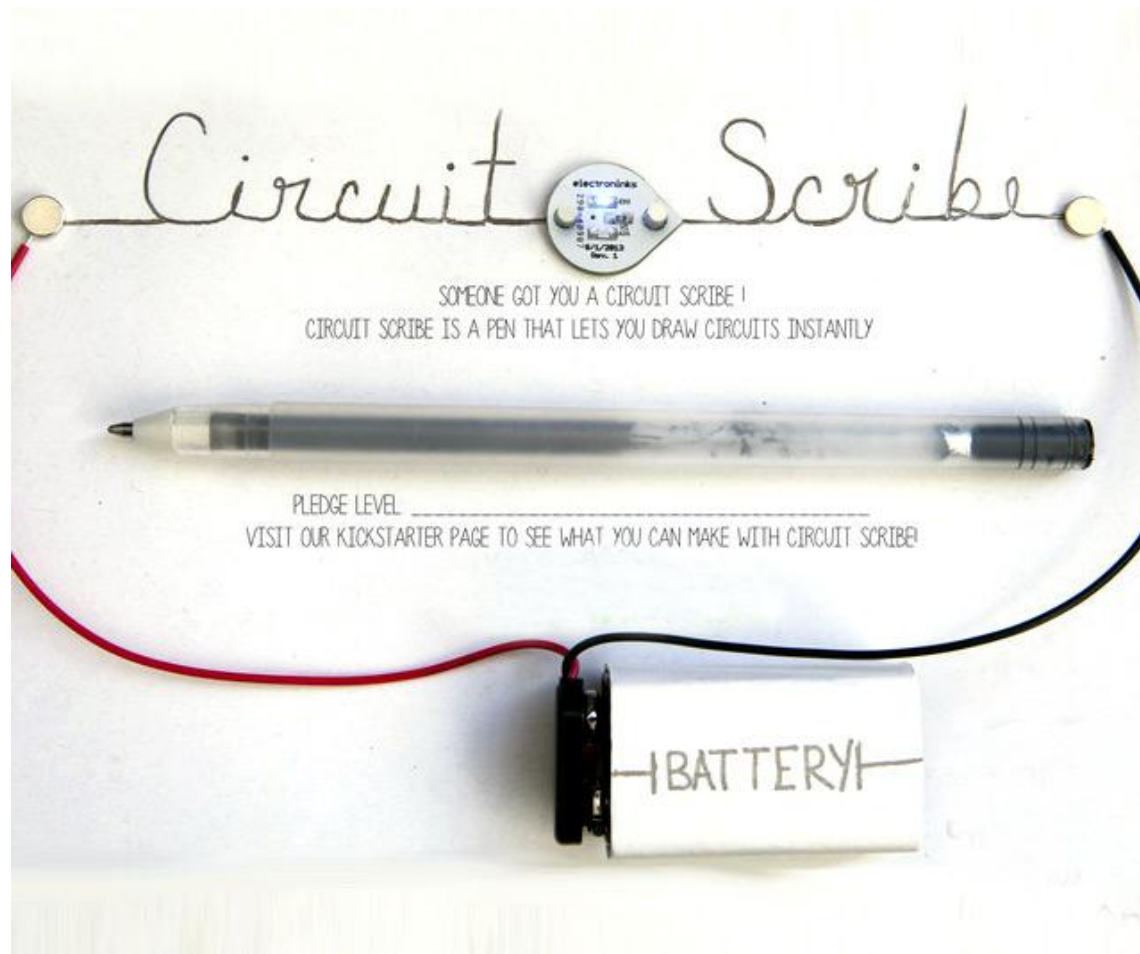
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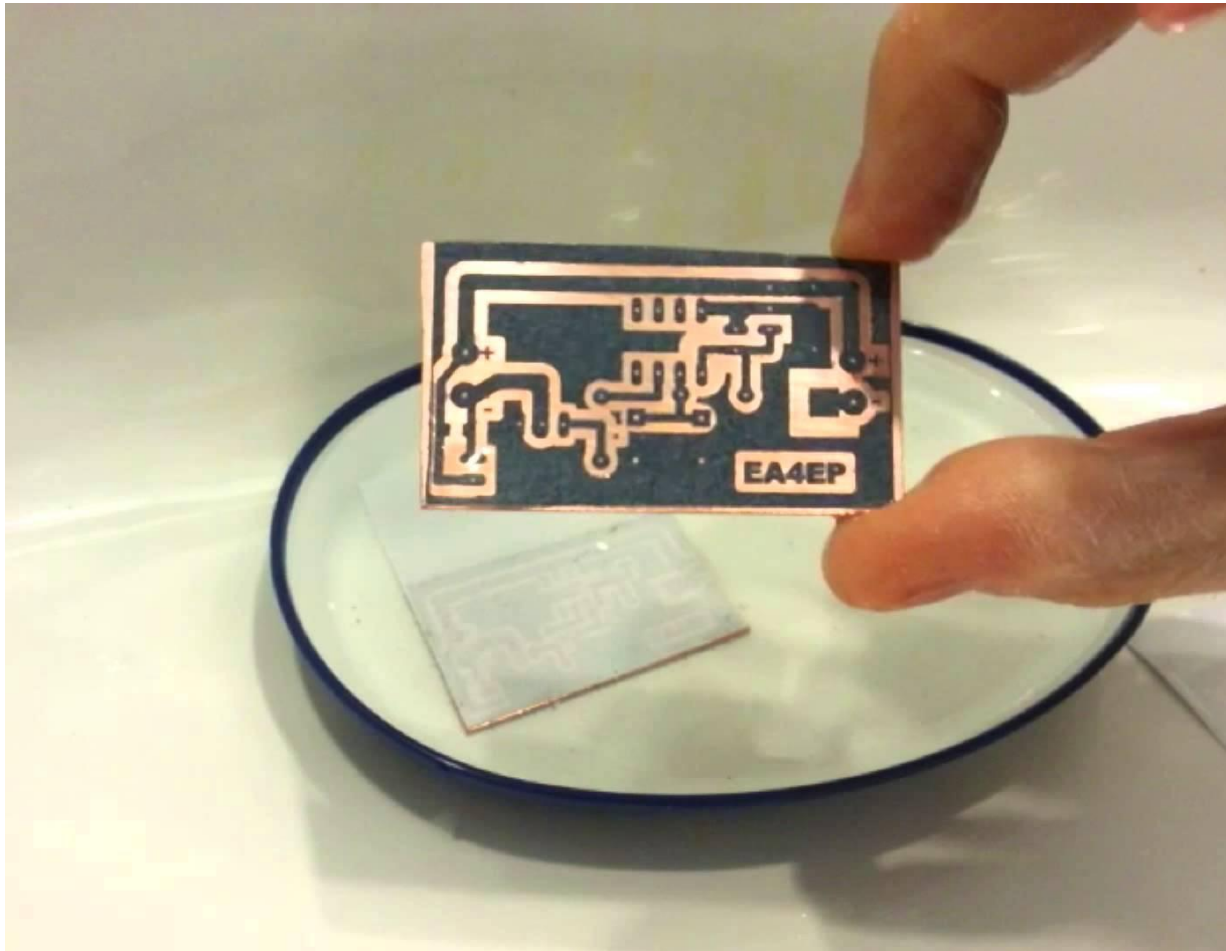
Proyectos Arduino



Proyectos Arduino



Proyectos Arduino



Proyectos Arduino



Proyecto Gnomoduino

