



Getting started with your Garagino

By GarageLab Team **21/01/2015**

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1. Garagino Features

This is the Garagino, a prototyping platform compatible with Arduino Uno.



The Garagino's pins are very similar to the Arduino Uno pins :

We have analog pins tagged with an A (A0 to A5);

Digital pins tagged with a D (D0 to D13);

Rx and Tx pins;

Pins to put a crystal (X1 and X2);

Analog Reference pin (Aref);

Vcc and Ground pins (Vcc and GND).

But the Garagino can be powered from 1.8 to 5 Volts. You can Power it with your own project without the USB/Serial converter module being attached to it. In fact this module is only necessary while programming. Below you can see the Gagarino powered by battery



Its internal crystal has a clock of 16 MHz. It possess header pins below it that allows you to connect it to a breadboard or a PCB and pins to connect the USB/Serial converter module.



And finally we have the module USB/Serial Converter



2. Arduino IDE

As you may know the Garagino is 100% compatible with Arduino Uno and it uses the same programming interface called IDE (integrated development environment). So the very first thing to do is to download the IDE at: <u>http://arduino.cc/en/main/software</u>



In the download's page you'll find options to Windows, Mac and Linux. They already have the suitable drivers you need to program your Garagino, so after done the download you are ready to get started.

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.			File folder		
drivers			File folder	16/09/2014 15:46	
examples			File folder	16/09/2014 15:46	
hardware			File folder	16/09/2014 15:46	
java			File folder	16/09/2014 15:46	
lib			File folder	16/09/2014 15:46	
libraries			File folder	16/09/2014 15:46	
reference			File folder	16/09/2014 15:46	
tools			File folder	16/09/2014 15:46	
arduino.exe	863.744	194.028	Application	16/09/2014 15:46	E74A35E8
arduino_debug	392.192	68.392	Application	16/09/2014 15:46	47D7830C
cygiconv-2.dll	969.728	706.209	Application extens	16/09/2014 15:46	07A1B1AB
cygwin1.dll	1.872.821	724.222	Application extens	16/09/2014 15:46	467528A4
libusb0.dll	43.520	19.117	Application extens	16/09/2014 15:46	214C4521
] revisions.txt	39.437	13.740	Text Document	16/09/2014 15:46	46DD69F8
nxtxSerial.dll	77.759	27.156	Application extens	16/09/2014 15:46	CA155AA4

Uncompress the downloaded file and run the file <u>arduino.exe</u> and then the IDE will open as shown below.



*check Arduino IDE for Windows 8.

3. Connecting and Programming the Garagino

3.1.Connecting Garagino to the module USB/Serial Converter

Now that we have the software ready to be programmed let's turn briefly to the Garagino's connections. Connect the Garagino's USB/Serial headers to the USB/Serial converter module as the two following images show.





3.2.Connecting The module USB/Serial Converter to the Computer

Now with the USB plug of the cable connected to the computer, connect the mini USB plug of the cable to the USB/Serial converter as shown below.



Notice that the Power LED is on, that means your Garagino is ready.

3.3.Setting the IDE

From here We'll start to program it. Open the IDE, go to Tools then to Board and then select Arduino Uno as shown below.

ware						
Buy Download	Products – Lea	arning – Forum	Support -	Blog	LOG IN	SIGN UP
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s Installer, ZIP file non ad				Arduino Leonardo		
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le Code				Arduino NG or older	w/ ATmegað	

After you've chosen the board, go to Tools again then to Serial Port and check if there is a COM available as shows the following figure where we have COM 8 connected.



If, due to some reason a COM is not available as shown below, and the Garagino is properly attached to the computer you must close the IDE and open it again, or you can even change the USB port but open the IDE after the Garagino have been attached.

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3.4.Example1

With the IDE opened go to File then to Examples and then to Blink.



After following these steps you'll see this sketch on your screen.

le Edit Sketch Tools Help	
Blink§	
Turns on an LED on for (one second, then off for one second, repeatedly.
Most Arduinos have an or Leonardo, it is attached pin the on-board LED is the documentation at <u>ht</u>	n-board LED you can control. On the Uno and d to digital pin 13. If you're unsure what connected to on your Arduino model, check tp://arduino.cc
This example code is in	the public domain.
modified 8 May 2014 by Scott Fitzgerald */	
<pre>// the setup function runs void setup() { // initialize digital pi pinMode(13, OUTPUT); }</pre>	s once when you press reset or power the board in 13 as an output.
// the loop function runs	over and over again forever
<pre>digitalWrite(5, HIGH); delay(1000); digitalWrite(5, LOW); delay(1000); }</pre>	<pre>// turn the LED on (HIGH is the voltage level) // wait for a second // turn the LED off by making the voltage LOW // wait for a second</pre>

This program will blink the LED 13, which is besides the Power LED. Take a look at how it seems.



We can now test our Garagino in the breadboard by attaching the header pins bellow it, one of the best features of our plataform.

3.5.Example2



we've connected the digital pin 5 to a LED and I used the same Blink program, but we've changed the output pin from 13 to 5 in order to show you how easy it is to work with this IDE.

```
Blink§
  Turns on an LED on for one second, then off for one second, repeatedly.
  Most Arduinos have an on-board LED you can control. On the Uno and
  Leonardo, it is attached to digital pin 13. If you're unsure what
  pin the on-board LED is connected to on your Arduino model, check
  the documentation at <a href="http://arduino.cc">http://arduino.cc</a>
  This example code is in the public domain.
  modified 8 May 2014
  by Scott Fitzgerald
 */
// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin 13 as an output.
  pinMode(5, OUTPUT);
3
// the loop function runs over and over again forever
void loop() {
  digitalWrite(5, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000);
                             // wait for a second
  digitalWrite(5, LOW);
                           // turn the LED off by making the voltage LOW
  delay(1000);
                             // wait for a second
}
.
```

Look at the result below



3.6.Example3

In the last test we've used an analog port. In this sketch the pot is attached to the analog pin 2 (A2), the value from the pot is read and then stored into the delay, thus by changing the pot you change the blink speed.

💿 sketch_jan21a Arduino 1.0.6
File Edit Sketch Tools Help
sketch_jan21a §
/*
* analogic input
* by bojobave <nccp: www.ojo.org=""></nccp:>
7
int potPin = 2;
int ledPin = 5;
int val = 0;
vold setup() {
pinnode(ledrin, bolrol);
2
<pre>void loop() {</pre>
<pre>val = analogRead(potPin);</pre>
<pre>digitalWrite(ledPin, HIGH);</pre>
<pre>delay(val);</pre>
<pre>digitalWrite(ledPin, LOW);</pre>
<pre>delay(val);</pre>
)

