Introduction to Arduino

Welcome to Beat707 Introduction to Arduino

Here we will explain what is Arduino and how to setup your Arduino board in order to use with the Beat707 Shield Board.

The Beat707 is an Arduino Shield, therefore, it requires an Arduino Board in order to work. The Arduino Board holds the Processor, USB communication and other features. Each Arduino Board has its own set of features, so you can chose the one that suits you best.

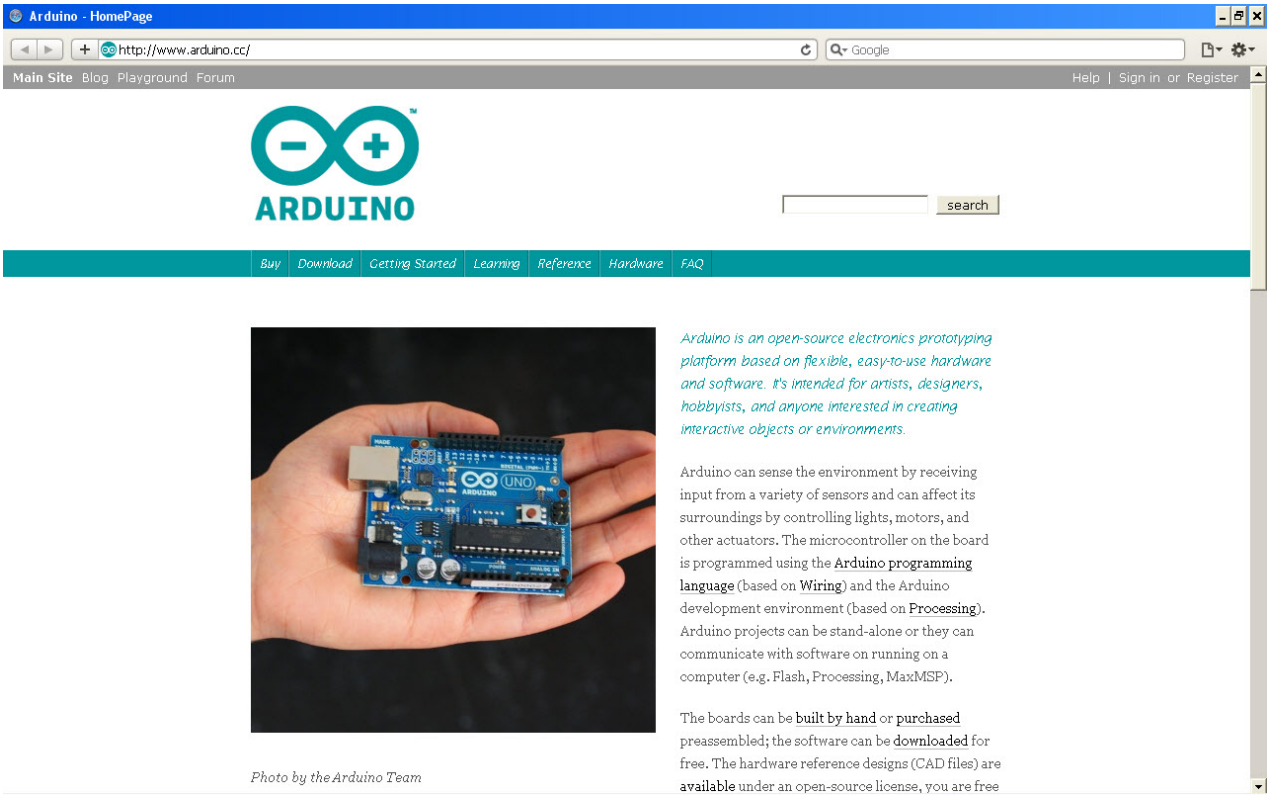
From - www.arduino.cc - Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobby-ists, and anyone interested in creating interactive objects or environments.

Below is a screenshot of the Arduino Web Site, with a picture of an Arduino Uno Board, which is 100% compatible with the Beat707 Shield and Software.

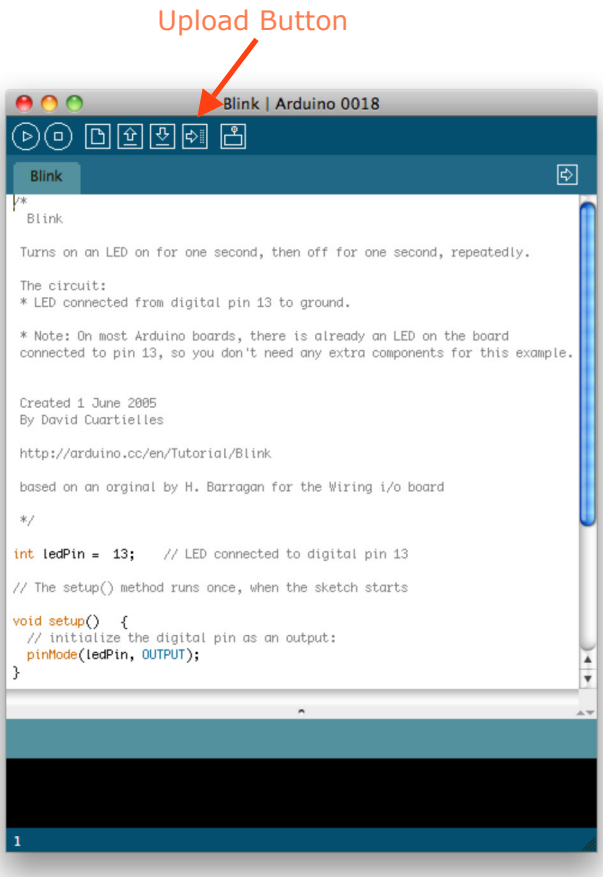
Beat707 is also Pin-Compatible with other platforms, such as the Netduino and FEZ Panda. But currently we don't offer any software for the .NET platform. (this may change in the future)

Usual Arduino 2009 and Uno boards can be found on eBay and famous sites around the net. Prices starts at $ 26 USD for the 2009 board, which is also 100% compatible with Beat707 Shield and provided Software. The Uno board won't give you any extra features for the Beat707 Hardware.

If you wish to Modificate or Customize your Beat707 device, get an Arduino Mega instead, its extra money, but comes with extra features.



Another great feature of the Arduino Platform is that its IDE (the software you use to program it) is Free and very easy to use. (its also Open Source) On the right you can see a picture of its IDE.



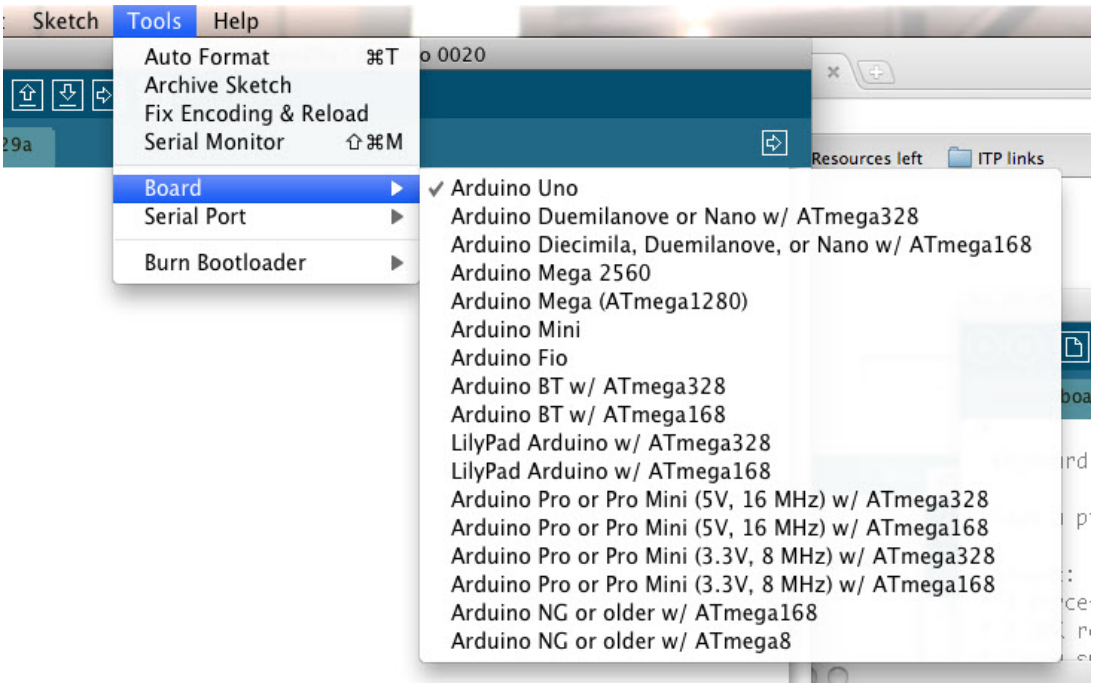
Be sure to download the latest Arduino IDE from the official Arduino site: www.arduino.cc

If you don't care about programming, don't worry, all you need to do is plug the board, open the included source files and click the Upload button on the IDE. That's all you need to do, and its only done once per new software revision. You can even do at work or at a friend's computer.

In order to upload for the first time, be sure to also check what board you are using and which COM port the current Arduino Board is using. Don't panic, its very easy to figure this out.

Unplug the Arduino board from the USB cable. Open the Arduino IDE and under Tools -> Serial Port, check all Serial COMs you see there. Write somewhere if you need to. Now, plug the Arduino USB Cable into the computer, re-start the Arduino IDE, and check what's new under Tools -> Serial Port. The new COM is your Arduino Port. Select it, the Arduino IDE will save this setting.

Now, select the correct Arduino Board from the Tools -> Board list, as seen in the picture below.



The Next Step

Now we will talk about the Beat707 Drum Machine Software V1.2.0, which is the initial software included with any Beat707 Shield purchase.

With you order you should receive a set of files, one is the Beat707 Code which includes a Beat707 Folder. The first step is to copy a set of extra Arduino Library files, its a very simple process.

Open the "Beat707/Library_Files" folder, you should see "WLCD" and "WWire". Now, copy both those folders into the "Arduino IDE/libraries" folder. Close the Arduino IDE before doing this.

In the "Beat707" folder you can open the "Beat707.pde" file. This will open all the required files in the Arduino IDE. With the IDE open, you can follow the steps from the previous page, select board, select serial port, upload. Ctrl+U is a shortcut to compile and upload the whole thing to your Arduino board. Keep in mind that it may take a few minutes for all the process to be completed. Once it is completed, Beat707 will re-boot and start working. The software is hold in the Arduino Memory for good, so now you don't need the computer anymore. All you need is a power supply for the Arduino. Check what sort of power your Arduino Board will take. On our tests, we used a 12V 800m supply. From the Arduino Web-Site: Arduino Uno Input Voltage (recommended) 7-12V. Since we have a LCD and lots of LEDs, be sure to have at least 800m, otherwise the LCD will dim or even blink when using Beat707 LEDs.

The first time Beat707 software runs on the unit will require a total system initation. This process is only done once. Just confirm with Shift, twice, and it will start preparing the EEPROM and Flash memory to start for the first time.

What's Next?

Depending on what you want from your Beat707 system, you could learn a bit how the Arduino works, in order to create modifications to the hardware and software. The great thing about the Arduino is that its very easy to understand and have a very large community built around it.

Another thing to keep in mind is that Beat707 Shield was designed with MODs in mind. So modifications are welcome. Want to add a SD Card? More Buttons? Another SPI interfaced chip? With time we will explain how to handle those things out, including examples and more tutorial videos and PDF files. So be sure to use our forum and the Arduino forum, to learn more on how you can custom design your own needs.