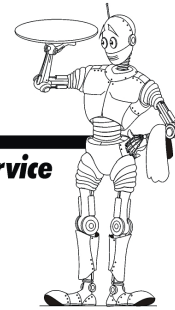


*La robotique à votre service*



## Guide to the LilyPad Arduino

To get started with the LilyPad Arduino, follow the directions for the Arduino NG on your operating system (Windows, Mac OS X, Linux. Connecting the LilyPad Arduino is a bit more complicated than a regular Arduino board (see below for instructions and photos).

The LilyPad Arduino is more **fragile and easy to break** than a regular Arduino board. Don't connect more than 5.5 volts to the + tab or reverse the power and ground pins of your power supply, or you will very likely kill the ATmega168V on the LilyPad Arduino. You can't remove the ATmega168V, so if you kill it, you need a new LilyPad.

## Connecting the LilyPad Arduino

To program the LilyPad Arduino, you need to connect it to your computer. To do this, you'll need to connect:

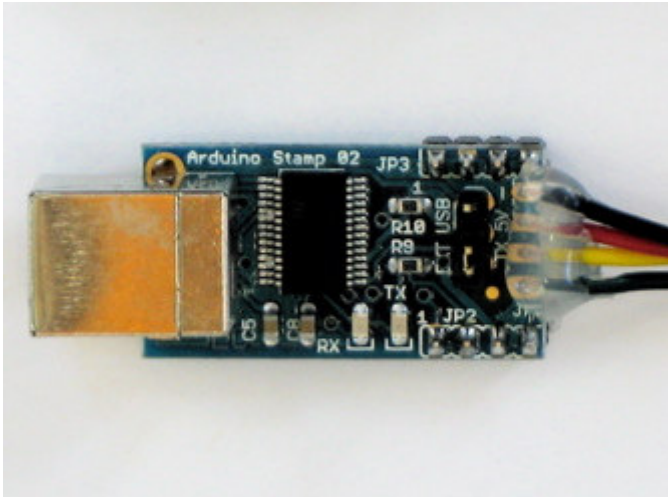
- Power. Power should be connected to the + tab on the LilyPad Arduino. This can be a regulated +5V power source (e.g. from the +5V pin of the Mini USB Adapter or the + tab of a LilyPad power supply) or, another 2.7-5.5V power source (e.g. a 3.7V rechargeable Lithium Ion battery or 2 AA batteries in series).
- Ground. The ground tab on the LilyPad Arduino must be connected to ground of the power source.
- TX/RX. These tabs are used both for uploading new sketches to the board and communicating with a computer or other device.

You have a few options for connecting the board to your computer: the Mini USB Adapter, an Arduino NG board, or your own power supply and USB/Serial adapter.

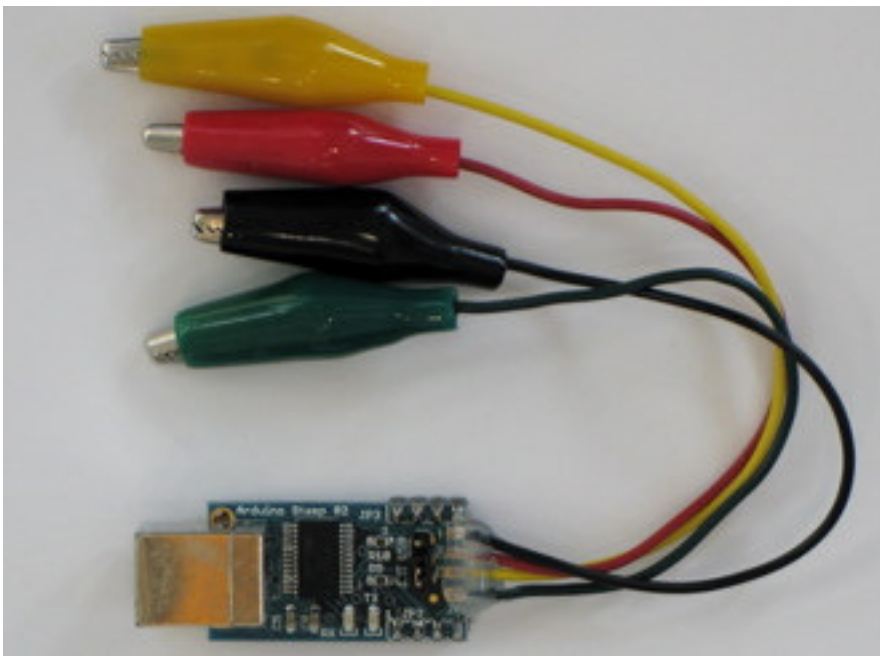
## Modifying the Mini USB Adapter to Connect to the LilyPad Arduino

Solder alligator clips to the TX, RX, +, and - pins on the front of the Mini USB Adapter. We're using a red clip for +, black for -, green for TX and yellow for RX.

To attach an alligator clip, cut it in half, strip the insulation off the wire, and solder the wire to the Mini USB Adapter. Once all four clips are soldered on, use a hot glue gun to cover the solder joints with plastic. This will prevent them from breaking. Here is a close-up view of the modified Mini USB Adapter.

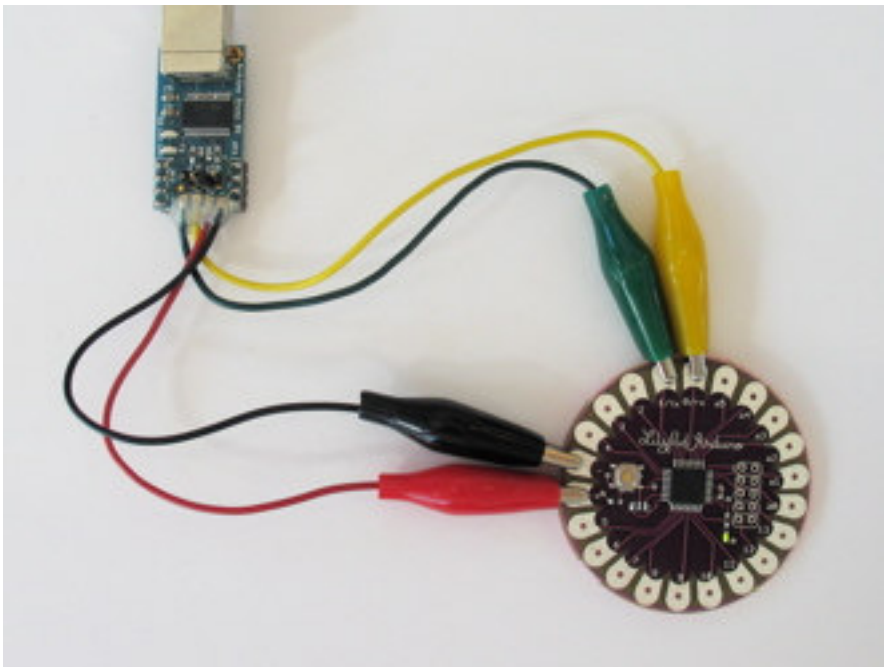


And here is a complete view.

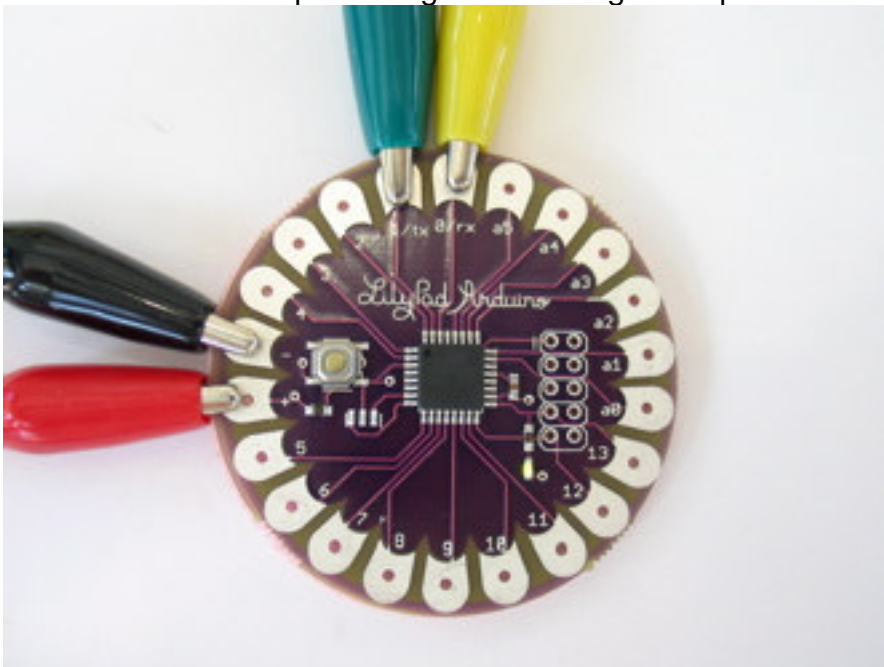


## Connecting the LilyPad Arduino and Mini USB Adapter

Now you can attach the LilyPad to your computer by plugging the Mini USB into your computer and clipping the alligator clips to the TX, RX, +, and - tabs on the LilyPad. You might want to cut a piece of felt to put under your LilyPad before attaching the clips. This will make them less prone to slipping. Here is a photo showing the LilyPad Arduino connected to the Mini USB adapter.

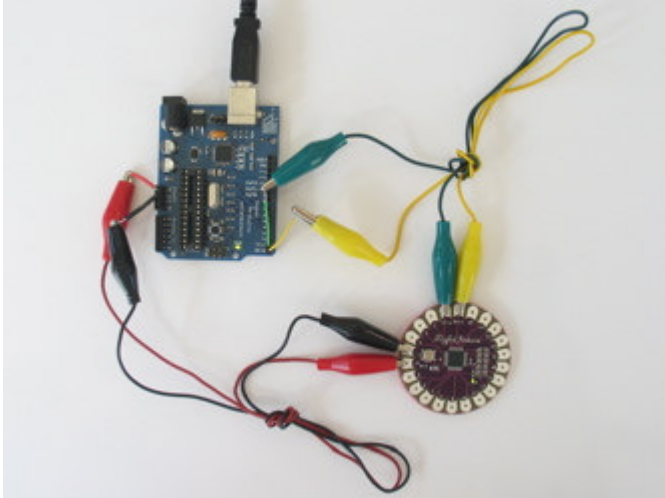


And here's a close-up showing how the alligator clips attach to the LilyPad.



## Connecting the LilyPad Arduino and Arduino NG

You can also use an Arduino NG to connect the LilyPad Arduino to your computer, using the Arduino NG as a power supply and USB/Serial connection. Just remove the ATmega8 or ATmega168 from the NG and then use jumper wires and alligator clips to attach the TX, RX, +, and - tabs on the LilyPad to the corresponding pins on the NG. Here's a photo.



## Sewing the LilyPad Arduino

The hole on each tab of the LilyPad is large enough for a sewing needle to pass through. You can make both electrical and physical connections with stitching in conductive thread. Sew through the holes several times to insure good contact. Here's a picture showing a sewn LilyPad:

