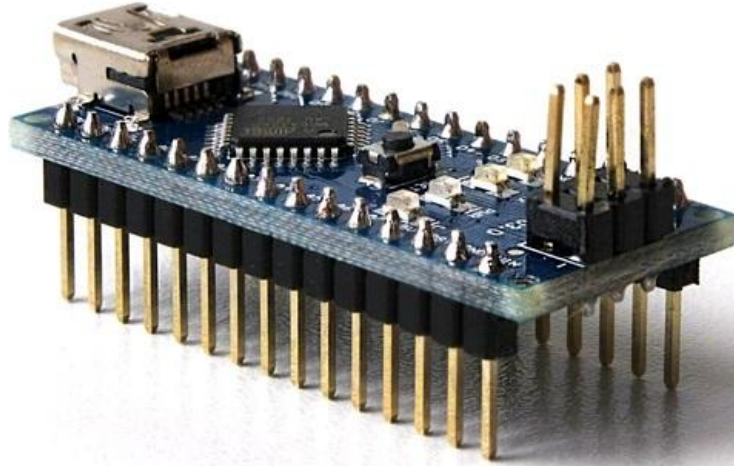# Making your own Arduino Nano compatible with Sketches

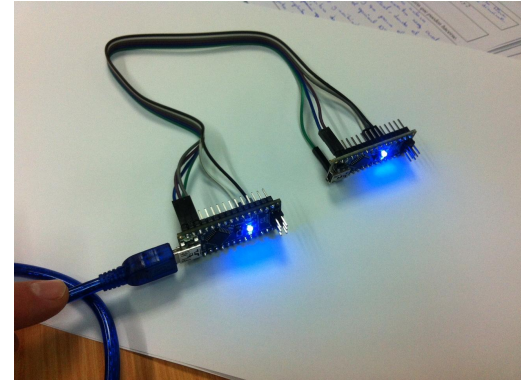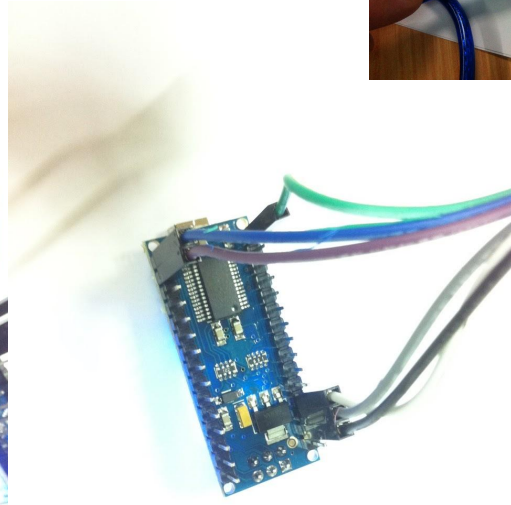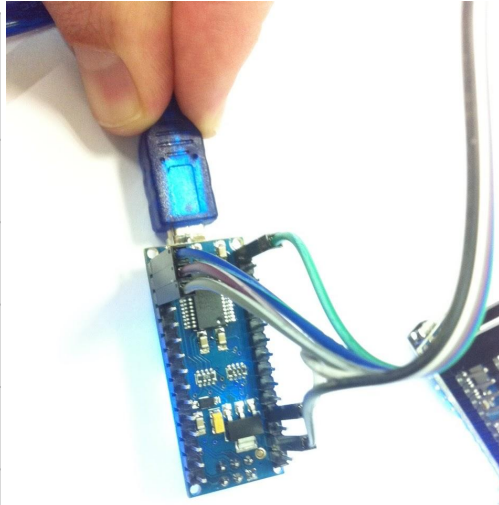using a commercial Arduino Nano

First Step: Convert Nano into a ISP programmer

- Connect Arduino Nano commercial board to the laptop using USB cable.

- Start Arduino IDE and open Examples => Arduino ISP.

- Select menu Tools => Board => Arduino Nano w/ATmega328

- Select menu Tools => Serial Port (choose the correct one)

- Select menu Tools => Programmer => AVRISP

- Click Upload button, then you will notice:

    - IDE starts to compile.

    - IDE connects to Nano board for programming: red & green LEDs blink
      for a while.

Second Step: Connect commercial Nano to soldered one.

- Commercial Nano will work as ISP programmer for the one you have soldered. You must connect both boards like this:

Commercial (USB)	Soldered
GND	GND
5V	5V
D10	RST
D11	D11
D12	D12
D13	D13

Third Step: Bootloader

- The bootloader must be programmed into the ATmega328 in order to be able to use Arduino IDE and Sketch style programming.

- A commercial programmer can be used but another Arduino board (with this bootloader already working) can be used too.

- Our first step converts our commercial Arduino board into a programmer and the second step enables our already soldered board to be programmed.

- Using Arduino IDE from the state you left when finished first step, select:

    - Menu Tools => Burn Bootloader.

    - You will see host board red & green LEDs blinking for a while.

    - When finished your soldered board is ready. To test it disconnect all

        the connections between both boards and USB cables.

Fourth Step: Testing soldered Arduino Nano

- Connect Soldered Arduino Nano to the laptop using USB cable.

- Start Arduino IDE and open Examples => Analog Input.

- Select menu Tools => Board => Arduino Nano w/ATmega328

- Select menu Tools => Serial Port (check this, now the port could be different)

- Select menu Tools => Programmer => AVRISP

- Click Download button, then you will notice:

  - IDE starts to compile.

  - IDE connects to Nano board for programming: red & green LEDs blink
    for a while.

- Check that when you connect A0 pin to GND, L LED turns half bright and if connect to 3V3 starts to blink.