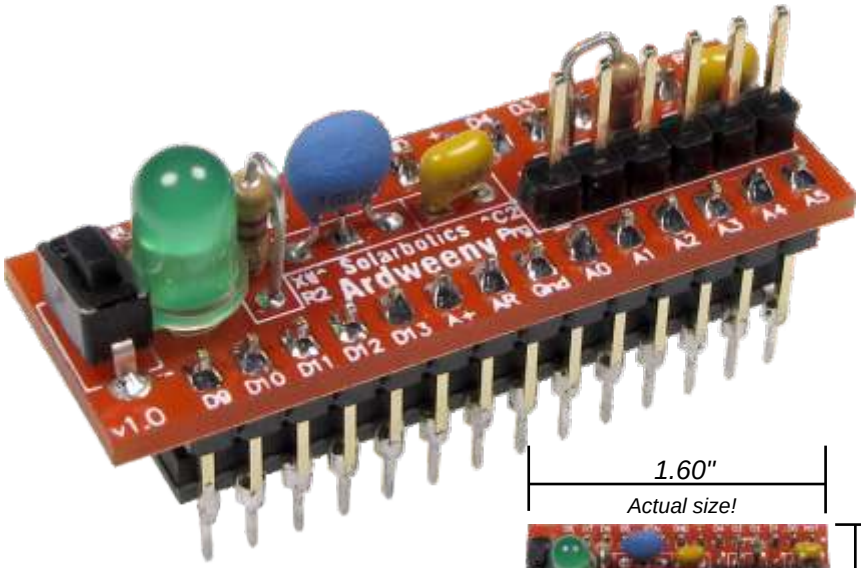
Ardweeny v1.0

Arduino™-compatible Backpack Kit

Like to build your own breadboard-compatible Arduino?
Get all the basic features of Arduino in a tidy package!



- Fully Arduino-compatible!
- Stacks onto the back of an ATmega328 chip (included)
- Takes same 28-pin footprint as the microcontroller itself!
- Features Pin-13 LED and reset button
- Simple construction - only 7 parts plus pins & PCB!
- *Ideal* for breadboard applications

- Note: Requires external USB-to-TTL FTDI-type cable or adapter

SOLARBOTICS Ltd

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SKU: KARDW DocRev: Dec1009

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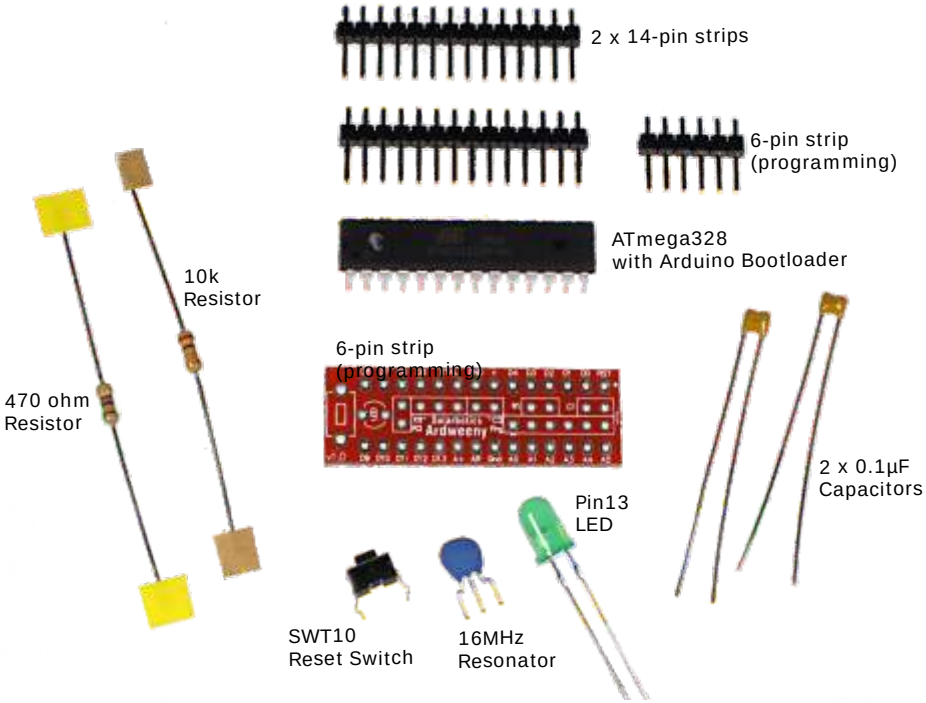
Y'know, for notes and pretty pictures and the like.

Parts List

- 1 x Printed Circuit Board (PCB)
- 1 x ATmega328 with Arduino bootloader
- 1 x LED (Pin 13 indicator)
- 1 x 470 ohm resistors (Yellow / Purple / Brown)
- 1 x SWT10 Switch (reset)
- 2 x 0.01µF Ceramic Capacitors (power & auto-reset)
- 1 x 10k resistor (Brown / Black / Orange) (auto-reset)
- 1 x 16MHz resonator
- 1 x 6-Pin male header (Programming / USB Pwr)
- 2 x 14-Pin male headers (ATmega328 connectors)



We strongly suggest you count the parts in your kit to make sure you have all the parts listed (c'mon - there's barely a handful of parts, so count them!). If anything is missing, contact Solarbotics Ltd. for replacement parts information.

Disclaimer of Liability

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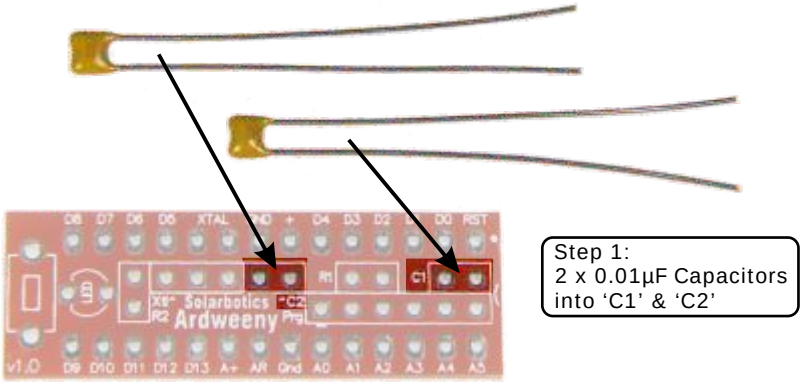
Construction!

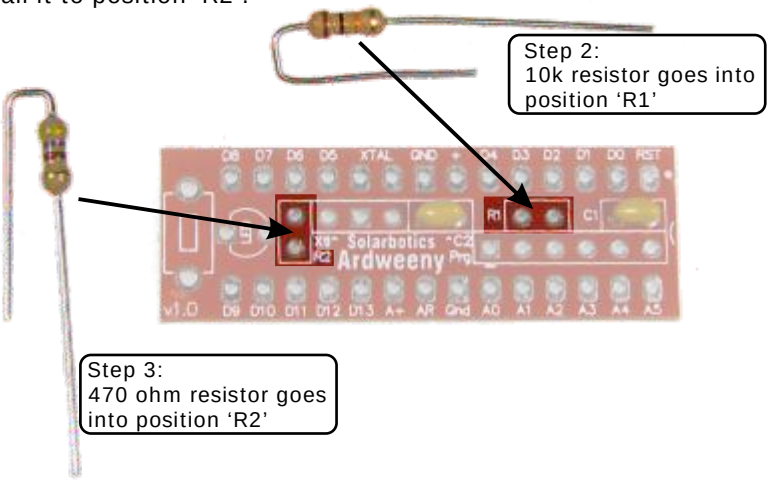
You have a breadboard that needs an Arduino - Get to work! Never solder before? Download a copy of our tutorial in the instructions manual to our “KSS SolarSpeeder Kit”.

Step 1 - 0.01µF Capacitors: One is for power filtration, the other is part of the auto-reset function when a program is finished uploading. Stick one in position ‘C1’, and the other in position ‘C2’.

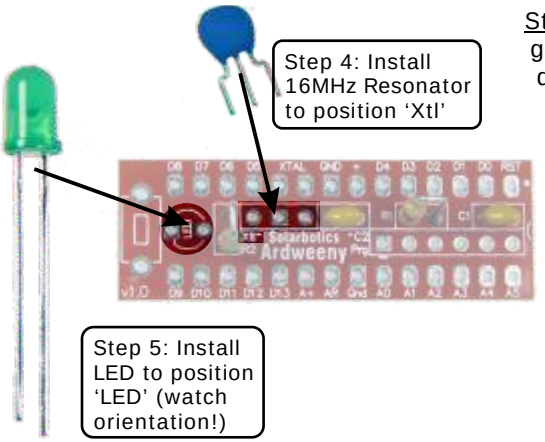


Step 2 - 10k Resistor (Brown / Black / Orange): This one is part of the auto-reset function too. Bend it over as shown, and install it to position ‘R1’.

Step 3 - 470 ohm Resistor (Yellow / Violet / Brown): This is the current-limiting resistor for the Pin-13 LED. Bend it like the other resistor, and install it to position ‘R2’.



Construction!



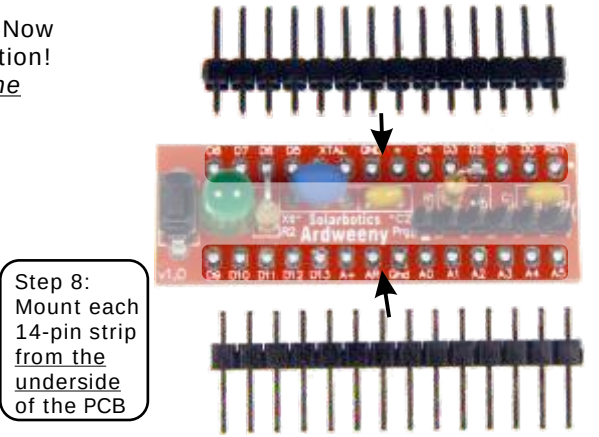
Step 4 - 16MHz Resonator: This gets installed in position 'Xtl'. It doesn't matter which-way-around it goes in.

Step 5 - LED: It's an *Arduino*-clone. It *has* to have a pin-13 LED installed onboard! Unlike the resonator, make sure you have the shorter lead in the square pad (or just make sure the LED matches the outline on the PCB).

Step 6 - Reset Switch: Stick it into the PCB, and solder it in!

Step 7 - 6-Pin Programming Header: Jam the 6-pin header into position "Prg". This is where you will plug in your USB / Serial converter.

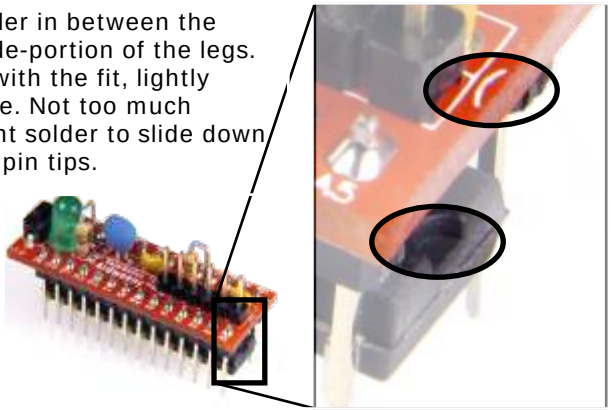
Step 8 - 14-Pin Mounting Rails: Now we are getting close to completion! Mount the 14-pin headers *on the underside* of the board.



Construction!

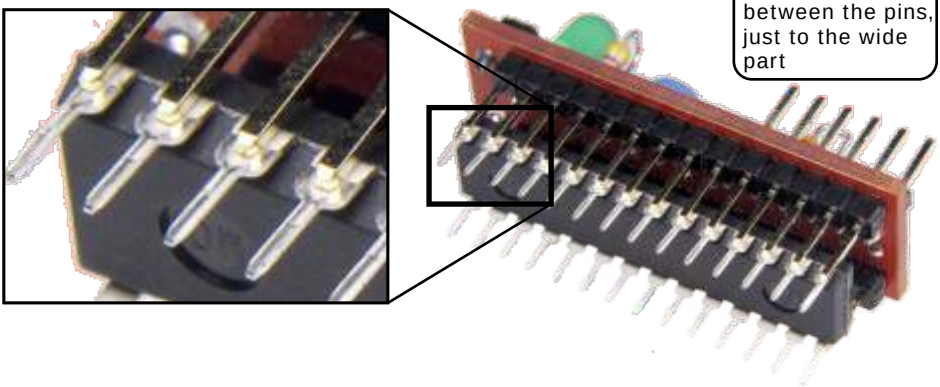
Step 9 - Installing the microcontroller: Now we are getting to the best part - installing the microcontroller! The important part is to get it in the right-way around. Note the little curve printed on the PCB, and make sure it matches the notch on the microcontroller.

Slide the microcontroller in between the legs so it grips the wide-portion of the legs. When you are happy with the fit, lightly solder the pins in place. Not too much solder! You do not want solder to slide down to the microcontroller pin tips.



Step 9a: *Important!* Note the curve on the PCB matches the notch on the microcontroller

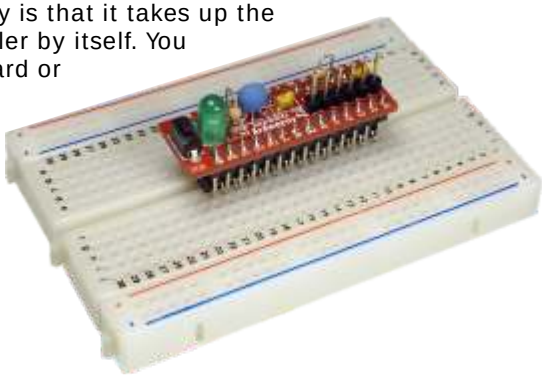
Step 9b: Push the microcontroller in between the pins, just to the wide part



Step 9c: Tack solder the PCB pins down, *just* to the top of the pin

Using It!

What's great about the Ardweeny is that it takes up the same footprint as a microcontroller by itself. You simply plug it into your breadboard or PCB, and jack in your programming header.



Set your Arduino IDE for the "Arduino Duemilanove w/ ATmega328", and treat it like any other Arduino!

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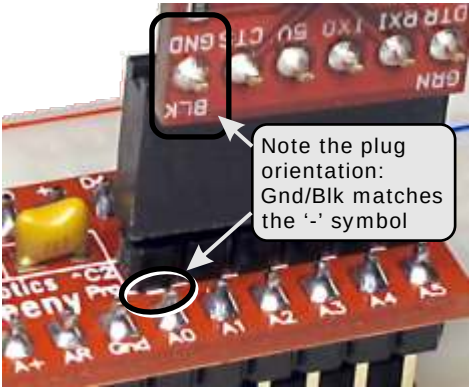
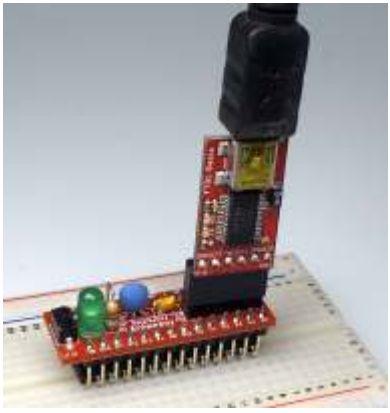
The pin-out matches the FTDI breakout cable standard, or the SparkFun *FTDI Basic Breakout* adapter (our part 50510). The plug's GND line (also marked "BLK") matches the Ardweeny pin marked with the "-".



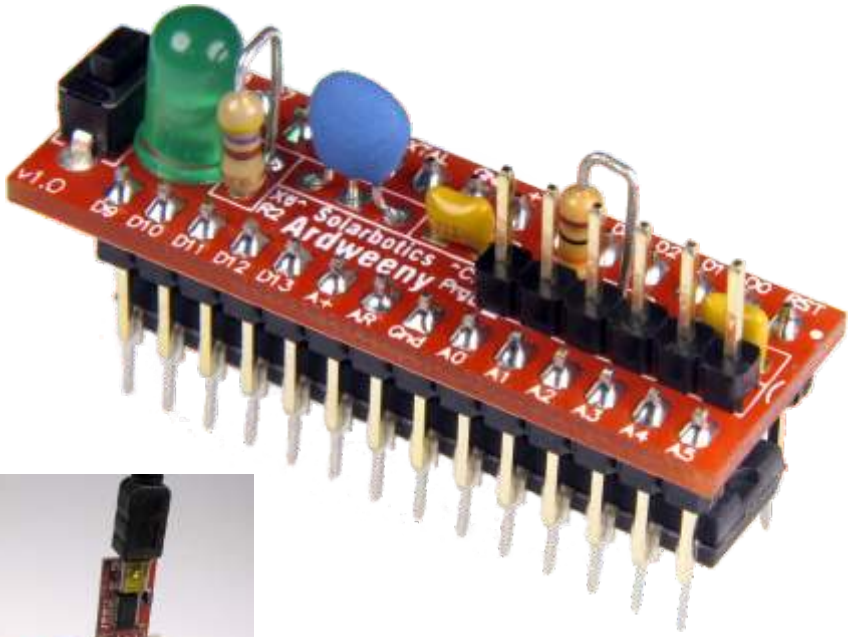


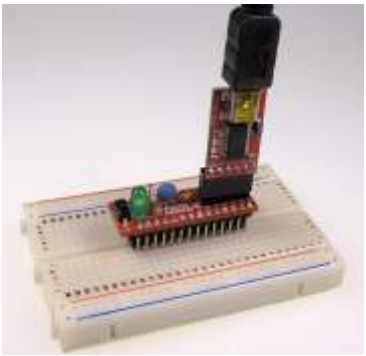
The FTDI adapter *can* power the Ardweeny *and* the other circuitry on the breadboard, if you connect the 'GND' and '+' pins to the rest of the breadboard power rails.

The Solarbotics Ardweeny:
The smallest Arduino-compatible Kit!

We love Arduino. Those Italians know how to design an *excellent* microcontroller platform and share it with the world. And Mr. Kimio Kosaka's "One-Chip-Arduino" project inspired us to develop the *Ardweeny*; the smallest Arduino you can build yourself with through-hole components!

We've designed a *backpack* printed-circuit board the fits on top of an Atmel ATmega328 (it'd fit on a '168 too), straddling it. Solder the pins to the microcontroller's legs, and you're ready to join the open-source hardware revolution!





Installed on breadboard,
connected to programming adapter
powered up and blinking happily!

Visit us online for more info and cool stuff:

www.solarbotics.com

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