



AVR Workshop 2 Supplement: Breadboards.

Smiley's Workshop 2 Supplement: Breadboards

6/6/08 Joe Pardue © 2008

This supplement is for a 'never-ever' breadboard user. If you 'ever-ever' used a breadboard, you won't need to read this.

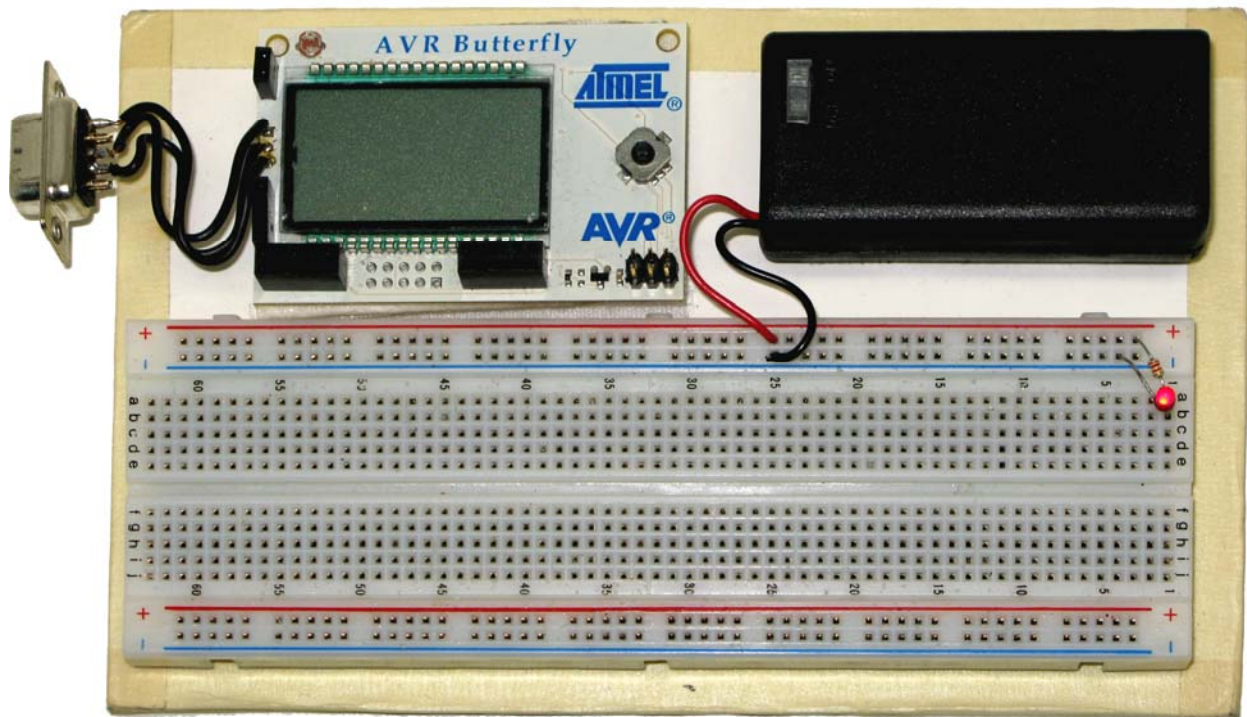


Figure 1: Smiley's Workshop Learning Platform Base Board

Before adding wires to the breadboard, take a moment to think about how a breadboard works. Each of the horizontal rows is connected all the way across the breadboard and are used for power and ground busses. The red line with the + marks the bus preferred for power and the blue line with the minus is for ground.

Each of the 5 pin vertical columns is connected vertically allowing a wire stuck in any of the 5 positions to be electrically connected to any other wire stuck in any other of the 4 remaining holes. Figures 2 through 5 show the actual wire clips in a breadboard in various stages of dismantlement.

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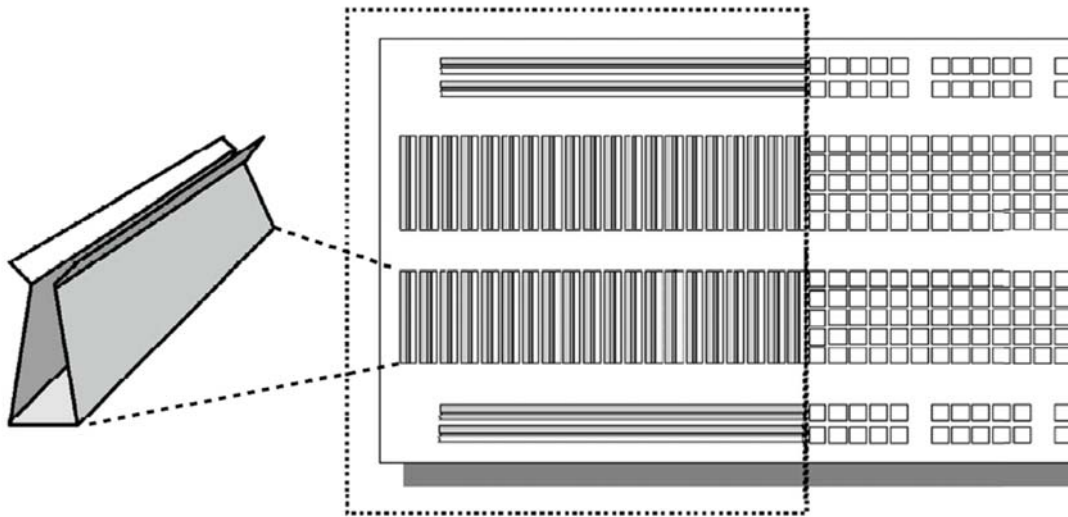


Figure 2: Breadboard cutaway drawing showing metal wire clip.

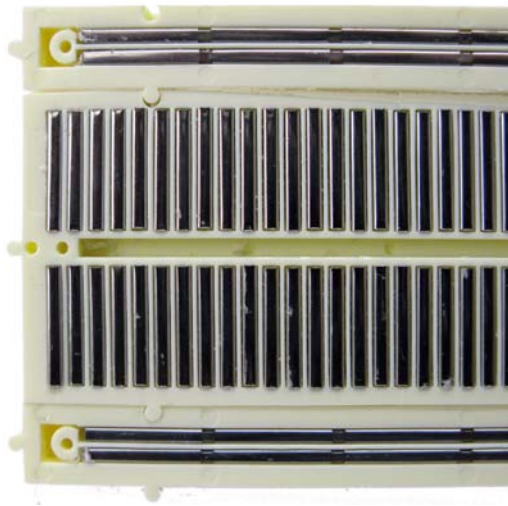


Figure 3: Breadboard back with backing stripped off.

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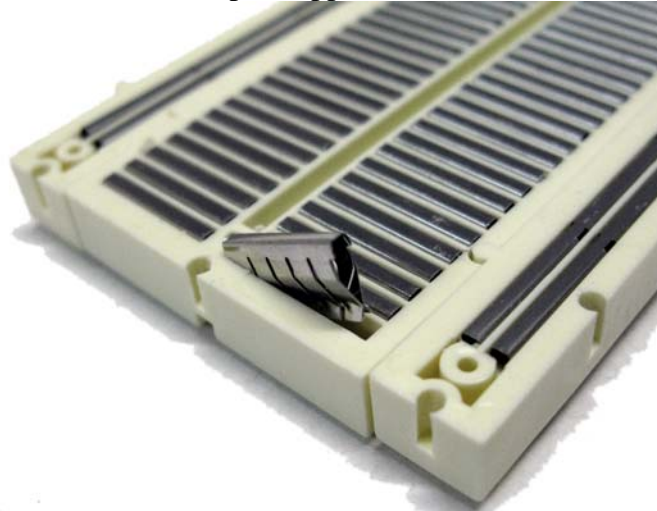


Figure 4: Breadboard back with wire clip pried out

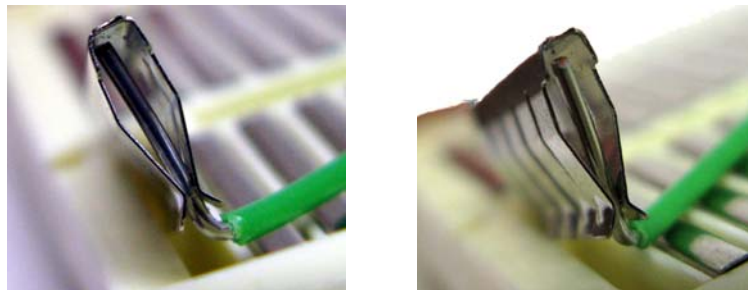


Figure 5: Breadboard wire clip with a wire inserted

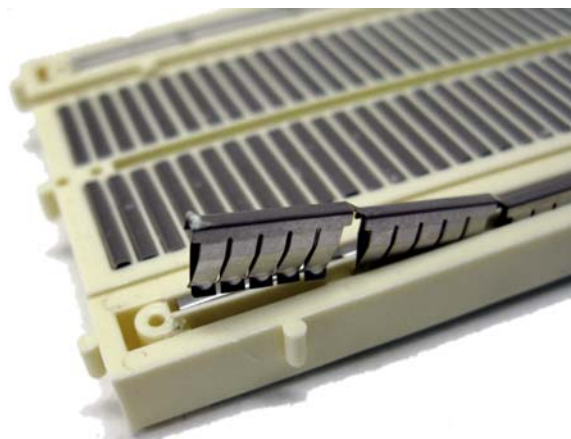


Figure 6: Breadboard horizontal power bus clips pried out

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Finally, Figure 7: Lighting an LED on a breadboard, illustrates this concept

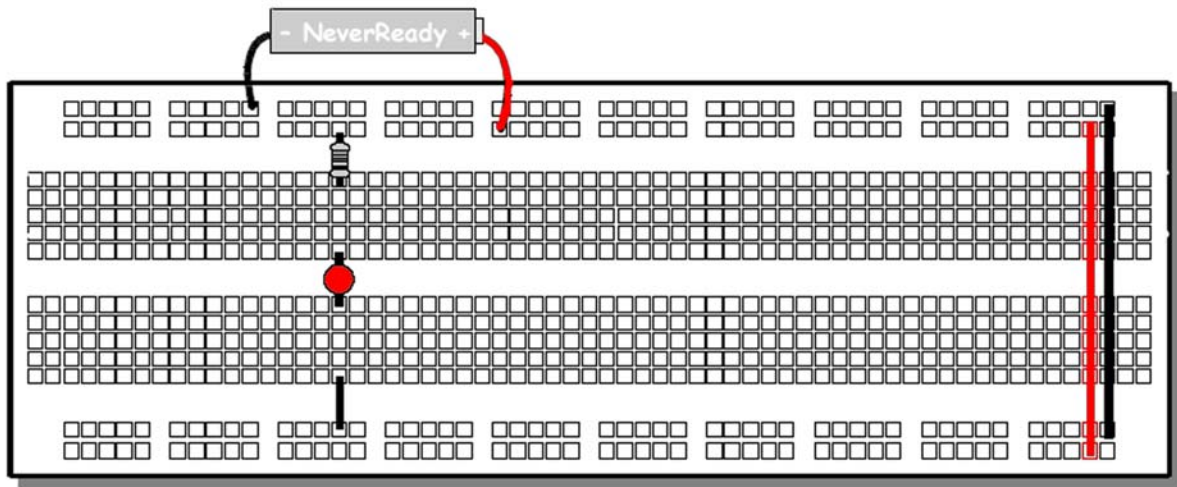


Figure 7: Lighting an LED on a breadboard

If you attach the negative pole of a battery to the topmost horizontal bus bar and the positive pole to the next lower bus bar, then run a wire from these two buses to the matching lower buses, you will have + and - power on both buses. Next, if you attach a 2.2k ohm resistor to the topmost + bar and to a vertical bar and then attach an LED long leg to the same vertical bar with the LED short leg crossing the center gutter, then attach a jumper wire to the lower vertical bus bar to the bottom horizontal bar corresponding to the - of the battery, you have a circuit (and a very long and clumsy sentence). The current will flow and the LED will light up.