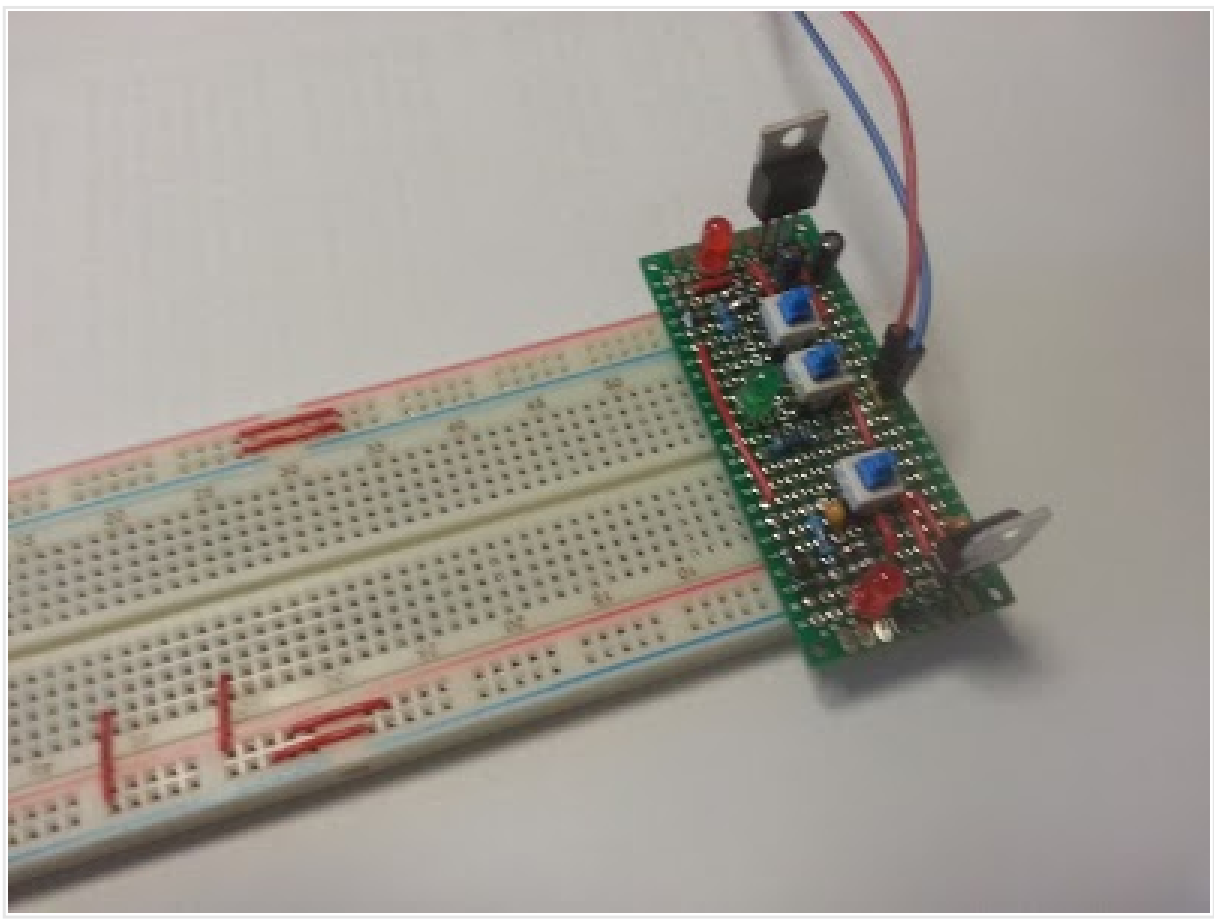
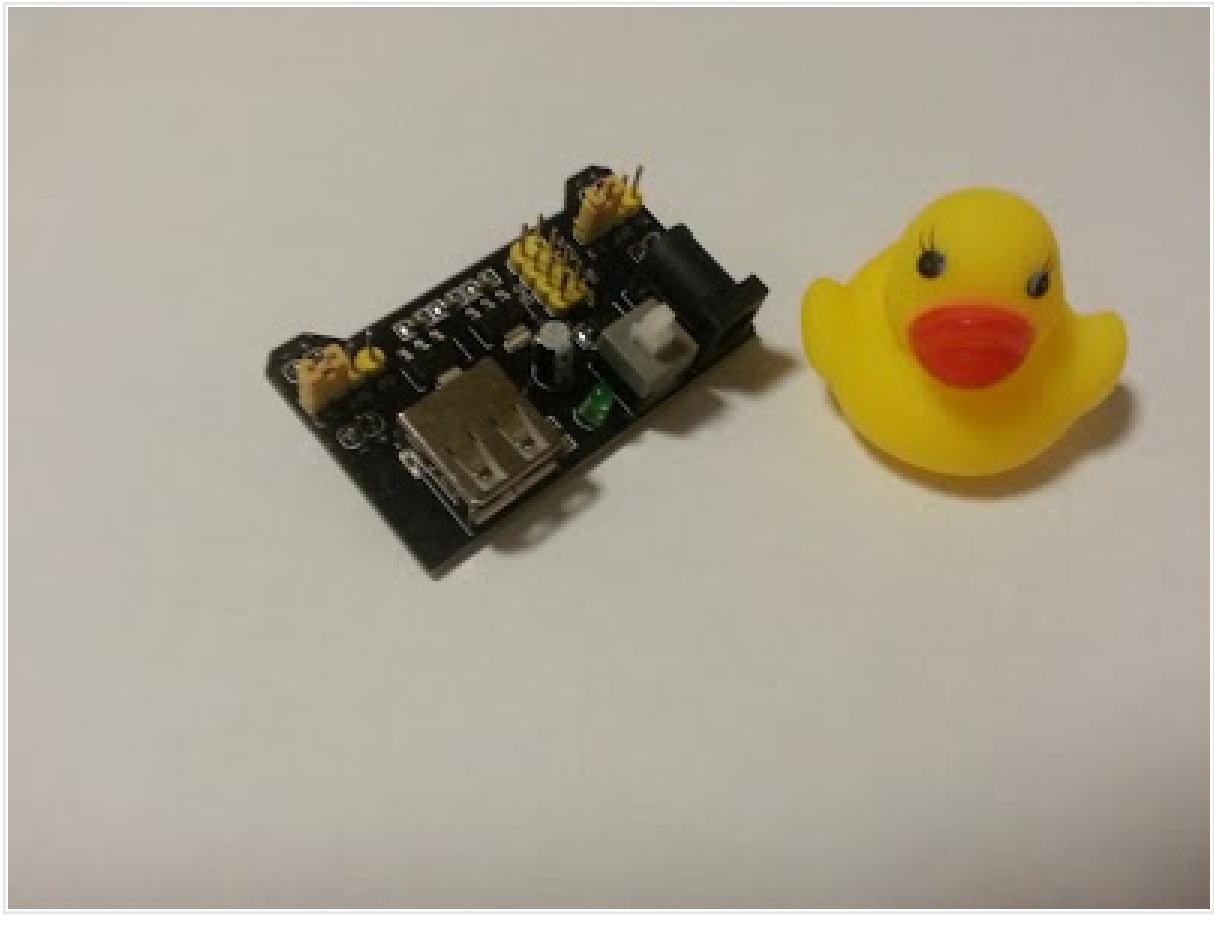
The blog of a gypsy engineer

How to make breadboard power supply 5V/3.3V

Here is a very simple breadboard power supply that outputs a selectable 5V or 3.3V regulated voltage.



It is similar to something like this.

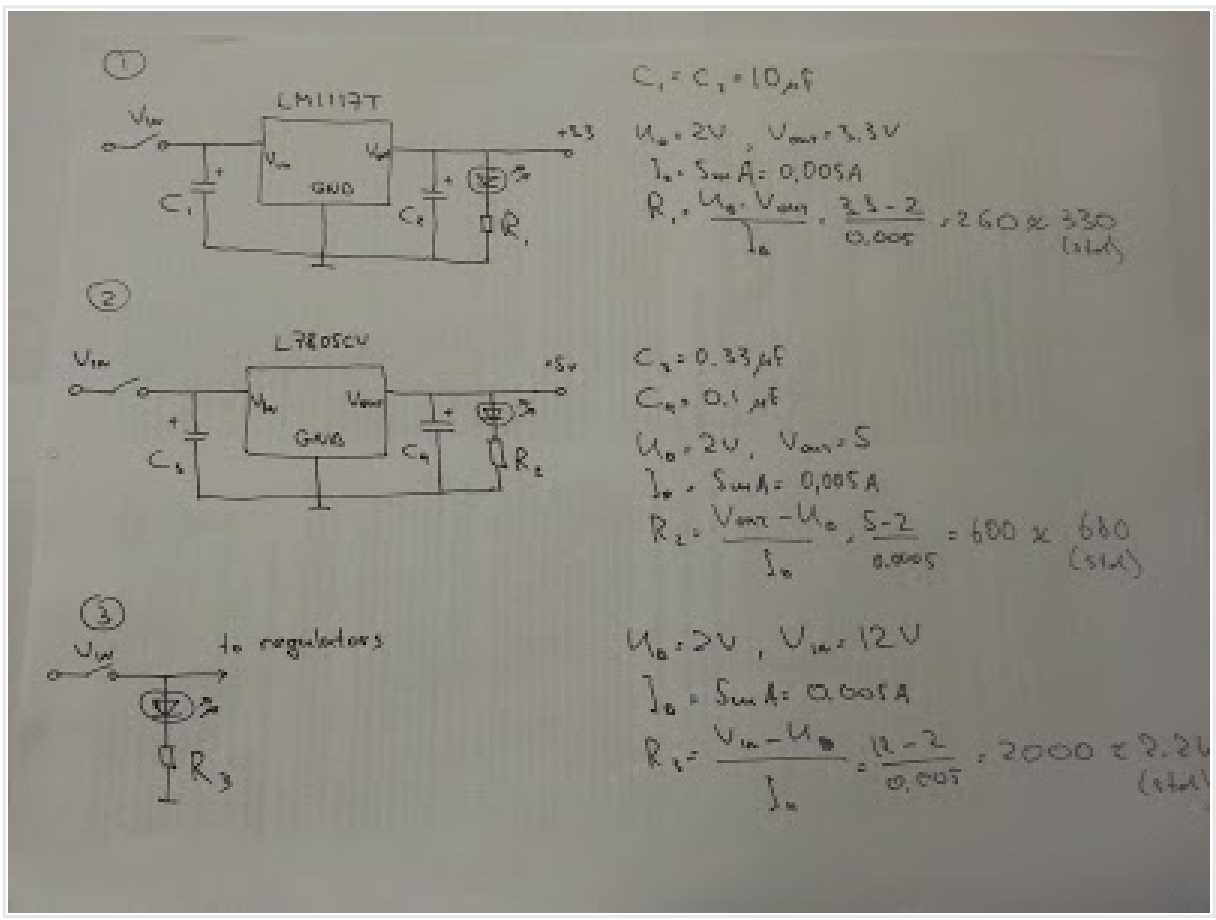


To be honest, it's cheaper to buy it on Amazon or AliExpress. But it's always more fun if you make it by yourself.

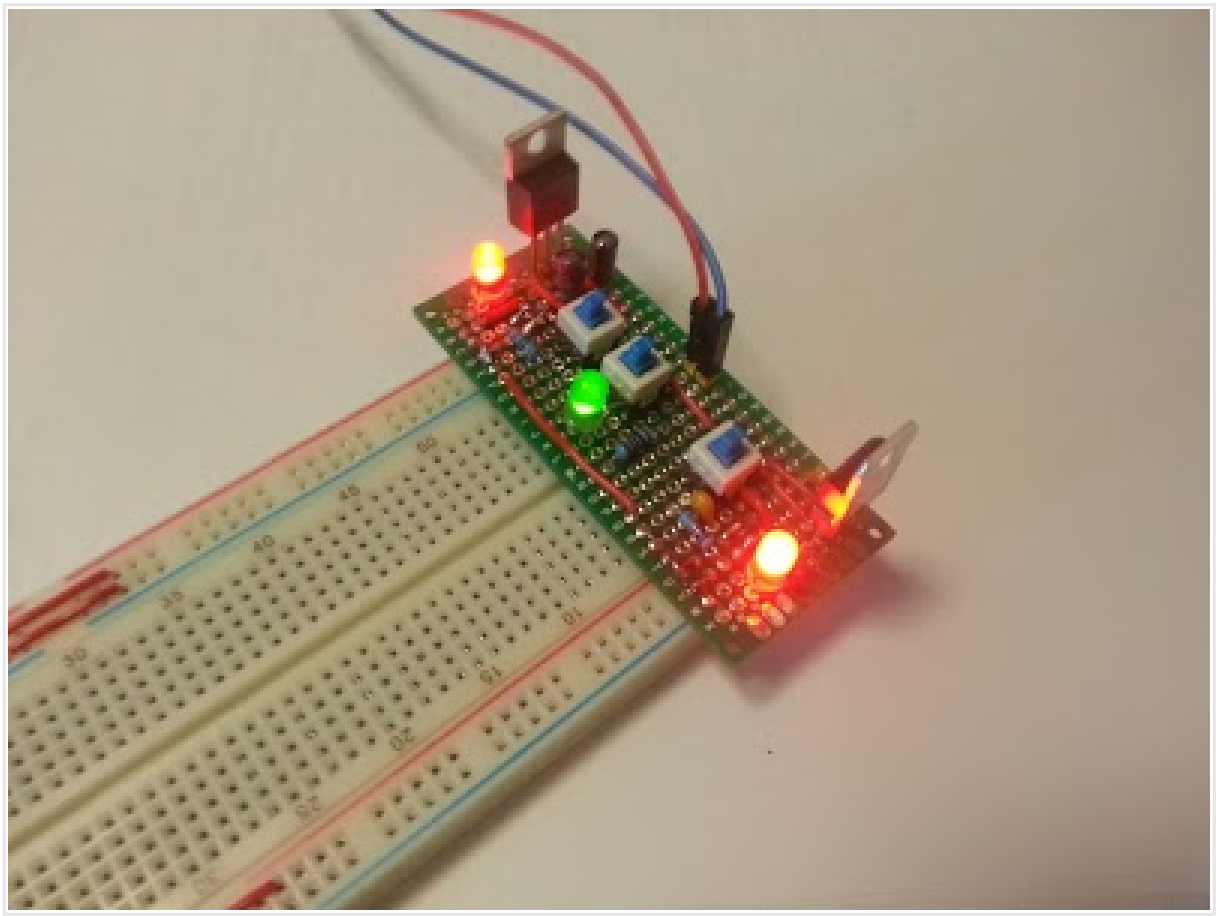
Here is a list of components:

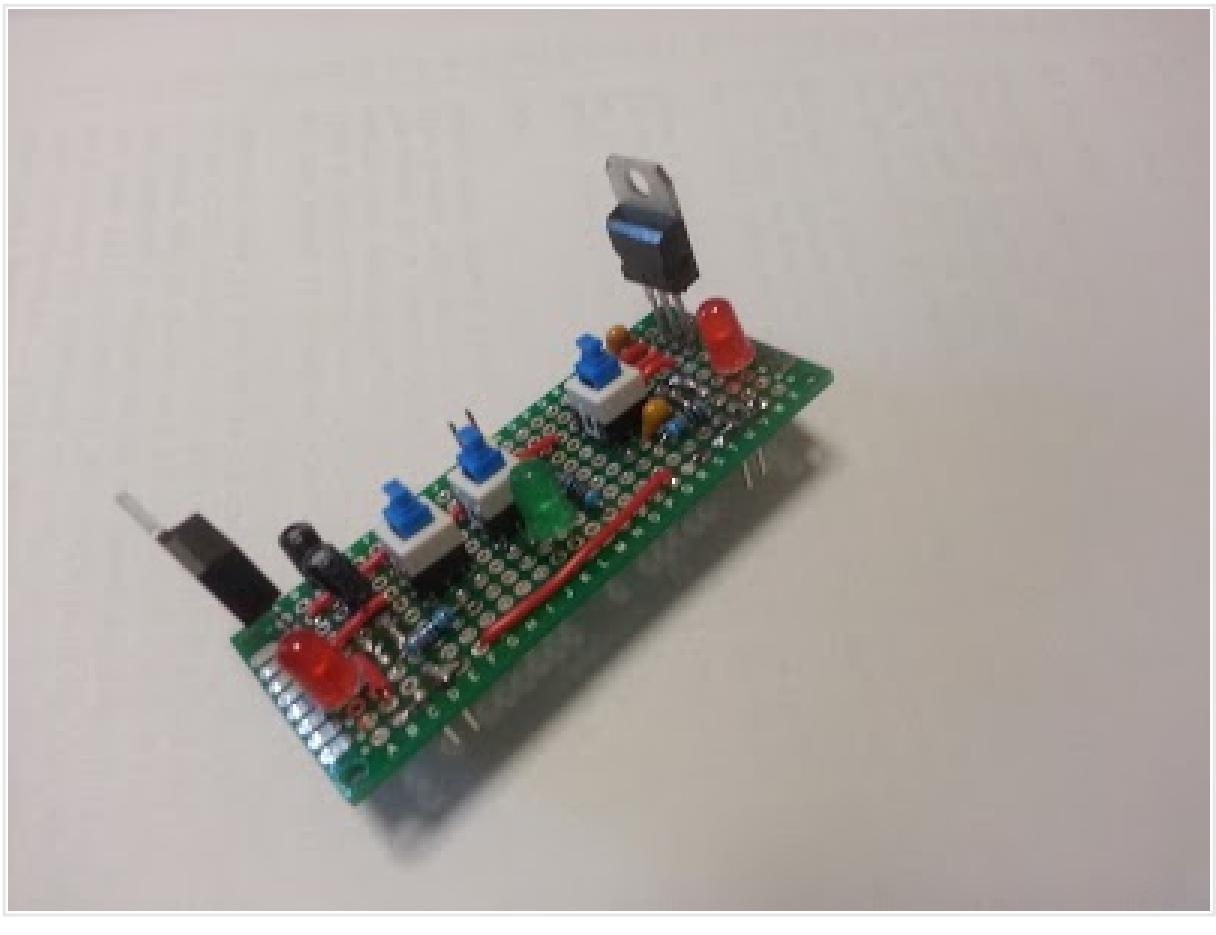
- LM1117T voltage regulator (3.3V)
- L7805CV voltage regulator (5V)
- 2 x 10uF capacitor
- 0.33uF capacitor
- 0.1uF capacitor
- 330 resistor
- 680 resistor
- 2.2K resistor
- 3 x LED
- 3 x Push button switch (or other switches)
- 10 x Header pin
- Prototype PCB board

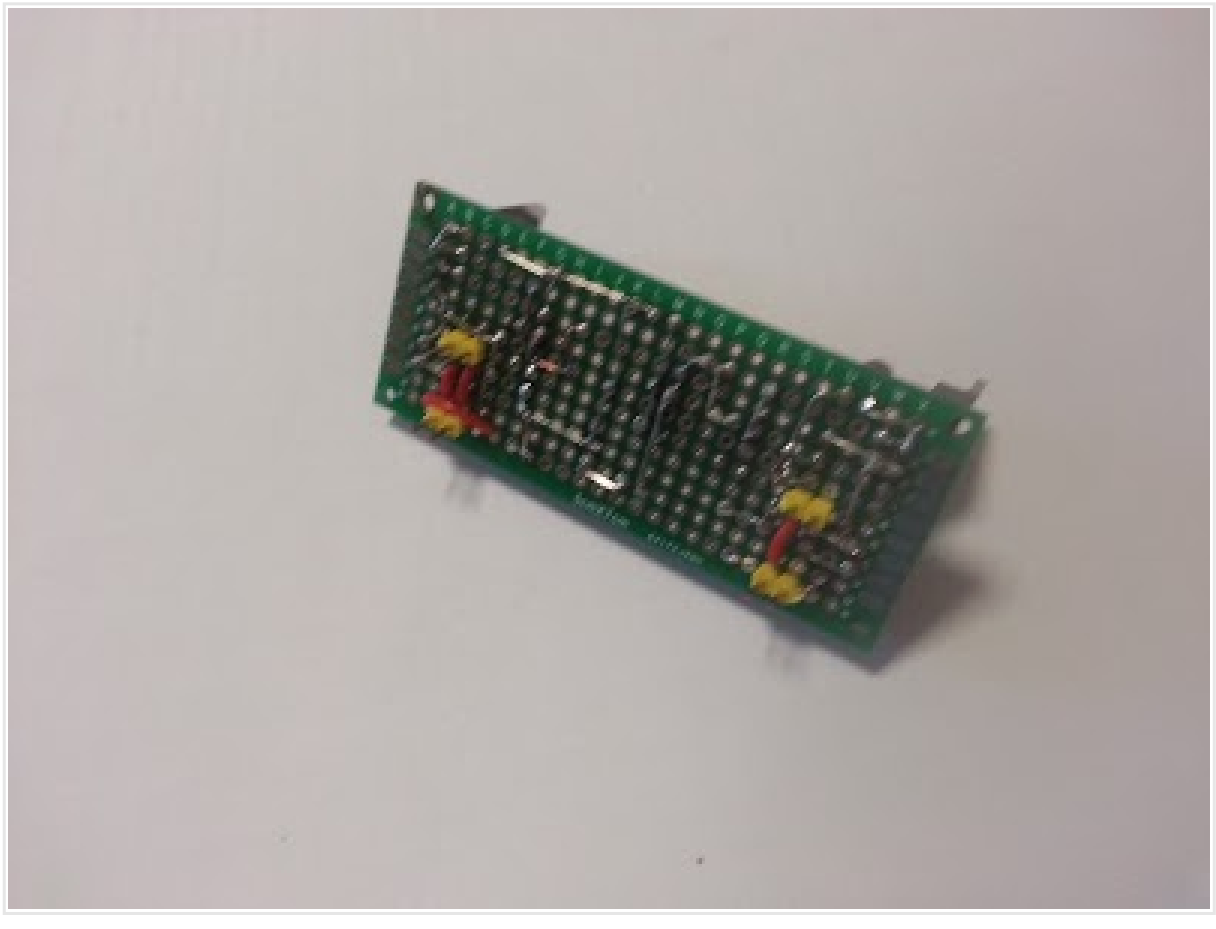
Datasheets for LM1117T and L7805CV give up pin configurations and application circuits. There are an input and output capacitors in the circuits. The datasheets kindly provide values of these capacitors. The datasheet for LM1117 mentions a tantalum capacitor, but I used electrolytic ones, and they seem to work fine. For L7805CV I used ceramic capacitors, and they seem to work fine as well.
Here is a circuit and a calculation of current limiting resistors for LEDs. Nothing surprising, just Ohm's law (I wrote a separate post about it). The current for LEDs is 5mA because I just needed an indication, not an illumination.



The easiest way is to assemble it on a prototype board. Make sure that you install header pins in right place, so that you can connect your power supply to a breadboard.







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