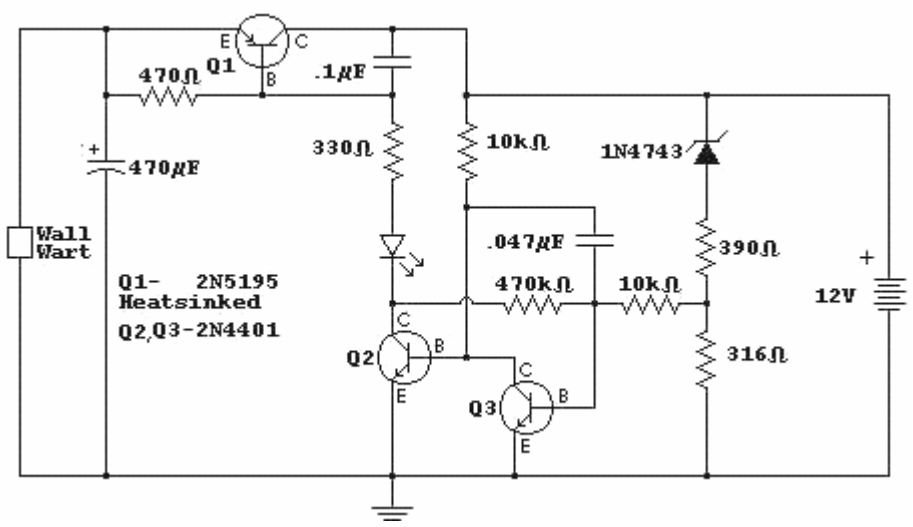
Battery Charger Ideas

Here is the schematic for the automatic charger I have been using for my kids' battery cars. The charger is a small molded unit that probably doesn't supply more than an amp and this circuit would have trouble with much more. No current limit is provided by this circuit - it relies on the charger for that. The circuit could be modified to provide more current by lowering the 470 and 330 ohm resistors in the 5195's base circuit and the 10k in the collector of the 4401. A relay could also be used in place of the pass transistor.

Here is how it works: When the battery voltage is low, the voltage at the base of the first 2N4401 (on the right) is not sufficient to turn it on and the second 2N4401 is biased on by the 10k resistor. The power transistor is turned on and the LED lights. When the battery is fully charged the voltage will exceed a somewhat arbitrary "overvoltage" value slightly below 14 volts and the regulator will switch off. The 470k feedback resistor gives the circuit some hysterisis so that it will not turn back on until the battery voltage drops below about 13.5 volts. When the battery is nearing full charge the light will begin to flash on and off and after a few hours the light will only come on occasionally. This occasional overvoltage jolt sure seems to keep the batteries in great shape.



Here is an experimental (and simple!) regulator for alternator chargers.