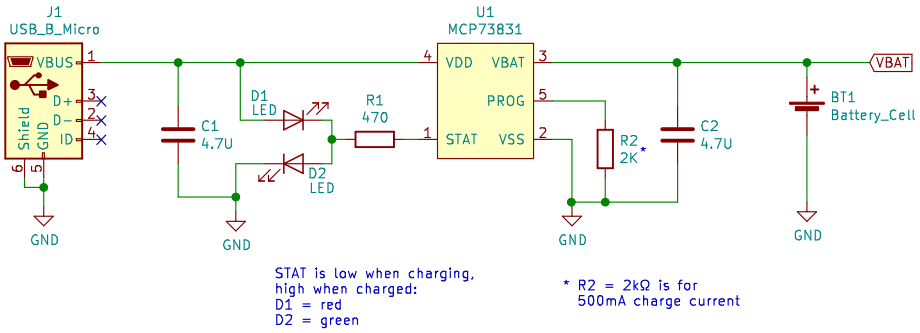
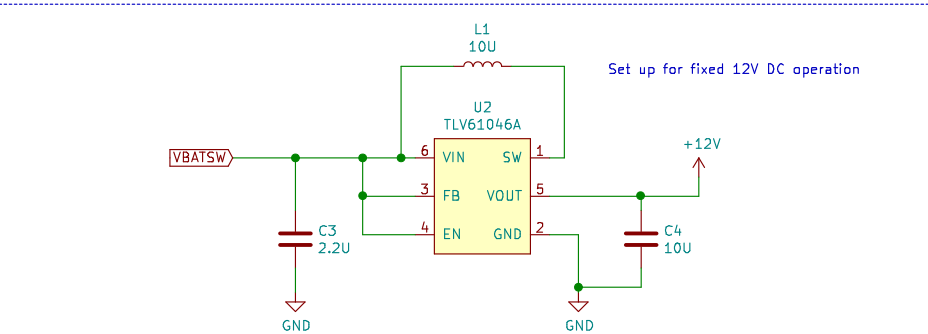


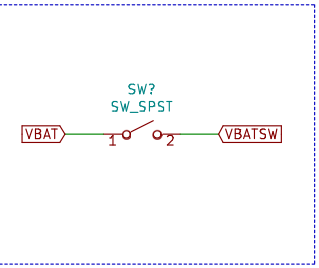
This is more or less following the circuit in the MCP73831 datasheet, with just one small change: "charging" and "charge done" LEDs, since the STAT pin is tri-state. High impedance means "no battery", low means charging, high means charged.

CHARGING



Another "copy the datasheet" setup. The TLV61046A has a nice simplified setup for 12V operation, which is what's needed for the fan here.

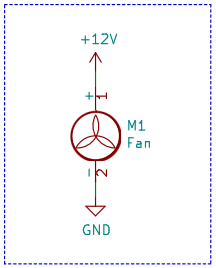
BOOSTING TO 12V



I had all these great plans to do some sort of clever touch switch thing instead of having a normal switch. Seemed like a simple idea. But if you want something that will draw negligible current when the thing is off (i.e. not much more than a MOSFET gate leakage current), it all gets more difficult.

Far too difficult for me, anyway. So I admitted defeat, since the main purpose of this project was to learn a bit about battery charging and power conversion.

SWITCH



FAN

I wasn't sure whether I'd need some sort of protection diode around the fan, but we'll see how we do without.