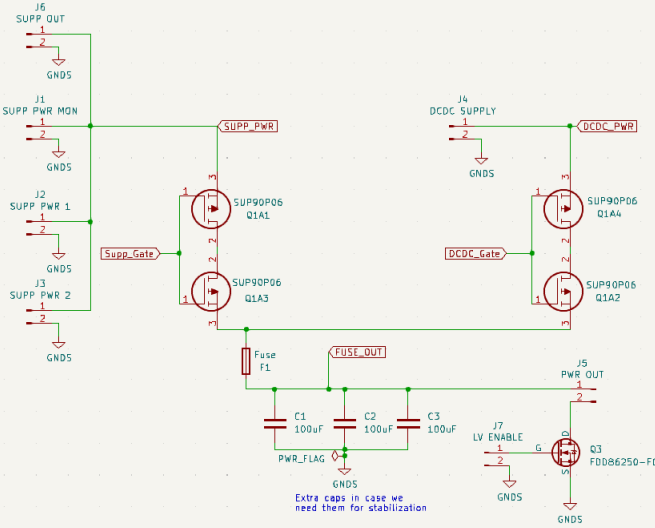
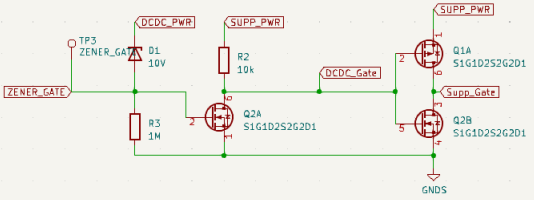
Power Board

This board switches power to the fuse box between the DCDC power supply and the supplemental battery depending on whether the DCDC power is on or not.



Logic Table

Supp	DCDC	Supp Gate	DCDC Gate	Fuse Out
1	0	0	1	Supp
1	1	1	0	DCDC



Version History

v4.0

Used op-amp circuitry to handle power handoff between DCDC and supplemental. Added an extra connector for the second supplemental battery.

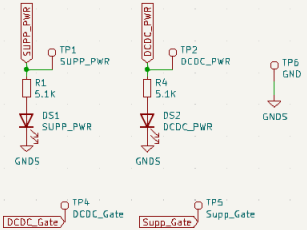
v4.1

Replaced op-amps with MOSFETs and inverters for logic as the slew rates of the op-amps were too slow. Added capacitors for the output.

v4.2

Used zener diode to determine when switch occurs. With a 10V zener diode, at the min Vt, the switch occurs when DCDC is at 10.8 V. At max Vt, the switch occurs when DCDC is at 11.5V. Assuming DCDC is either 0 or 12, this will select DCDC when it is at 12 and supplemental when DCDC is at 0.

TEST POINTS / LEDS



Fall 2022

UT Solar Vehicle Team — Power Systems

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File: Power-Secondary.kicad_sch

Title: Power Board v4.0

Size: A	Date: 2022-11-05	Rev:
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