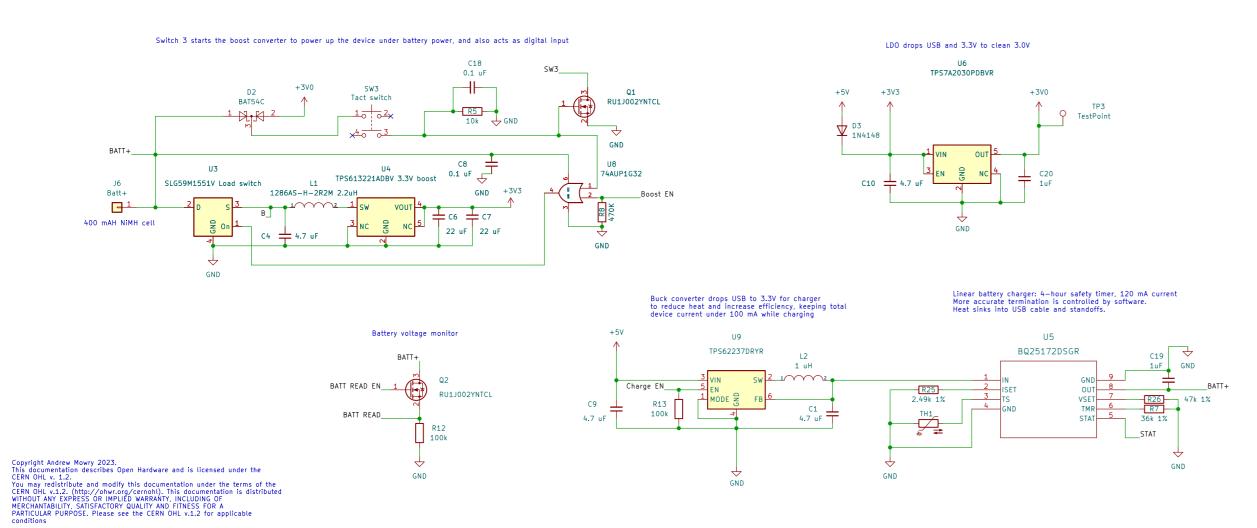# NRF52840 and peripherals

Power and battery management

ATmega32U4 and tone hole sensors

ATmega is dedicated to reading sensors.

End cap contains bell sensor and negative battery contact spring

Switch 3 starts the boost converter to power up the device under battery power, and also acts as digital input

LDO drops USB and 3.3V to clean 3.0V

Buck converter drops USB to 3.3V for charger to reduce heat and increase efficiency, keeping total device current under 100 mA while charging

Linear battery charger: 4-hour safety timer, 120 mA current. More accurate termination is controlled by software. Heat sinks into USB cable and standoffs.

Tone hole sensors

Battery voltage monitor