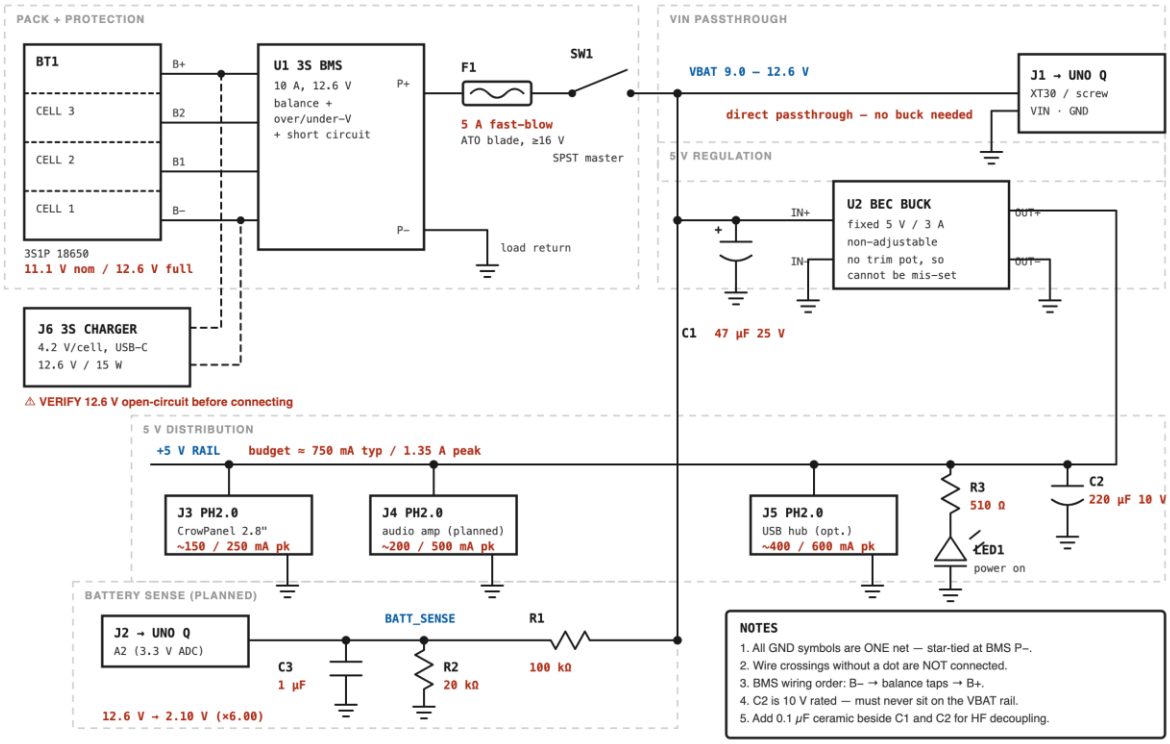
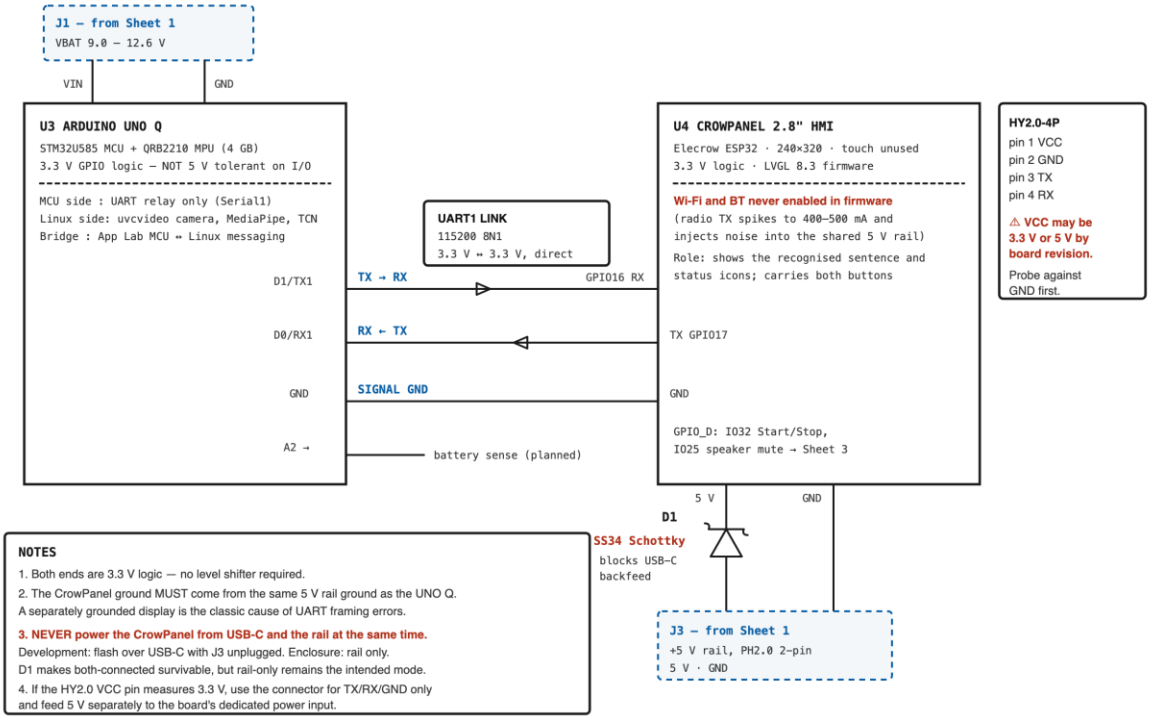
## SignAlly — Sheet 1/3 : Power Distribution Module

3S1P 18650 pack → BMS → fused dual rail (VIN passthrough + regulated 5 V) · perfboard 5×7 cm



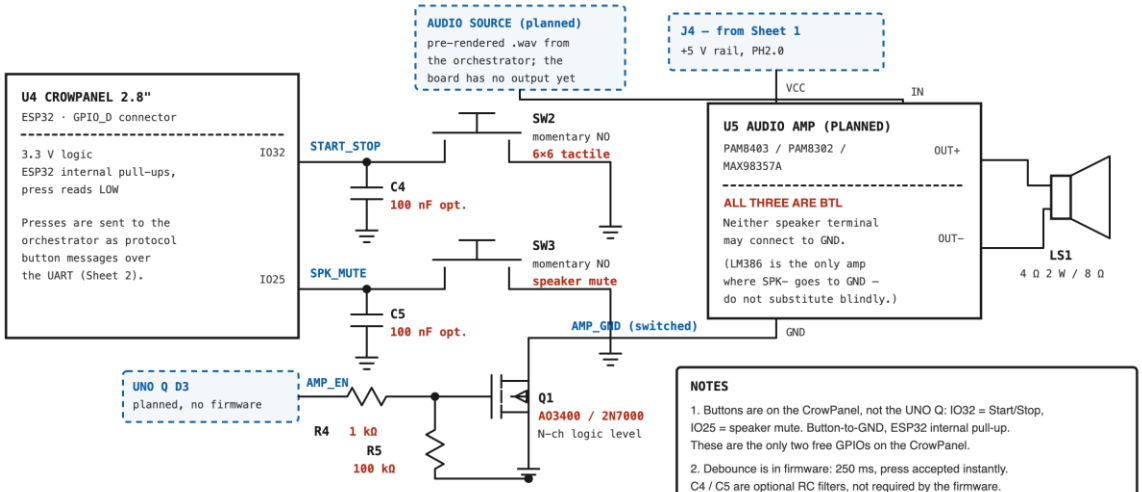

## SignAlly — Sheet 2/3 : UNO Q ↔ CrowPanel Display

STM32U585 UART1 ↔ Elecrow CrowPanel 2.8" ESP32 HMI · display powered from the 5 V rail, not from the UNO Q



## SignAlly — Sheet 3/3 : Push Buttons & Audio Output

Buttons on the CrowPanel GPIO_D connector (built) · audio amplifier with low-side MOSFET mute (planned, not yet built)




**NOTES**

1. Buttons are on the CrowPanel, not the UNO Q: IO32 = Start/Stop, IO25 = speaker mute. Button-to-GND, ESP32 internal pull-up. These are the only two free GPIOs on the CrowPanel.
2. Debounce is in firmware: 250 ms, press accepted instantly. C4 / C5 are optional RC filters, not required by the firmware.
3. Mute is reported upstream with its new state; the orchestrator skips audio playback while it is on.
4. PLANNED: U5, Q1, R4, R5, LS1. The board has no audio output yet. Q1 would switch the amp's GROUND from UNO Q D3, killing quiescent draw and muting in hardware.
5. R5 would hold the gate low through MCU reset, so the amp boots muted instead of popping the speaker.
6. **All GND symbols on Sheets 1–3 are one common net.**