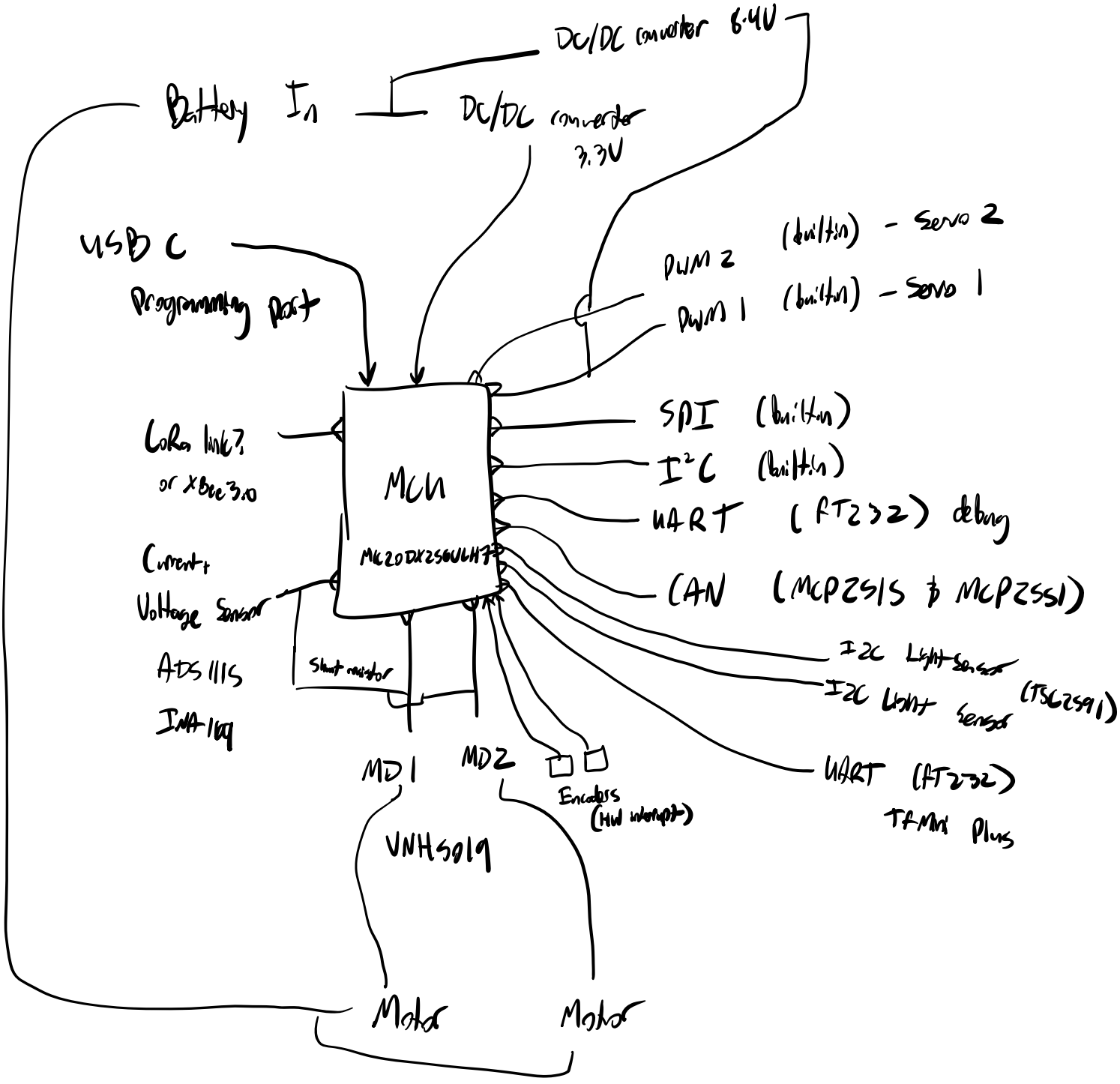
Zing Winch V3 Architecture

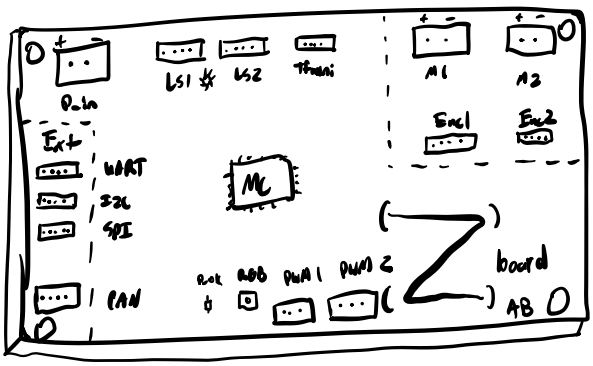
All External I/O - Locking JST-PH



EE Tradeoffs!

- Part cost $ cost
- future expandability
- Size
- Heat

Sample Layout



SW:

Simple linear non-deterministic scheduler

Nothing is safety-critical so this should be good enough

ISR-based encoder counting → hardware interrupts

I2C stack:

- Light sensors (TSL2591)
- Voltage/Current sensor (ADS1115)
- External I/O

PWM:

- Motor controllers (DRV8871)

SPI stack:

- LoRa radio
- External I/O

UART stack:

- Lidar sensor
- Programming port
- External I/O

CAN stack:

- External I/O

Addons!

- LiPo charging circuitry
- GPS
- Datalogging
- RTC