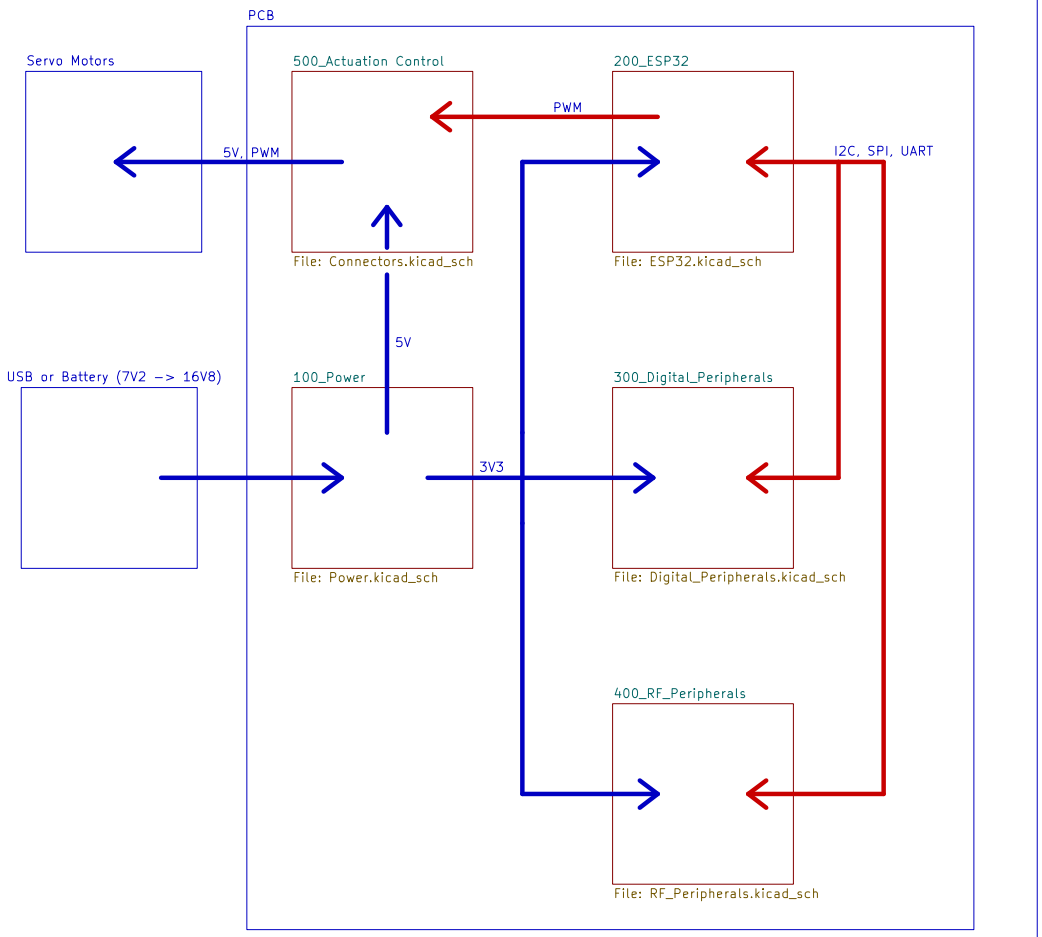
Project Block Diagram



Project Goals:

Be able to power 8 servos plus all on board electronics.

Have power switching between USB and Battery.

Have long range radio for communication.

Use GPS, barometer, magnetometer, gyroscope, and acceleromter to perform sensor fusion.

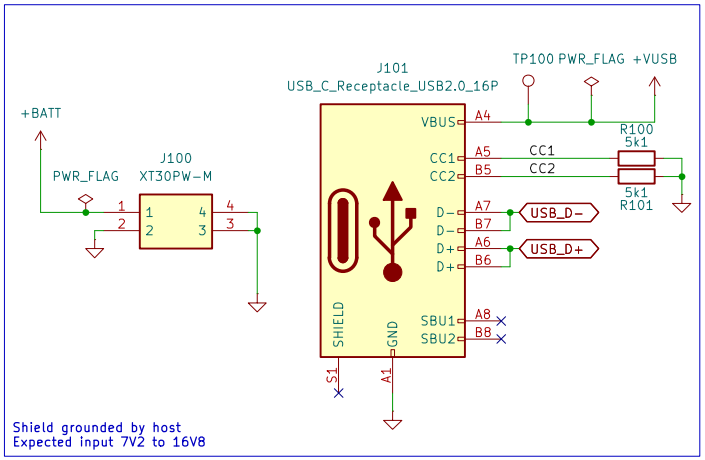
Use JTAG for debugging embedded software.

Be programmable through the ESP-IDF programming framework.

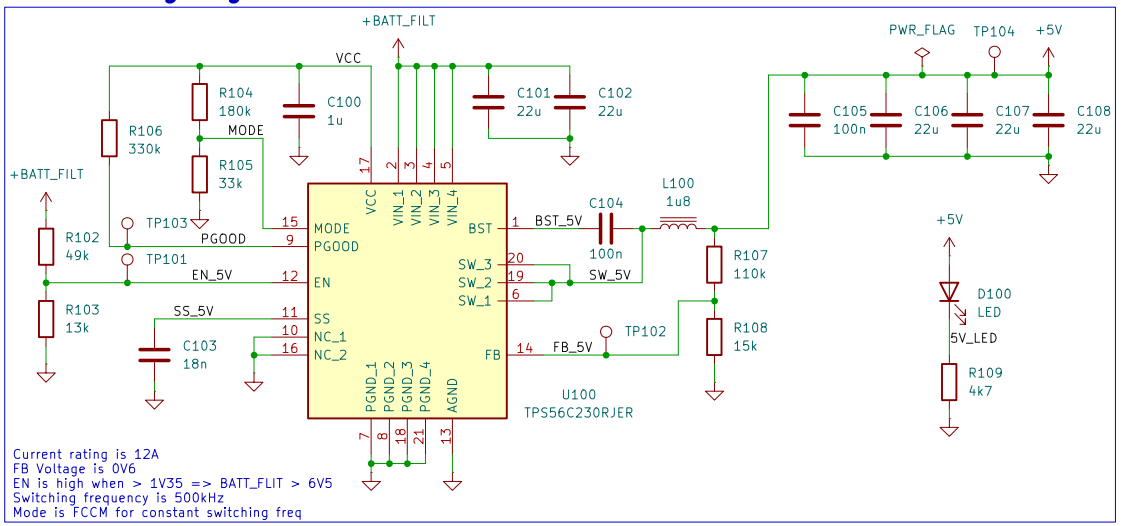
Able to be used in a variety of robotic systems e.g. a quadrupedal robot.

Sheet: /		
File: Summer2025.kicad_sch		
Title: Project Outline		
Size: A4	Date: 25-05-2025	**Rev: 0.0.1**
KiCad E.D.A. 9.0.1		Id: 1/6

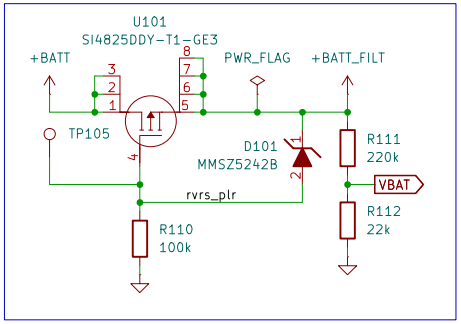
USB and battery



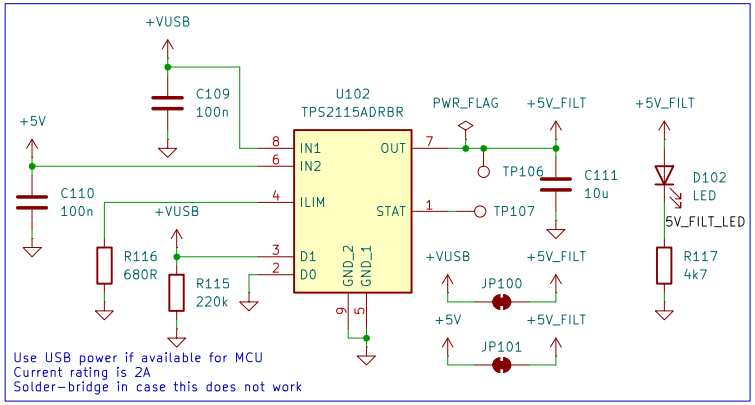
5V Switching Regulator



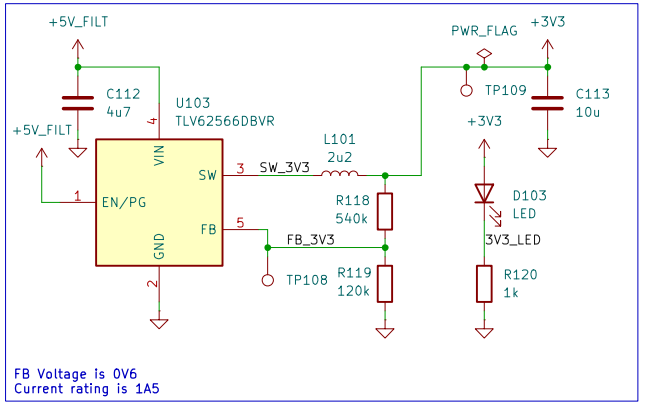
Reverse polarity protection



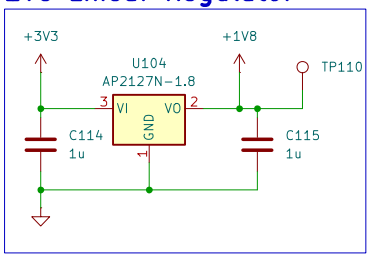
5V Power switching



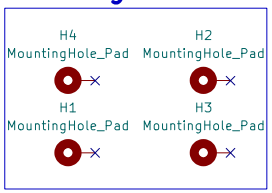
3V3 Switching Regulator



1V8 Linear Regulator



Mounting



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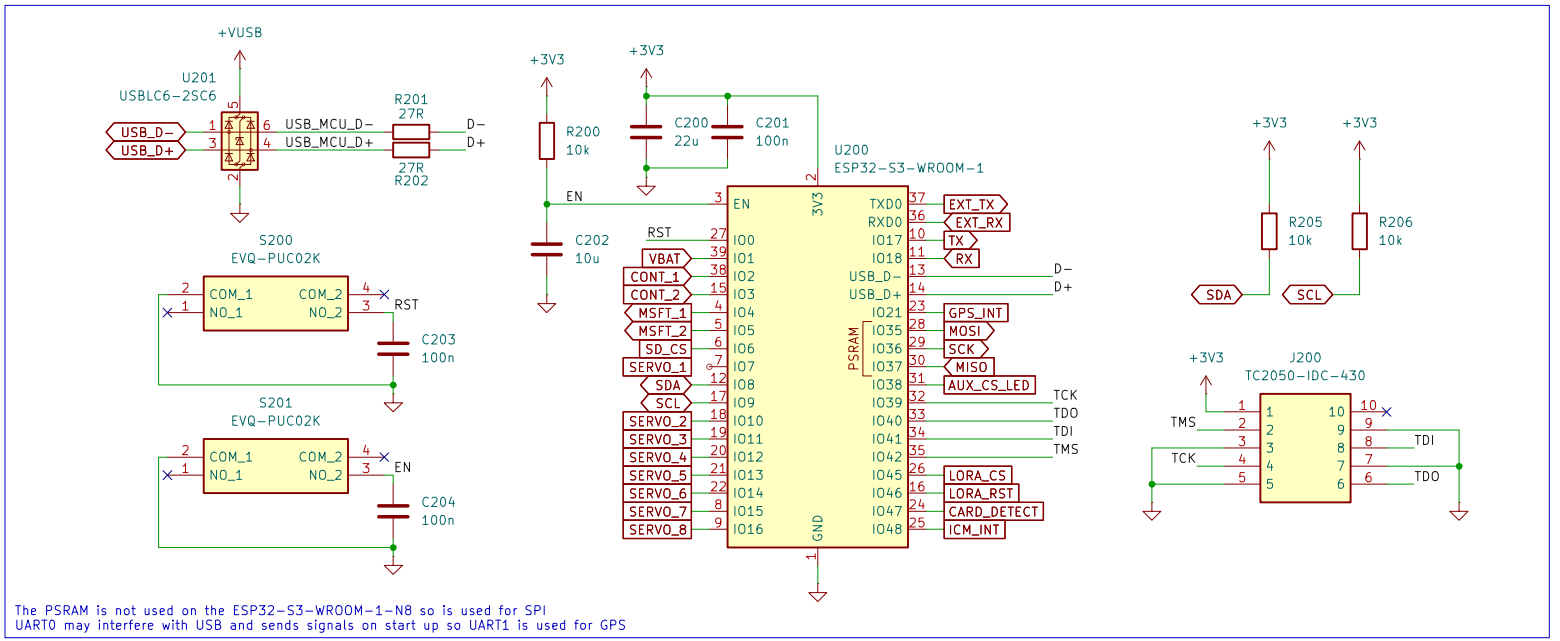
KiCad E.D.A. 9.0.1		Id: 2/6

ESP32-S3



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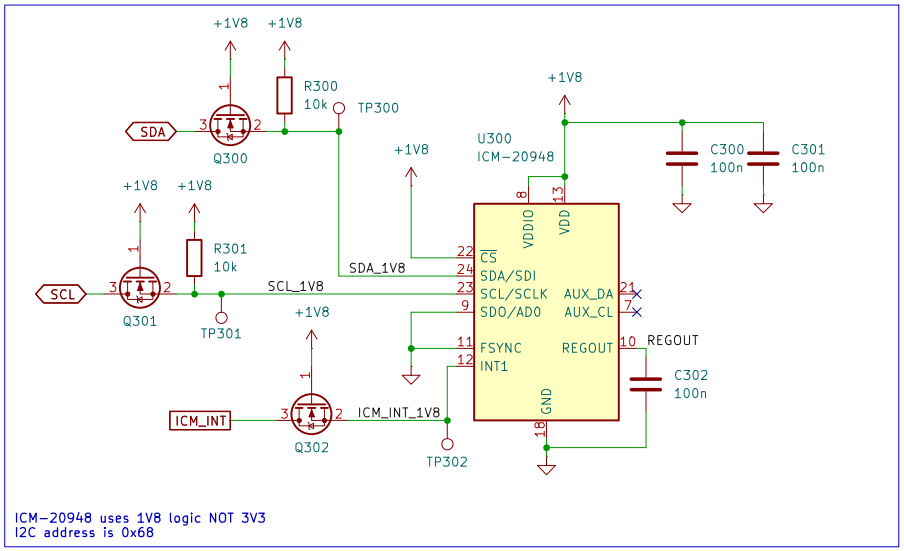
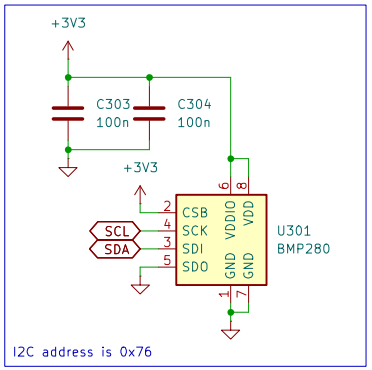
KiCad E.D.A. 9.0.1		Id: 3/6

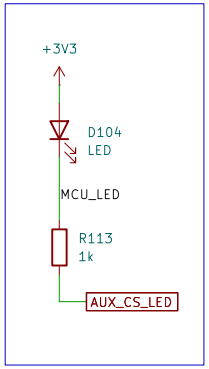
ICM-20948 IMU I2C



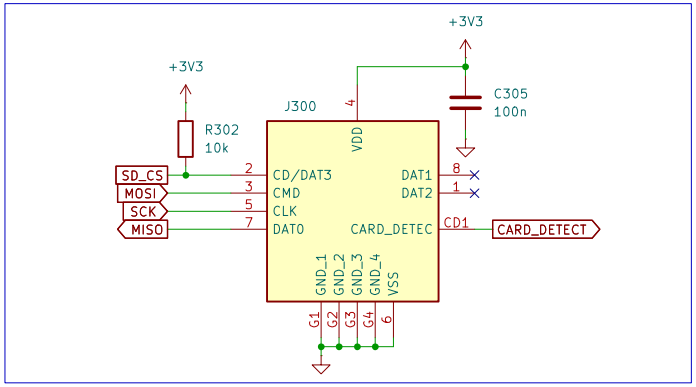
BMP280 I2C



LED



SD Card SPI



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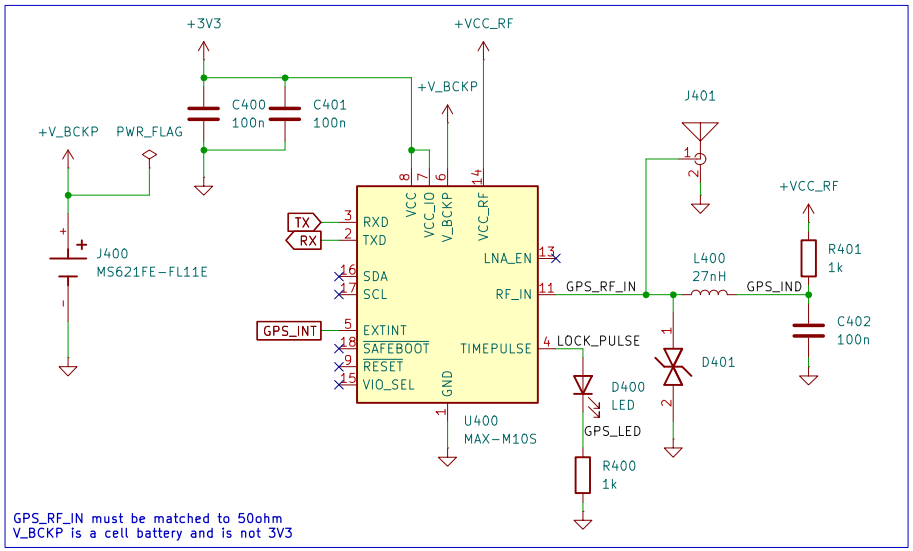
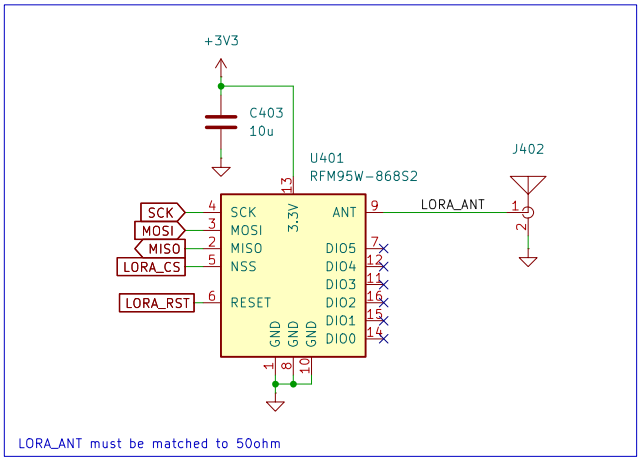
Size: A4	Date: 17-05-2025	**Rev: 0.0.1**
KiCad E.D.A. 9.0.1		Id: 4/6

MAX-M10S GPS UART



RFM95W-868



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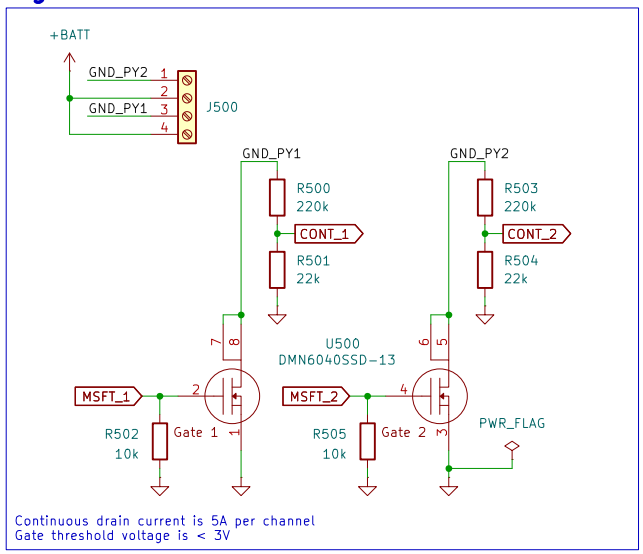
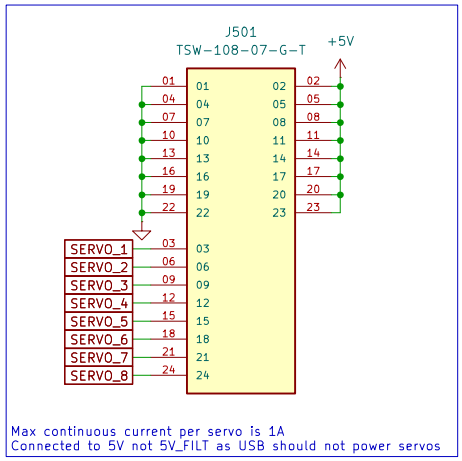
KiCad E.D.A. 9.0.1		Id: 5/6

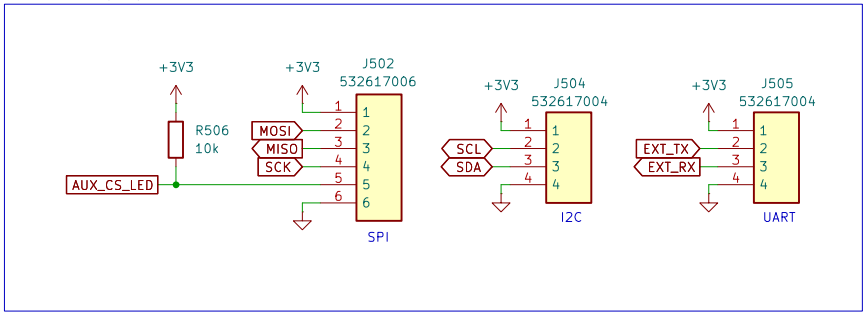
High current switches



Servo connectors



Auxillary picoblade connectors



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Size: A4	Date: 08-05-2025	**Rev: 0.0.1**
KiCad E.D.A. 9.0.1		Id: 6/6