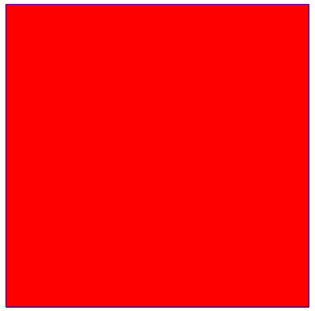
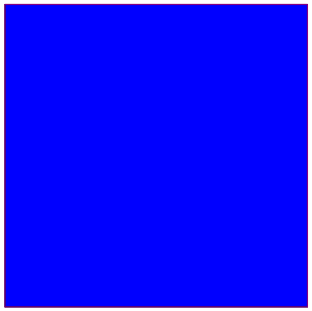
Power



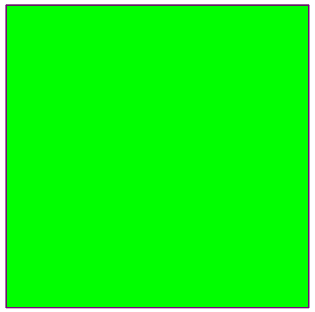
File: power.kicad_sch

Microcontroller & USB



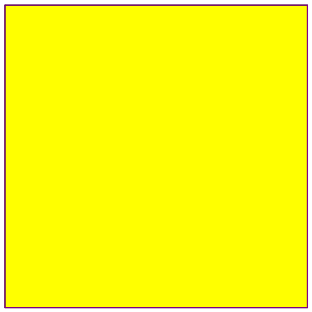
File: microcontroller_usb.kicad_sch

Sensors



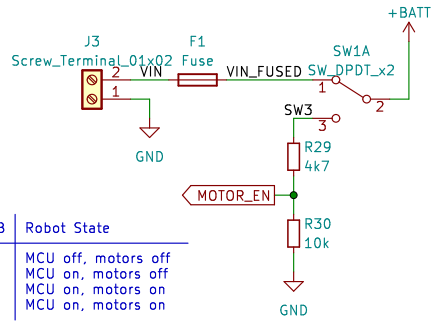
File: sensors.kicad_sch

Other



File: other.kicad_sch

Battery Input and Switch

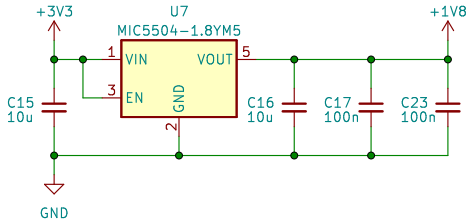


Battery	USB	Robot State
Off	Off	MCU off, motors off
Off	On	MCU on, motors off
On	Off	MCU on, motors on
On	On	MCU on, motors on

(Motors never on USB power)

1.8V Regulator

Low drop out (LDO) regulator that supplies 1.8V power to the IMU

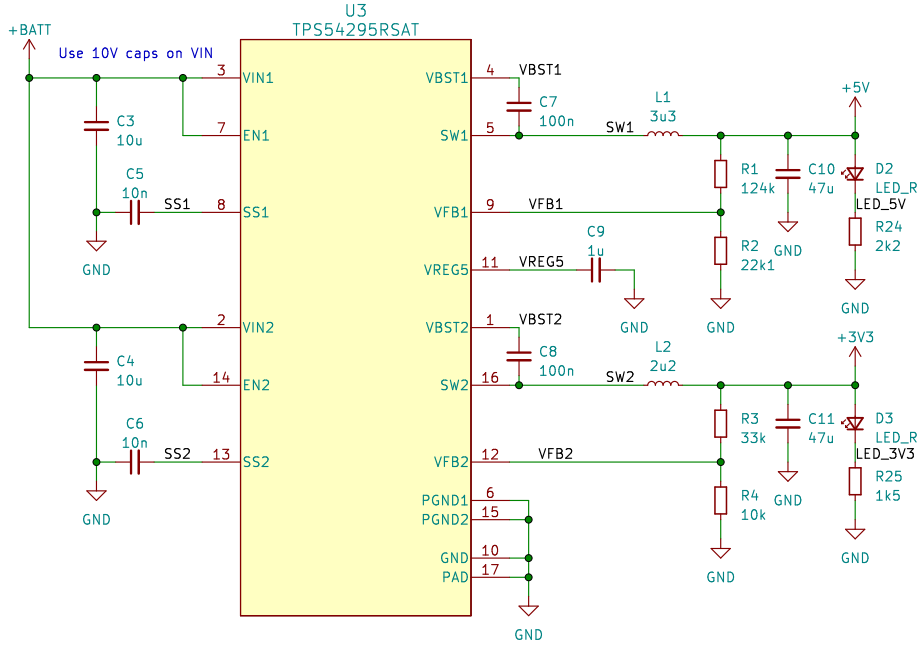


5V Headers

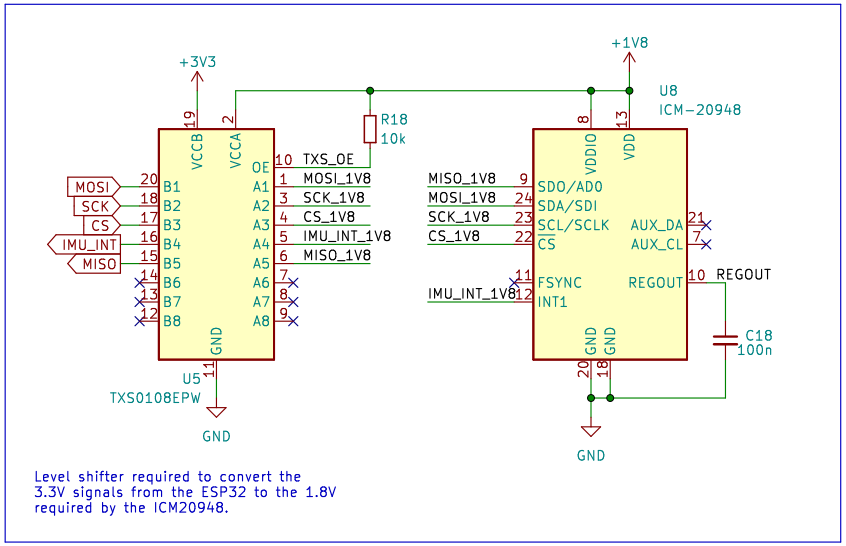
Headers to power FPGA and servo/fan

Buck Converter

3.3V and 5V outputs, 2A per rail



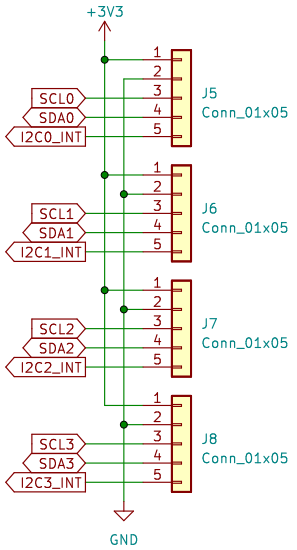
IMU & Level Shifter



Level shifter required to convert the 3.3V signals from the ESP32 to the 1.8V required by the ICM20948.

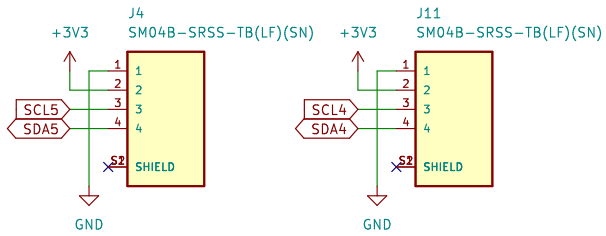
I2C Connectors (Molex)

With interrupt pin.

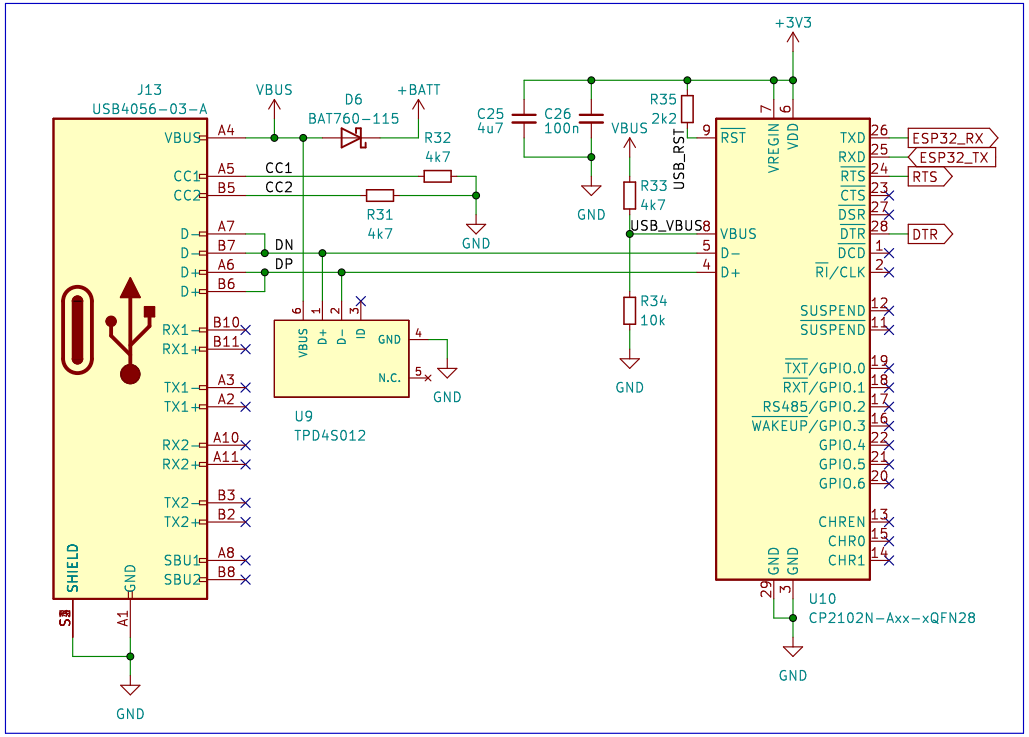


I2C Connectors (JST SH)

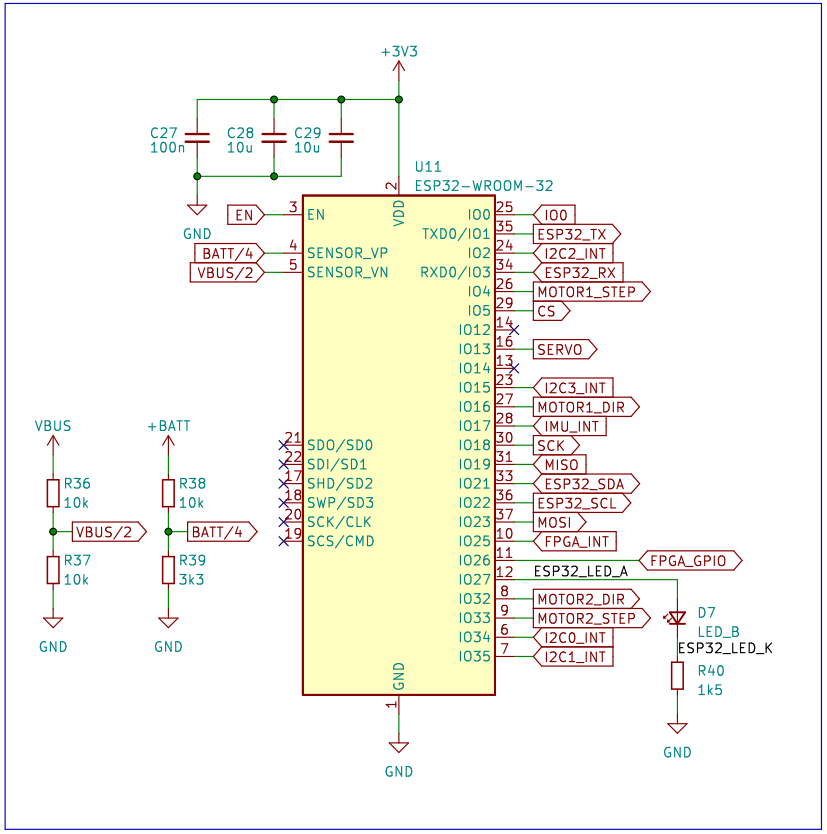
Also called STEMMA QT or QwiIC connectors. No interrupt pin.



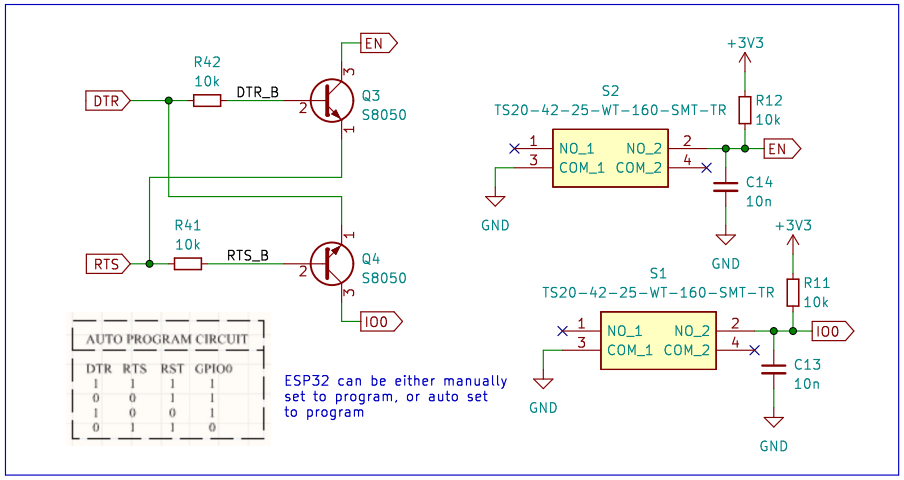
USB-C Connector and USB to UART Bridge



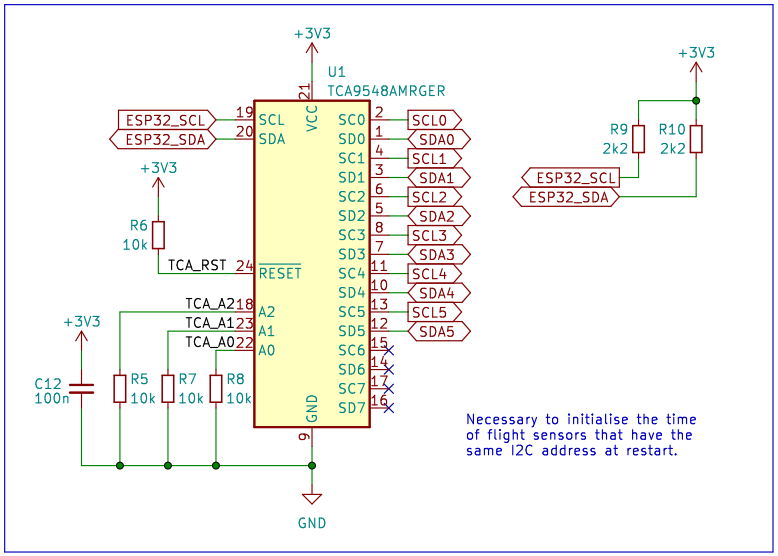
ESP32



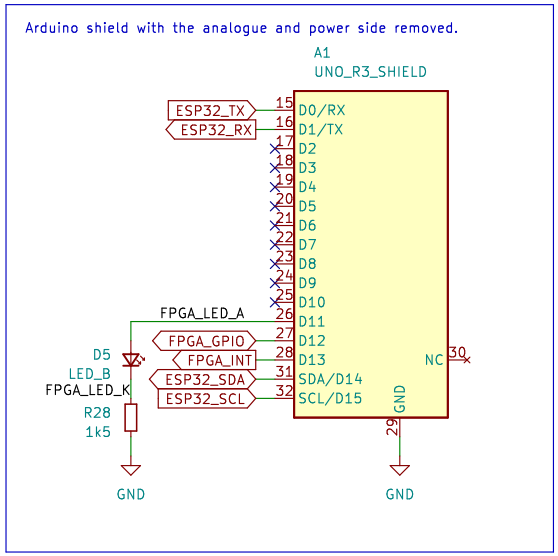
Reset and Boot



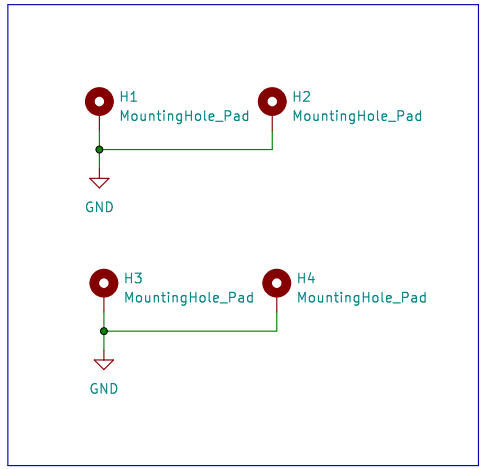
I2C Multiplexer



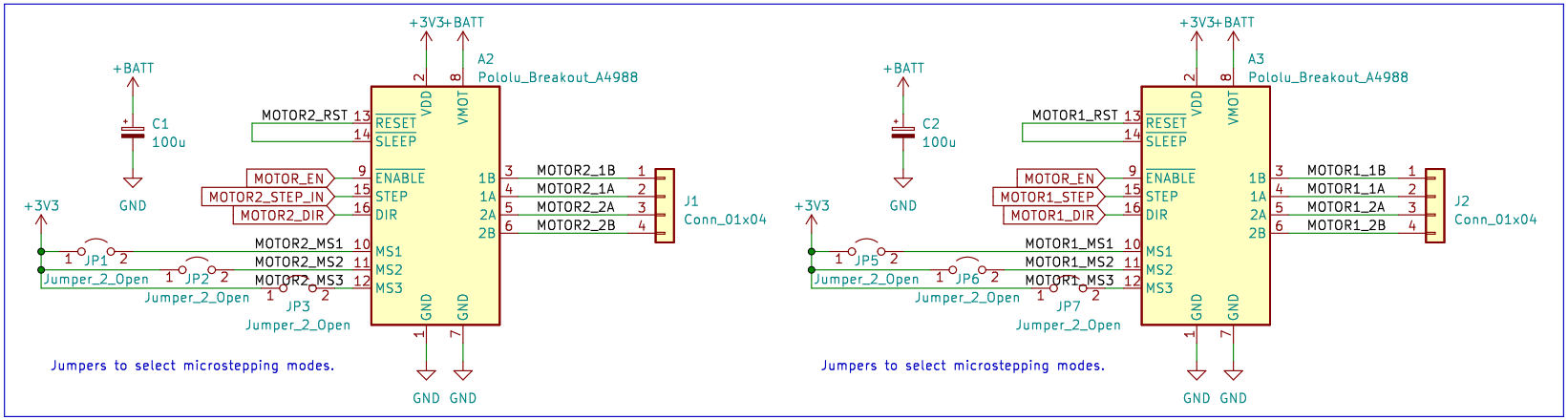
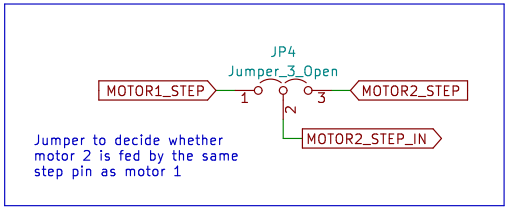
FPGA Connections



Mounting Holes



Motor Drivers



Motor STEP Selection Jumper