

Minibot PCB Sheets

Block Diagram



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MicroController



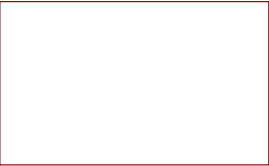
File: MicroController.kicad_sch

Sensor



File: Sensor.kicad_sch

Power



File: Power.kicad_sch

Connectors



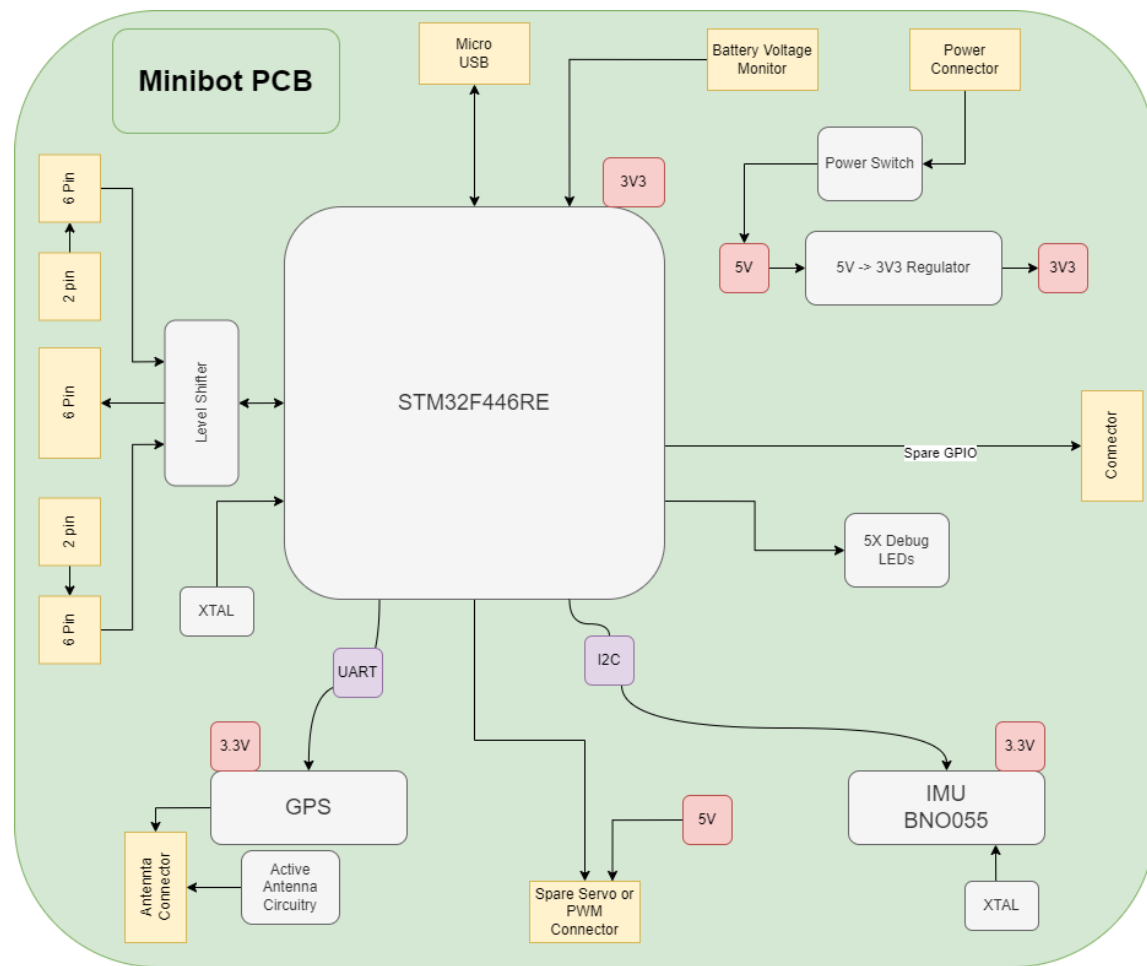
File: Connectors.kicad_sch

Nucleo



File: Nucleo.kicad_sch

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File: Minibot_V1.kicad_sch		
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Size: A4	Date:	Rev:
KiCad E.D.A. eeschema 7.0.10	Id: 1/7	



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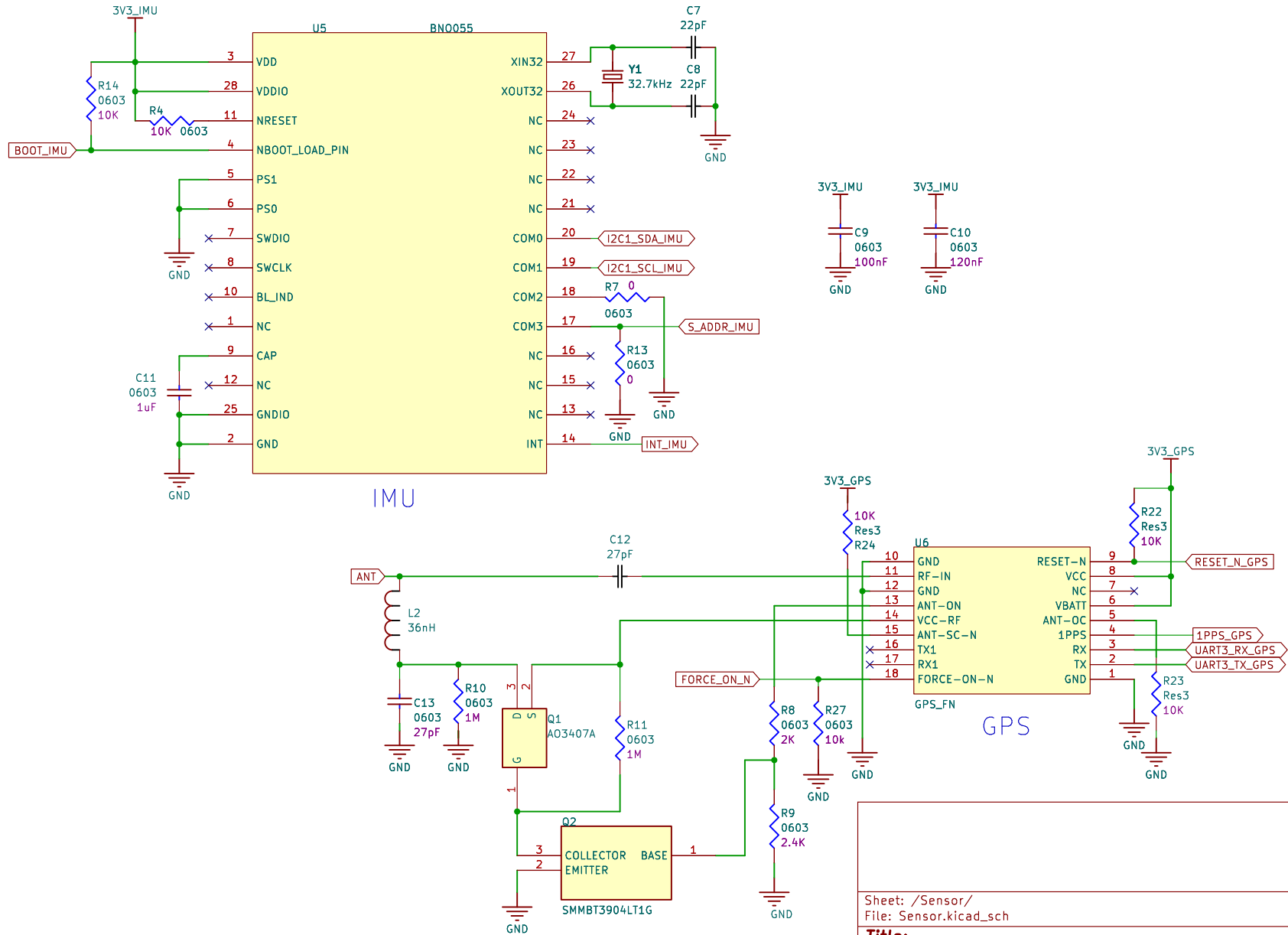
The schematic diagram illustrates the electrical connections for a microcontroller system. The central component is the STM32F446RCT6TR microcontroller (U1A). It is connected to several peripherals:

- Sensors and Actuators:** Includes TIM5_CH1_ENC_2A, TIM5_CH2_ENC_2B, TIM2_CH1_ENC_1A, MOT_1A_3V3, MOT_1B_3V3, INT_IMU, I2C1_SCL_IMU, I2C1_SDA_IMU, SERVVO_PWM, D_N, D_P, SWDIO, SWCLK, RESET_N_GPS, PB0, PB1, TIM2_CH2_ENC_1B, OE_MOT, OE_ENC, MOT_2A_3V3, MOT_2B_3V3, PB10, LED_5, PB12, PB13, PB14, and PB15.
- GPIOs:** PA0 through PA15 and PB0 through PB15 are shown with their respective pin numbers.
- Reset Button:** A push button (SW1, 1825910-2) is connected to the NRST pin (pin 7) and a 32.7kHz crystal (X2) is connected to the PC14-OSC32_IN and PC15-OSC32_OUT pins.
- Power and Grounding:** The system is powered by +3.3V and GND. Various capacitors (C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31) are used for decoupling and timing.
- Secondary Microcontroller:** A second STM32F446RCT6TR (U1B) is shown, connected to the main microcontroller via I2C (I2C1_SCL_IMU, I2C1_SDA_IMU) and other pins.

The diagram is a professional schematic layout, likely generated by KiCad, showing the detailed wiring and component values for the microcontroller system.

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Sensors



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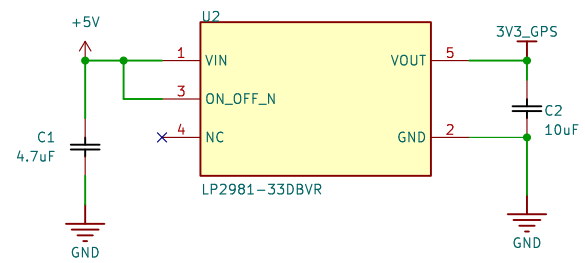
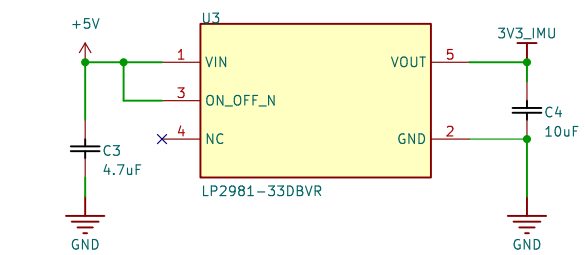
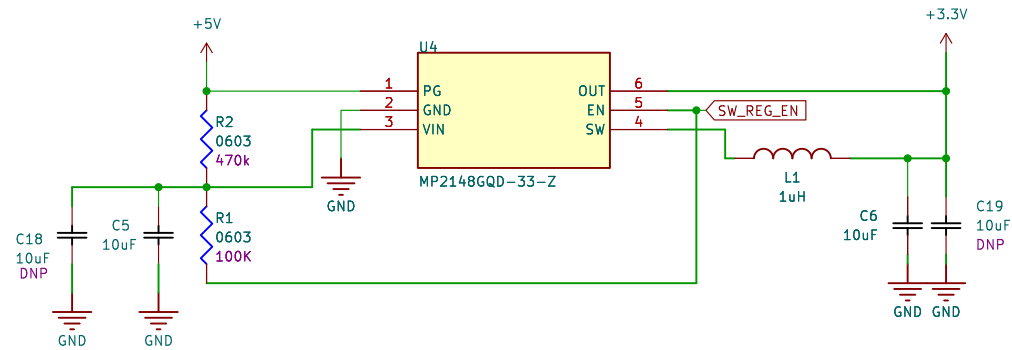
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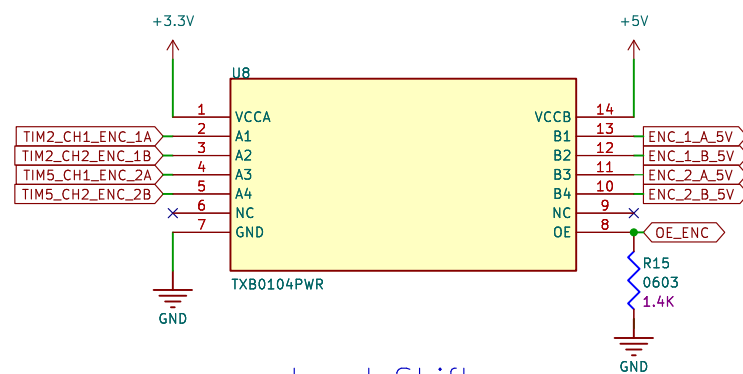
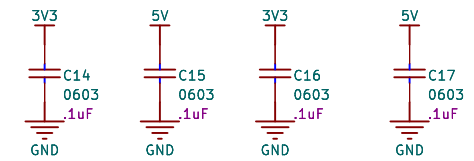
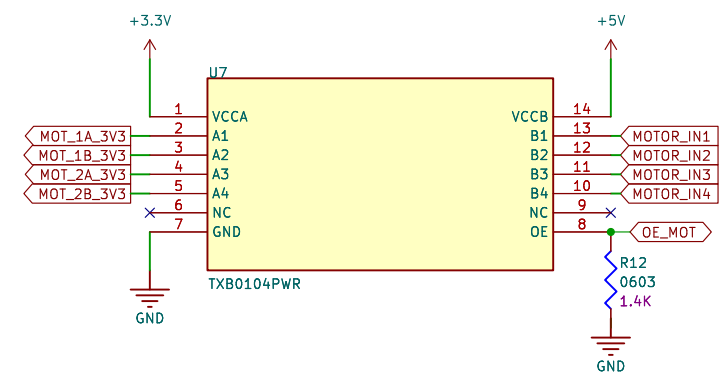
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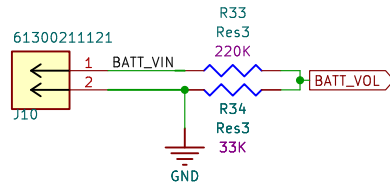
Regulators and Level Shifters



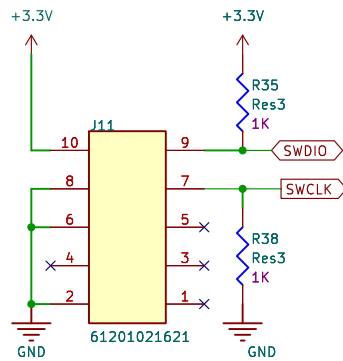
Power Supplies



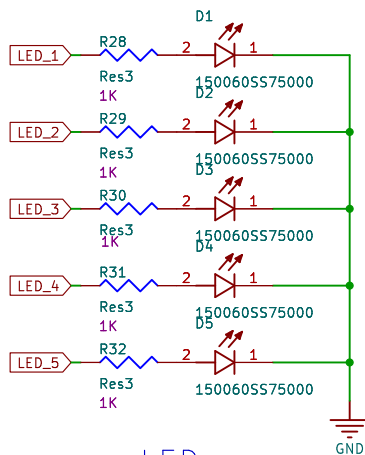
Level Shifters



Battery Voltage Monitor

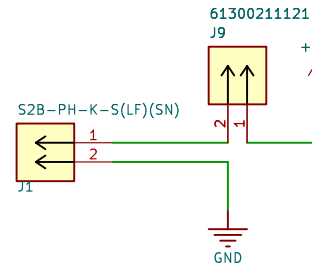


JTAG

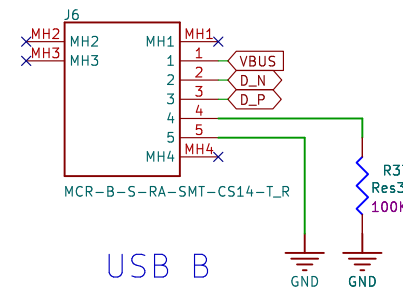


LEDs

Connectors



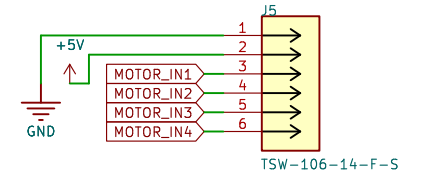
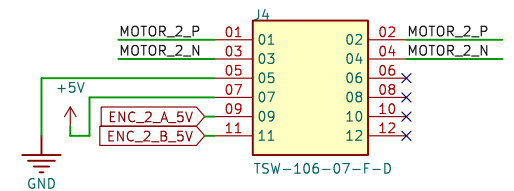
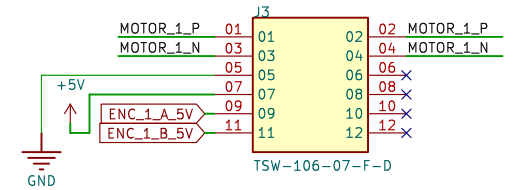
5V Input



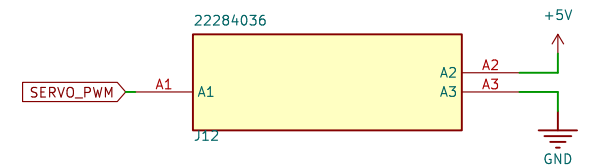
USB B



Antenna



Motors



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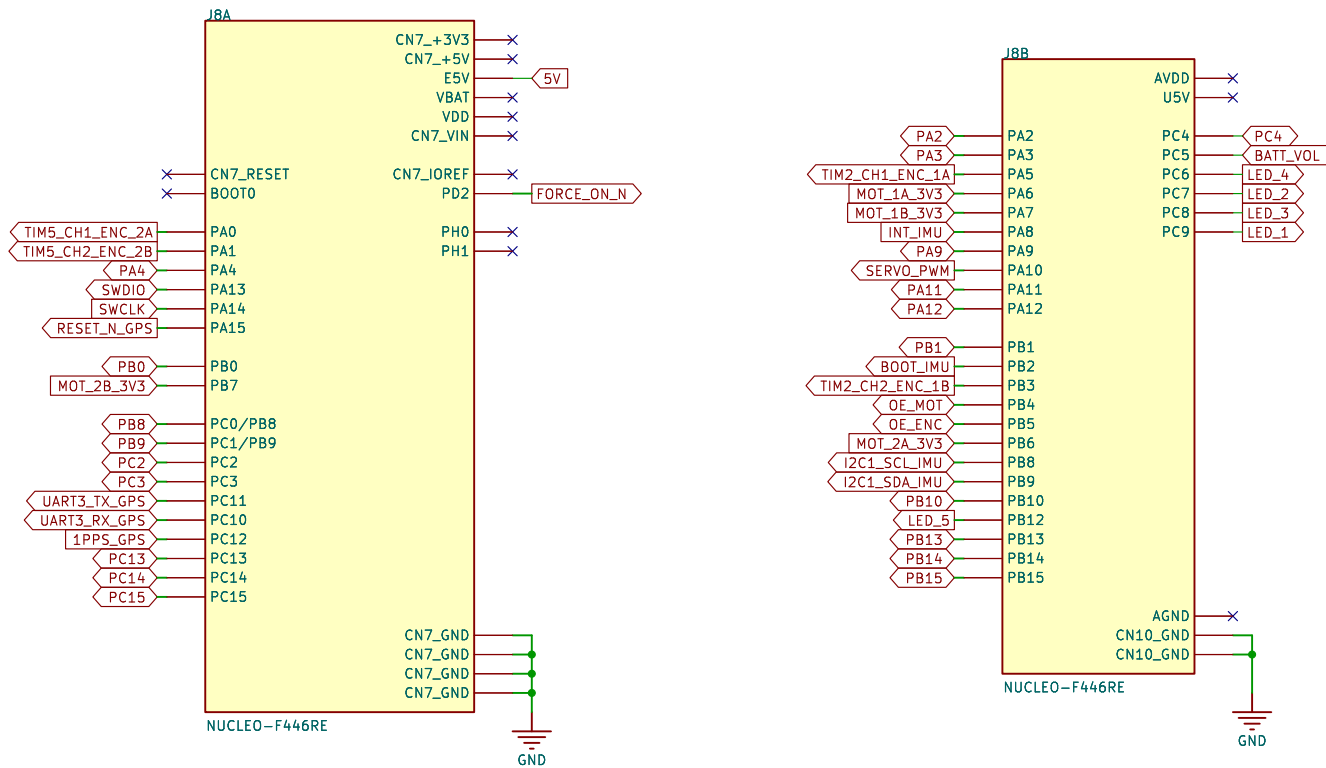
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External Nucleo Dev Board



Sheet: /Nucleo/
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