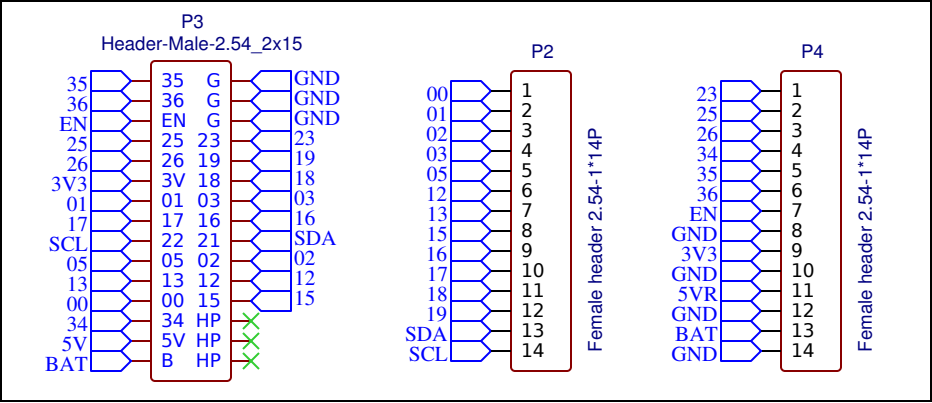
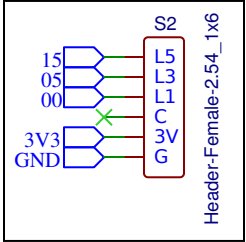


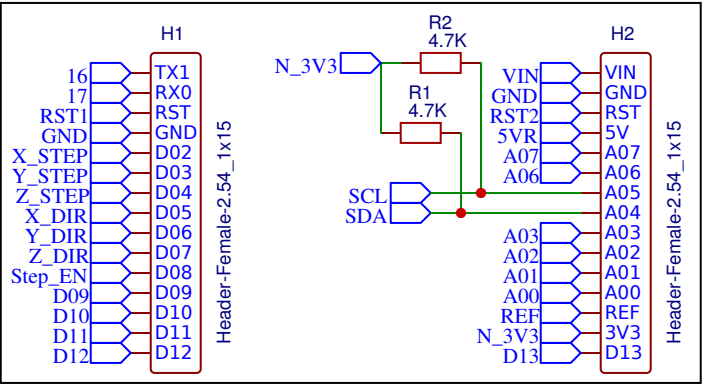
M5Stack Bus Header and Breakout Headers



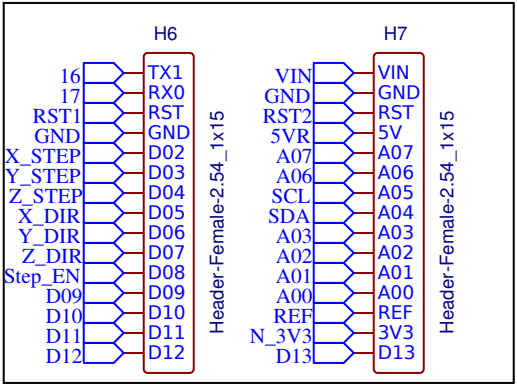
Line Sensor Header
Pololu 4143



Arduino Nano V3 Header



Arduino Nano V3 Breakout

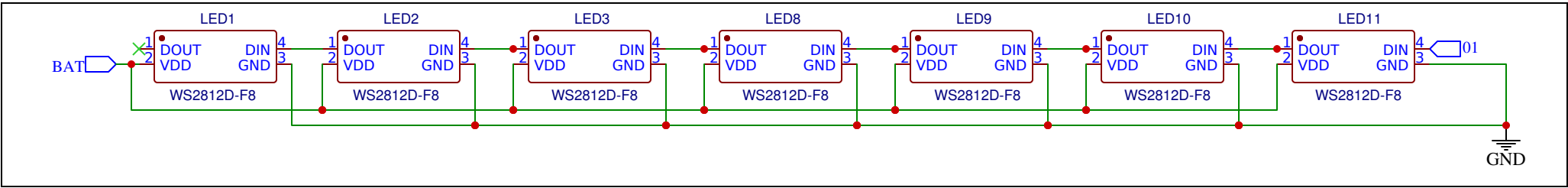


Arduino Nano V3 Notes:
- Pin connections support grbl via I2C and TX/RX pins to run stepper drivers with commands from M5Stack.
- Nano can be easily reprogrammed for other functions.
- I2C pins are pulled to 3.3V with external resistors so the internal pullups must be disabled. (Issue a digitalWrite (PIN, 0) command after initializing wire library if using Arduino IDE.)

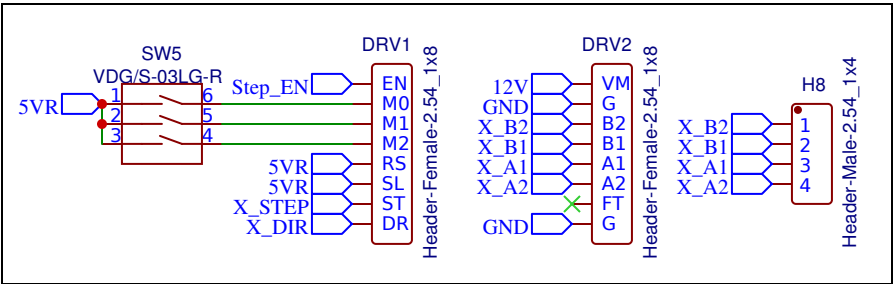
ESP32 Pin Implementation Reference

00 - GPIO *Connected to L1 on line sensor. BMS:Internal pullup, outputs PWM on boot.
01 - TX *Data pin for RGB LEDs. Debug output during boot.
02 - GPIO *BMS:Don't pull high at boot. Must float or pull low to enter bootloader.
03 - RX *Can be input, but is pulled high at boot.
05 - GPIO *Connected to L3 on line sensor. BMS:Outputs PWM at boot.
12 - GPIO *BMS:Don't pull high at boot.
13 - GPIO *Connected to Grove Digital I/O connector.
15 - GPIO *Connected to L5 on line sensor. BMS:Outputs PWM at boot.
16 - GPIO *Connected to Nano TX pin.
17 - GPIO *Connected to Nano RX pin.
18 - GPIO *CLK for Screen and TF Card.
19 - GPIO *MISO for TF Card.
21 - SDA *Connected to Grove connectors and Nano.
22 - SCL *Connected to Grove connectors and Nano.
23 - GPIO *MOSI for Screen and TF Card.
25 - GPIO/DAC *Speaker pin.
26 - GPIO/DAC *Connected to Grove Digital I/O connector.
34 - Input *Connected to Grove Analog Input connector.
35 - Input *Connected to Grove Analog Input connector.
36 - Input *Connected to Grove Analog Input connector.
EN - Pull low to turn off 3.3V regulator and disable M5Stack.
BAT - Connected to battery through pushbutton switch and includes charge circuit.
BMS=Boot Mode Selection

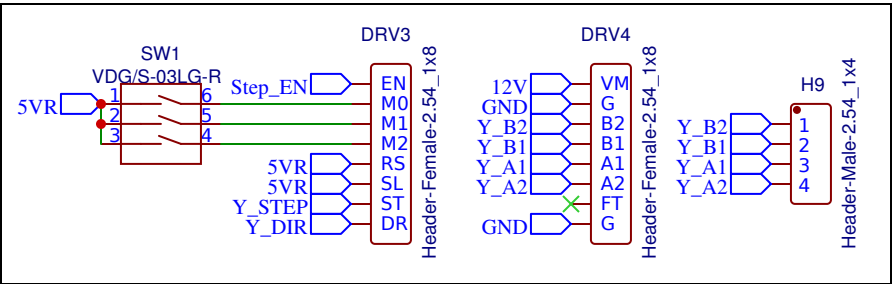
Addressable RGB (Like NeoPixels by Adafruit)



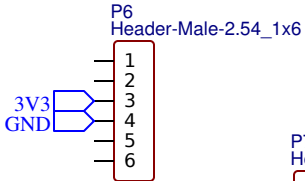
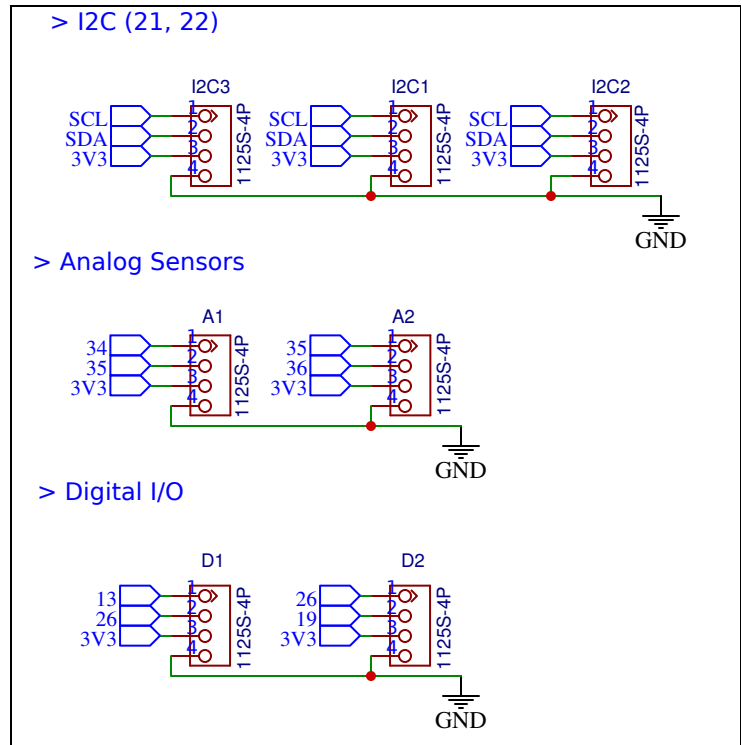
DRV8825 Stepper Driver Socket



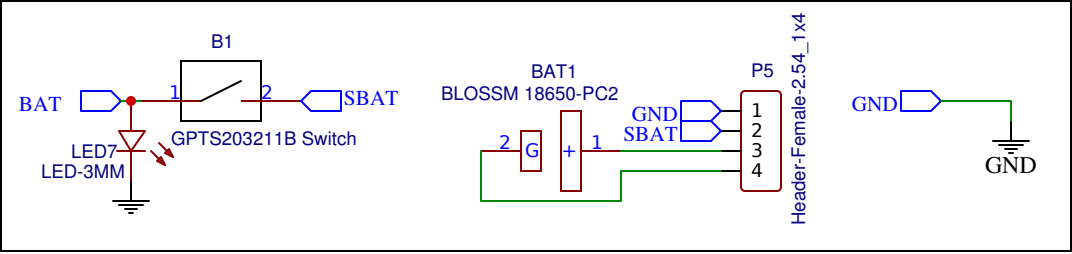
DRV8825 Stepper Driver Socket



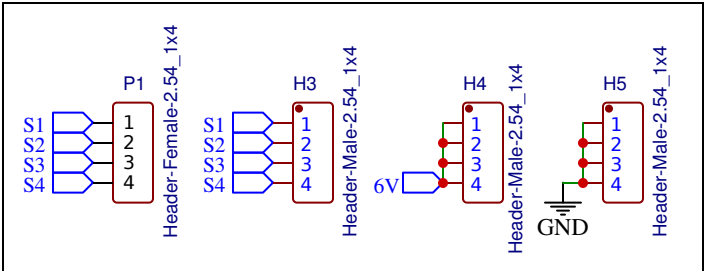
Grove Headers



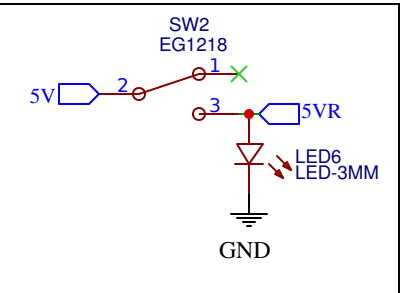
Battery Power Supply (3.7V Nominal)
- Main PWR Button; 18650 Cell Holder; Lilon Cell Protection Circuit



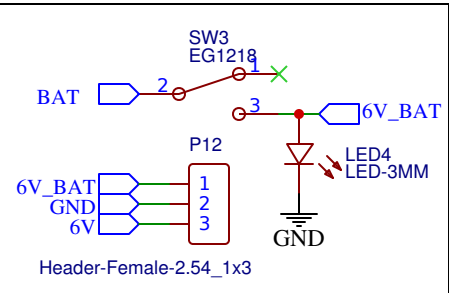
Configurable Headers for Servos, etc.



5V Peripheral Power Switch



6V Boost



12V Boost

