

SCUTTLE Wiring Guide

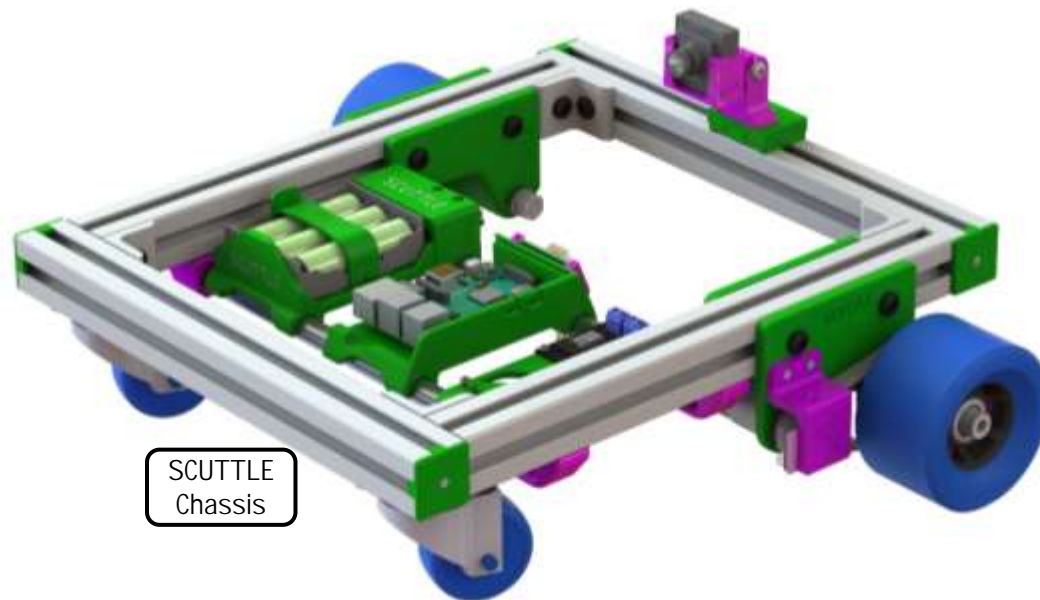
Version for Raspberry Pi & Jetson Nano

revised 2021.12.12

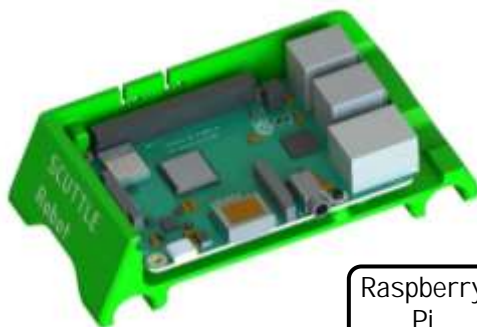
www.SCUTTLErobot.org



Scuttle robot Wiring Guide (Pi and Nano)



SCUTTLE
Chassis



Raspberry
Pi



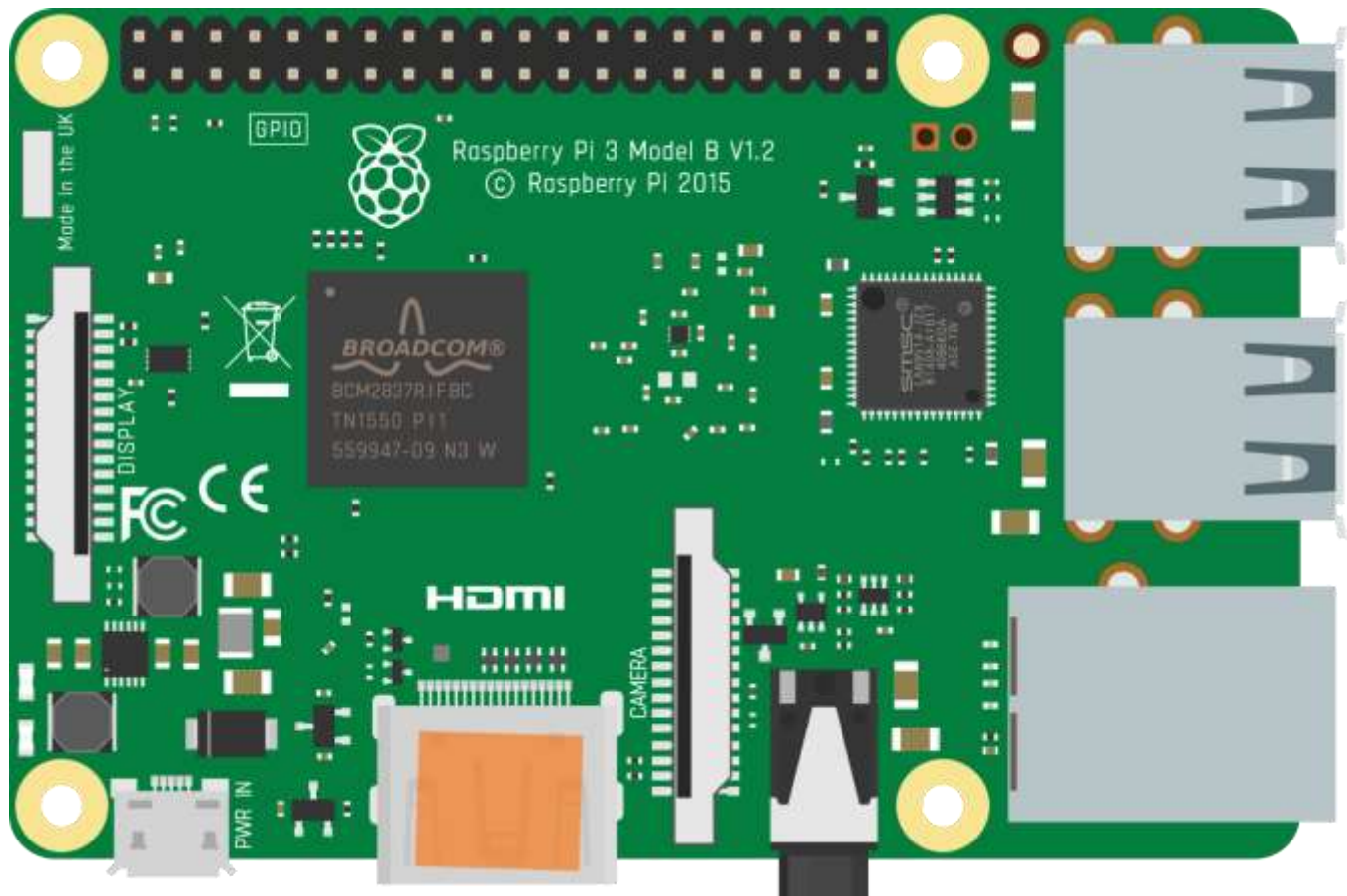
Beaglebone
Blue



Jetson
Nano

SCUTTLE Wiring Guide (Pi variant)

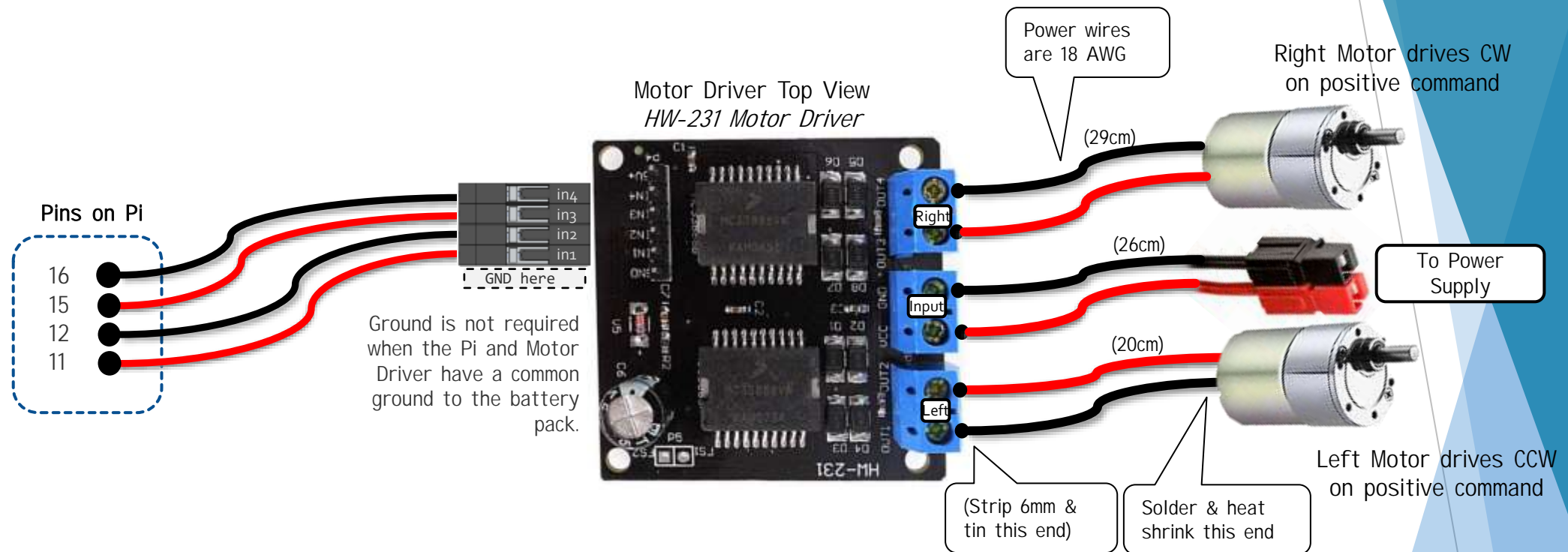
Note: Raspberry Pi integration is a newer feature than beaglebone blue. The selections for pi on wire colors, configurations, and pin locations are improving continuously.



Pin Number Convention



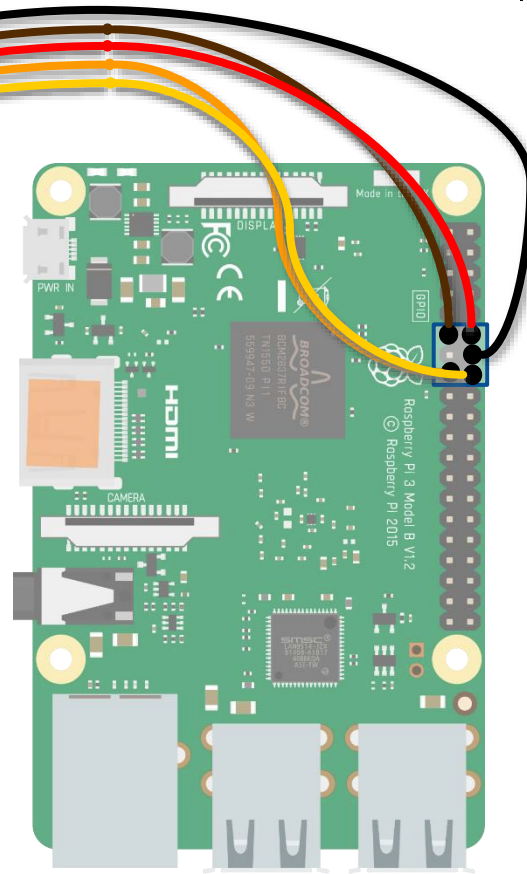
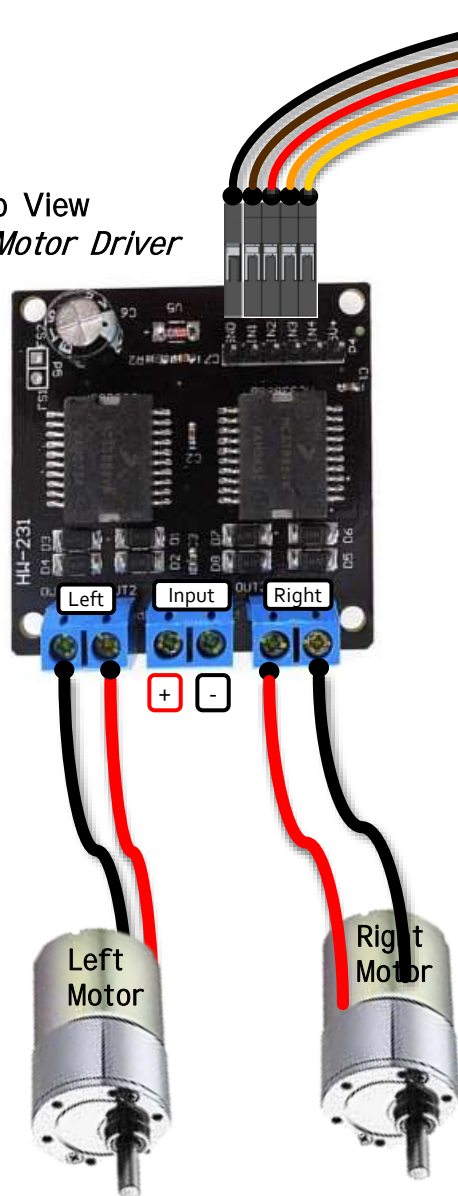
Pi - Motor Driver Signals



Pi - Motor Driver Signals

Keep the wires bonded to each other, if possible.

Top View
HW-231 Motor Driver

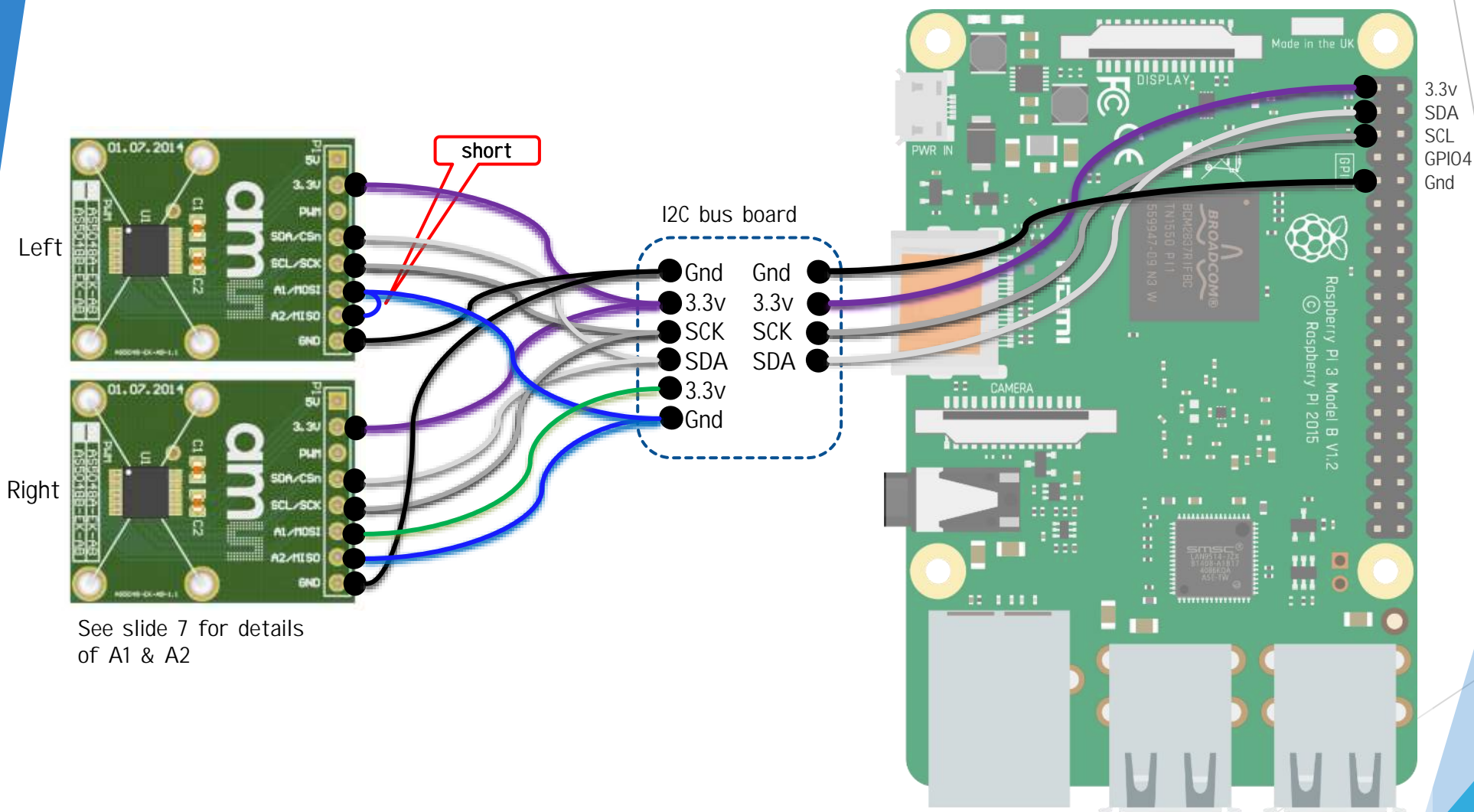


Pins on RasPi

GPIO17	11	12	GPIO18
GPIO27	13	14	Ground
GPIO22	15	16	GPIO23

Pi - Encoder AMS AS5048 (I2C)

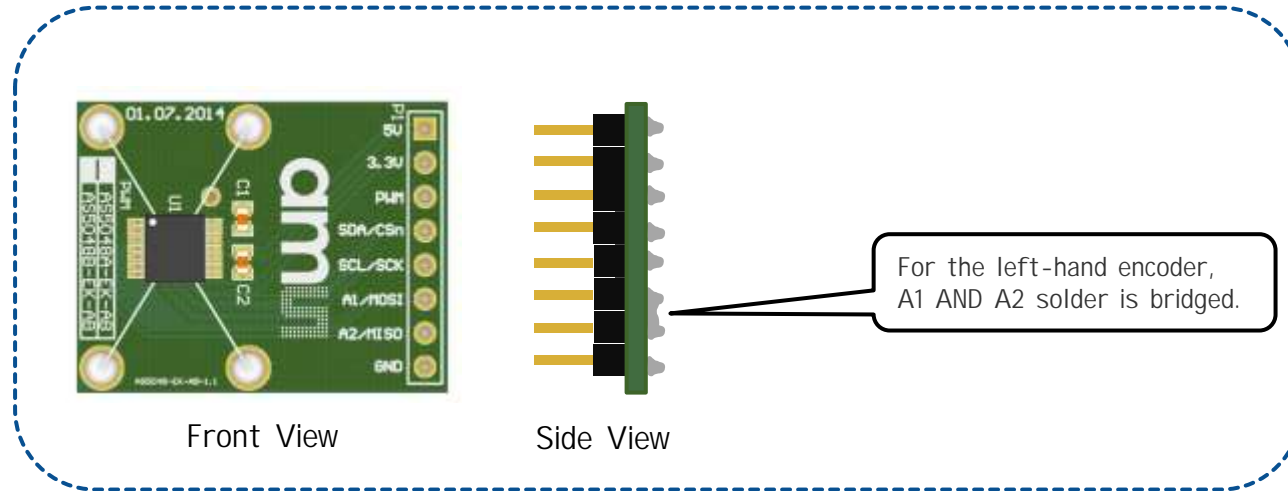
Please review the [BeagleBone Blue wiring guide](#) for more details!



Encoder Details



Left Encoder



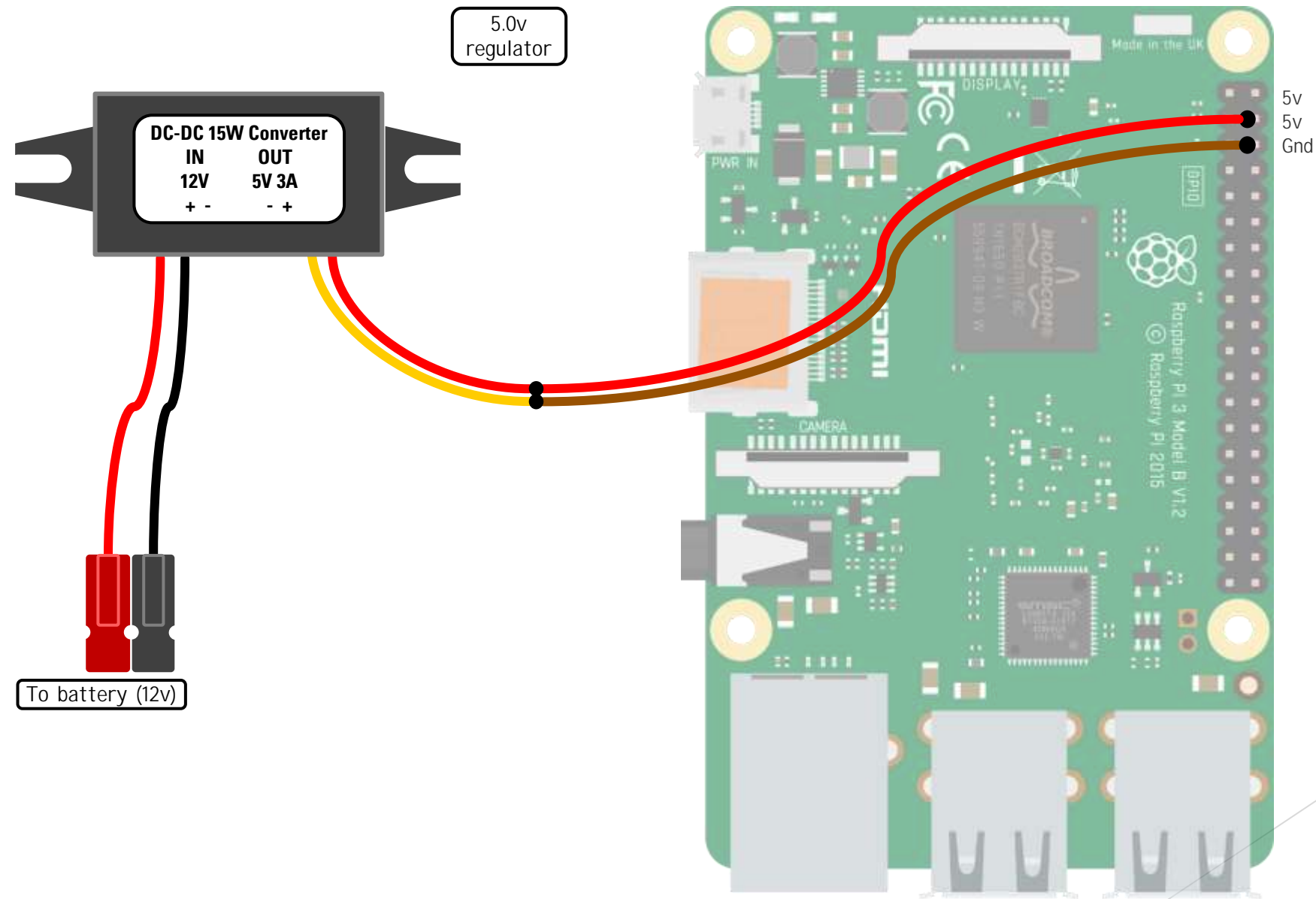
The i2c address is determined by the signals on A1 and A2 pins.

Left Hand Encoder A1 is pulled **down** to GND. I2C address is 0x40

Right Hand Encoder pin A1 is pulled **up** to 3.3v. I2C address is 0x41

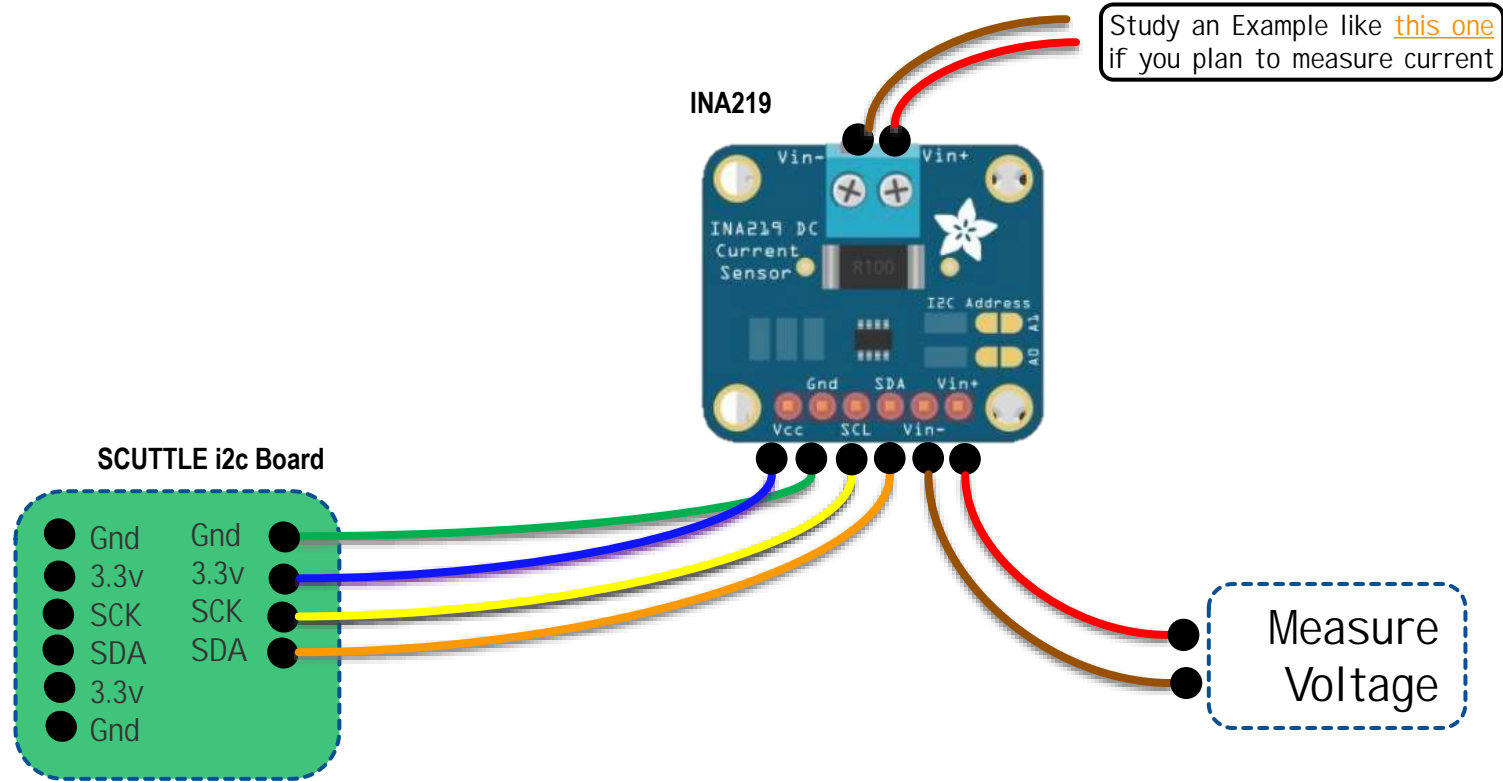
	Pin A1	Pin A2	Resulting i2c address
Left Encoder	LOW	LOW	0x40
Right Encoder	LOW	HIGH	0x41

Pi - Power Supply



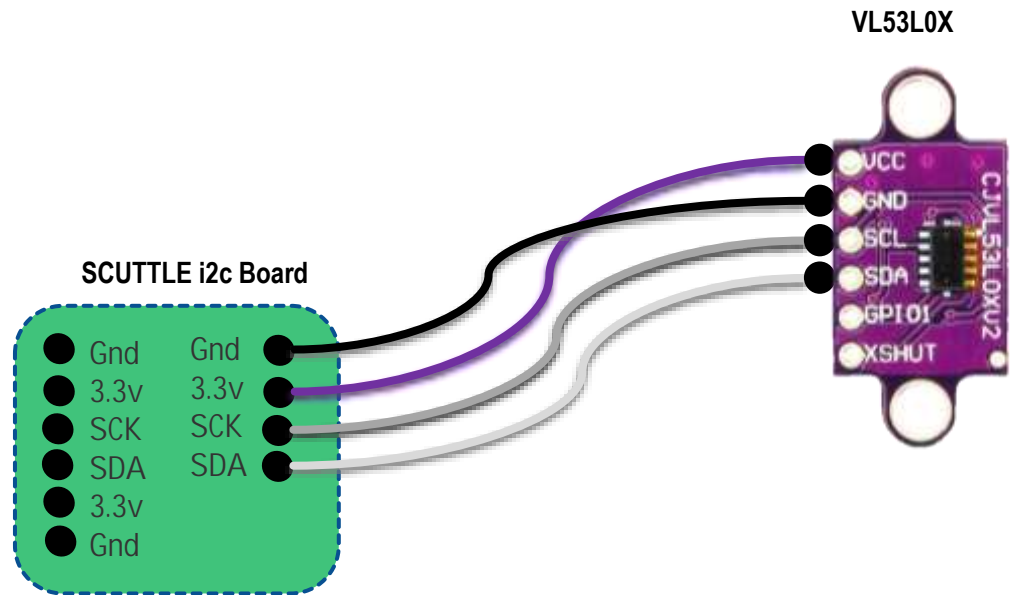
Voltage Meter – Adafruit ina219

This sensor can measure current and voltage.



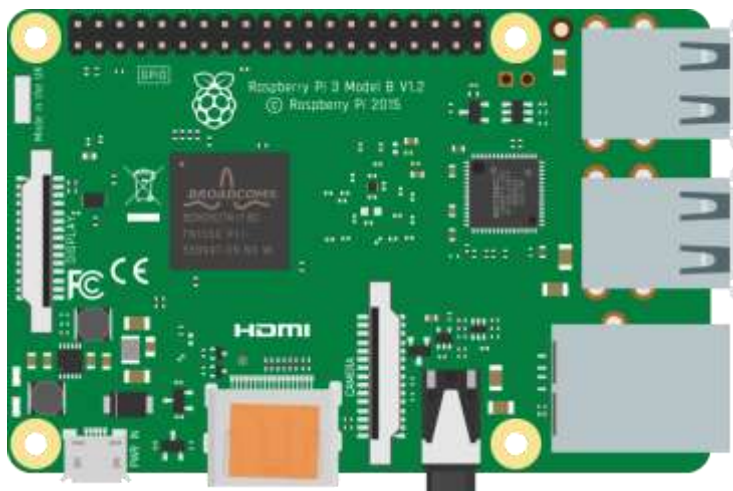
Distance Sensor – VL53L0X

This is a time-of-flight distance sensor.



Pi - Configuration for remo.tv

Coming for this slide: configuration of hardware on RasPi B 3+, Linux default device numbers for branded speakers, and text-to-speech selection (ie, alsamixer).



We recommend a speaker that receives power AND signals from the USB port.



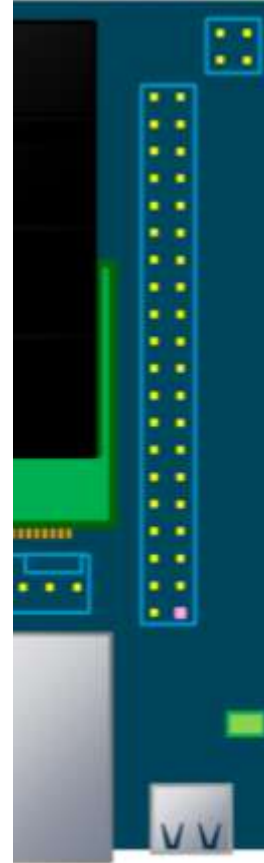
If you need to use an Aux cord, a right-angle adapter can keep your wires neat.

Jetson Nano Wiring

Diagram from Jetsonhacks.com

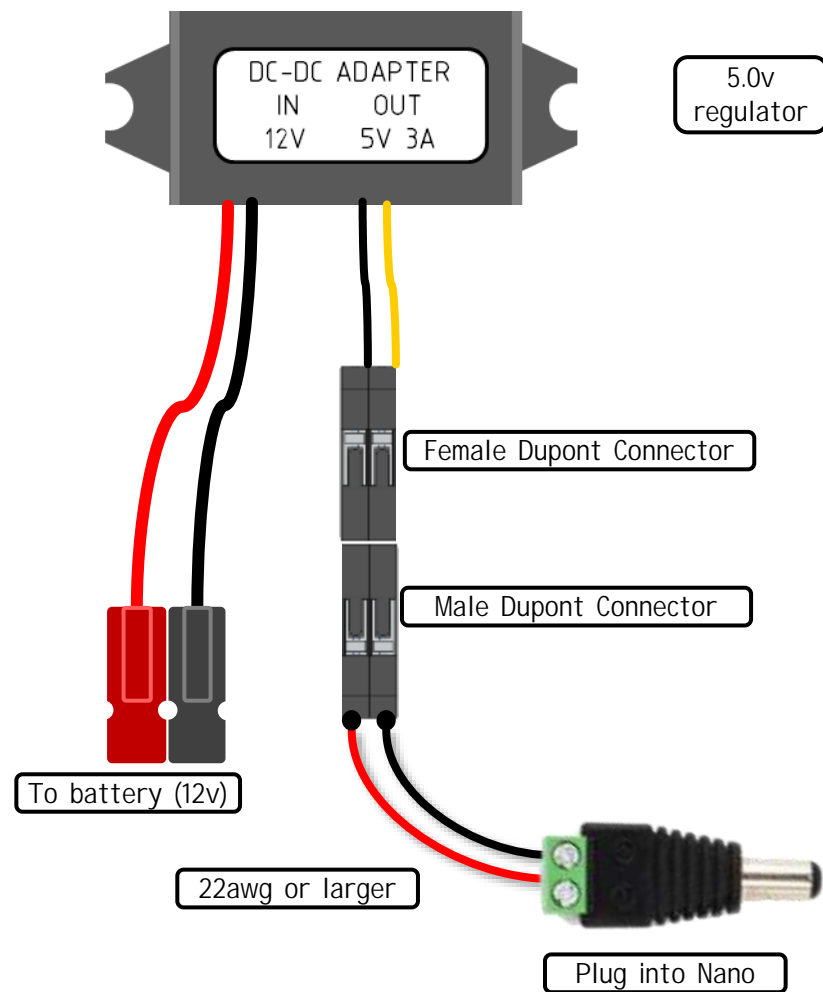
Sysfs GPIO	Name	Pin	Pin	Name	Sysfs GPIO
	3.3 VDC Power	1	2	5.0 VDC Power	
	I2C_2_SDA I2C Bus 1	3	4	5.0 VDC Power	
	I2C_2_SCL I2C Bus 1	5	6	GND	
gpio216	AUDIO_MCLK	7	8	UART_2_TX /dev/ttyTHS1	
	GND	9	10	UART_2_RX /dev/ttyTHS1	
gpio50	UART_2_RTS	11	12	I2S_4_SCLK	gpio79
gpio14	SPI_2_SCK	13	14	GND	
gpio194	LCD_TE	15	16	SPI_2_CS1	gpio232
	3.3 VDC Power	17	18	SPI_2_CS0	gpio15
gpio16	SPI_1_MOSI	19		GND	
gpio17	SPI_1_MISO	21	22	SPI_2_MISO	gpio13
gpio18	SPI_1_SCK	23	24	SPI_1_CS0	gpio19
	GND	25	26	SPI_1_CS1	gpio20
	I2C_1_SDA I2C Bus 0	27	28	I2C_1_SCL I2C Bus 0	
gpio149	CAM_AF_EN	29	30	GND	
gpio200	GPIO_PZ0	31	32	LCD_BL_PWM	gpio168
gpio38	GPIO_PE6	33	34	GND	
gpio76	I2S_4_LRCK	35	36	UART_2_CTS	gpio51
gpio12	SPI_2_MOSI	37	38	I2S_4_SDIN	gpio77
	GND	39	40	I2S_4_SDOUT	gpio78

40 Pin Array on Jetson Nano



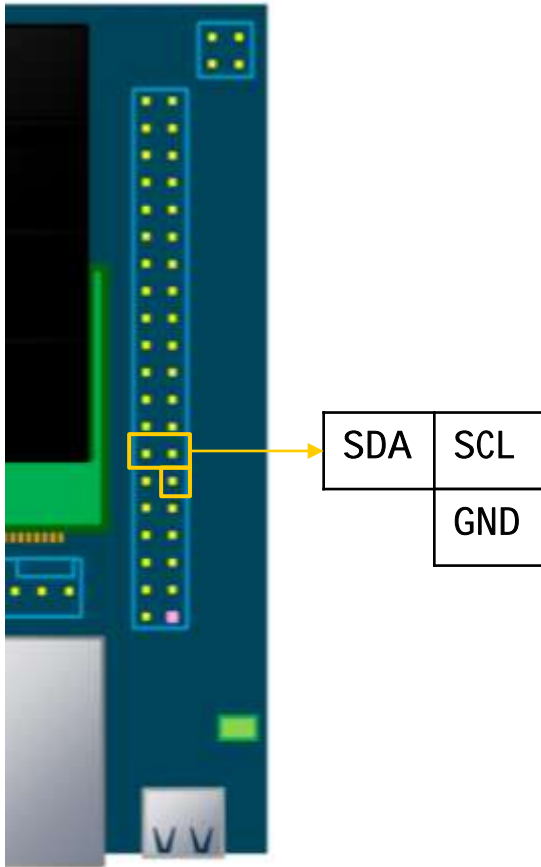
Jetson Nano - power

Diagram for powering Jetson Nano



Jetson Nano – i2c

Diagram for connecting i2C to SCUTTLE



TO BE COMPLETED...