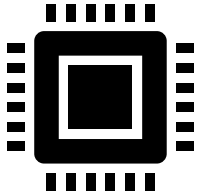
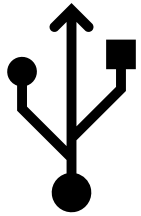
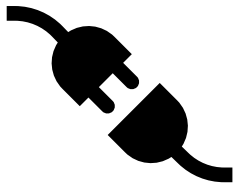




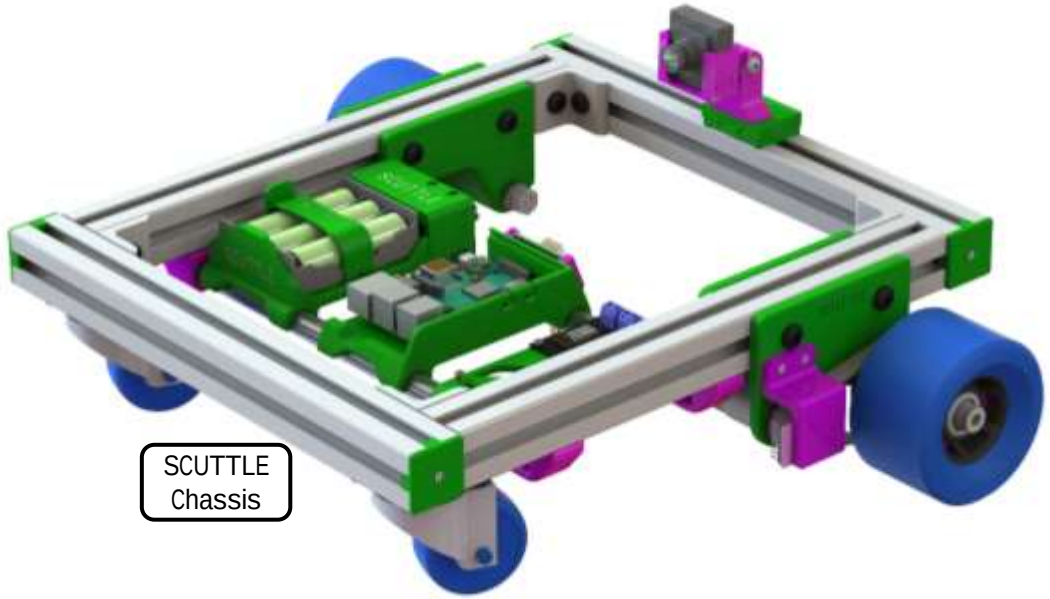


SCUTTLE Wiring Guide

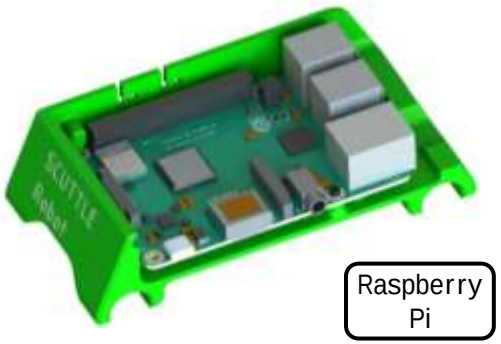
Version for Raspberry Pi & Jetson Nano

revised 2021.11.18

Scuttle robot Wiring Guide (Pi and Nano)



SCUTTLE Chassis



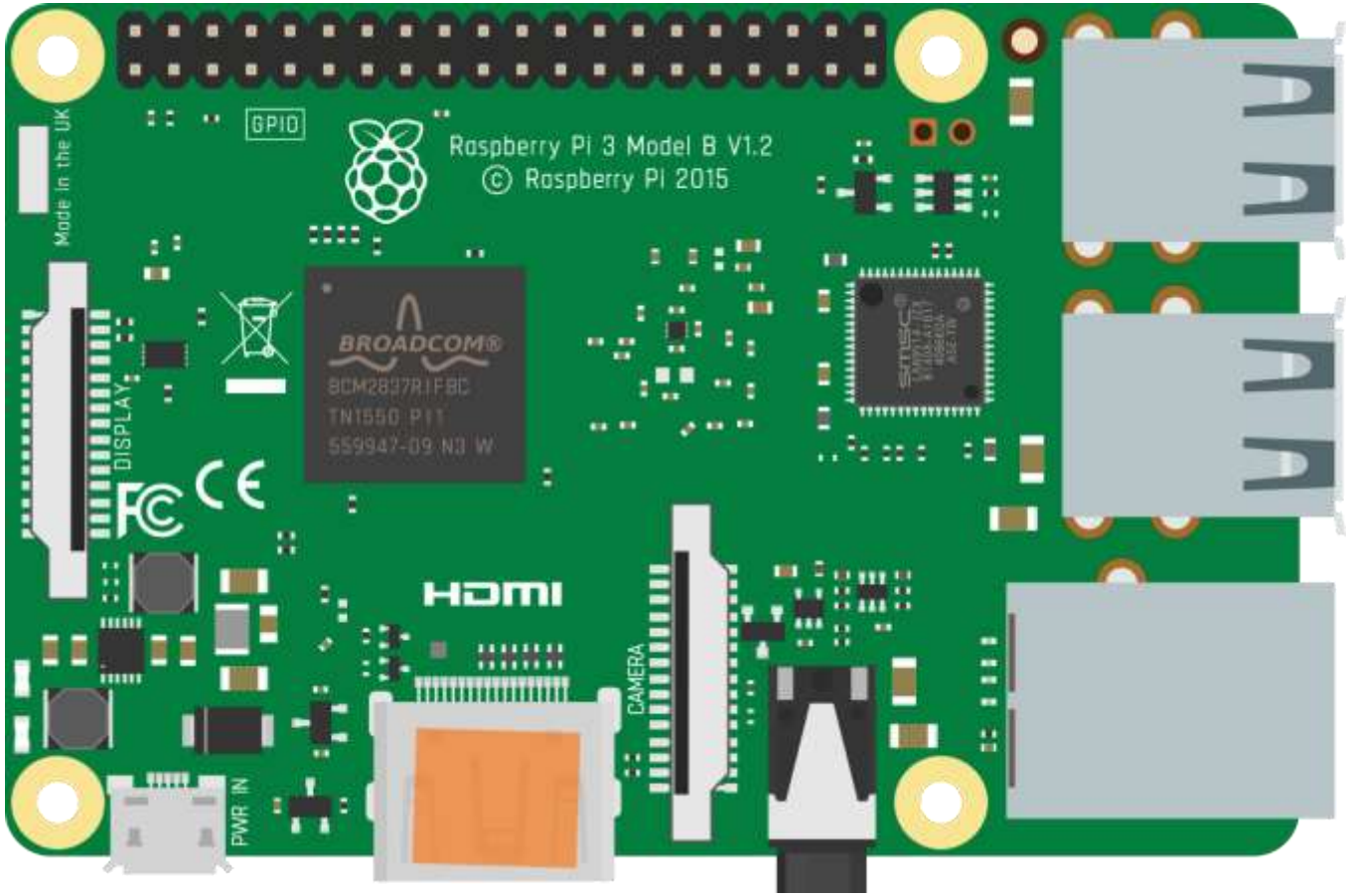
Raspberry Pi

Beaglebone Blue

Jetson Nano

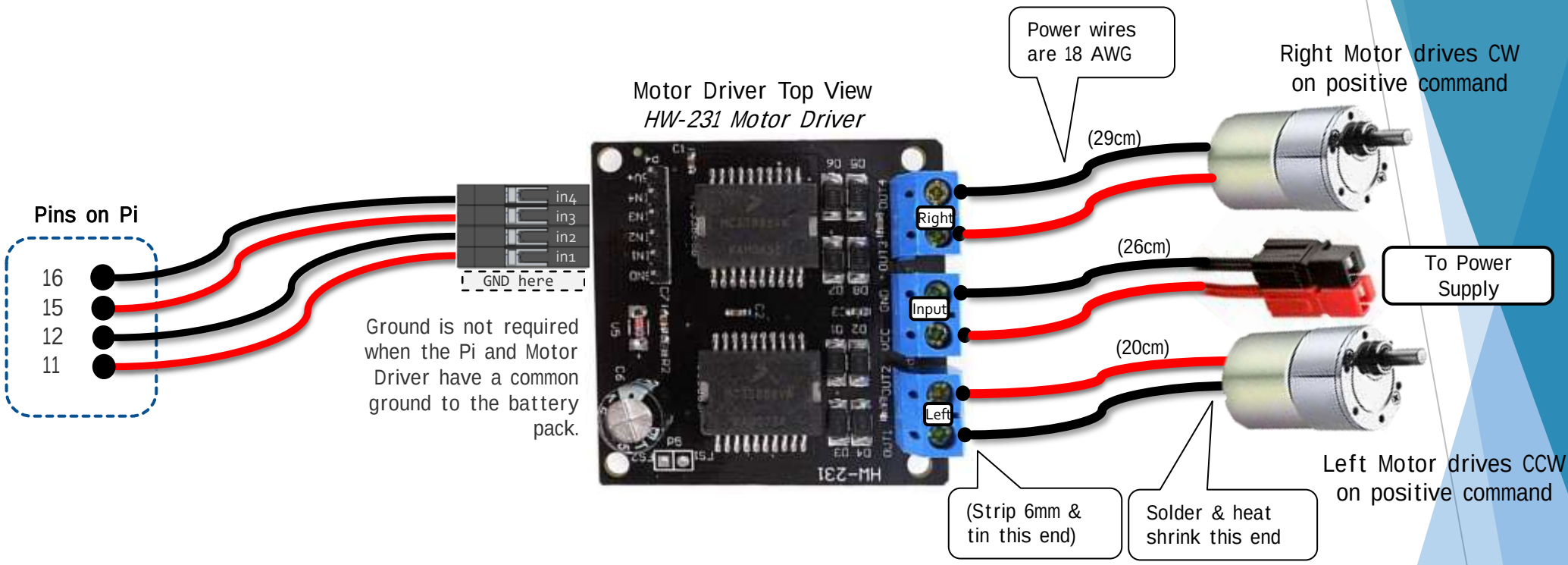
SCUTTLE Wiring Guide (Pi variant)

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

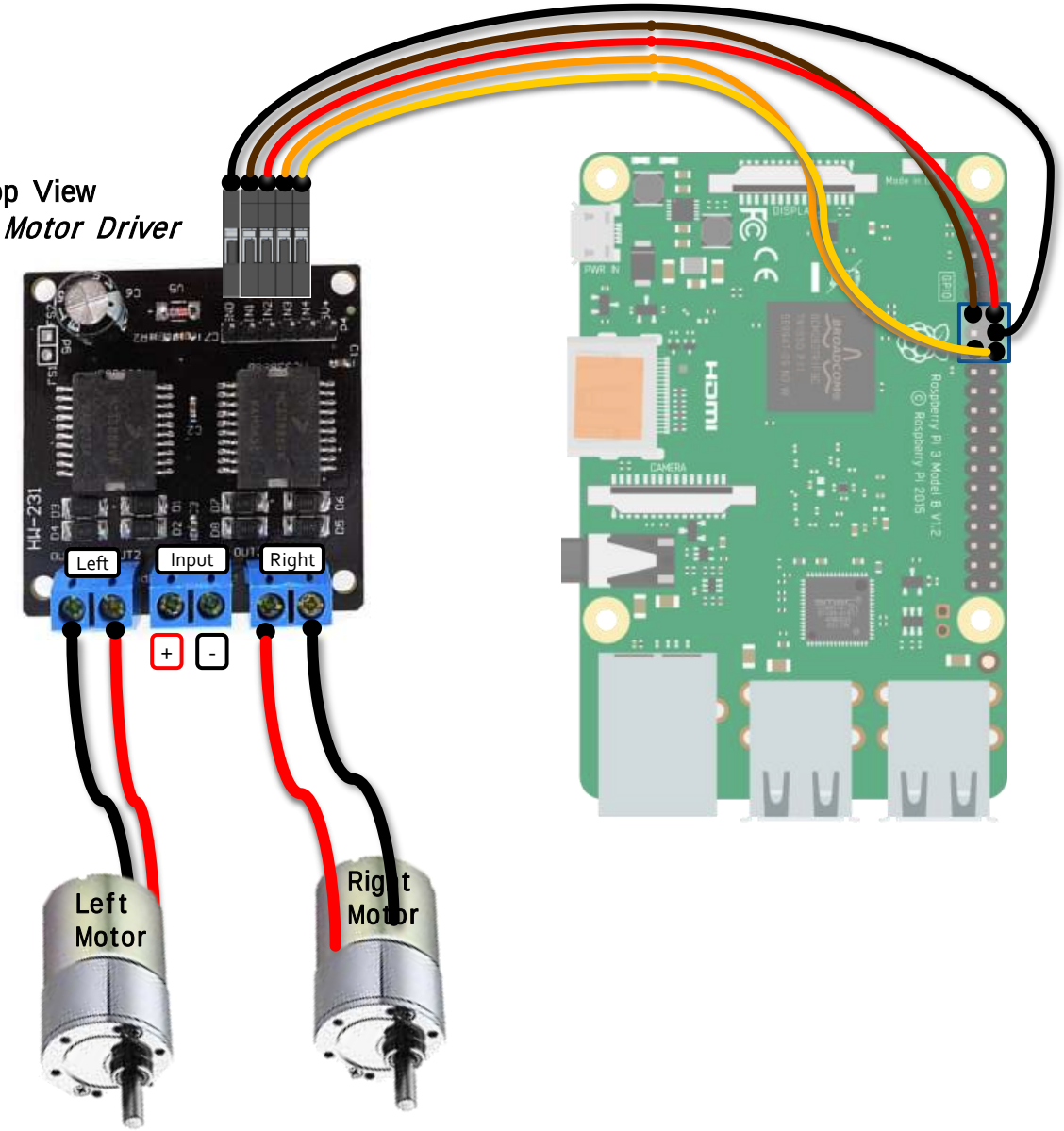
Pi - Motor Driver Signals



Pi - Motor Driver Signals

Keep the wires bonded to each other, if possible.

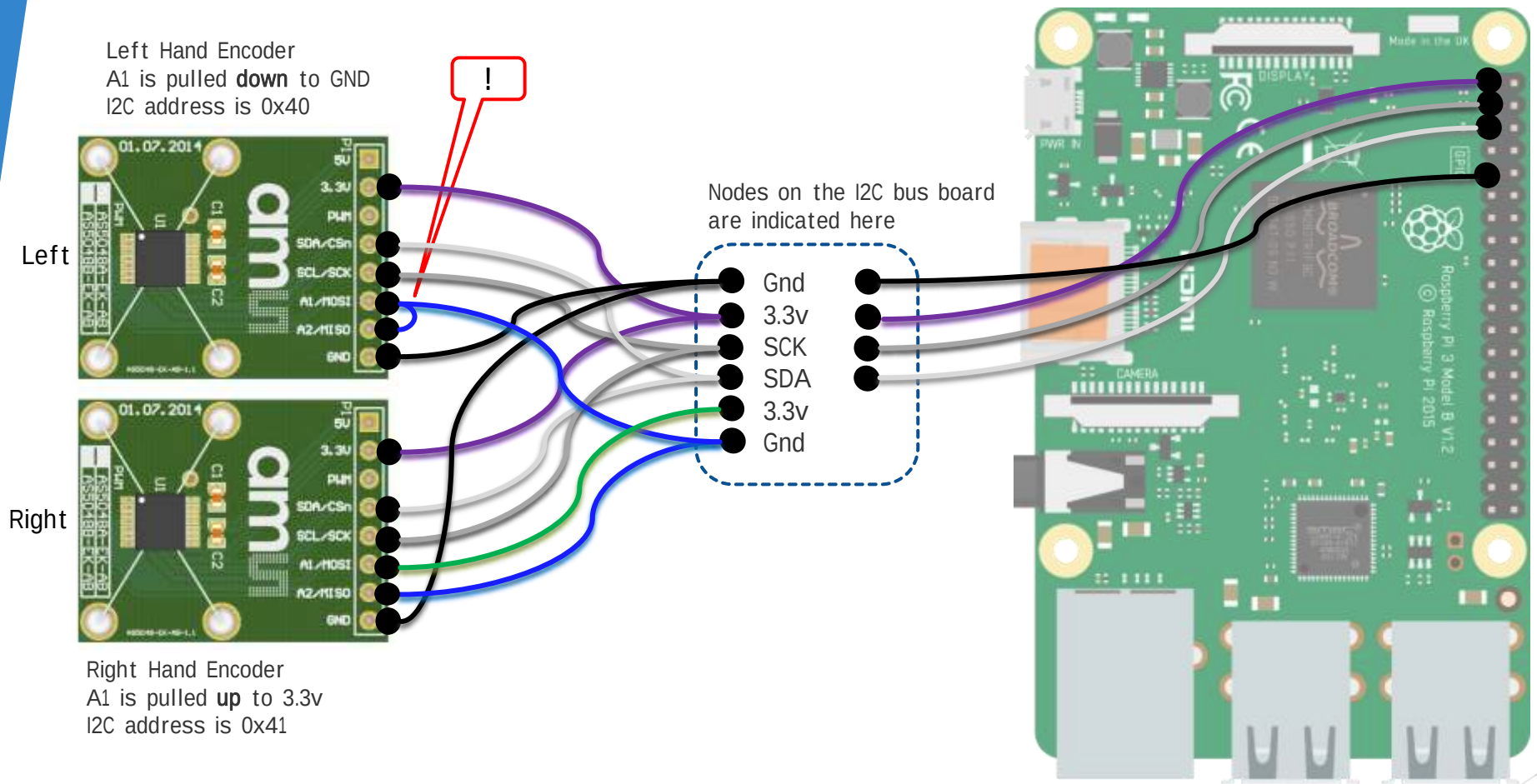
Top View
HW-231 Motor Driver



Pins on RasPi

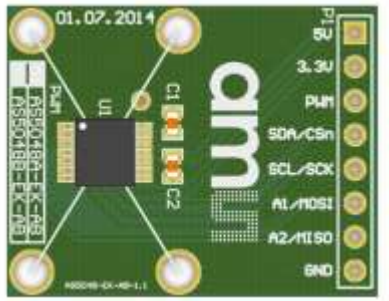
Pi - Encoder AMS AS5048 (I2C)

Please review the BeagleBone Blue wiring guide for many more details!

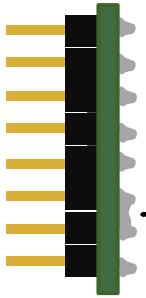


Encoder Details

Left Encoder



Front View



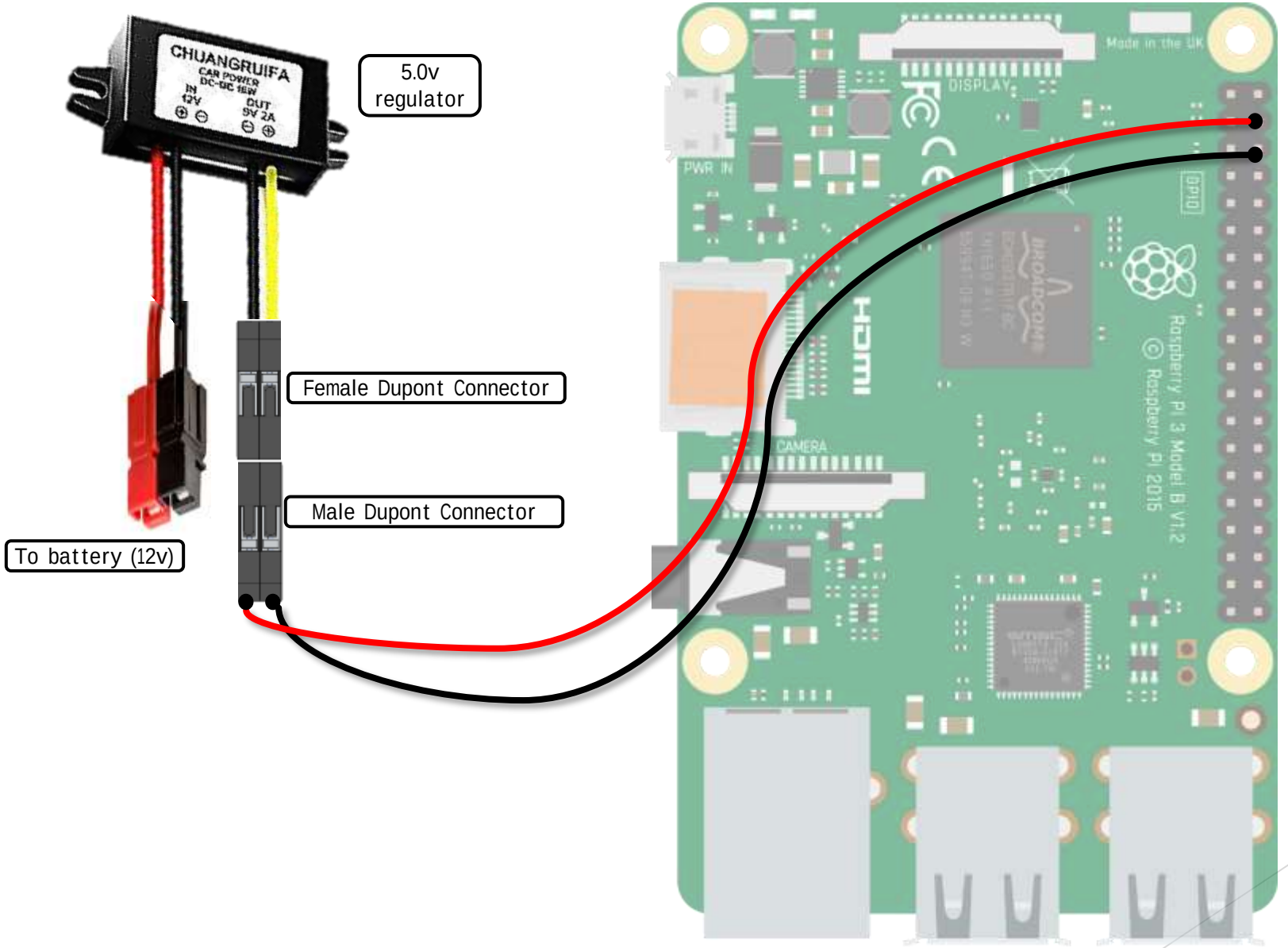
Side View

For the left-hand encoder, A1 AND A2 solder is bridged.

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

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

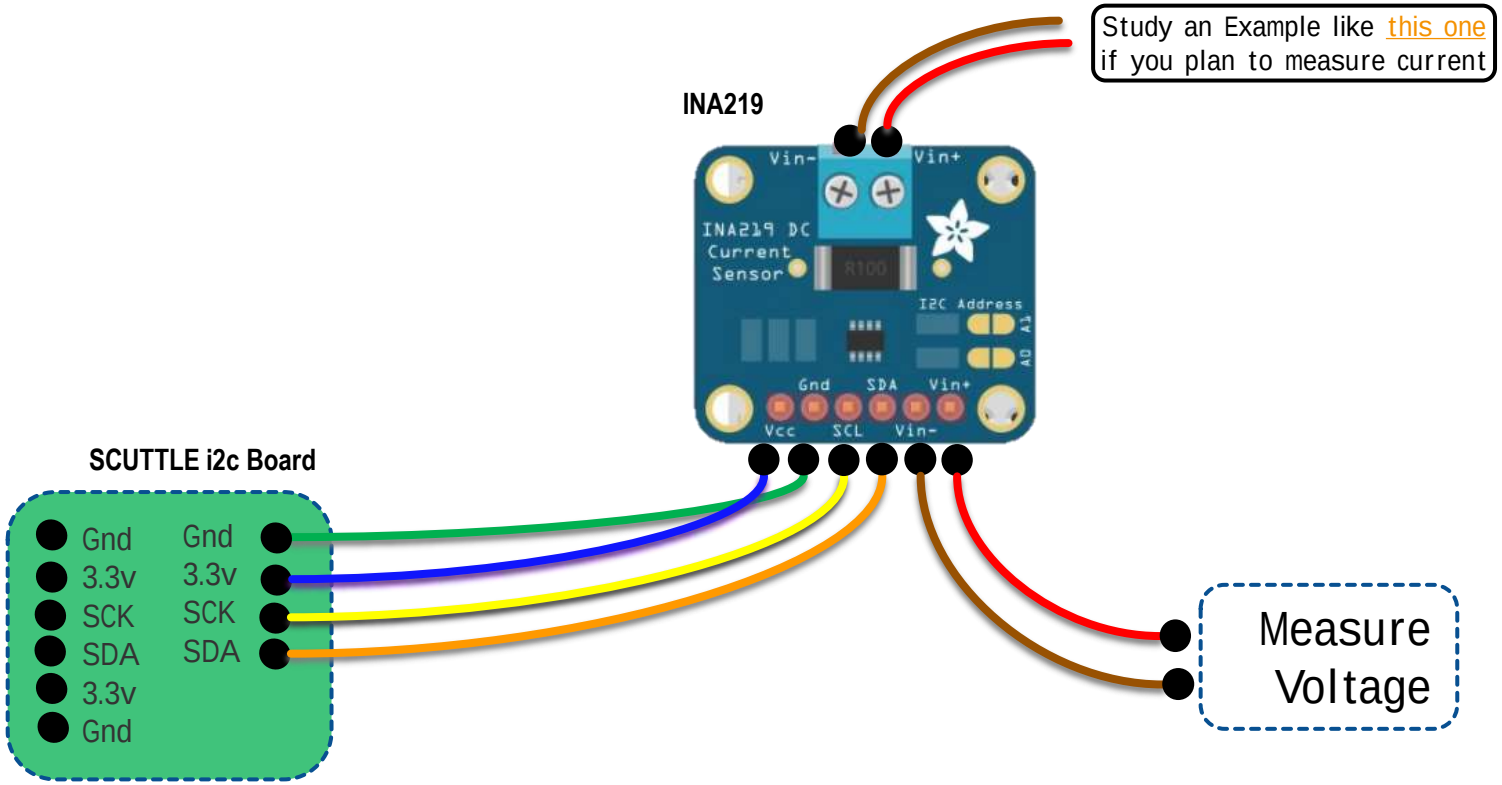
Pi - Power Supply



Voltage Meter – Adafruit ina219

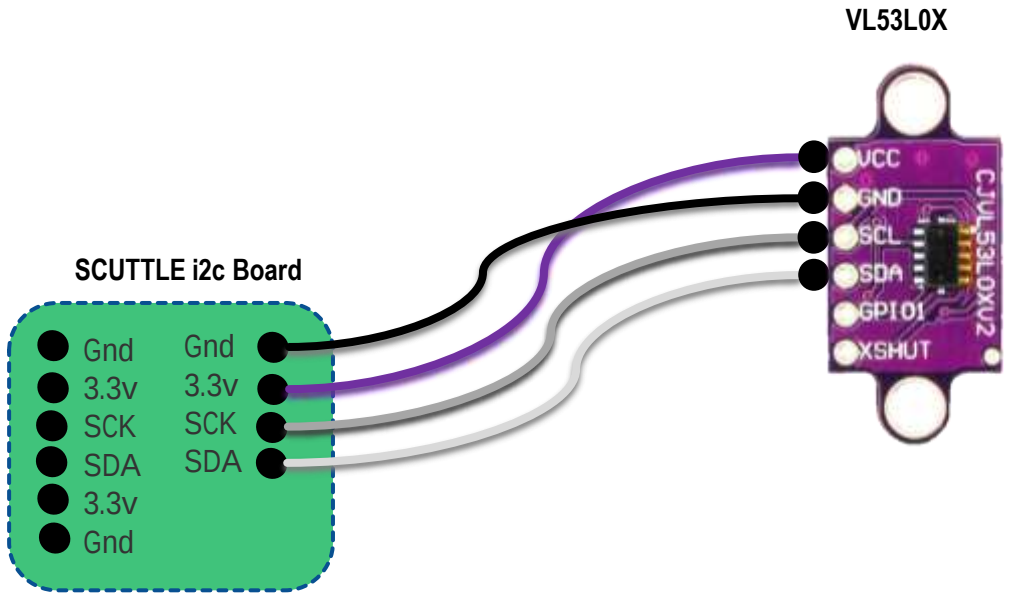
This sensor can measure current and voltage.

Study an Example like this one if you plan to measure current



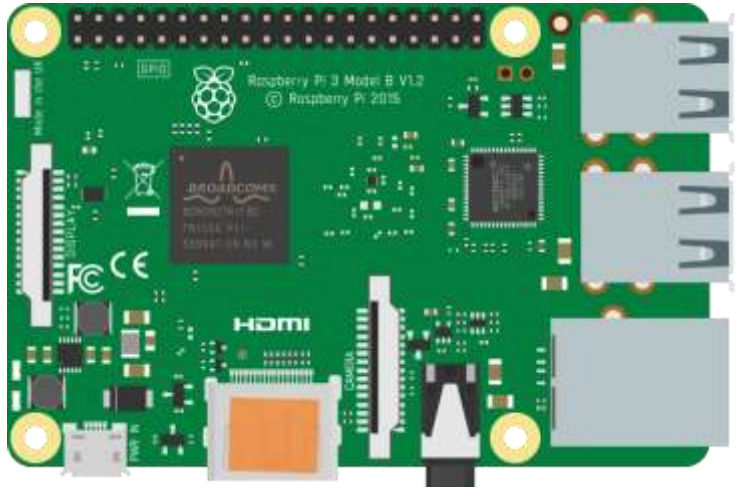
Distance Sensor – VL53L0X

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.

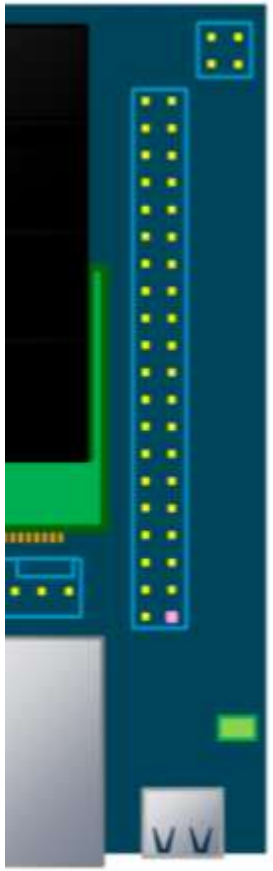
If you need to use an Aux cord, a right-angle adapter can keep your wires neat.

Jetson Nano Wiring

Diagram from Jetsonhacks.com

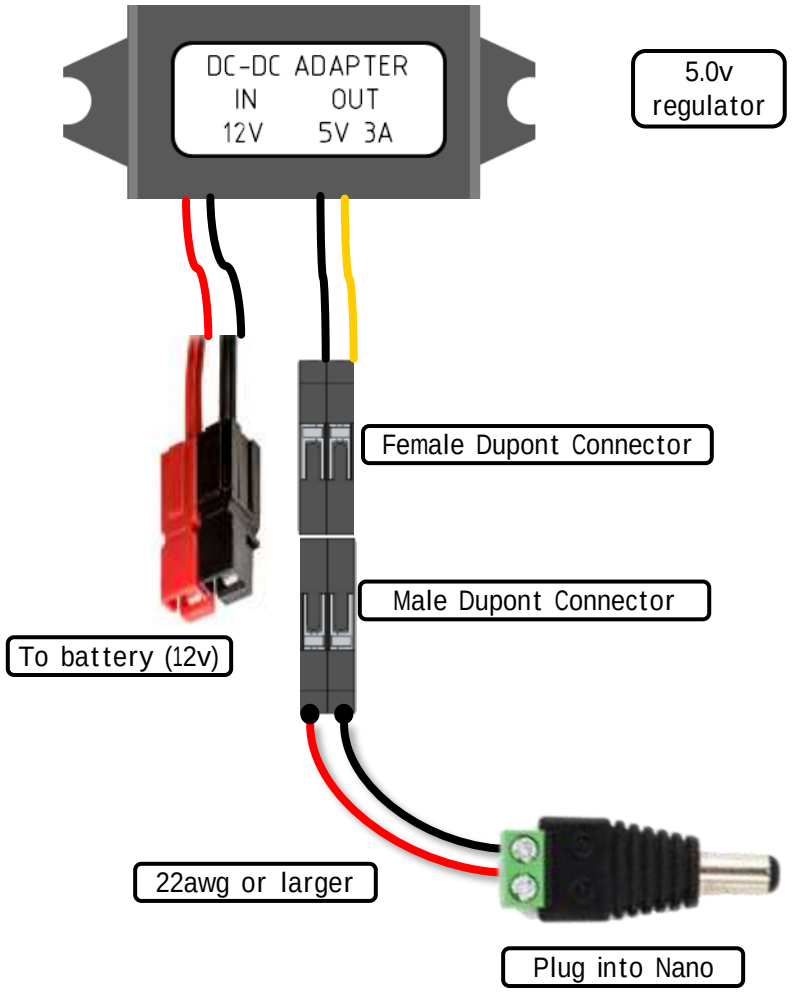
Sysfs GPIO	Name	Pin	Pin	Name	Sysfs GPIO
	3.3 VDC *Power*	1	2	**5.0 VDC** *Power*	
	I2C_2_SDA *I2C Bus 1*	3	4	**5.0 VDC** *Power*	
	I2C_2_SCL *I2C Bus 1*	5	6	**GND**	
gpio216	**AUDIO_MCLK**	7	8	**UART_2_TX** */dev/ttyTHS1*	
	GND	9	10	**UART_2_RX** */dev/ttyTHS1*	
gpio50	**UART_2_RTS**	11	12	**I2S_4_SCLK**	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



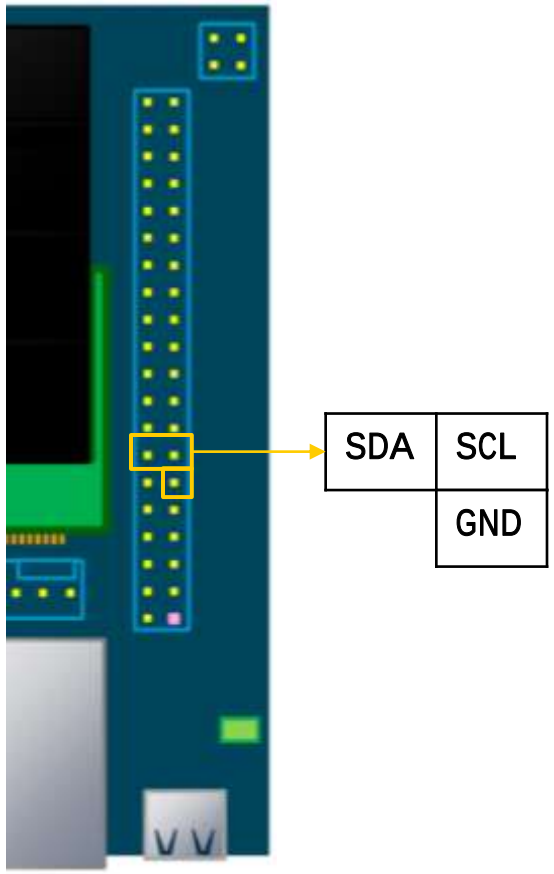
Jetson Nano - power

Diagram for powering Jetson Nano



Jetson Nano – i2c

Diagram for connecting i2C to SCUTTLE



TO BE COMPLETED…