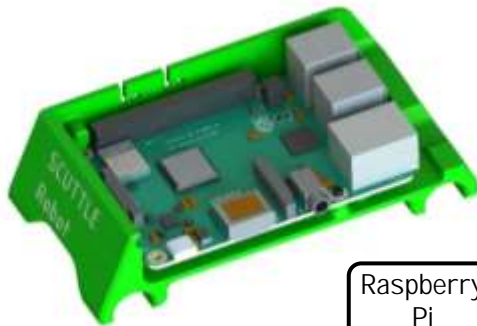
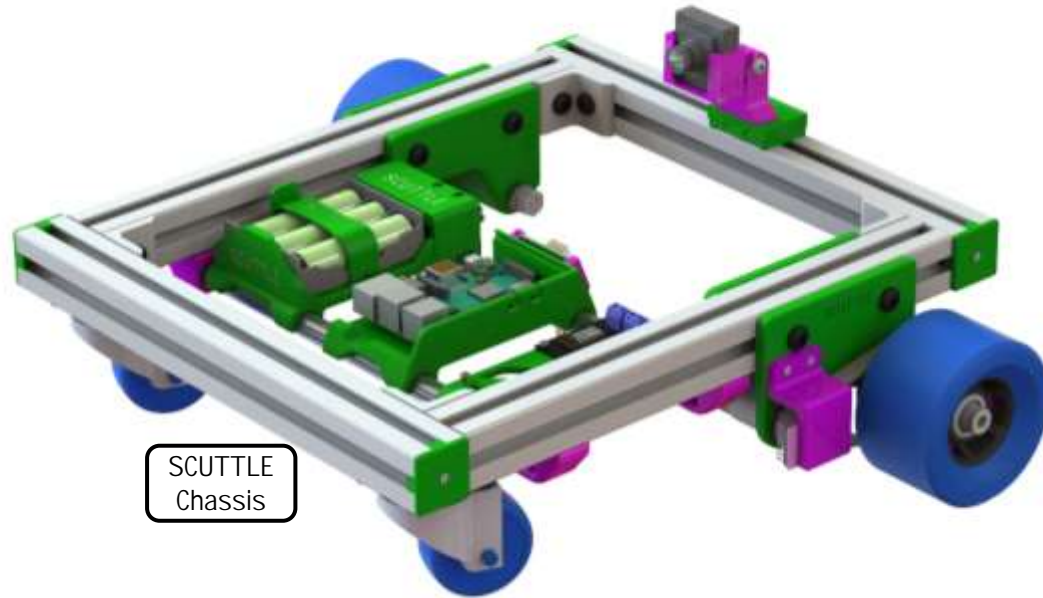


Scuttle robot Wiring Guide (Pi and Nano)

(rev 2021.09.26)

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mxe.github.io/SCUTTLE



Raspberry Pi



Beaglebone Blue



Jetson Nano

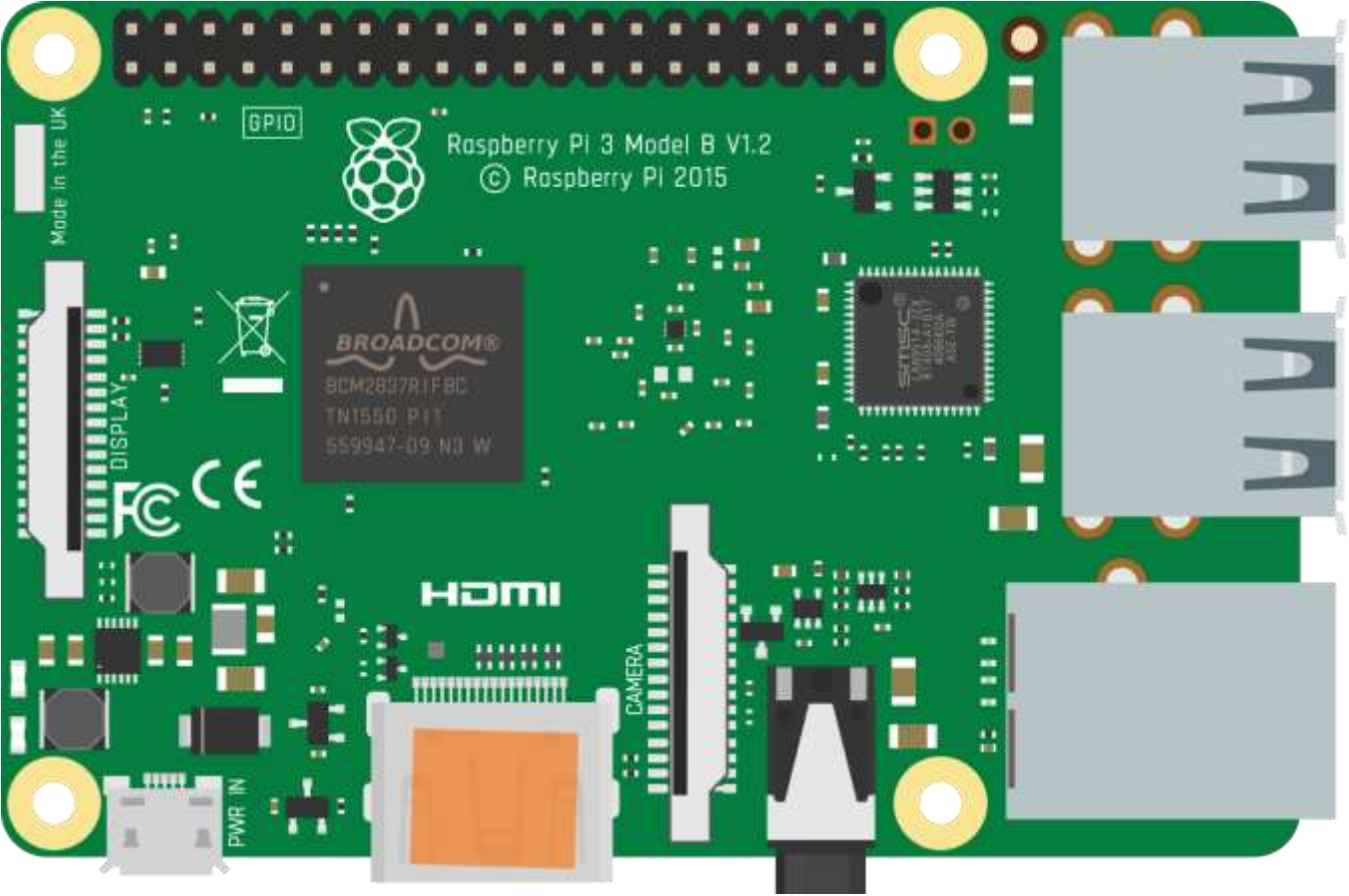
SCUTTLE Wiring Guide (Pi variant)

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.

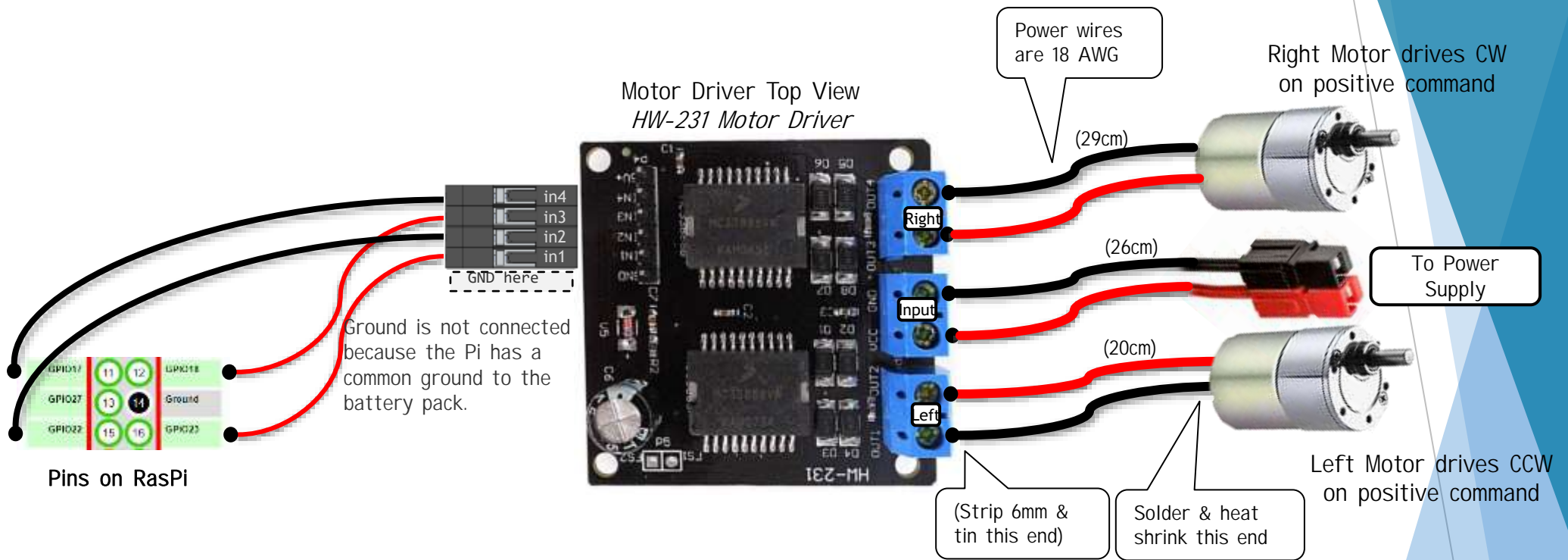


Pin Number Convention

All Models			
3V3 Power	1	2	5V Power
GPIO2 SDATA0	3	4	5V Power
GPIO3 SDATA1	5	6	Ground
GPIO4	7	8	GPIO14 UARTD-TX
Ground	9	10	GPIO15 UARTD-RXD
GPIO17	11	12	GPIO18
GPIO27	13	14	Ground
GPIO22	15	16	GPIO23
3V3 Power	17	18	GPIO24
GPIO16 SPI-MOSI	19	20	Ground
GPIO8 SPI-MISO	21	22	GPIO25
GPIO11 SPI-CE	23	24	GPIO8 SPI-CE
Ground	25	26	GPIO7 SPI-CE
ID 5D I/O ID	27	28	ID 5C I/O ID
GPIO5	29	30	Ground
GPIO6	31	32	GPIO12
GPIO13	33	34	Ground
GPIO19	35	36	GPIO16
GPIO26	37	38	GPIO28
Ground	39	40	GPIO21
40 pin models only			
USB Ports			

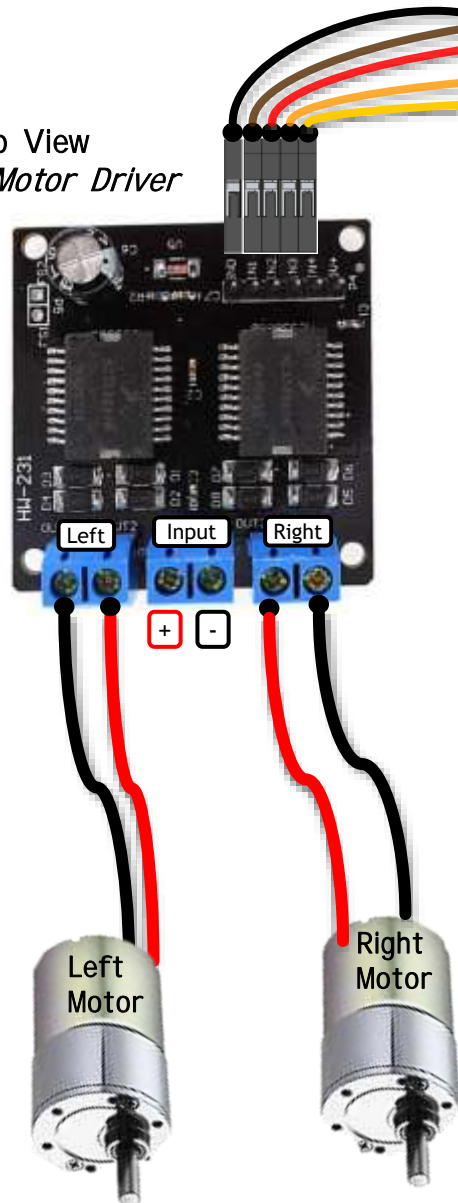


Pi - Motor Driver Signals

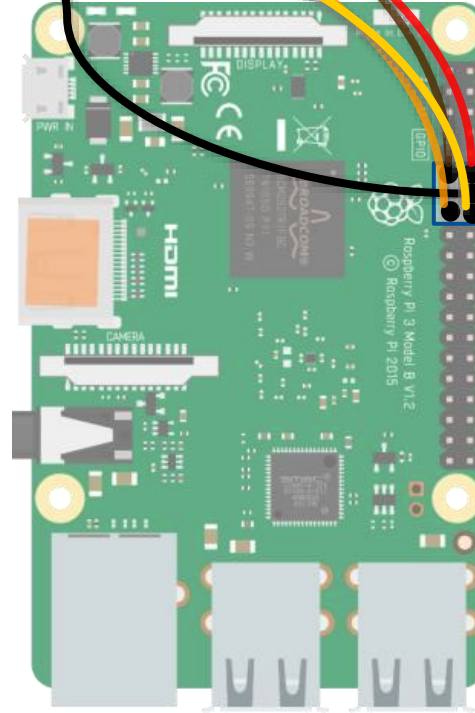


Pi - Motor Driver Signals

Top View
HW-231 Motor Driver



*Keep the wires bonded
To each other, if possible.*



Pins on RasPi

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

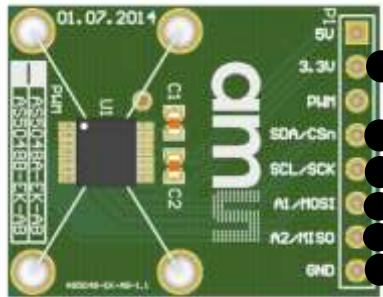
Pi - Encoder AMS AS5048 (I2C)

Left Hand Encoder

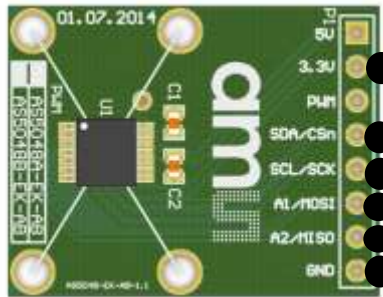
A1 is pulled **down** to GND

I2C address is 0x40

Left



Right



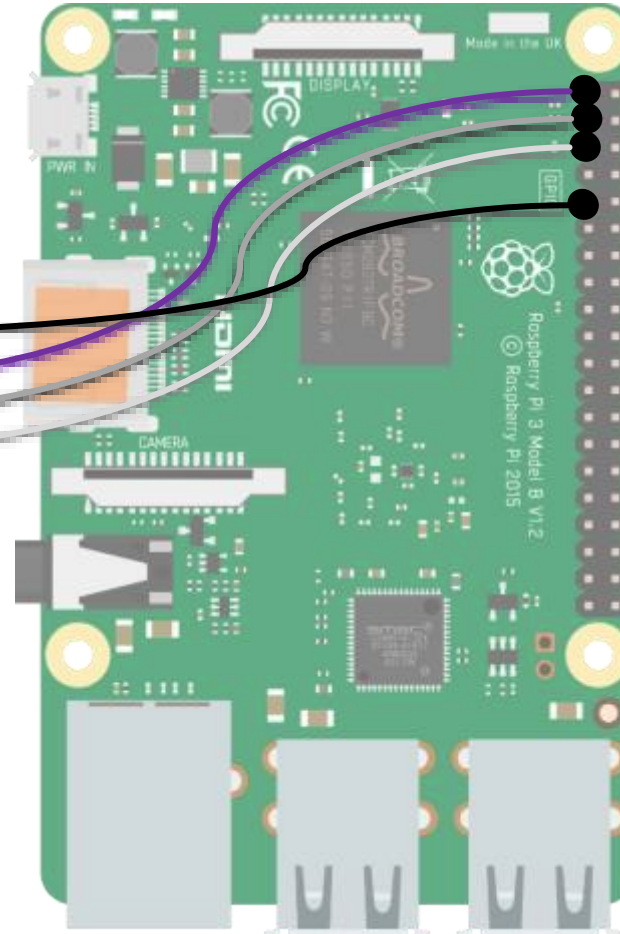
Right Hand Encoder

A1 is pulled **up** to 3.3v

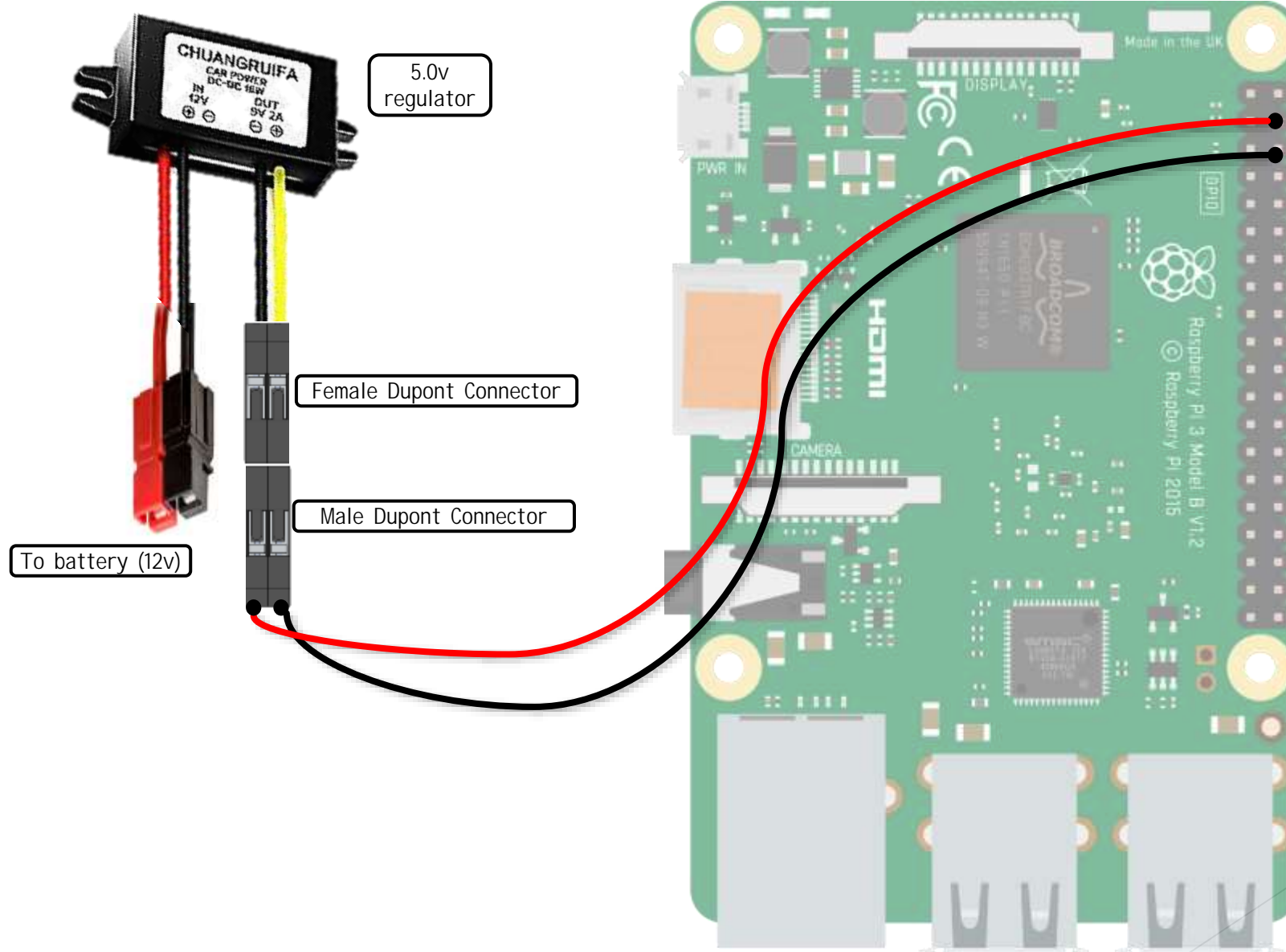
I2C address is 0x41

Nodes on the I2C bus board
are indicated here

Gnd
3.3v
SCK
SDA
3.3v
Gnd

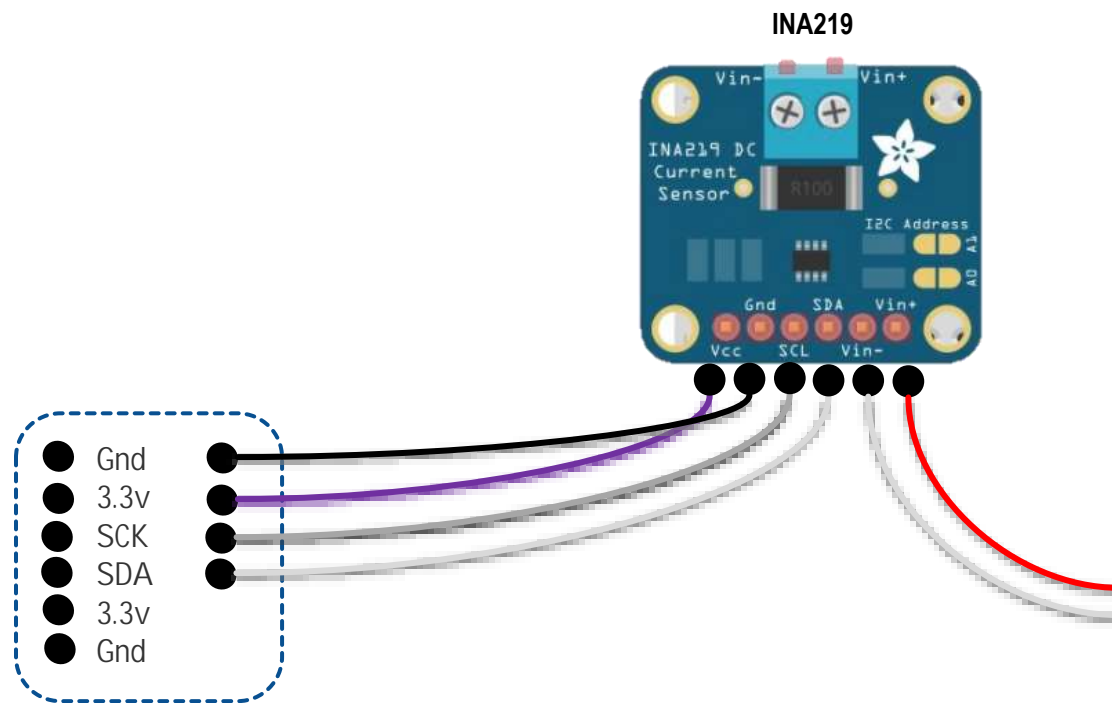


Pi - Power Supply



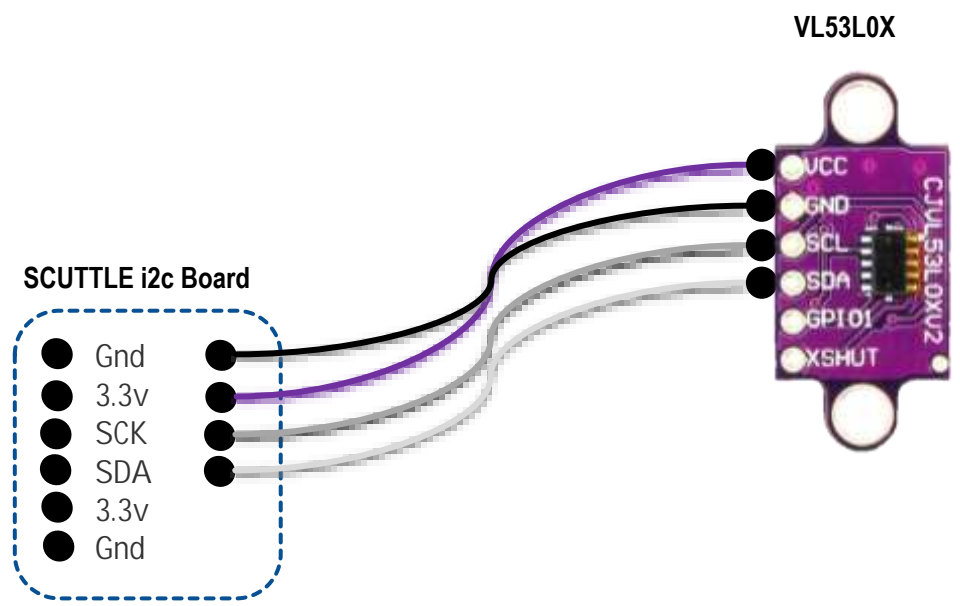
Voltage Meter – Adafruit ina219

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.



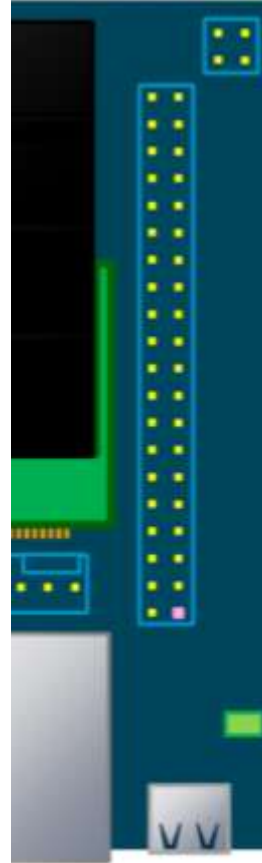
If you need to use an Aux cord, a right-angle adapter can keep your wires neat.

Jetson Nano Wiring

Diagram from Jetsonhacks.com

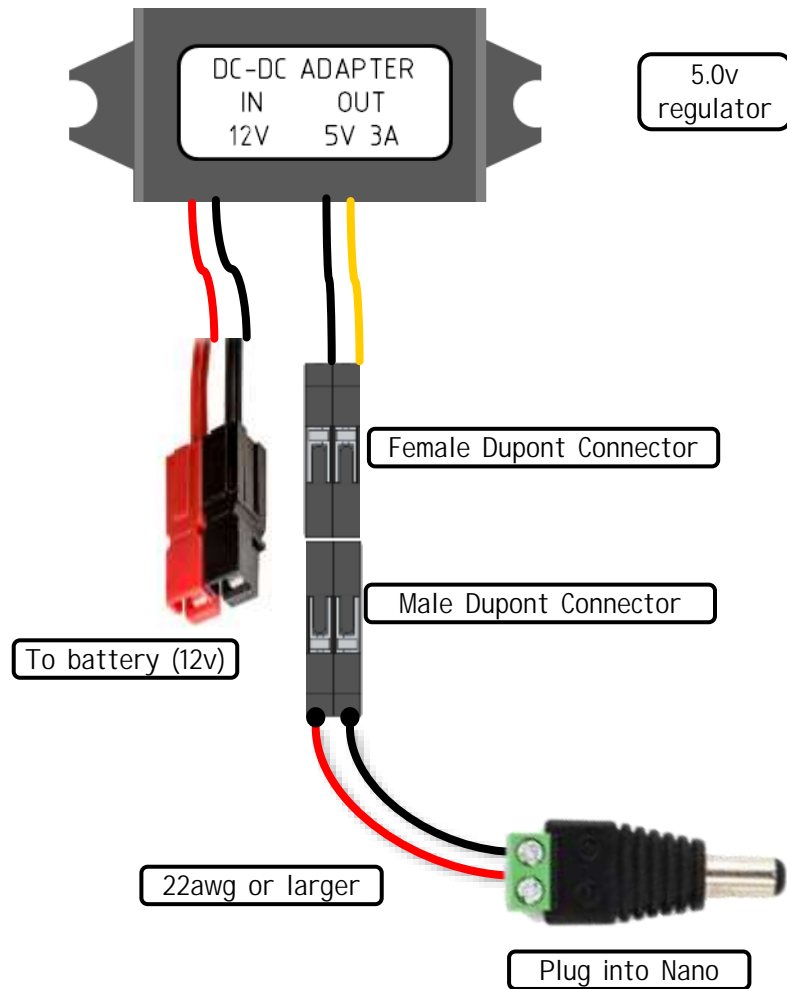
Sysfs GPIO	Name	Pin	Pin	Name	Sysfs GPIO
	3.3 VDC Power	1	2	5.0 VDC Power	
	I2C_2_SDA I2C Bus 1	3	4	5.0 VDC Power	
	I2C_2_SCL I2C Bus 1	5	6	GND	
gpio216	AUDIO_MCLK	7	8	UART_2_TX /dev/ttyTHS1	
	GND	9	10	UART_2_RX /dev/ttyTHS1	
gpio50	UART_2_RTS	11	12	I2S_4_SCLK	gpio79
gpio14	SPI_2_SCK	13	14	GND	
gpio194	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



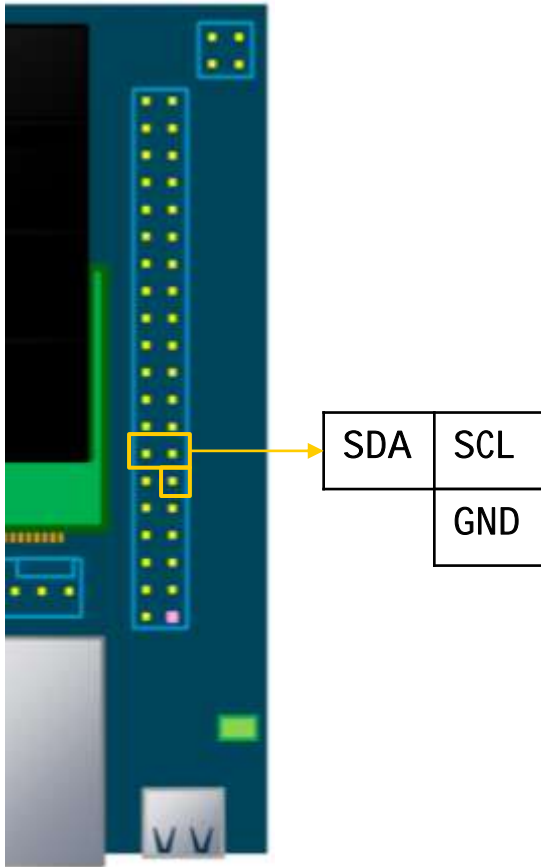
Jetson Nano - power

Diagram for powering Jetson Nano



Jetson Nano – i2c

Diagram for connecting i2c to SCUTTLE



TO BE COMPLETED...