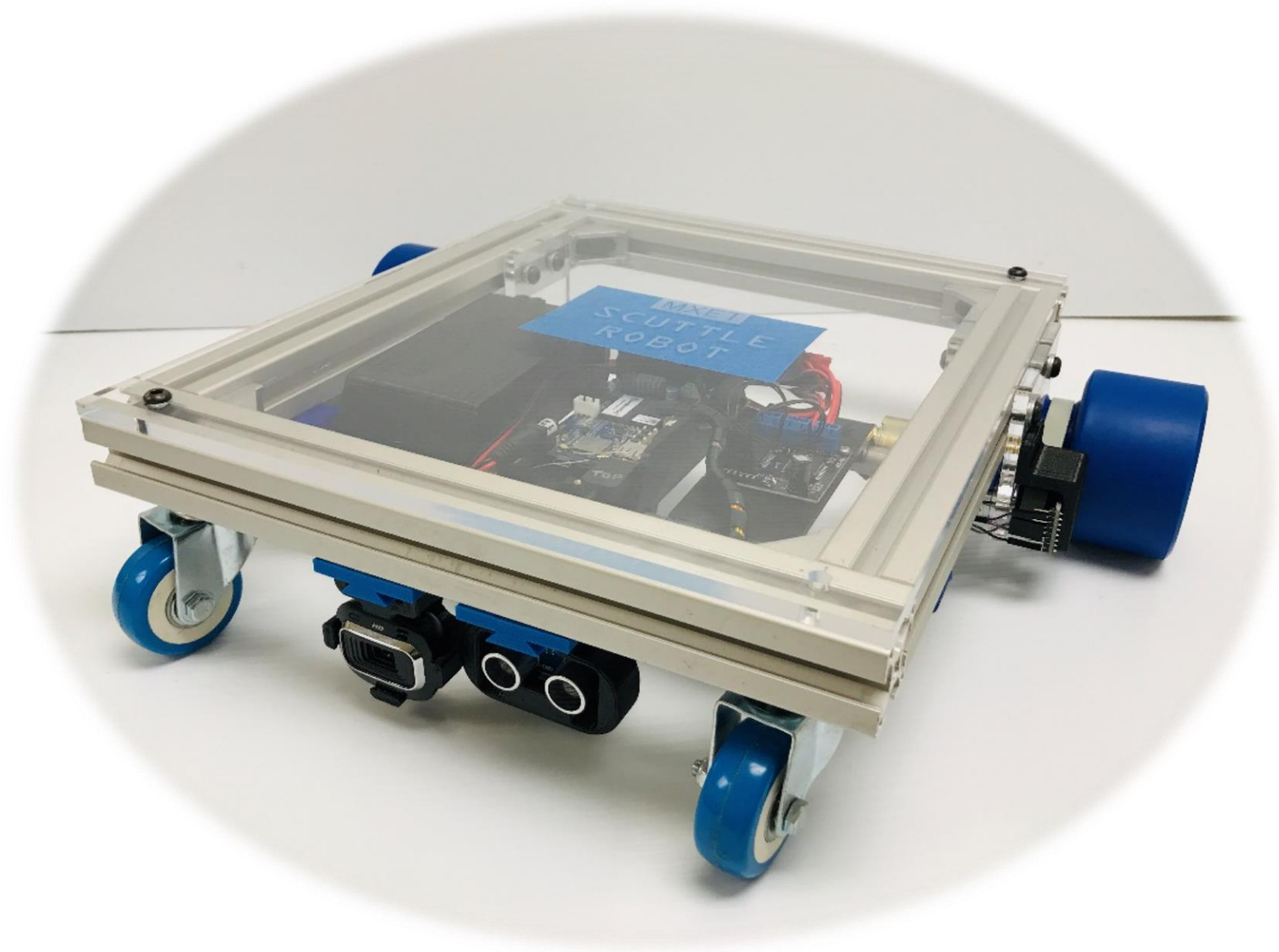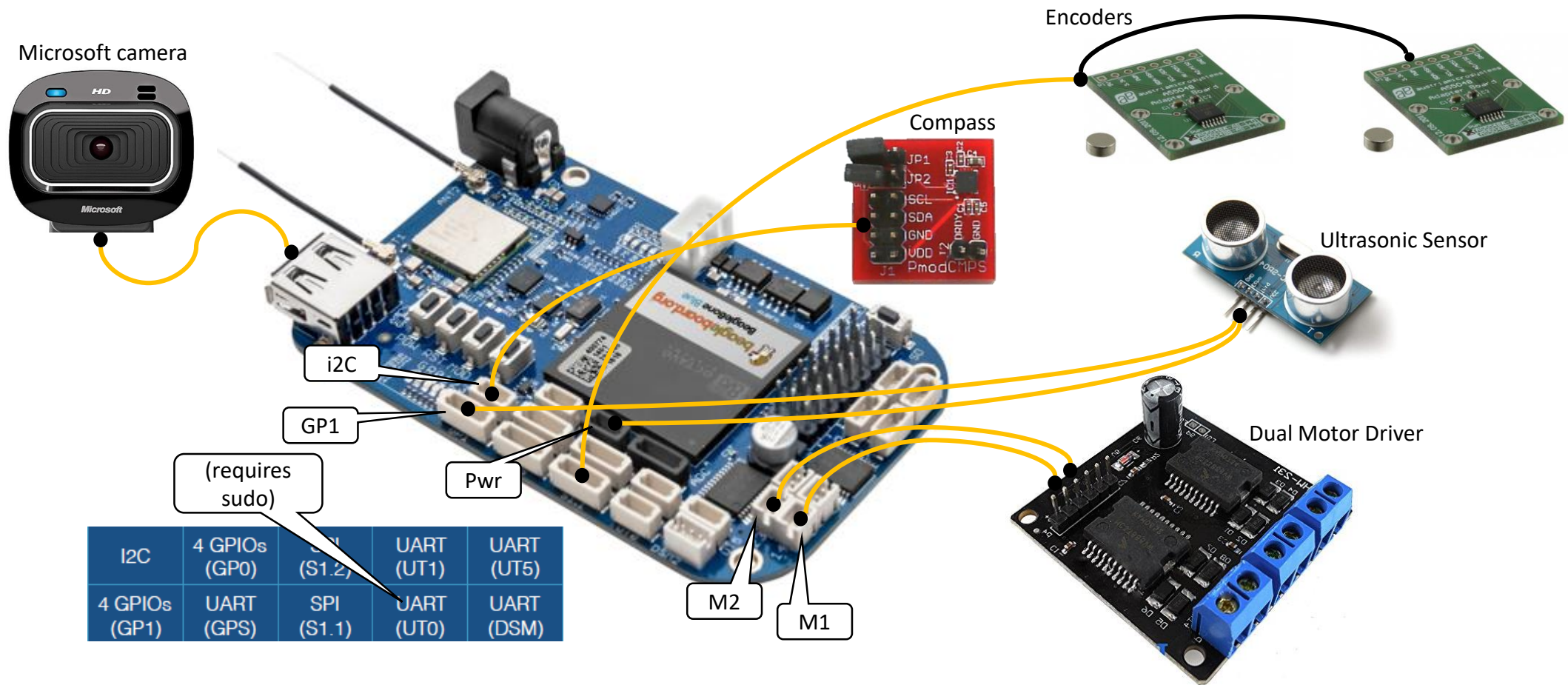Scuttle robot Wiring Guide (rev 2019.01.29)

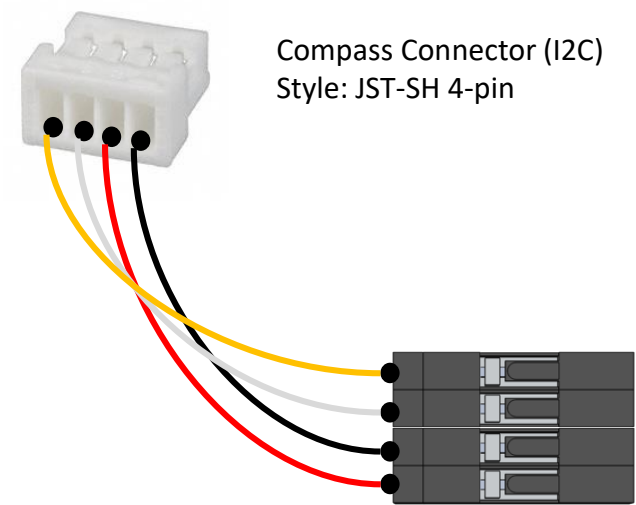All Sensors on BeagleBone

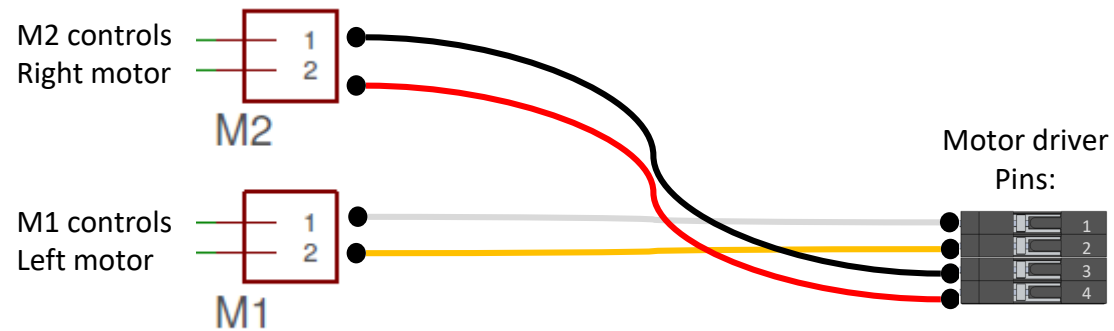Microsoft camera

Encoders

Compass

Ultrasonic Sensor

i2C

GP1

Pwr

(requires sudo)

Dual Motor Driver

M2

M1

I2C	4 GPIOs (GP0)	SPI (S1.2)	UART (UT1)	UART (UT5)
4 GPIOs (GP1)	UART (GPS)	SPI (S1.1)	UART (UT0)	UART (DSM)

BeagleBone to Compass (I2C)

BeagleBone I2C Connector

I2C

GND	1
3.3V	2
I2C1_SCL	3
I2C1_SDA	4

Returns 3 floating point values corresponding to X, Y, Z compass Values.

x   Compass

JP1
JP2
SCL
SDA
GND
VDD
PmodCMPS
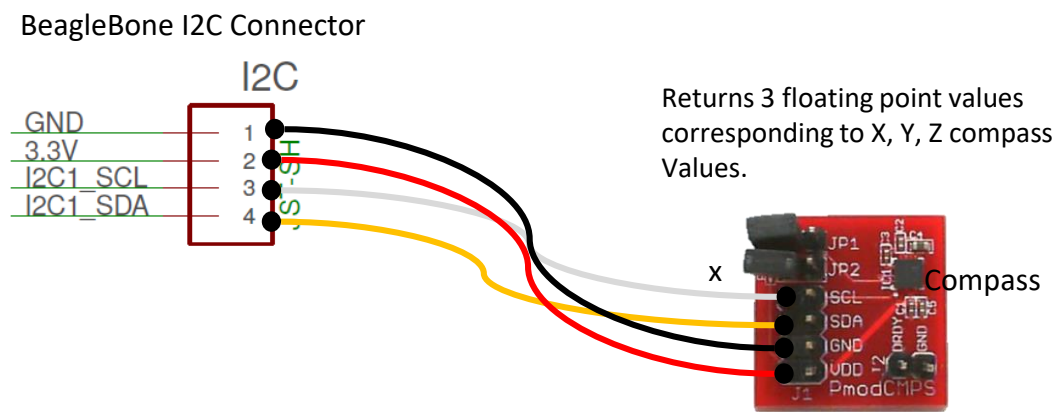
This diagram does not show encoders which couple to the same i2c bus

Compass Connector (I2C)
Style: JST-SH 4-pin

BeagleBone to Motor Driver (PWM)

M2 controls
Right motor

M2
1
2

M1 controls
Left motor

M1
1
2

Motor driver
Pins:
1
2
3
4

HW 231 Motor Driver

Left
Input
Right
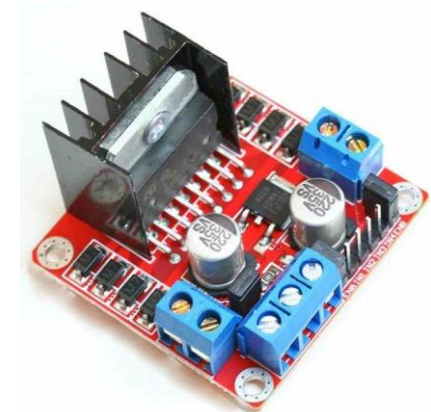
Ground is not connected
because the BBB has a
common ground to the
battery pack.
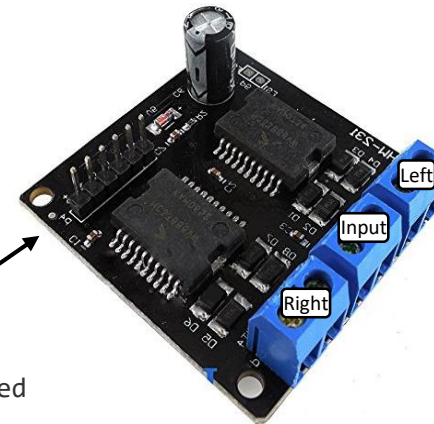
L298N Motor Driver

Ultrasonic Distance Sensor (GPIO)

Connector Style: JST-SH 4-pin

1) VCC
2) Trigger
3) Echo
4) GND

PWR

JST-SH

4
3
2
1

3.3V
5.0V
5v

10uF

C16

GND GND GND

Connector Style: JST-SH 6-pin

GP1

GND
3.3V
GPIO3_2
GPIO3_1
LED_RED
LED_GRN

1
2
3
4
5
6

JST-SH

Encoder AS5048 (SPI)

I2C

GND — 1
3.3V — 2
I2C1_SCL — 3
I2C1_SDA — 4

Left

Right

Compass

Encoder with A1 pulled up is encoder address 0x41 (right hand side) Other encoder is 0x40 (left hand side)

Battery Connector

Barrel Connector
Center Positive
5.5x2.1mm

LIPO   V_BATT   DO   VCC

1
2 BATT_MID
3 BATT_MINUS

JST XH

Q1
MOSFET-N   GND

R107
.1, 0805

CGND   GND

Connects to battery Pack