

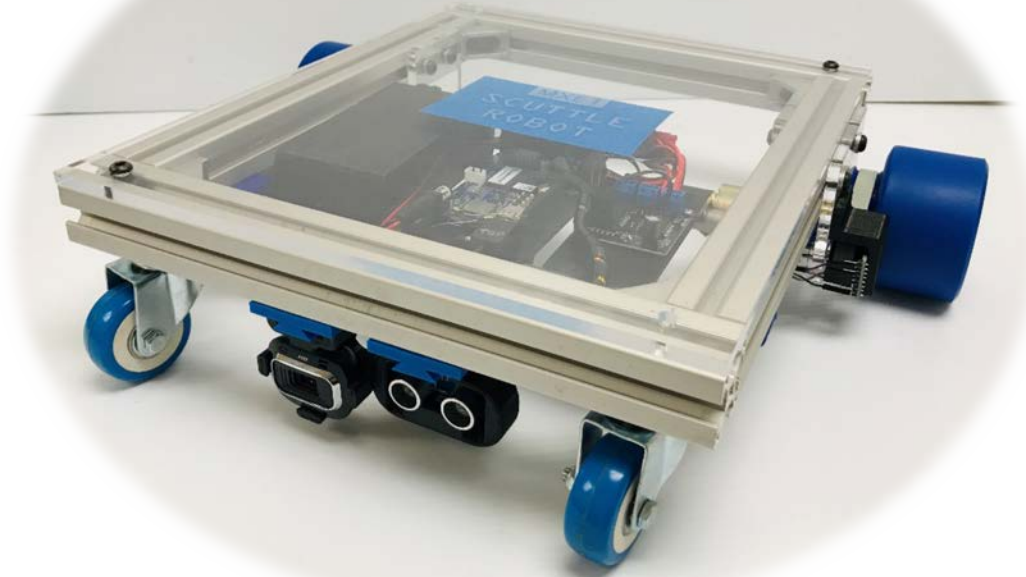
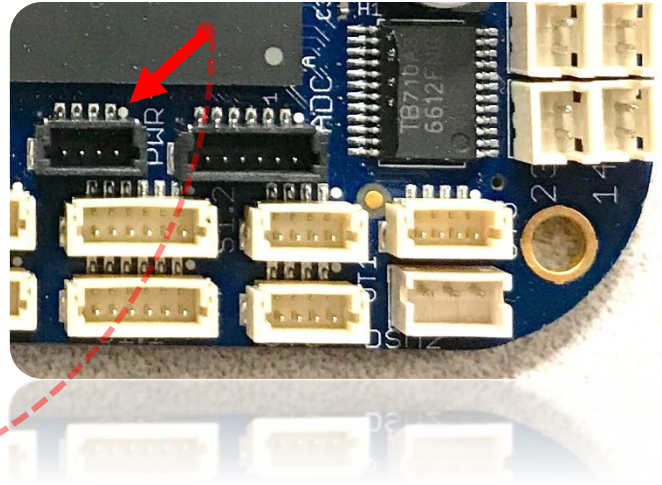
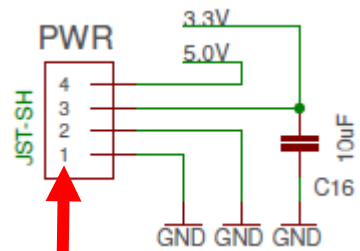
Scuttle robot Wiring Guide (rev 2019.09.18)

Important Info:

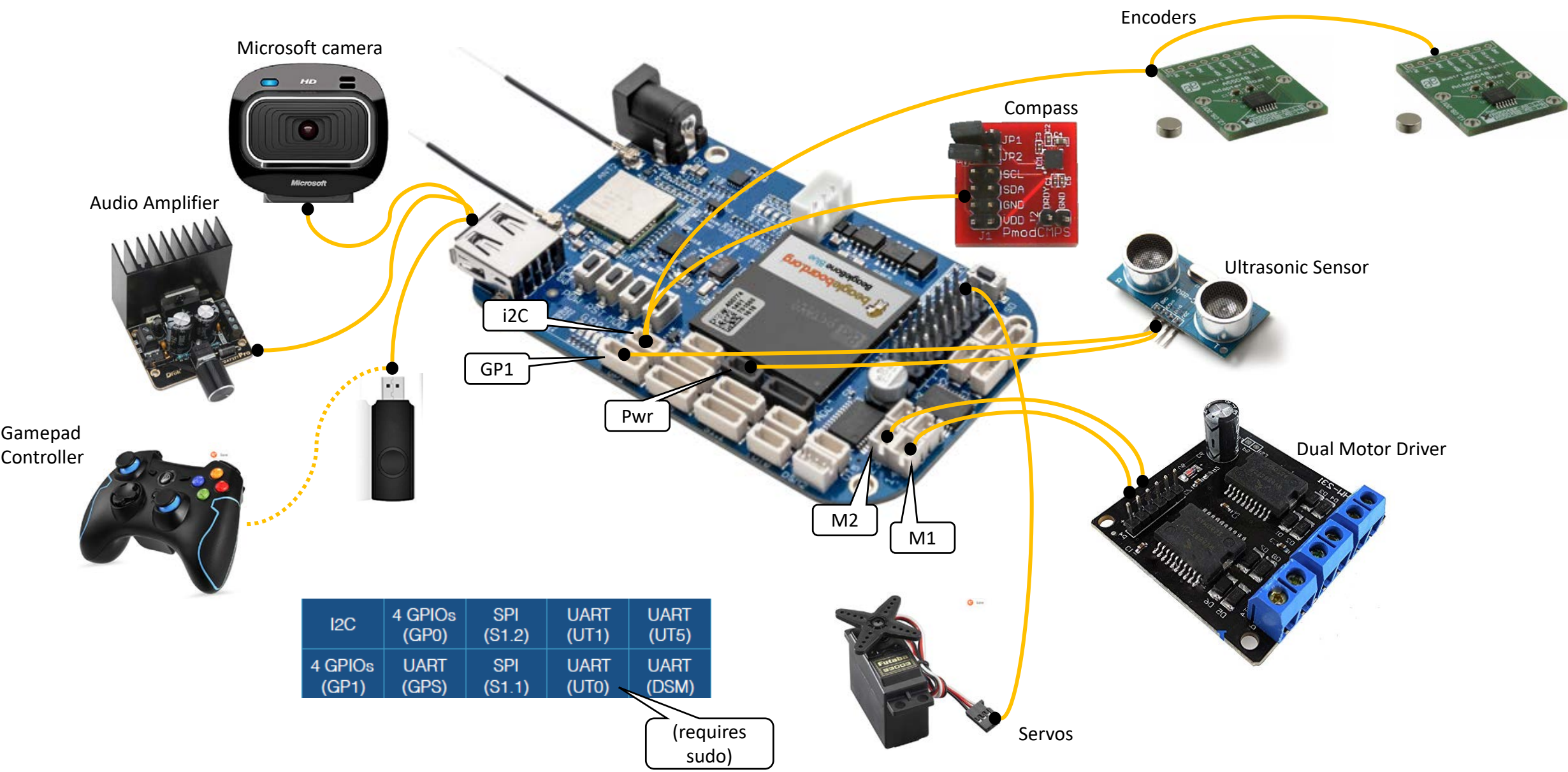
To match the beaglebone pins to the pin numbers on the diagram:

The tiny white circle on the silkscreen at each connector indicates "pin1"

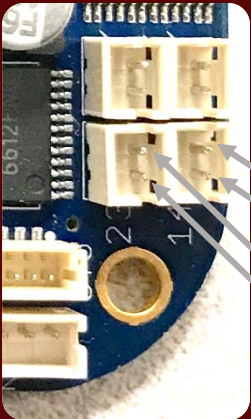
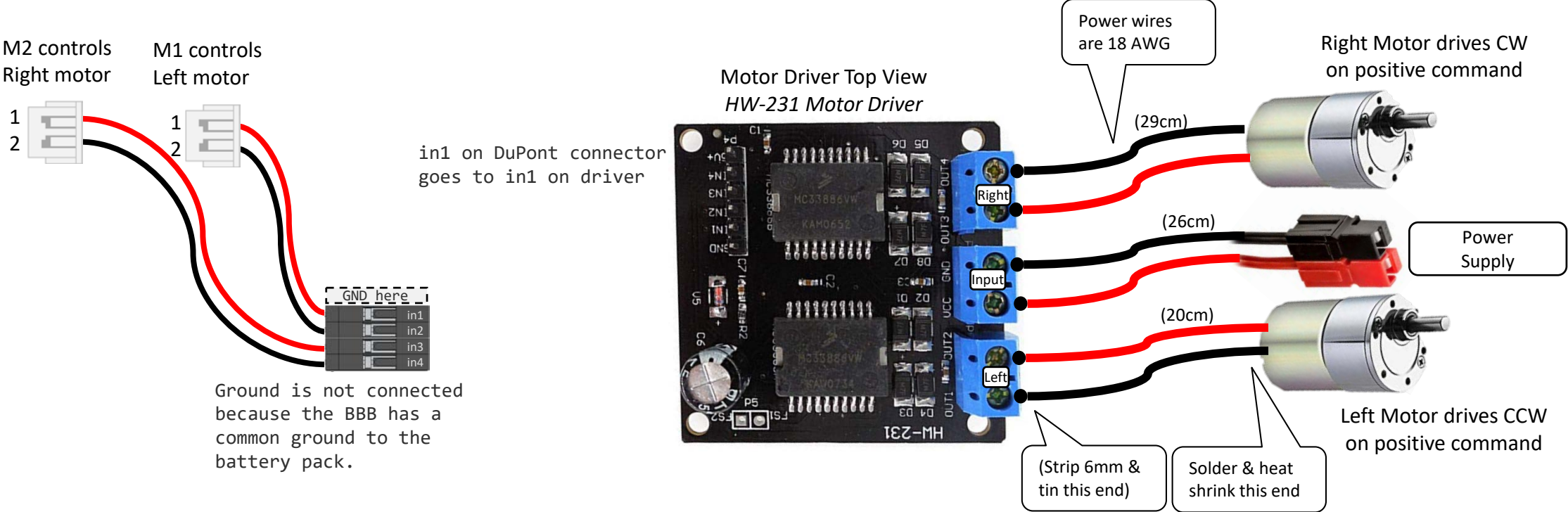
*All images of this style are copied
directly from the beaglebone schematic*



All Sensors & Actuators



Motor Driver Signal Cables



Pin 1 should be HIGH when motor is driven FORWARD

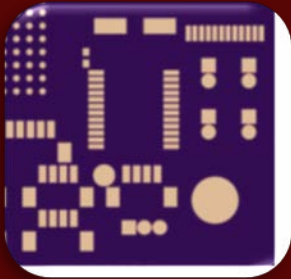
Motor1 Pin1

Motor1 Pin2

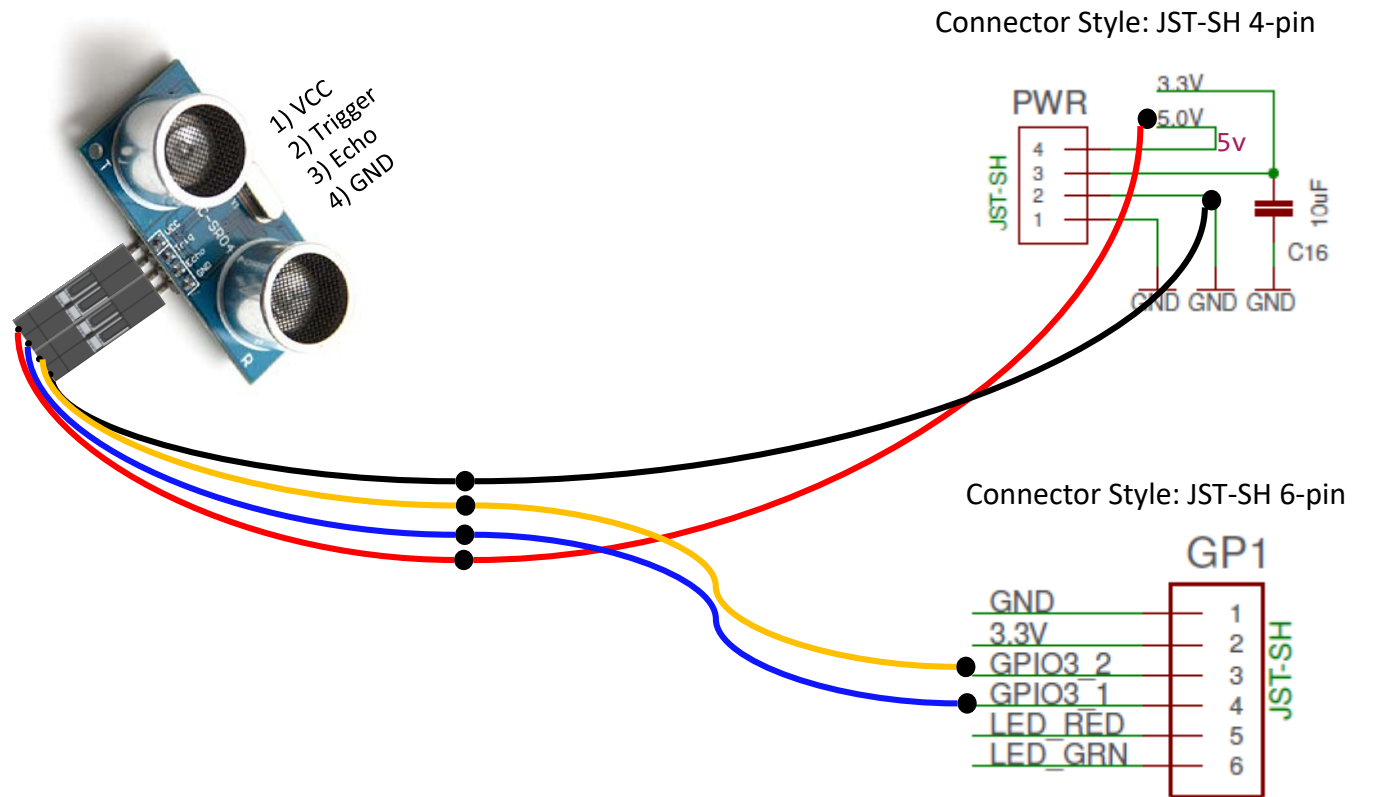
Motor2 Pin1

Motor2 Pin2

The hardware design convention is pin 1 gets the square solder pad.



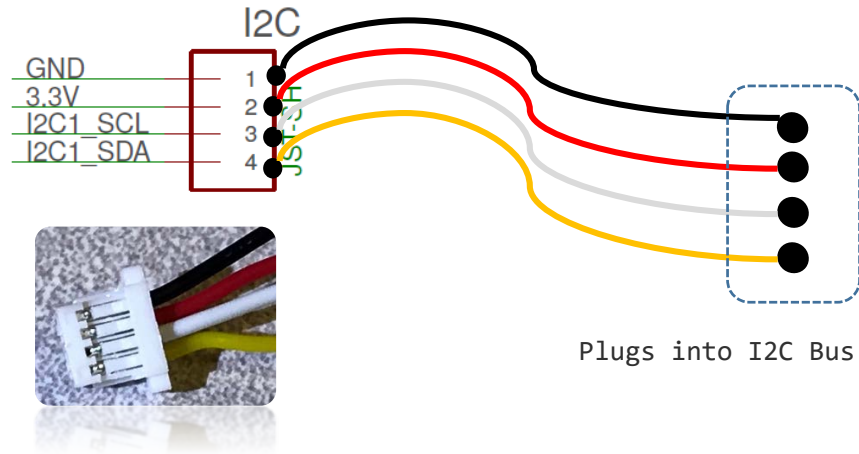
Ultrasonic Distance Sensor (GPIO)



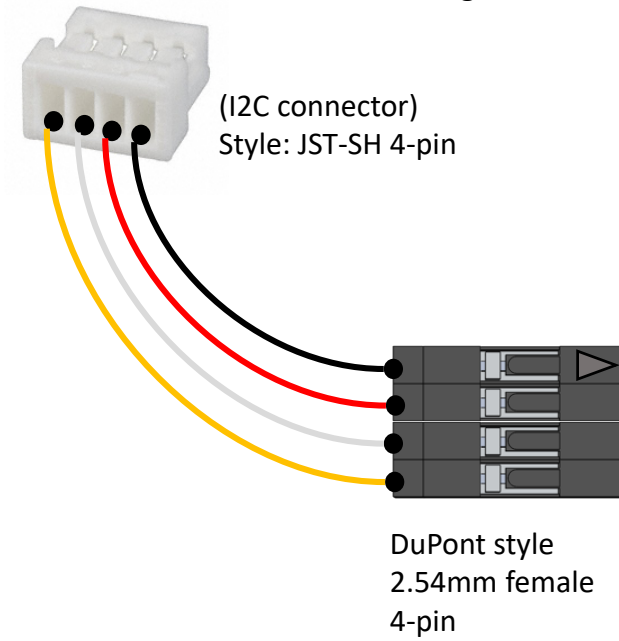
Beaglebone to I2C bus cable

Diagram

BeagleBone I2C Connector
Style: JST-SH 4-pin

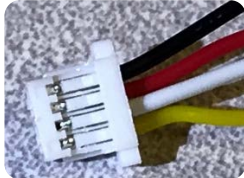
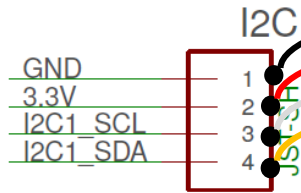


Cable Design

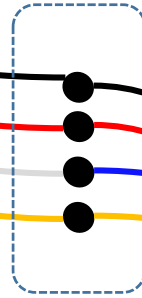


Compass CMPS or CMPS2 (I2C)

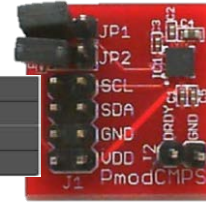
BeagleBone I2C Connector
Style: JST-SH 4-pin



Nodes on the I2C bus
board are indicated here



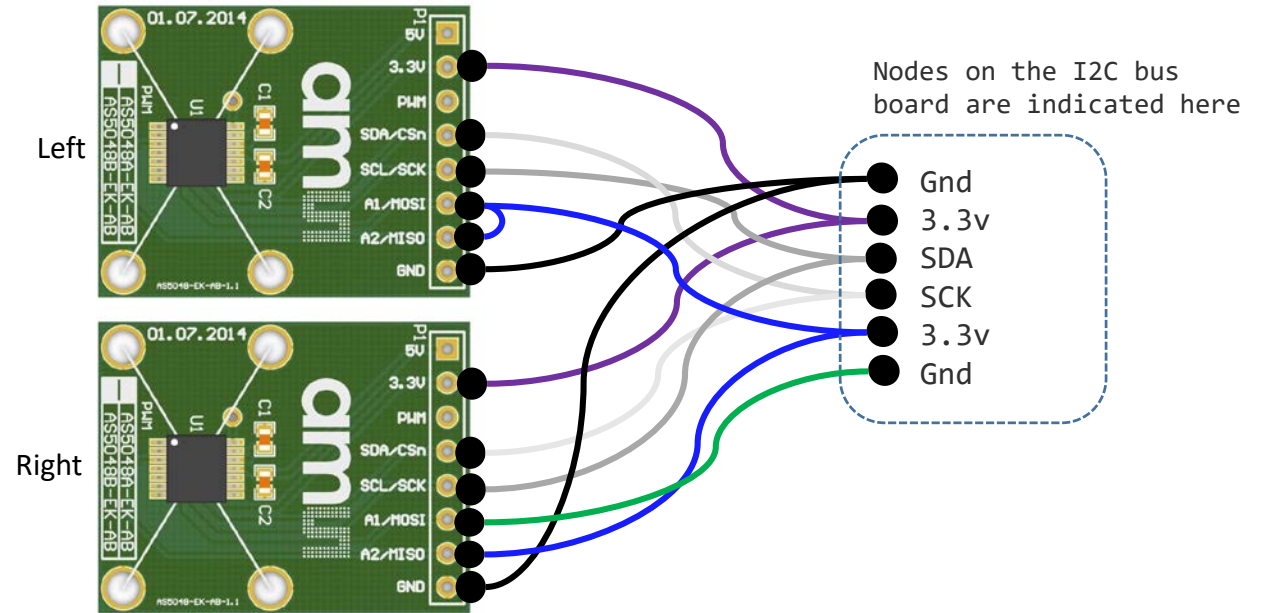
Compass



Encoder AS5048 (I2C)

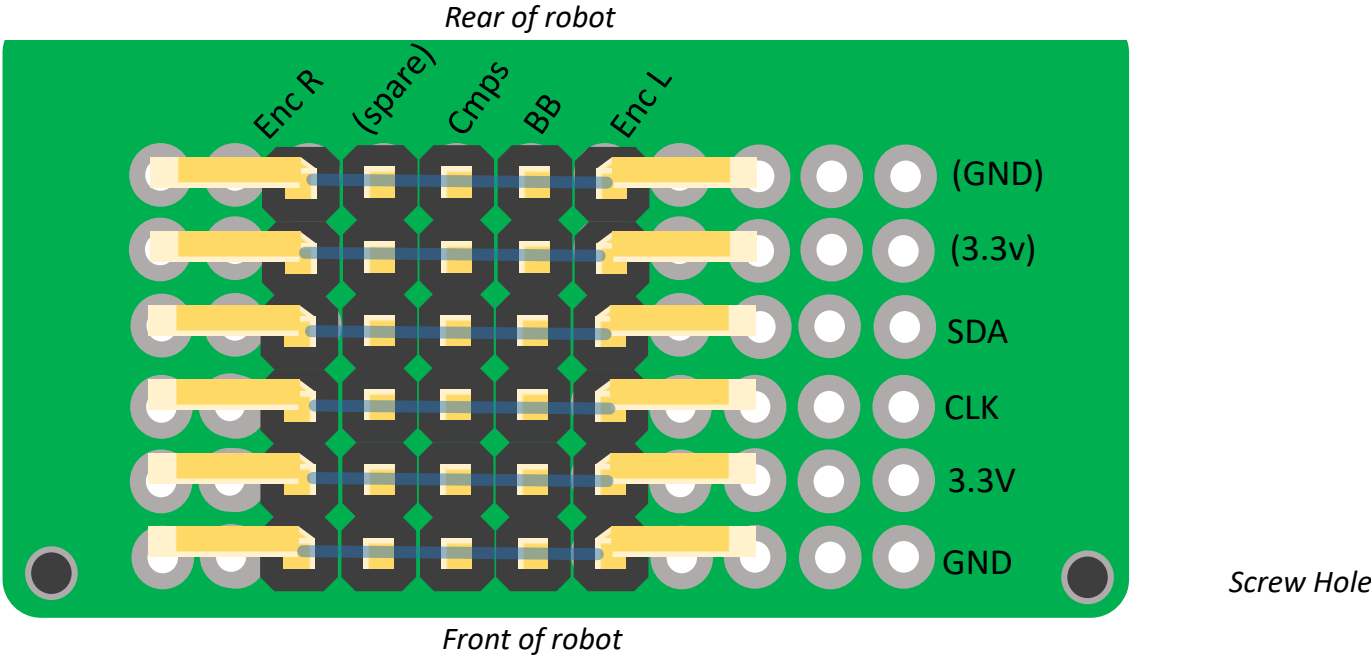
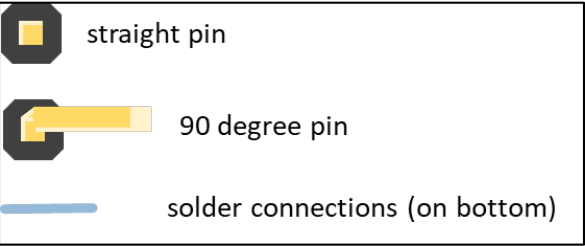
Left Hand Encoder
A1 is pulled **down** to GND
I2C address is 0x40

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



I2C Bus Board

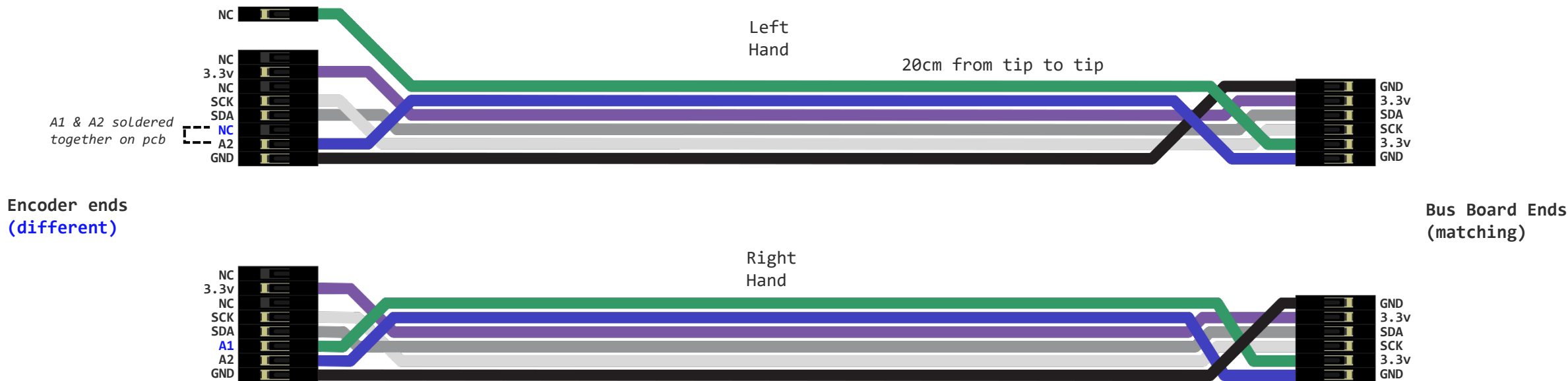
The board is made from a breadboard and soldered manually. The board can be cut between rows J & K



Left	Left	Right
A1	0	1
A2	0	0
Address	0x40	0x41

On the Left Hand Encoder PCB, bridge the pins A1 and A2 using solder.

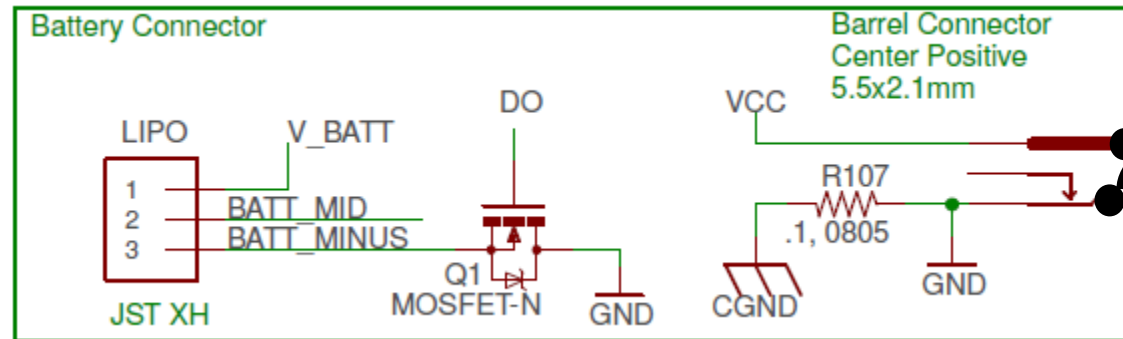
Encoder Cables



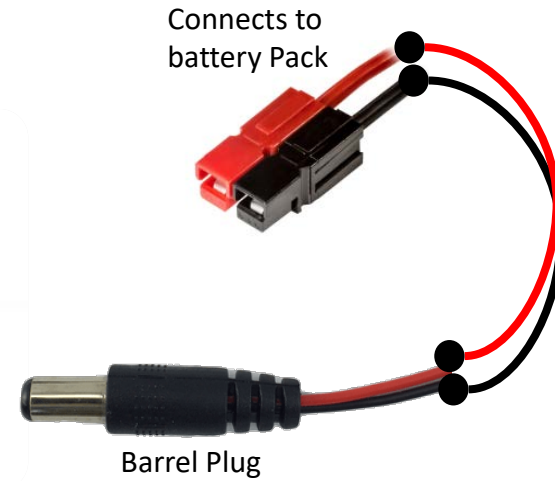
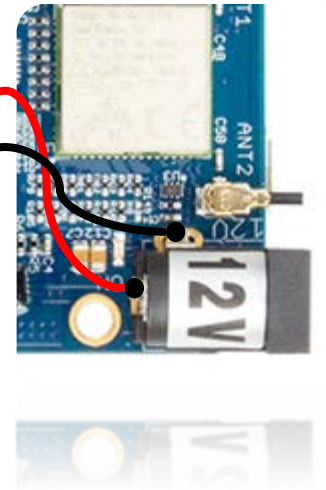
Left	Left	Right
A1	0 (low)	1 (high)
A2	0 (low)	0 (low)
i2c Address	0x40	0x41

On the Left Hand Encoder PCB, bridge the pins A1 and A2 using solder.

Battery



The "Battery Connector" is disconnected. Actual battery uses Barrel Connector.



LIDAR

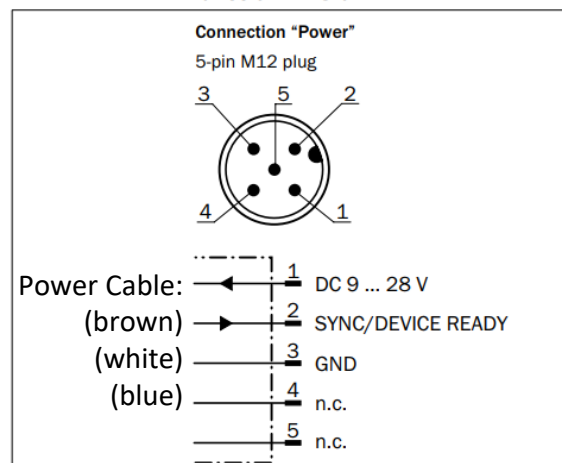
Lidar Device



TiM 561

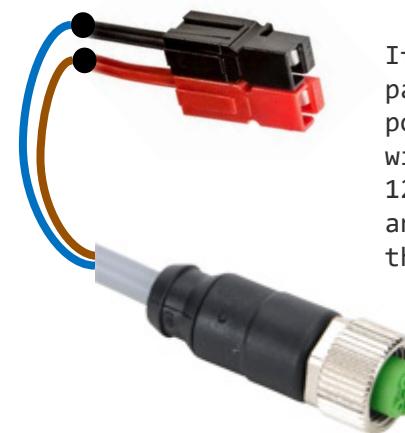
Connector Diagram (lidar side)

POWER connection (supply voltage)



LIDAR-side connector (male pins)

Power Wire Diagram (plugs into lidar)



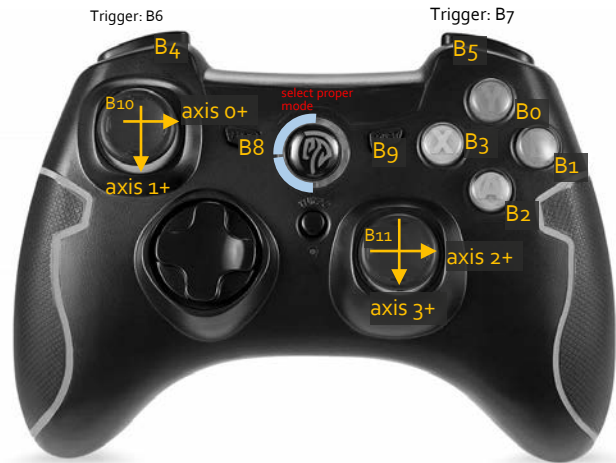
If the indicated cable part number is used for power to the lidar, brown will be crimped into the 12v positive APP terminal and blue is crimped into the negative.

[Cable: 7000-12241-2150300](#)

Cable-side connector (female pins)

GamePad

Gamepad Controls Mapping



Button Behavior:

- not pressed: 0
- Pressed: 1

Axis behavior:

- Right returns positive values
- down returns positive values

```
# Get Button States
x_button = joystick.get_button( 3 )
l_button = joystick.get_button( 6 )
r_button = joystick.get_button( 7 )

l_joy_x = joystick.get_axis( 0 )
l_joy_y = joystick.get_axis( 1 )
```

RFID reader

