Running NXT Ultrasonic Sensor on RoBoard

DMP Electronics Inc
Robotic Division
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Overview

- Use RoBoard to read NXT ultrasonic sensor.

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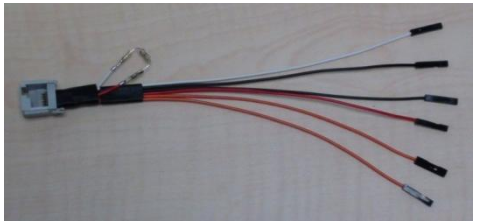
- The following will explain how to make the connection line for connecting NXT ultrasonic sensor to RoBoard.

Outline

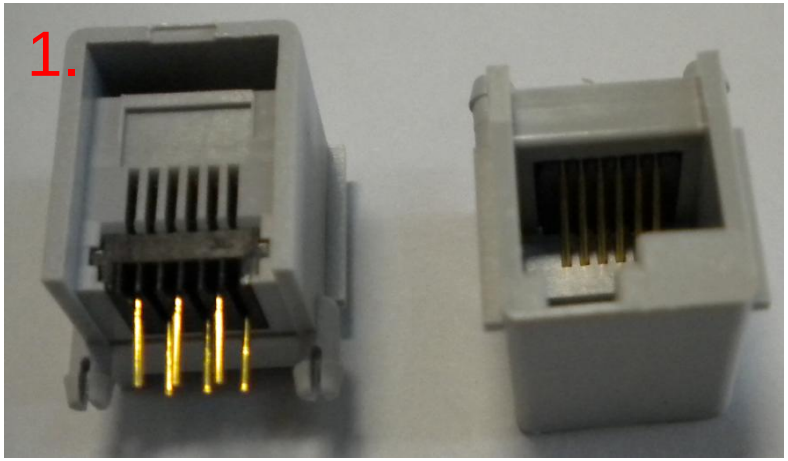
- Connection Line DIY
- Connect NXT ultrasonic sensor to RB-100/RB-100RD
- Connect NXT ultrasonic sensor to RB-110

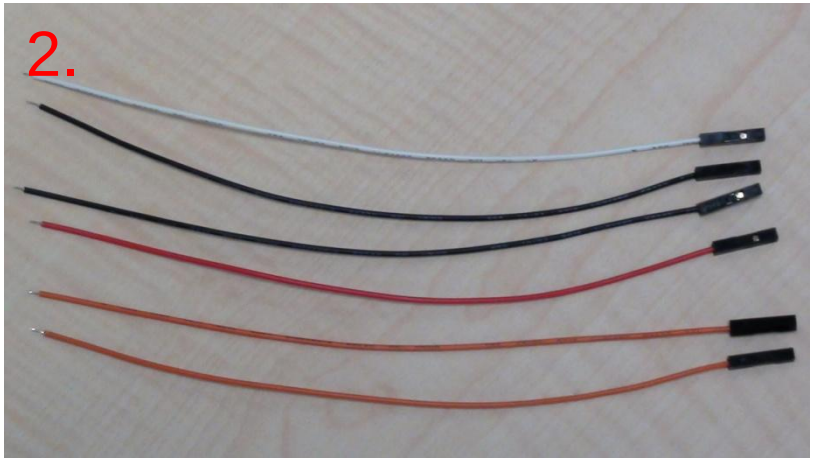
Connection Line DIY



Material

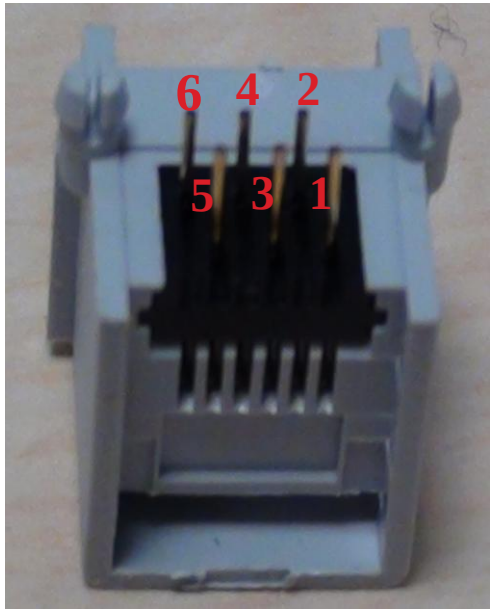
- 1. Female NXT adapter ×1
- 2. 2.54mm Dupont line 1P ×6
- 3. 10kΩ resistor ×1





NXT Pin Definition

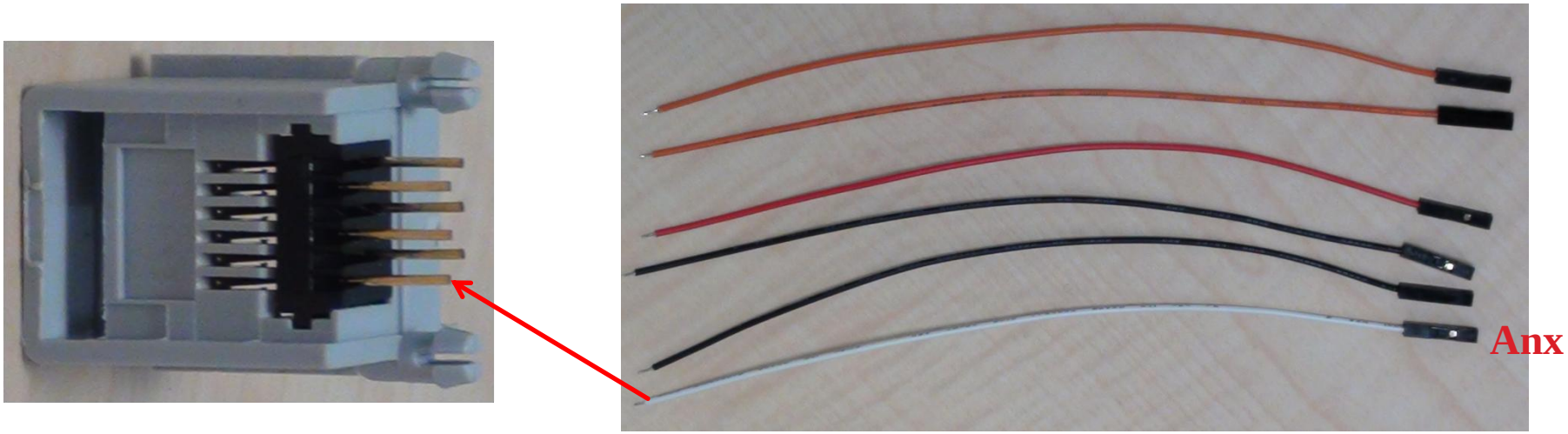
- Pin function of the NXT adapter



Pin #	Function
1	Anx
2	GND
3	GND
4	IPOWERx
5	DIGIxI0
6	DIGIxI1

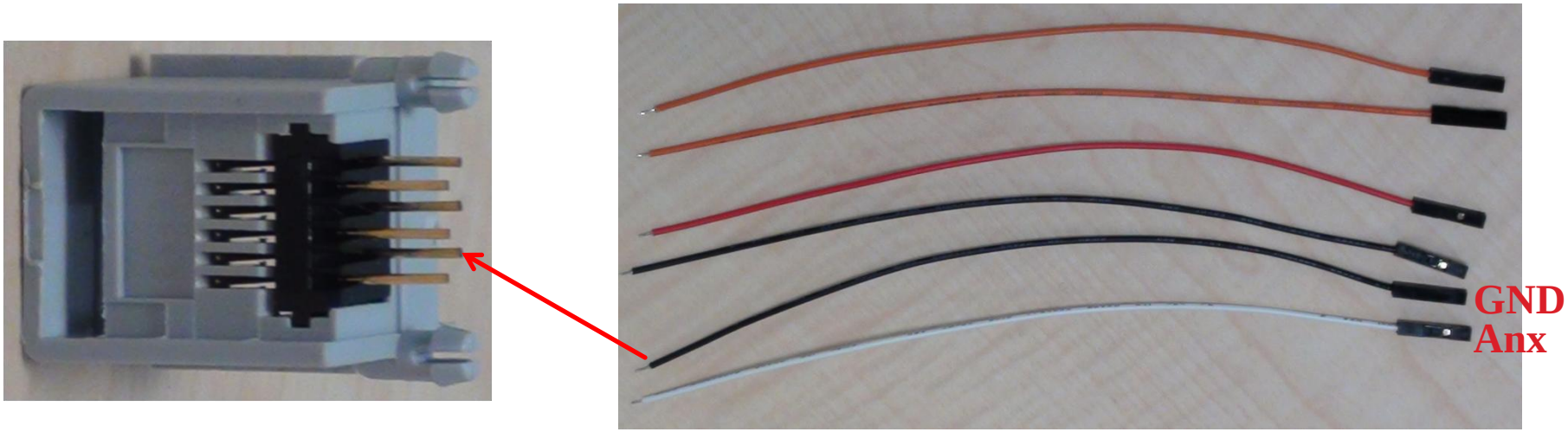
DIY Step 1.

- Solder one Dupont line to Anx pin of NXT adapter.



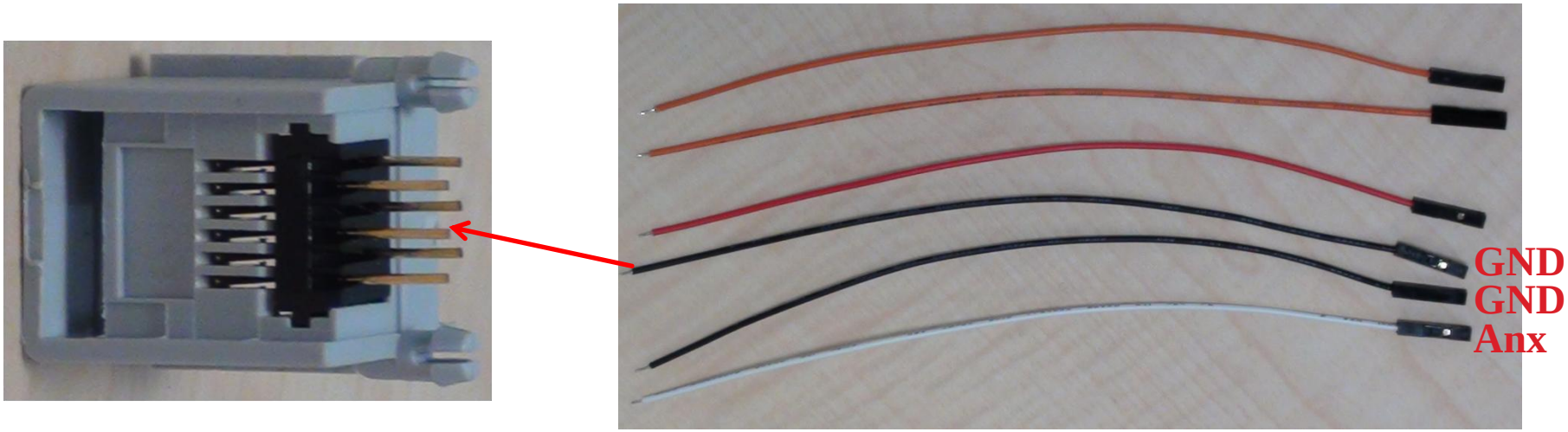
DIY Step 2.

- Solder one Dupont line to GND pin of NXT adapter.



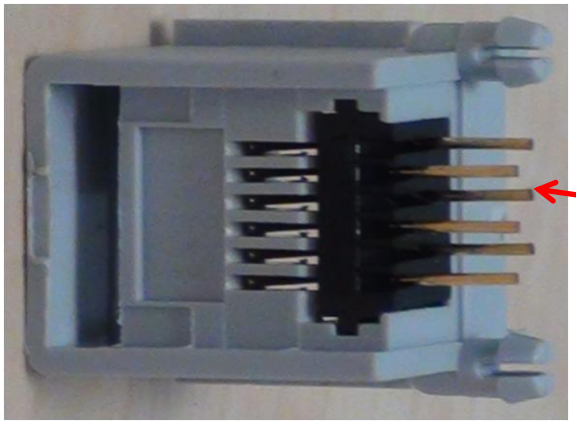
DIY Step 3.

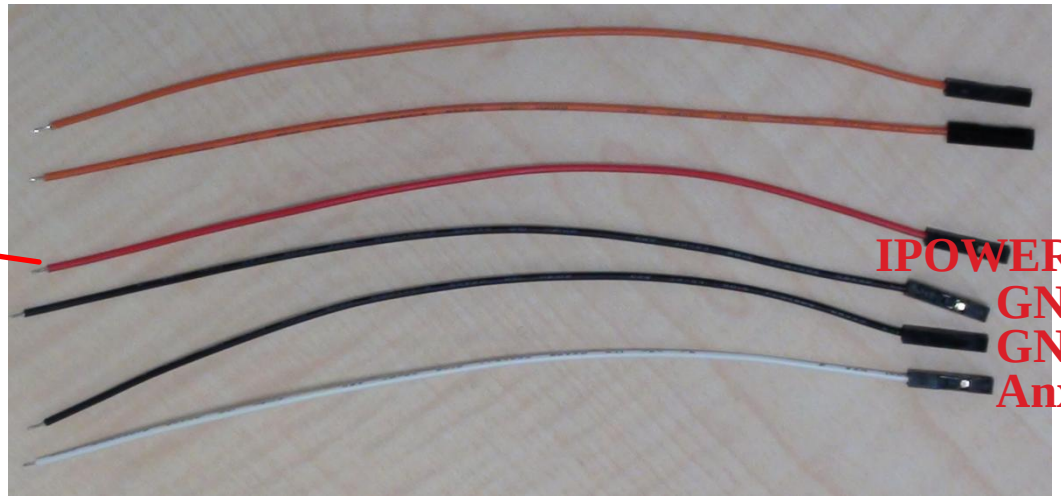
- Solder one Dupont line to GND pin of NXT adapter.



DIY Step 4.

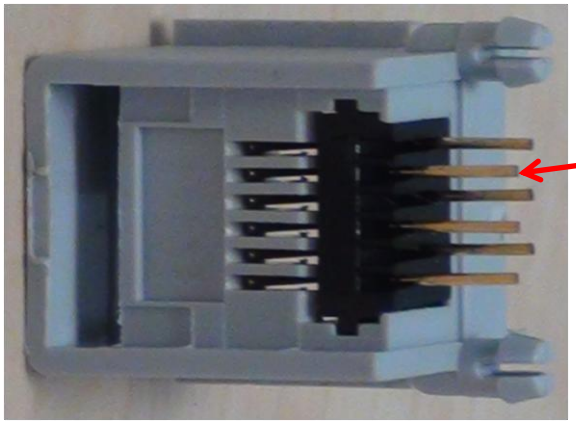
- Solder one Dupont line to IPOWERx pin of NXT adapter.

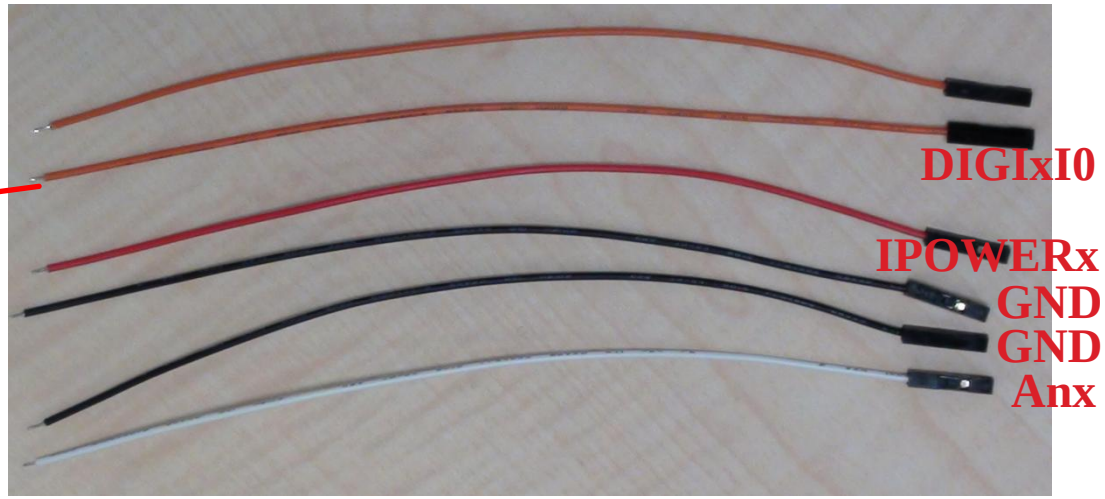




DIY Step 5.

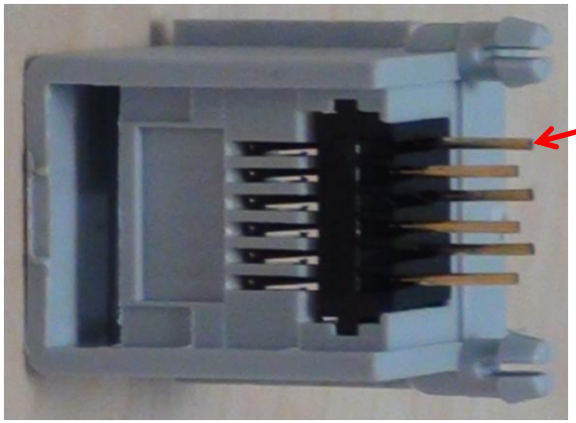
- Solder one Dupont line to DIGIxI0 pin of NXT adapter.

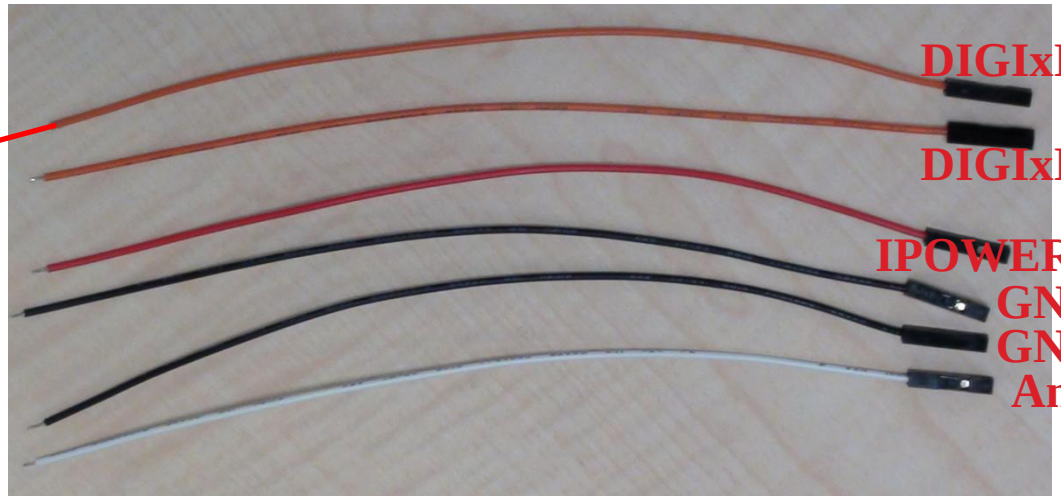




DIY Step 6.

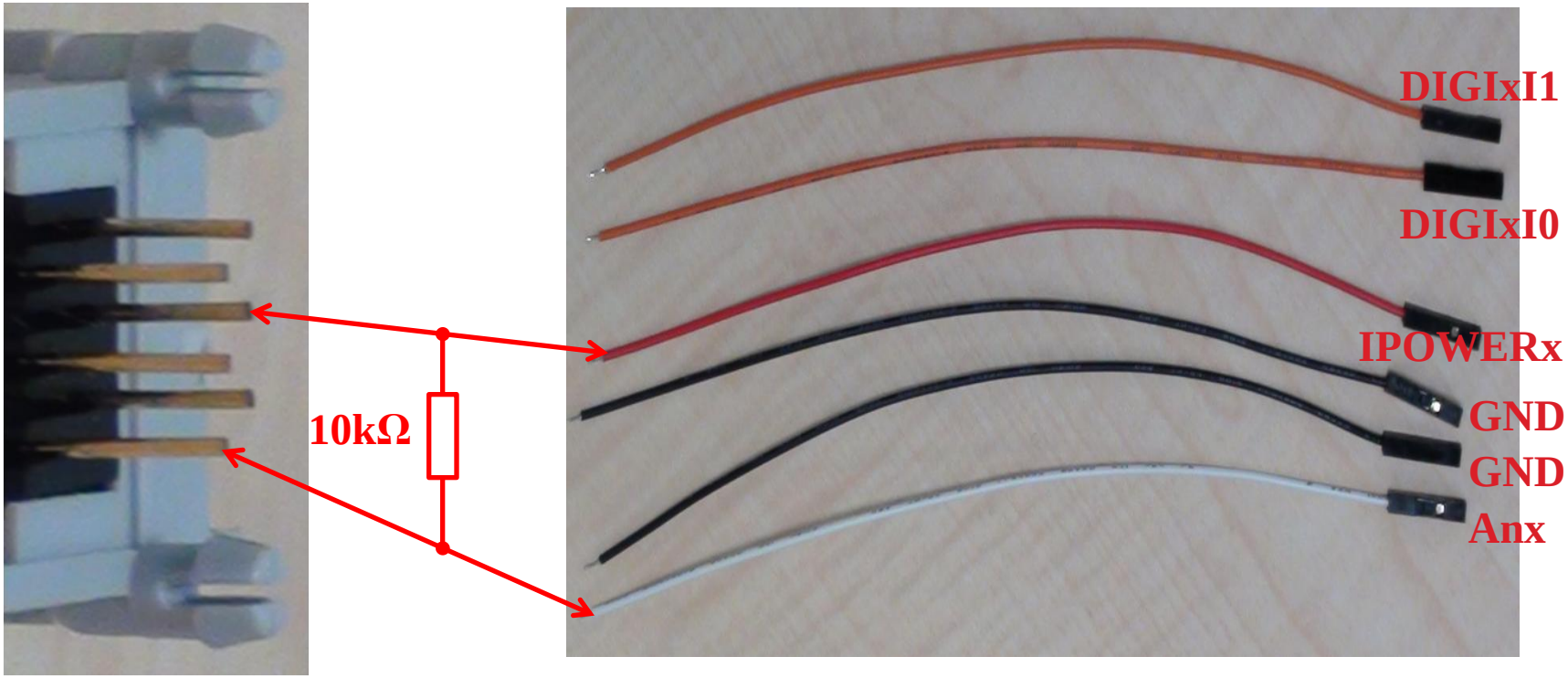
- Solder one Dupont line to DIGIxI1 pin of NXT adapter.





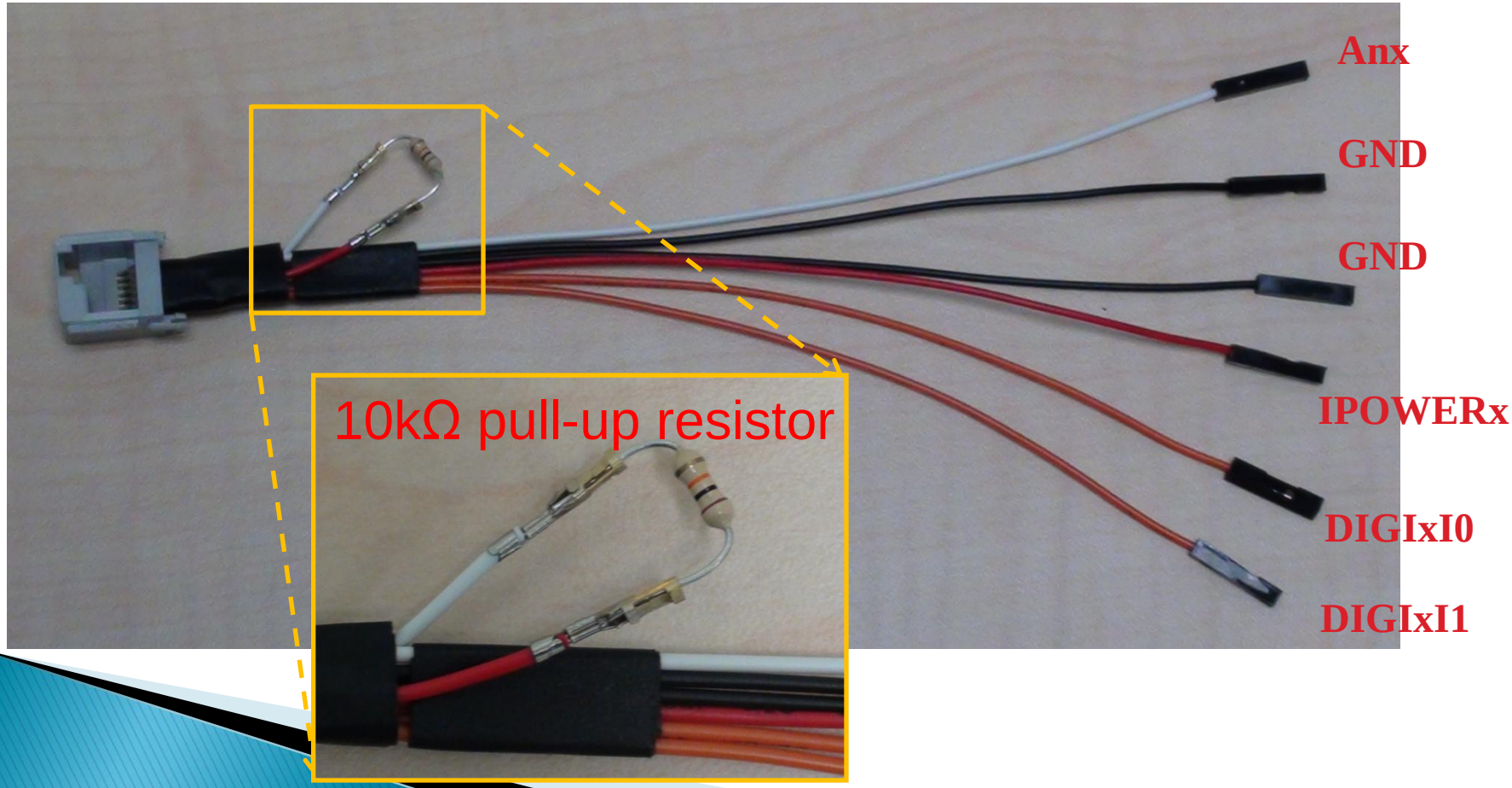
DIY Step 7.

- Solder one 10kΩ resistor between Anx pin and IPOWERx pin.



DIY Completed

- Finally, we obtain a RoBoard-to-NXT connection line.

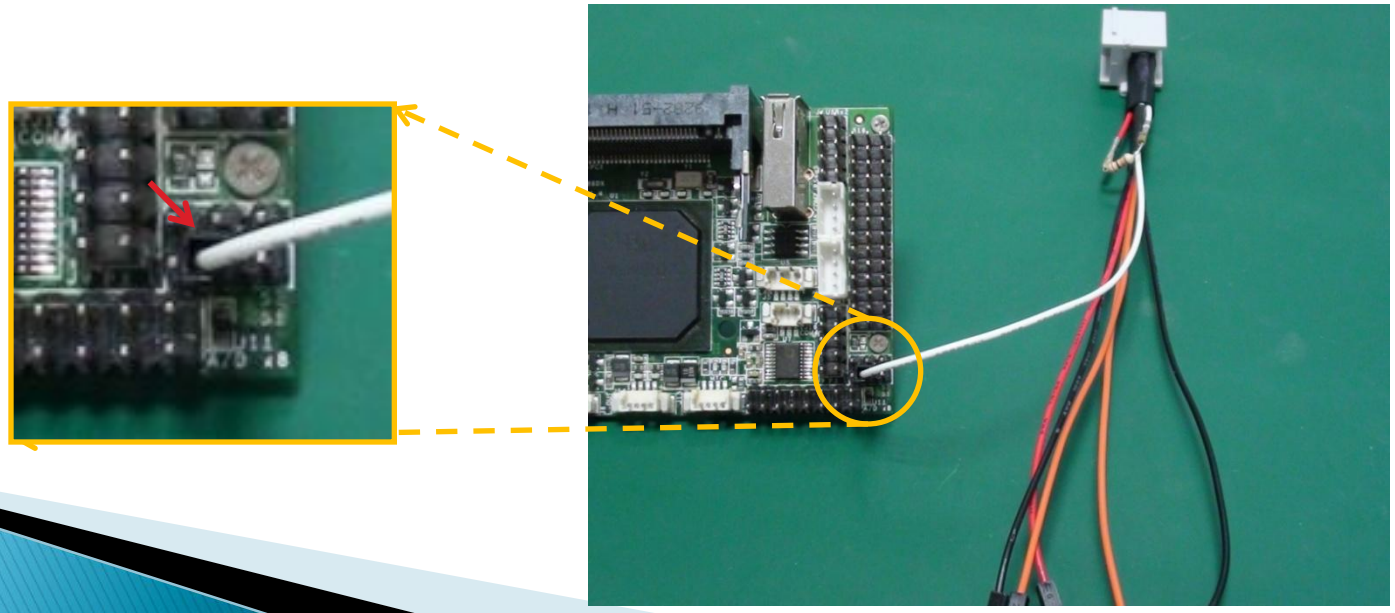


Connect NXT ultrasonic sensor to RB-100/RB-100RD

How to?

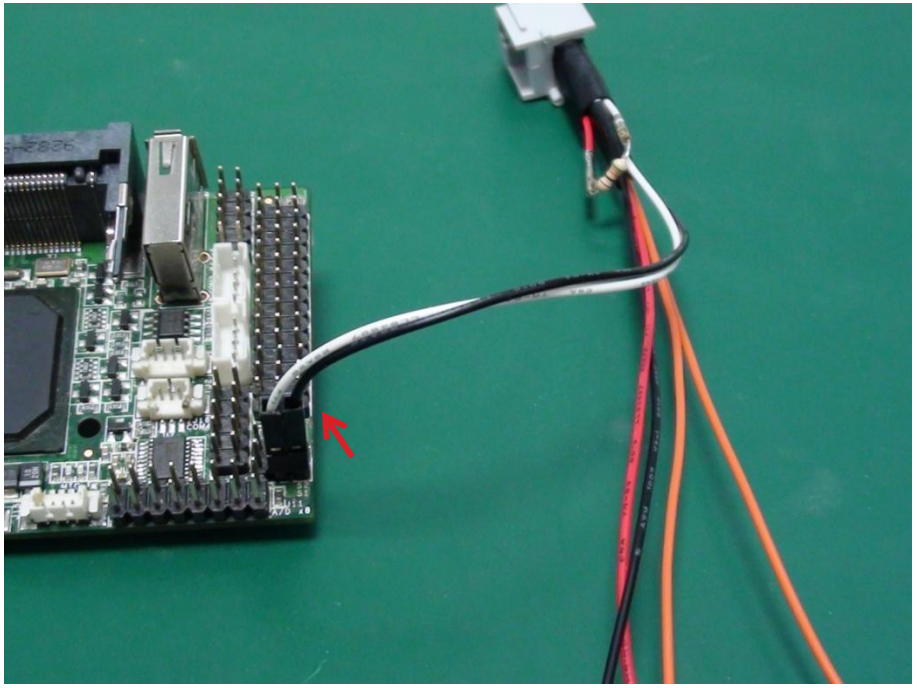
Connect Step 1.

- It needs to input 9V to Anx.
  - Method 1. Use an extra power supply to give 9V.
  - Method 2. Supply 9V to RoBoard, and get 9V from any Vxx pin.
    - Here we use method 2 as example, connect the Anx to Vxx pin of RoBoard PWM connector.



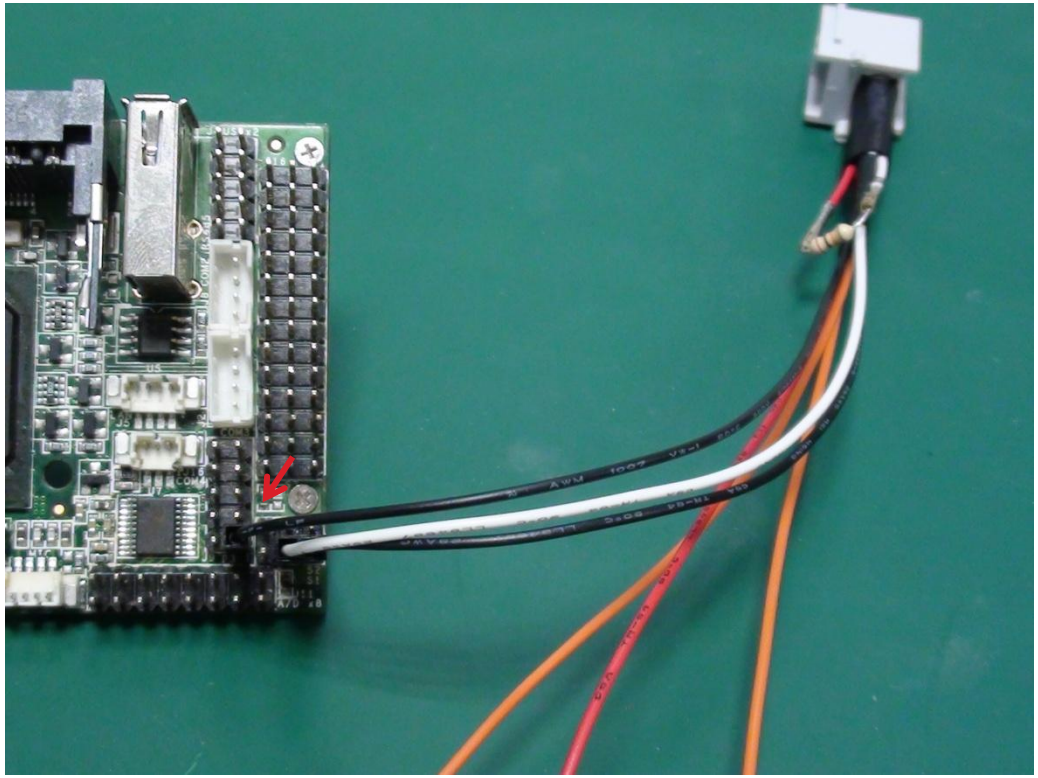
Connect Step 2.

- Connect Pin#2 GND to the GND pin of RoBoard PWM connector.
  - If you use method 1, you should connect Pin#2 GND to the GND of extra power supply.



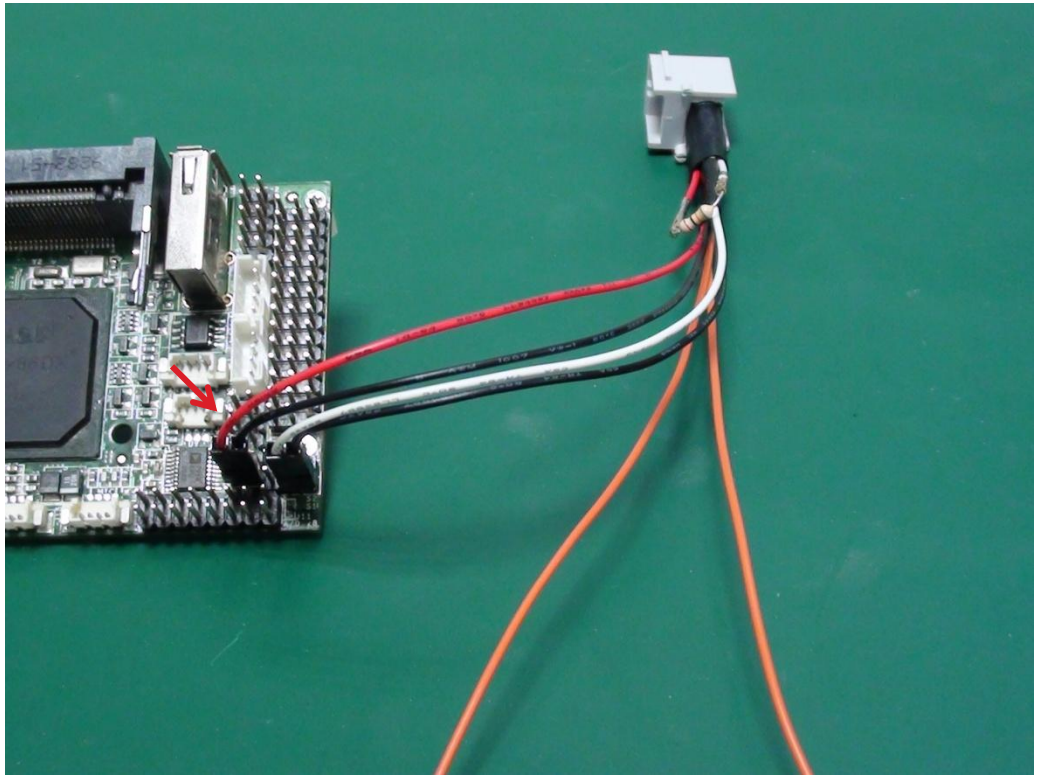
Connect Step 3.

- Connect Pin#3 GND to the GND pin of RoBoard SPI/I^{2}C connector.



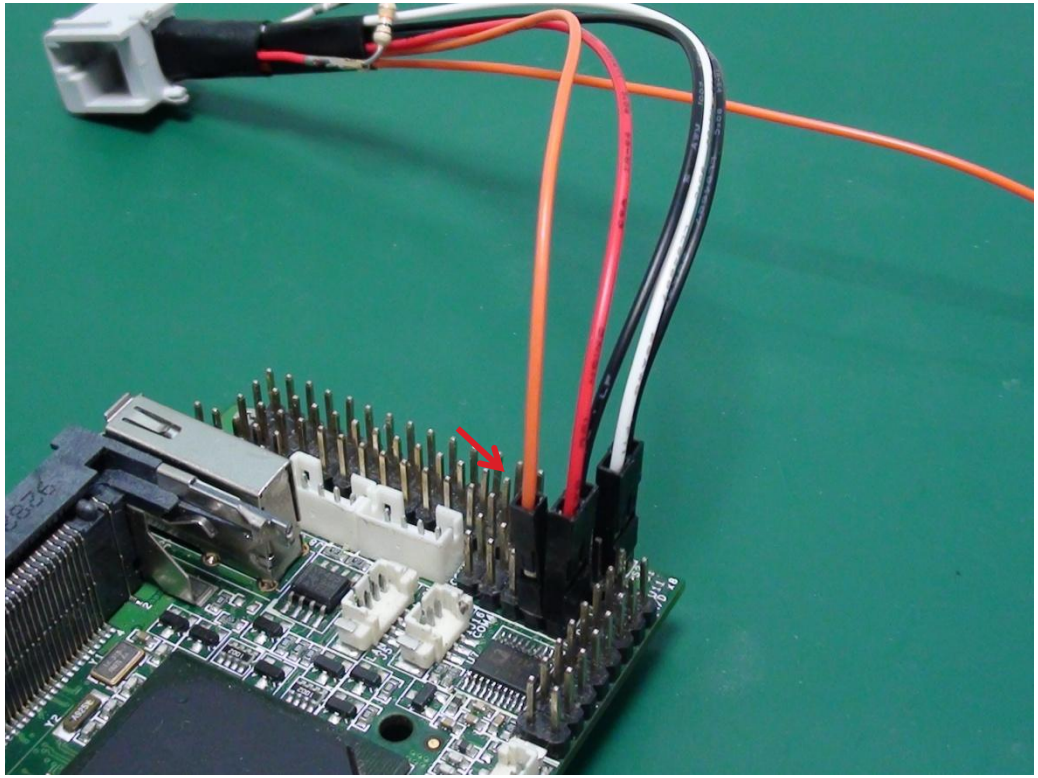
Connect Step 4.

- Connect IPOWERx to the Vcc pin of RoBoard SPI/I^{2}C connector.



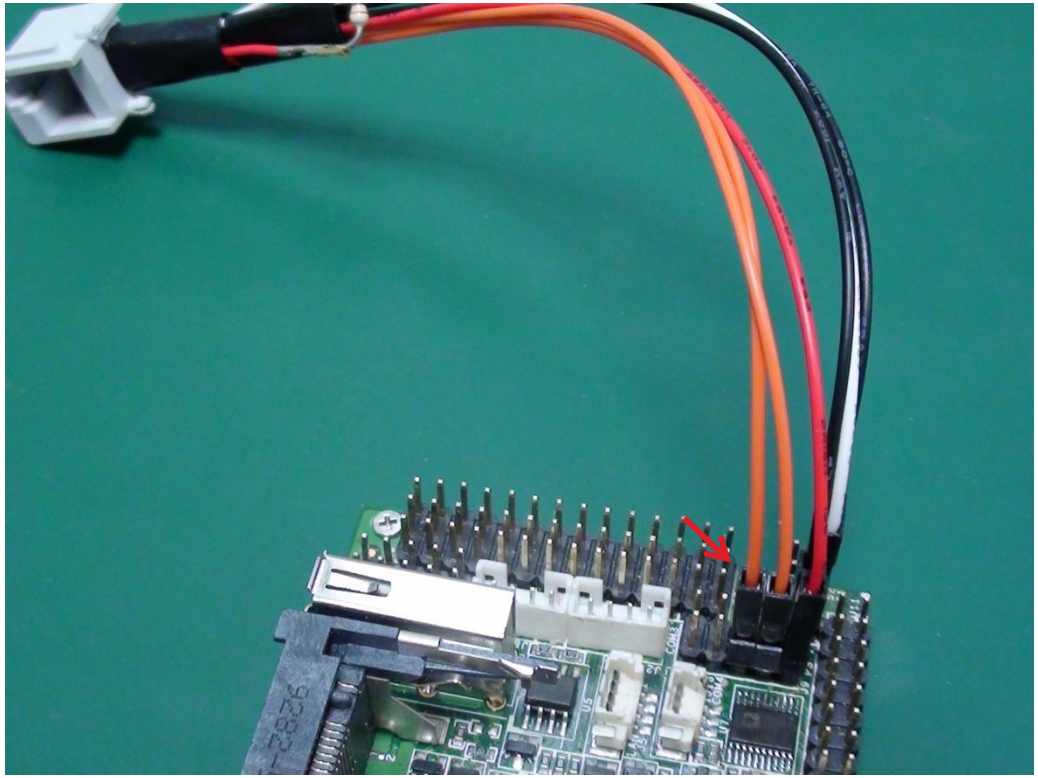
Connect Step 5.

- Connect DIGIxI0 to the SCL pin of RoBoard SPI/I²C connector.



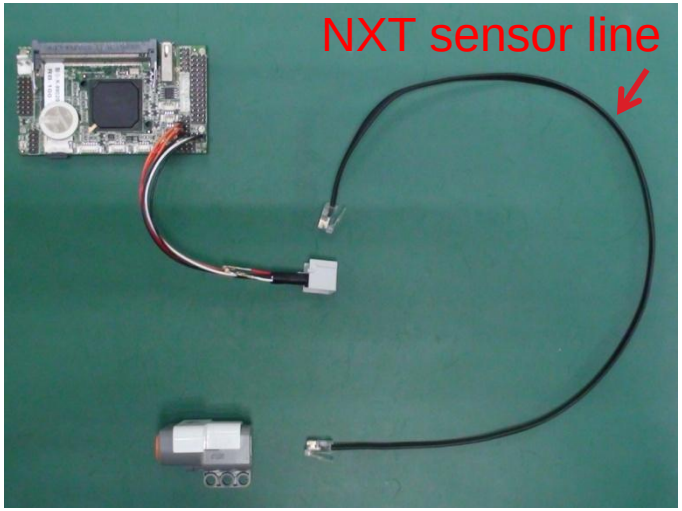
Connect Step 6.

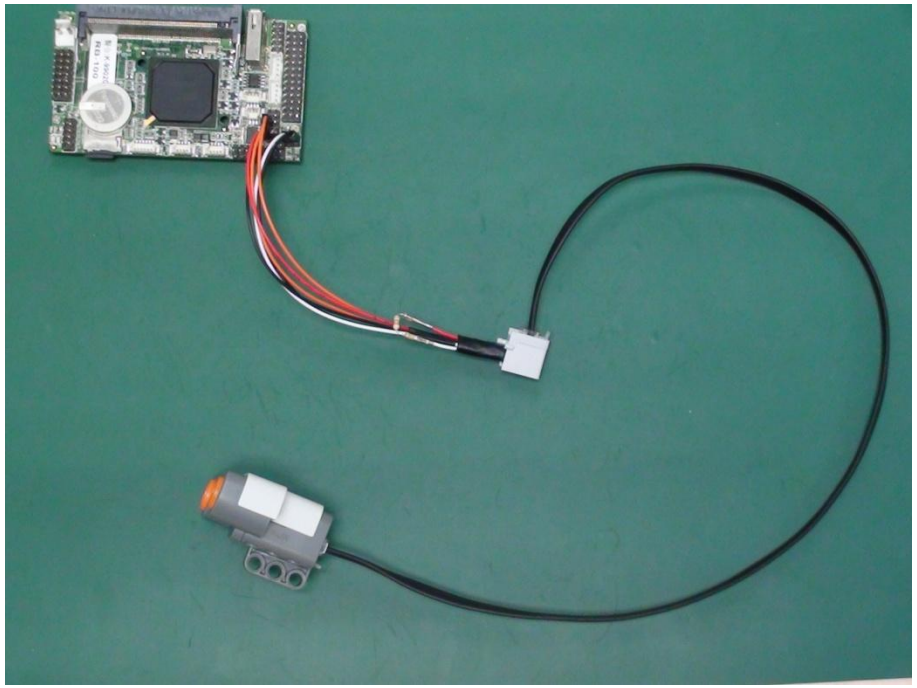
- Connect DIGIxI1 to the SDA pin of RoBoard SPI/I²C connector.



Connect Step 7.

- Now you can connect NXT ultrasonic sensor to RoBoard:



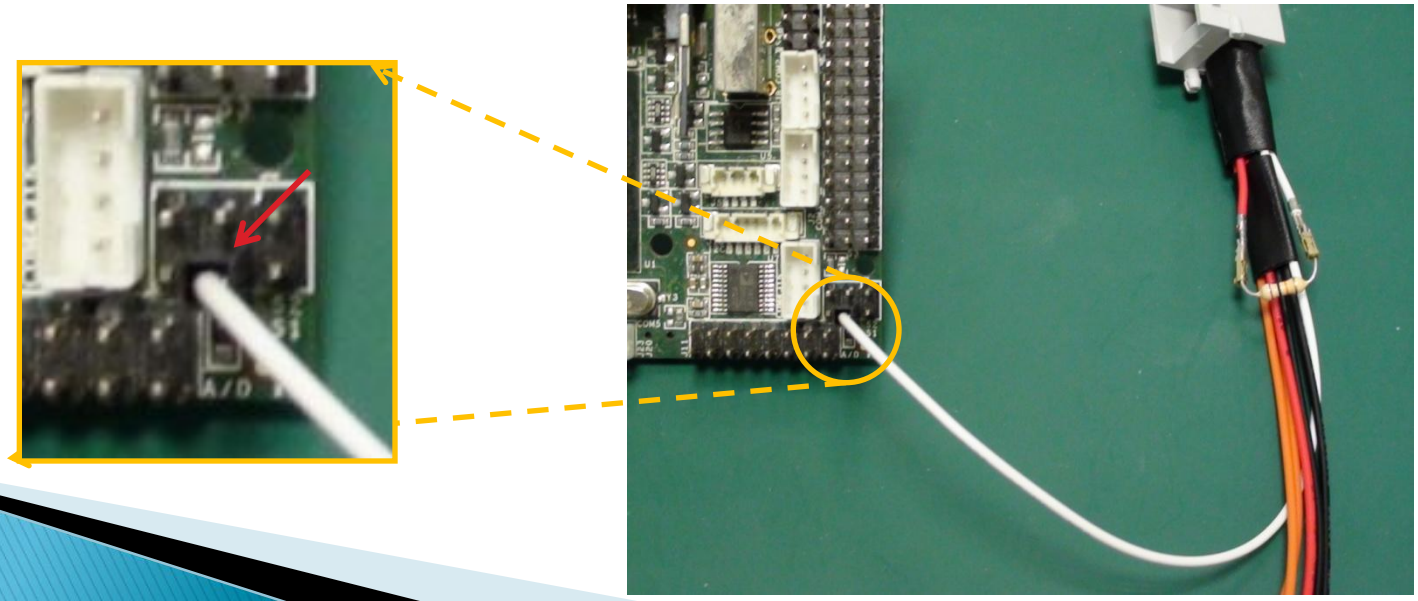


Connect NXT ultrasonic sensor to RB-110

How to?

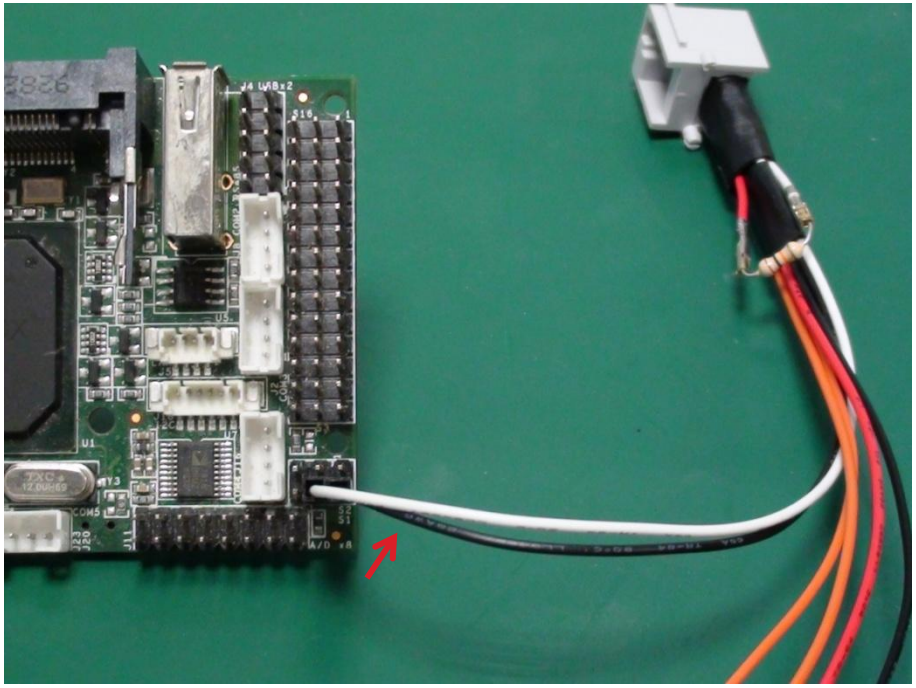
Connect Step 1.

- It needs to input 9V to Anx.
  - Method 1. Use an extra power supply to give 9V.
  - Method 2. Supply 9V to servo power of RoBoard, and get 9V from any Vxx pin.
    - Here we use method 2 as example, connect the Anx to Vxx pin of RoBoard PWM connector.



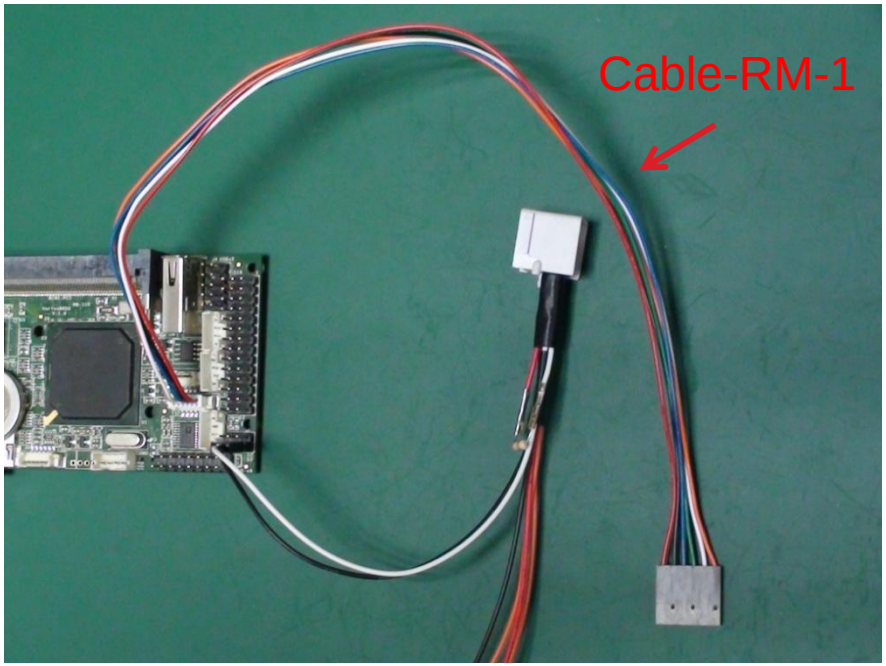
Connect Step 2.

- Connect Pin#2 GND to the GND pin of RoBoard PWM connector.
  - If you use method 1, you should connect Pin#2 GND to the GND of extra power supply.



Connect Step 3.

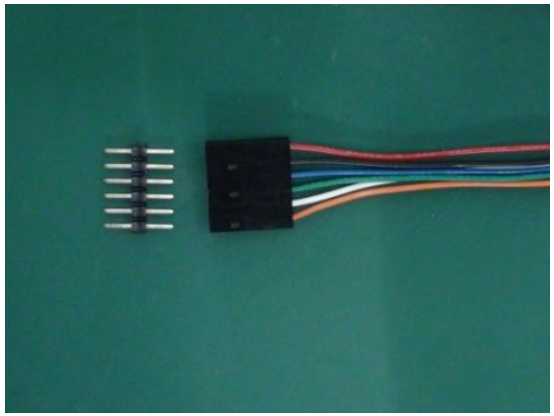
- Plug a Cable-RM-1 on I²C connector of RB-110.

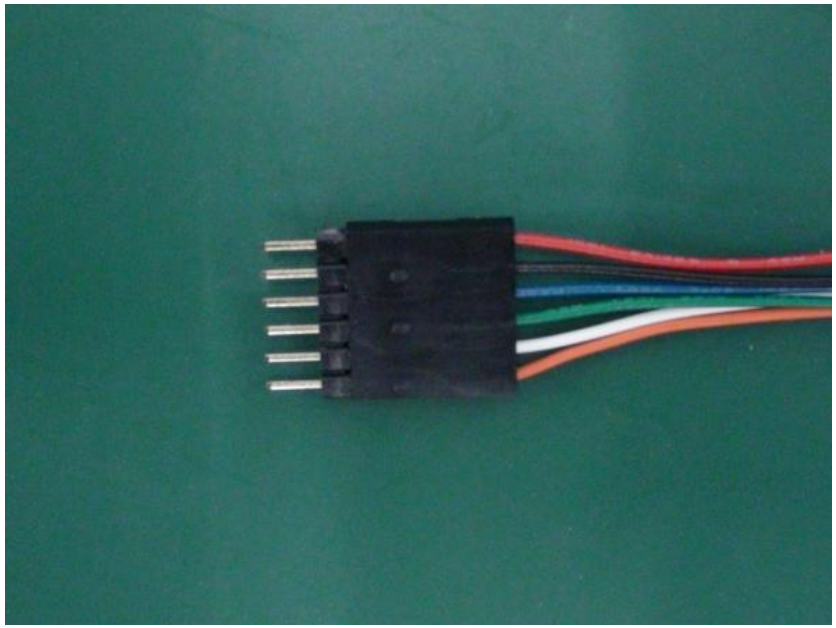


  - Note: Cable-RM-1 is the cable from every RoBoard Module (e.g., RM-G144 or RM-G146) Kit.

Connect Step 4.

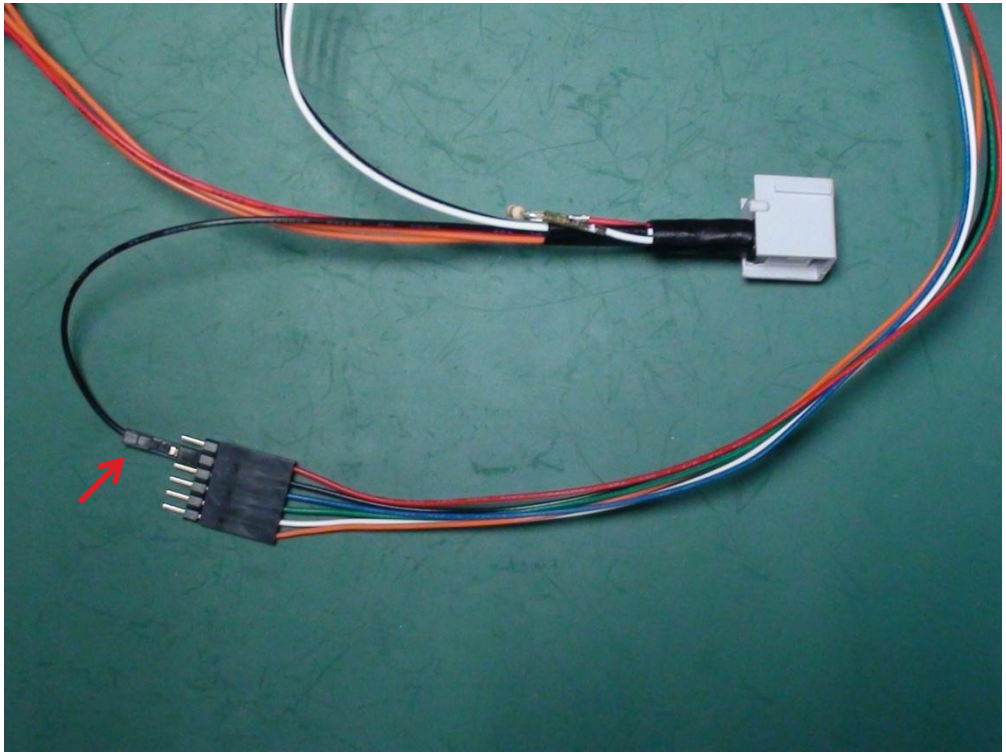
- Plug a 1x6 2.54mm pin header on the header of Cable-RM-1.





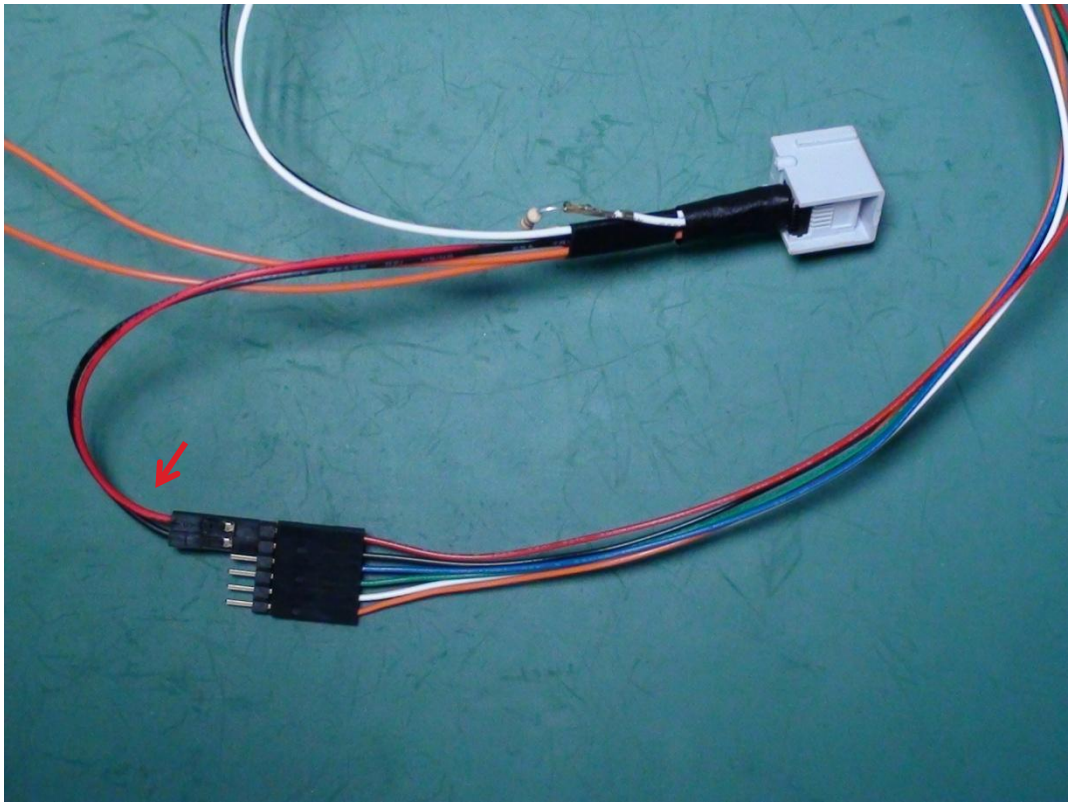
Connect Step 5.

- Connect Pin#3 GND (of the NXT connection line) to the GND pin of RoBoard I^{2}C connector (i.e., black line of Cable-RM-1).



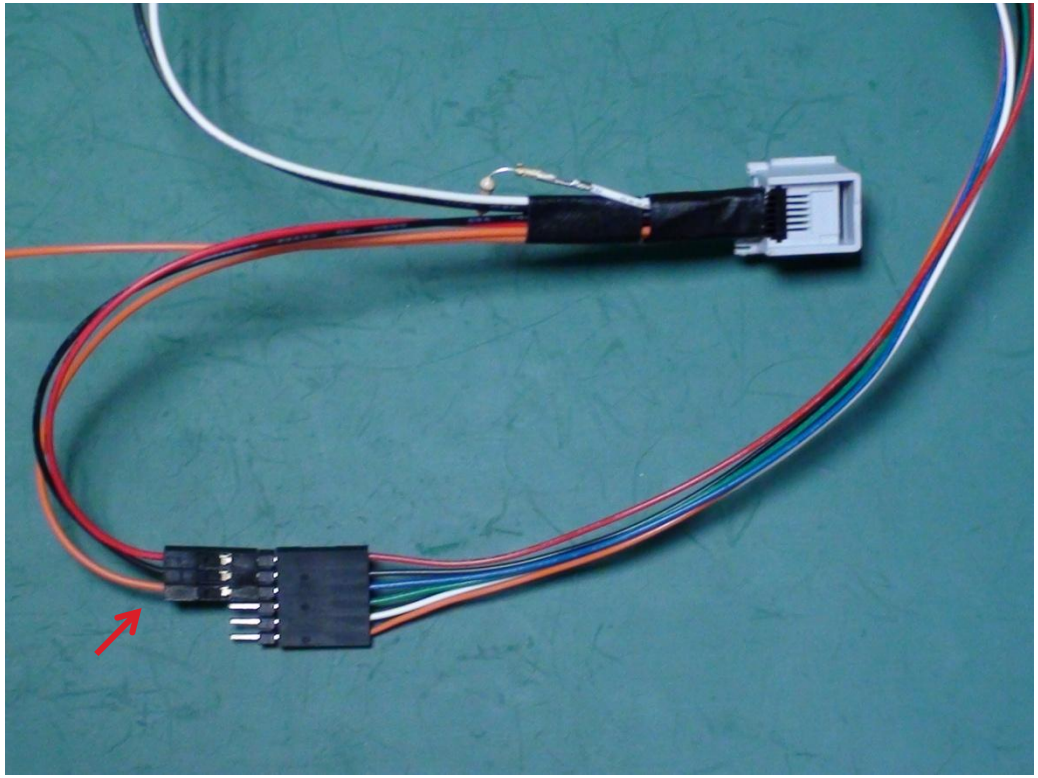
Connect Step 6.

- Connect IPOWERx to the Vcc pin of RoBoard I^2C connector (i.e., red line of Cable-RM-1).



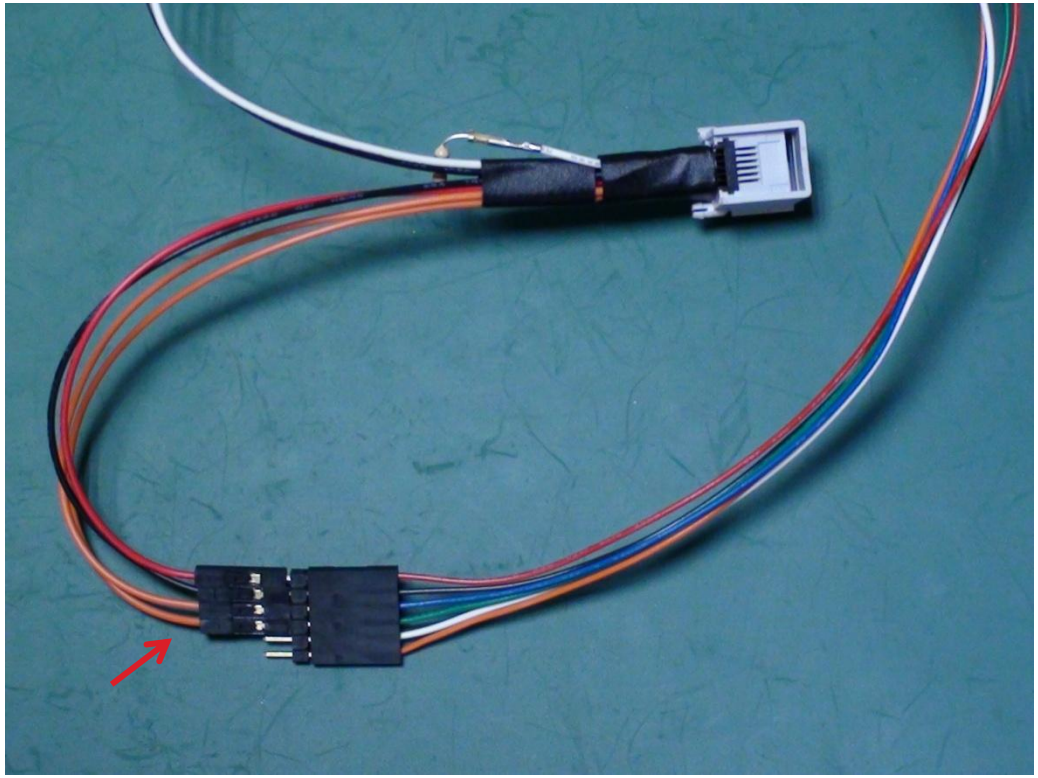
Connect Step 7.

- Connect DIGIxI0 to the SCL pin of RoBoard I²C connector (i.e., blue line of Cable-RM-1).



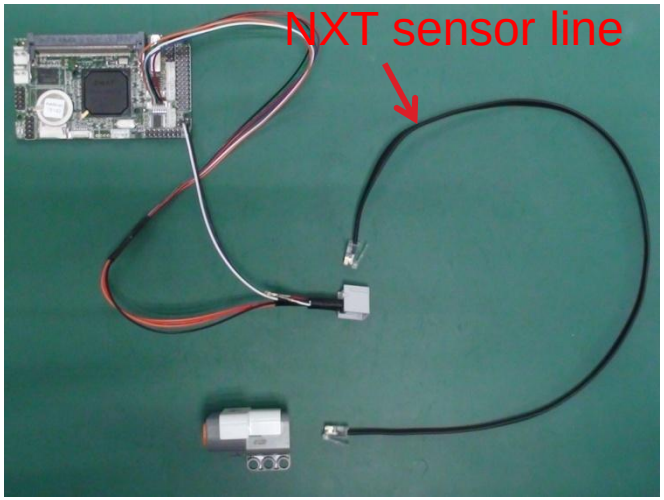
Connect Step 8.

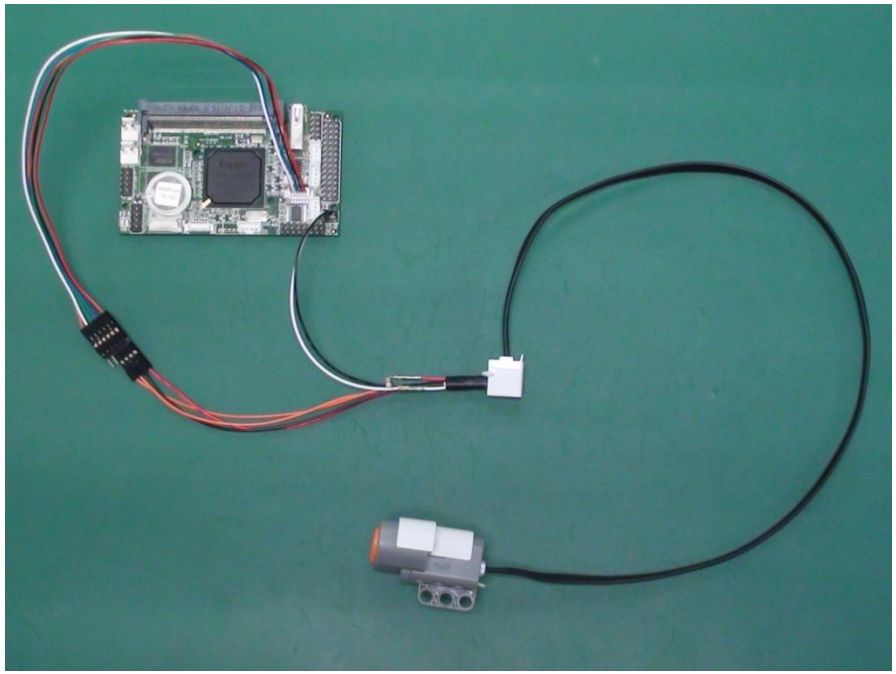
- Connect DIGIxI1 to the SDA pin of RoBoard I^2C connector(i.e., green line of Cable-RM-1).



Connect Step 9.

- Now you can connect NXT ultrasonic sensor to RoBoard RB-110:





The Heart of Robotics
Thank you

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