Image-guided therapy and medical robotics tutorial using a LEGO Mindstorms NXT robot and 3D Slicer

Assembly Instructions: Robot

Danielle F. Pace, B.CmpH
Ron Kikinis, M.D.
Nobuhiko Hata, Ph.D.
Surgical Planning Laboratory,
Brigham and Women’s Hospital and
Harvard Medical School
Before you start:

5

Gives the length for axels (see the back cover of the LEGO Mindstorms NXT User Guide)

12x

Tells you how many pieces to use (12 in this case)

Shows where two constructions snap together or areas to pay special attention to
2
Alternate view:
9
Alternate view:
View from below:
Alternate view:
Alternate view:
* Don’t snap any pieces together - simply rest the top portion onto the two vertical gray axels
* Push the two horizontal black axels through, then add the orange pieces
* This piece goes under the black gear
Alternate view:
Alternate view:
Alternate view:
Alternate view:
57
Alternate view:
* Snap the two side pieces onto the top piece
1. Use two of the large (495 mm) black 6-wire cables to connect:
   - The ultrasonic sensor and input port 4
   - Motor C and output port C

2. Use two of the medium (368 mm) black 6-wire cables to connect:
   - Motor A and output port A
   - Motor B and output port B

3. Try not to tangle the cables so that the robot can move freely
Before you use the robot:

- Check that all of the joints are securely fastened

- Check that all of the gears line up with each other