

# Lab 01 Robot Assembly Instructions

16-384

Carnegie Mellon University

Prof. Howie Choset

# Contents

<b>1</b>	<b>Bill of Materials</b>	<b>3</b>
<b>2</b>	<b>Assembly Steps</b>	<b>4</b>
2.1	Mechanical Assembly . . . . .	4
2.2	Electrical Connections . . . . .	10

# 1 Bill of Materials

Table 1: Bill of Materials

<i>No.</i>	<i>Description</i>	<i>Quantity</i>
1	Hebi X Series Actuator	2
2	1 inch or 25 mm 80/20 T-Slot Aluminum Extrusion	1
3	Clamp	2
4	Hebi T-Slot Adapter (PM-2156-25)	1
5	M5x0.8x10 Flat-Head Socket Head Cap Screw	4
6	80/20 T-Nut for 1 inch or 25 mm T-Slot Extrusion	4
7	80/20 Screw for 1 inch or 25 mm T-Slot Extrusion	4
8	M5x0.8x16 Screw	12
9	Hebi Output Tube Adapter (A-2038-01)	2
10	M5x0.8x10 Screw	12
11	Hebi Housing Tube Mount (A-2039-01)	1
12	M5x0.8x8 Screw	6
13	0.55 meter x 32 mm Diameter Tube	1
14	0.3 meter x 32 mm Diameter Tube	1
15	Ethernet Cable	4
16	18-50V AC-DC Converter and Wall Adapter	1
17	Emergency Stop	1
18	Hebi Power Cables	As Needed
19	Hebi Male-to-Male Power Adapter	As Needed
20	Hebi Power Cable Splitter	1
21	Internet Router	1

## 2 Assembly Steps

### 2.1 Mechanical Assembly

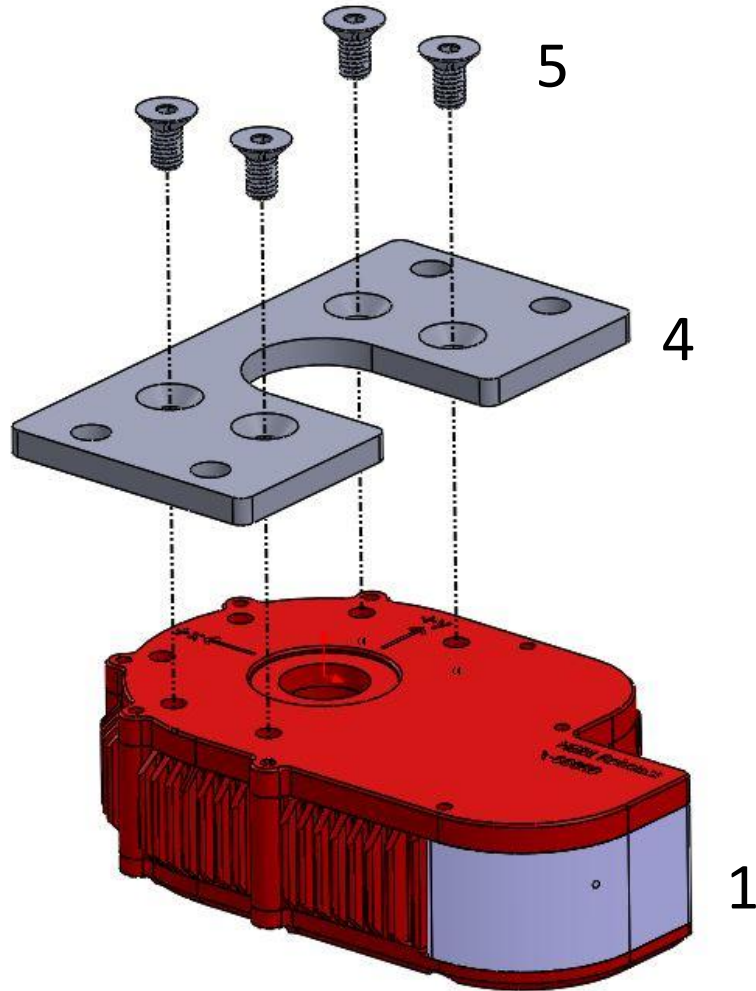


Figure 1: Attaching the a Hebi Actuator to the T-Slot Adapter

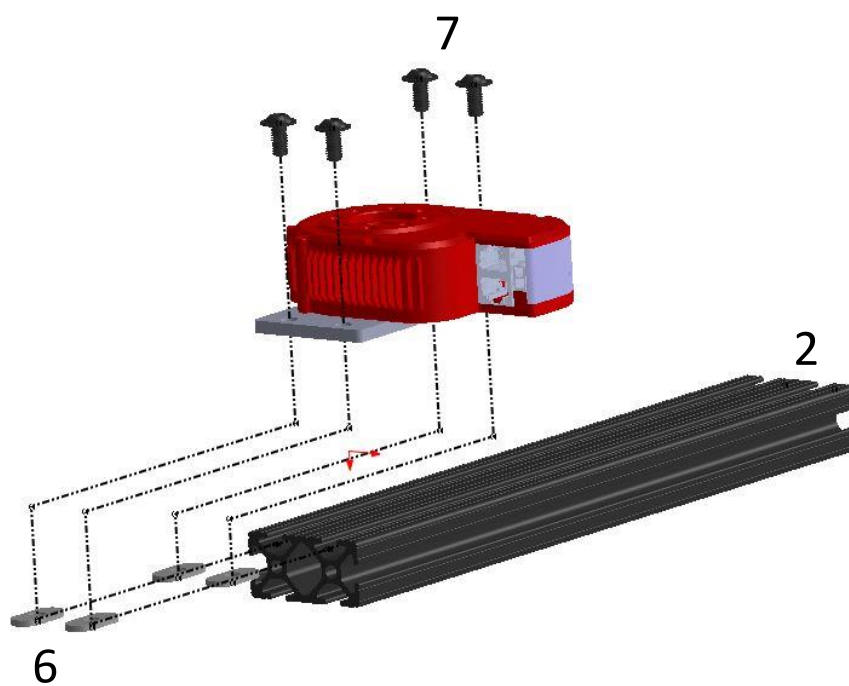


Figure 2: Attaching the Assembly in Fig. 1 to Aluminum Extrusion

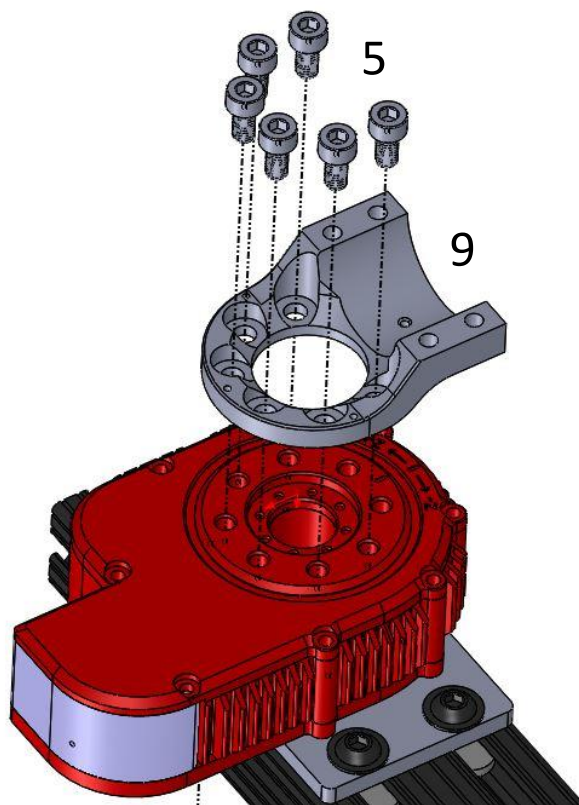


Figure 3: Attaching the Bottom Half of an Output Tube Adapter

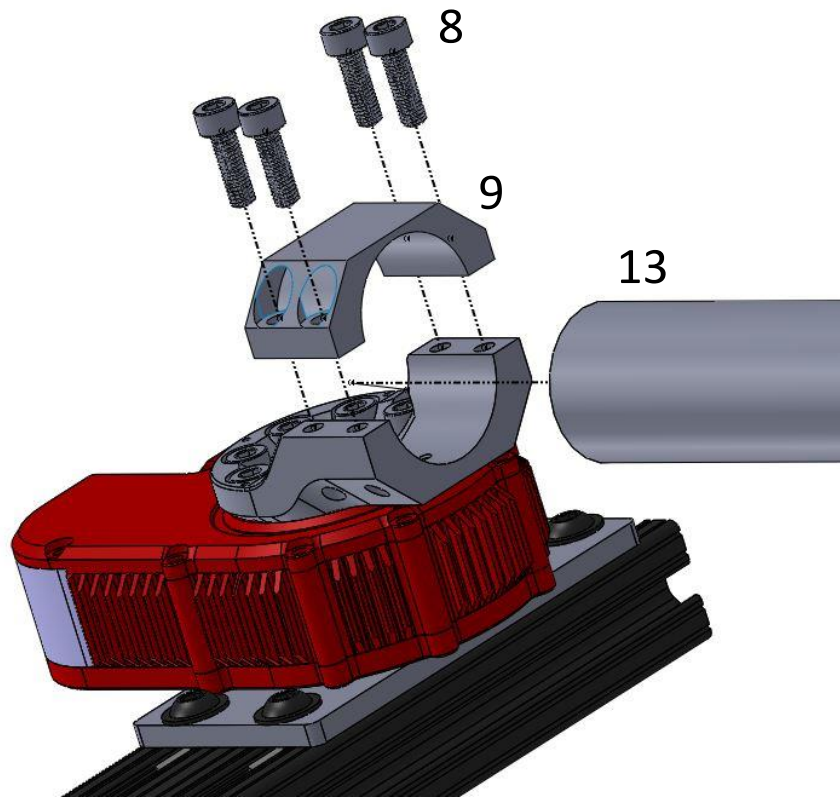


Figure 4: Attaching the Robot's First Link

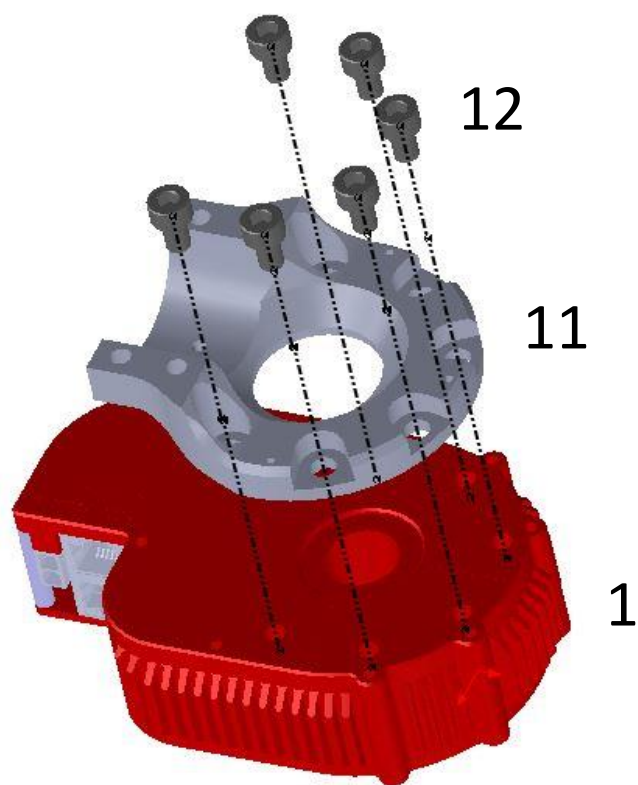


Figure 5: Attaching the Tube Mount to the Second Hebi Actuator



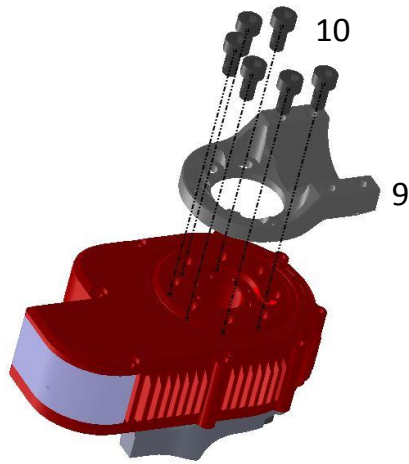


Figure 6: Attaching the Bottom Half of an Output Tube Adapter to the Assembly in Fig. 5

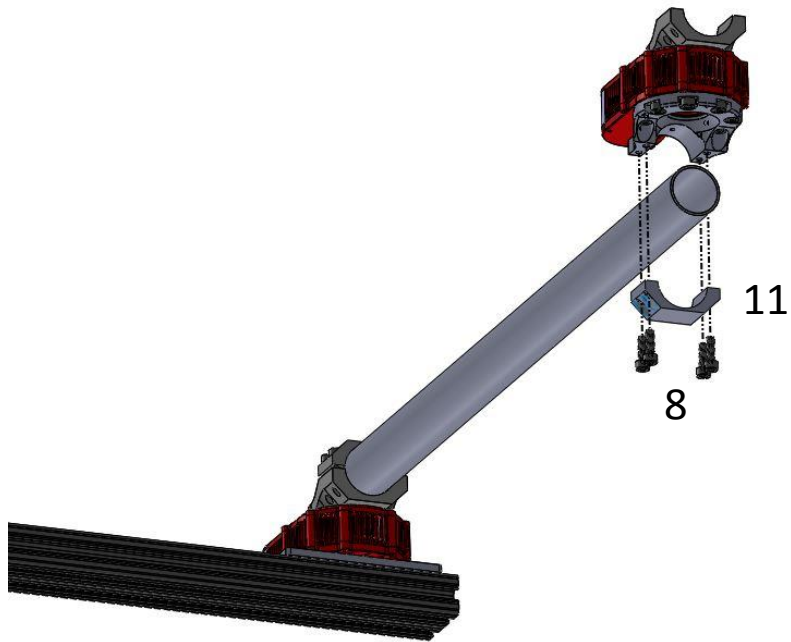


Figure 7: Attaching the Assembly in Fig. 6 to the Assembly in Fig. 4

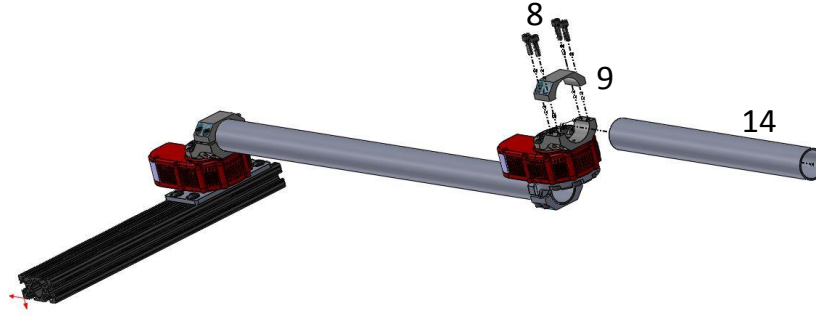


Figure 8: Attaching the Second Link to the Assembly in Fig. 7

## 2.2 Electrical Connections

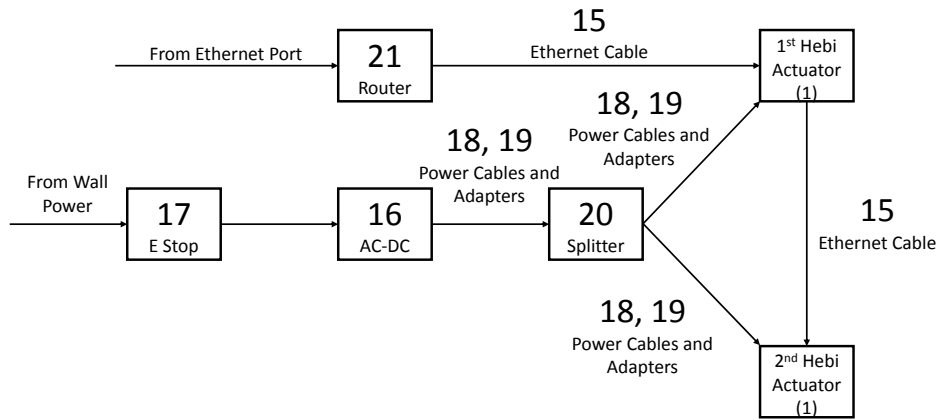


Figure 9: Electrical Connections Overview

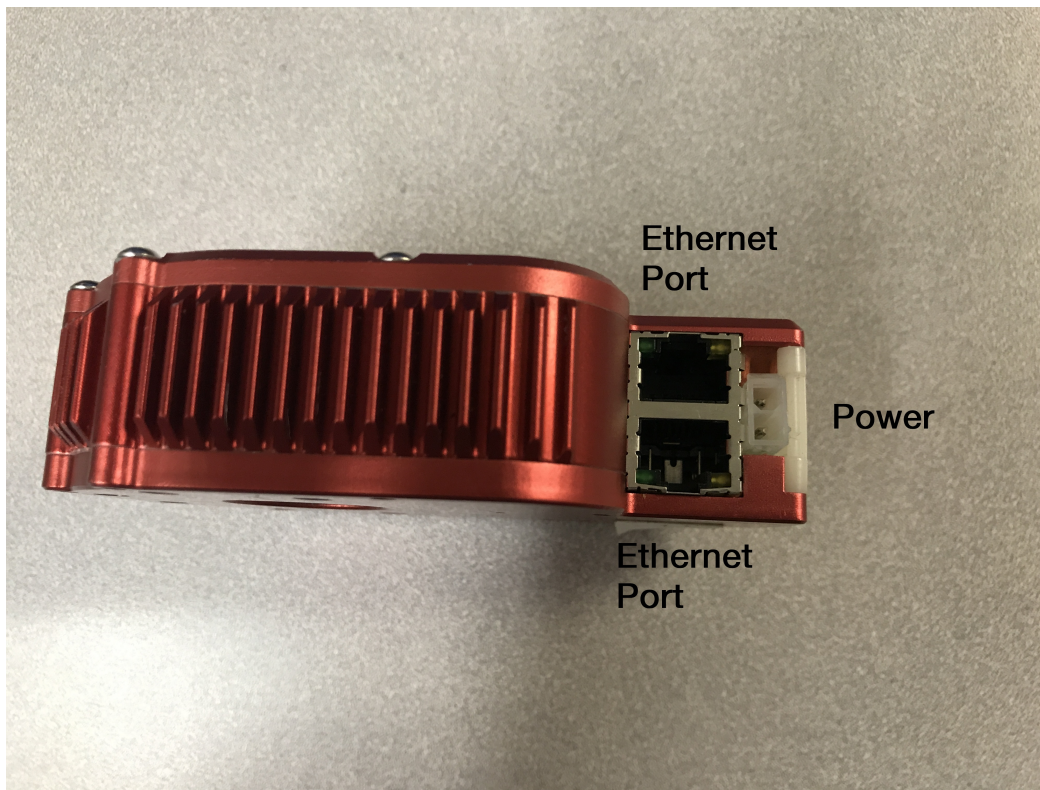


Figure 10: Electrical Connections on the Hebi Actuator