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The Robot Program Episode 002: Building JD

This lesson will demonstrate how to build the **Revolution JD** robot. Follow along with **The Robot Program Episode 002: Building JD**. At the end of this lesson, the reader will have learned how to download the **EZ-Builder** software, where to access the step-by-step building instructions, how to **Clipâ€™nâ€™Play** the **EZ-Bit** robot components, and how to secure the connections to the **EZ-B Robot Controller** for fully building **JD**.

View the video episode here: https://www.ez-robot.com/Tutorials/Lesson/61

Last Updated: 6/12/2018

Professor E's Overview

This lesson demonstrates how to build the **Revolution JD** robot.

The **EZ-Builder** software can be downloaded from www.ez-robot.com. Always start with a fully charged robot. Remember to disconnect the wires carefully.

Within the software, follow along with the step-by-step building instructions.

The robot components are called **EZ-Bits**. Each **EZ-Bit** connects to the **EZ-B Robot Controller** using male-to-female connections at the back of the robot. The port layout can be viewed in the **Getting Started Guide**. Be sure to match the wire colors to the corresponding port colors.

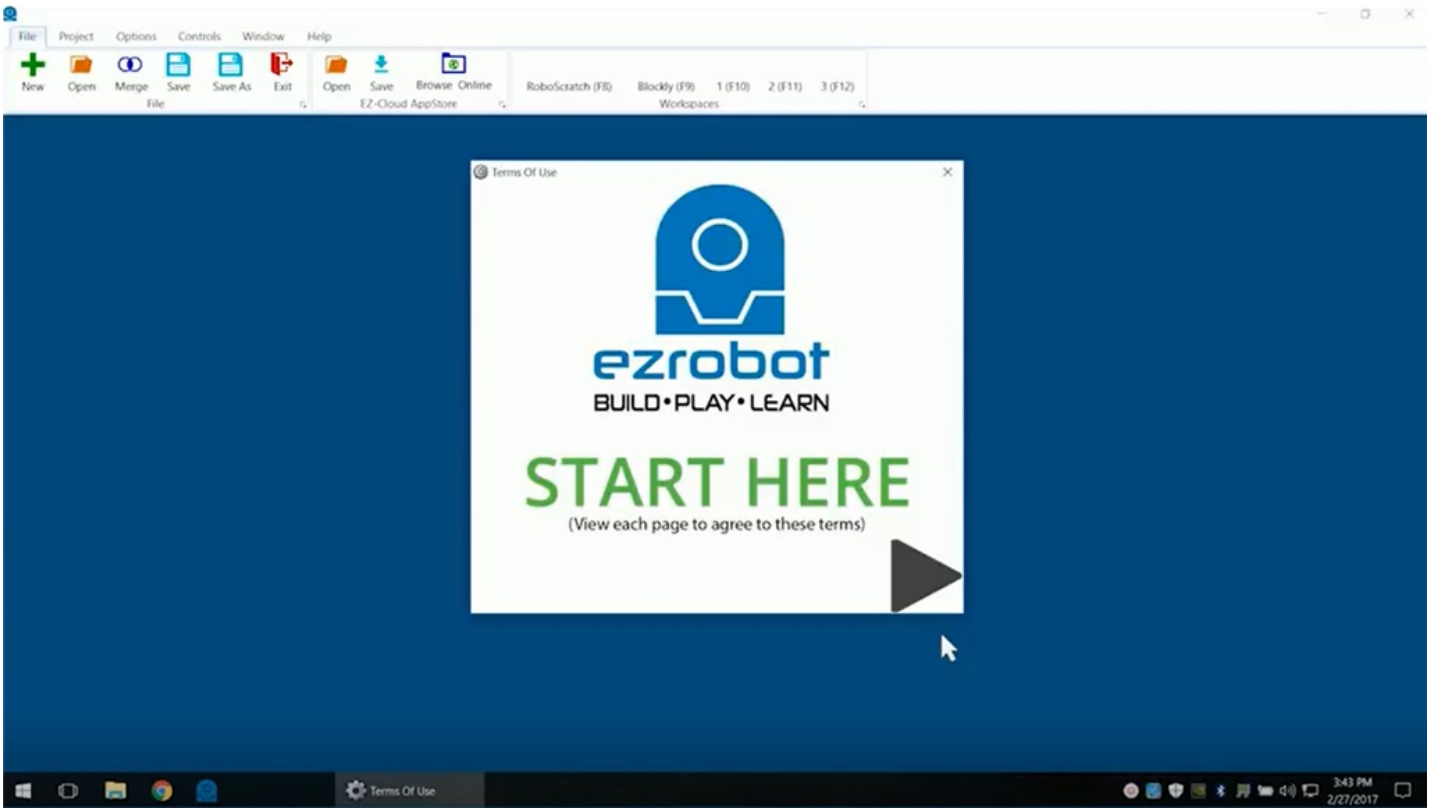
Adjust the cables so that they are coming out of the back of each **EZ-Bit**, which will make the connections easier to organize. Use **Wire Wraps** to clean up the cables into bundled sections, allowing the robot to have full range of motion.

Step 1

Download the **EZ-Builder** software from ez-robot.com Verify that the software is from **EZ-Robot Inc.** Double-click to begin the installation. Choose **Typical** as the install type.

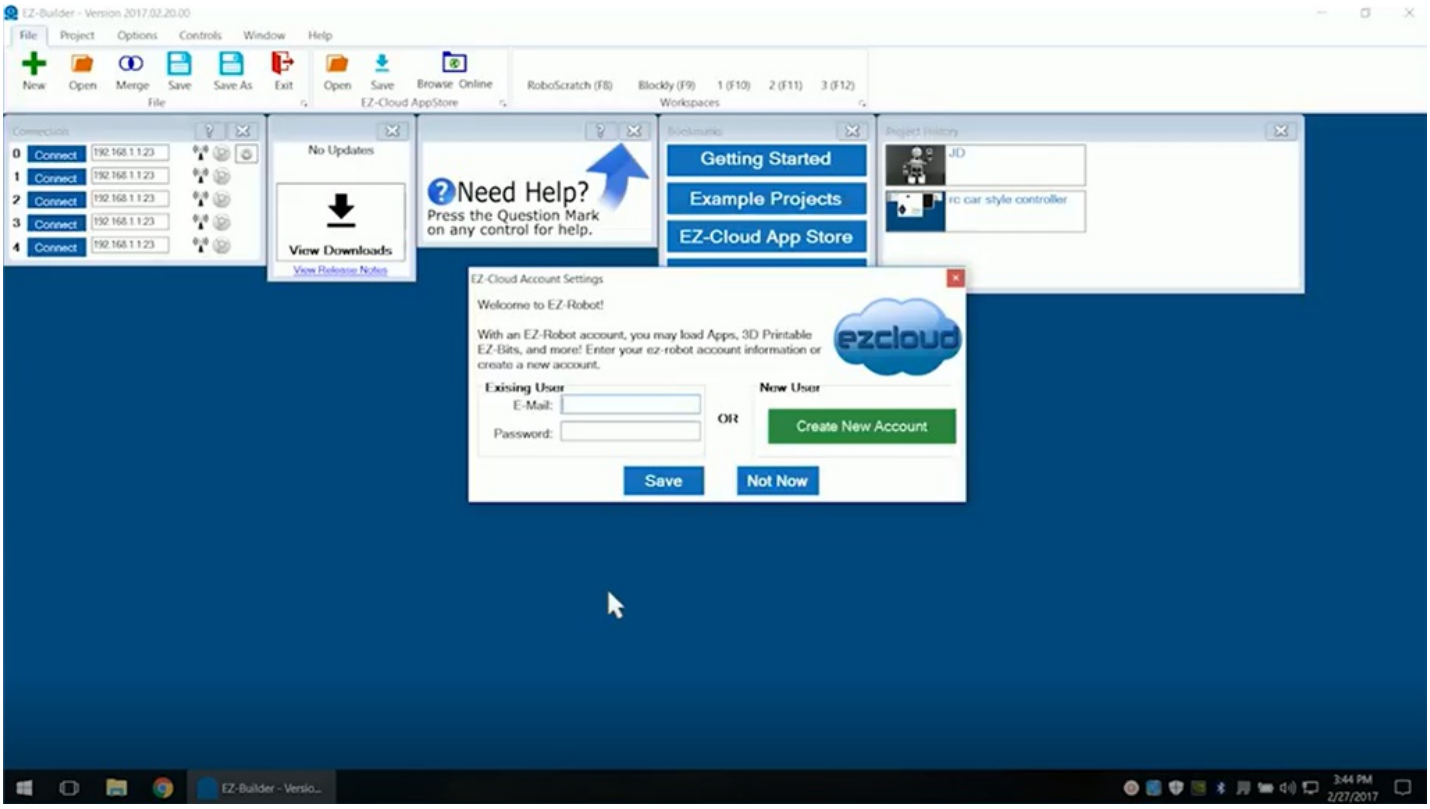
Step 2

Read and agree to the **Terms of Use**. The introductory information can also be found in the **Getting Started Guide**.



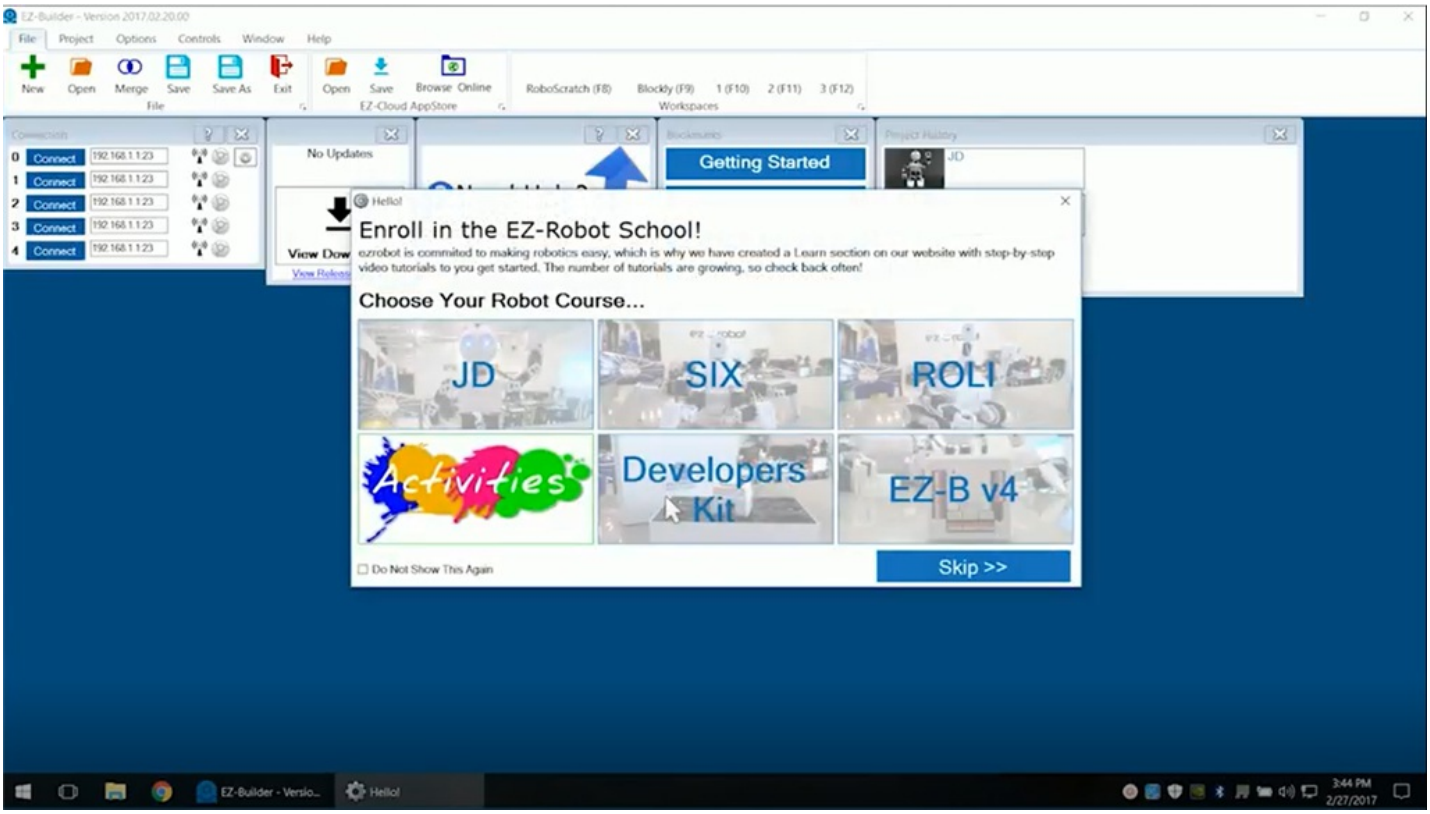
Step 3

Login or create an **EZ-Cloud** account.



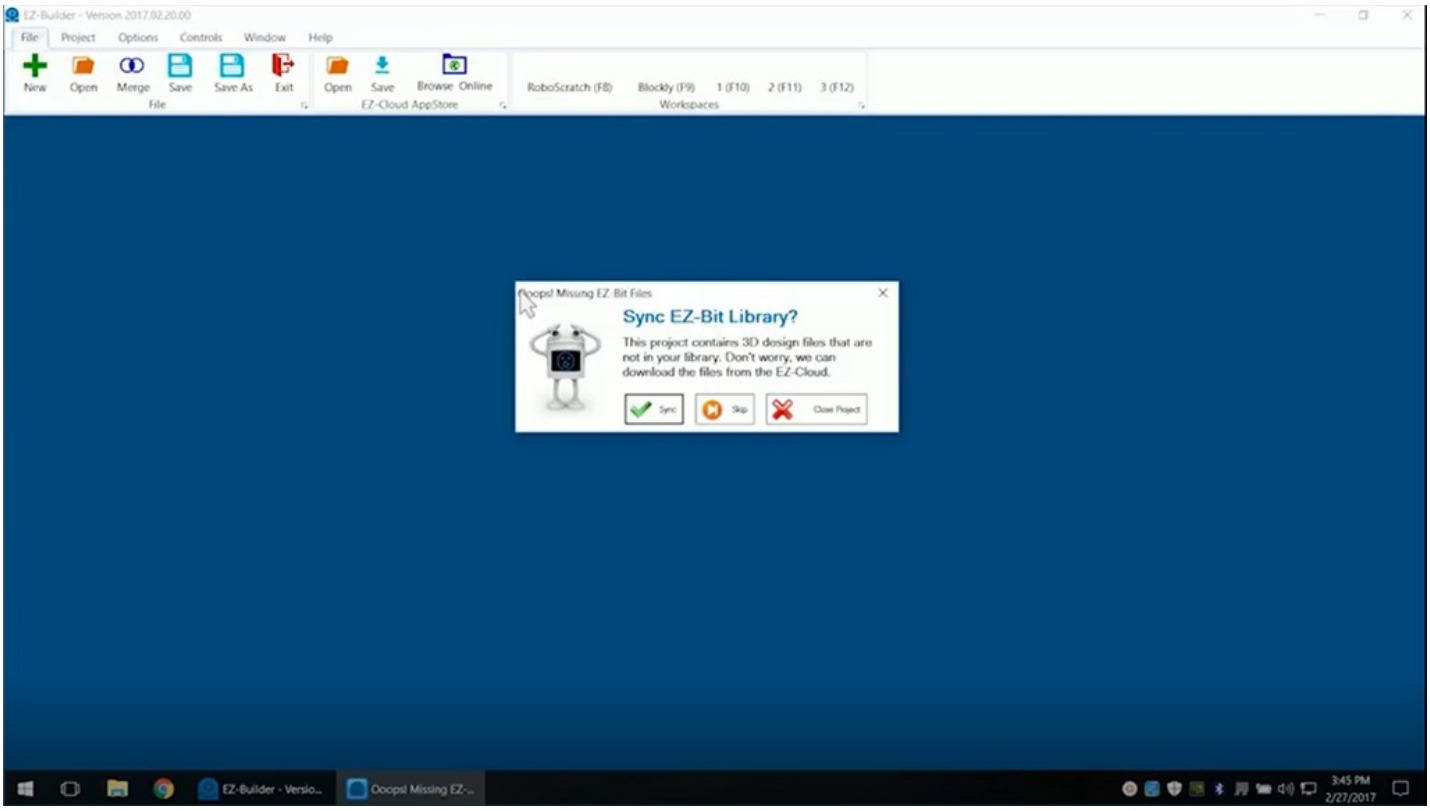
Step 4

Find tutorials about **Revolution JD** at the **EZ-Robot School**.



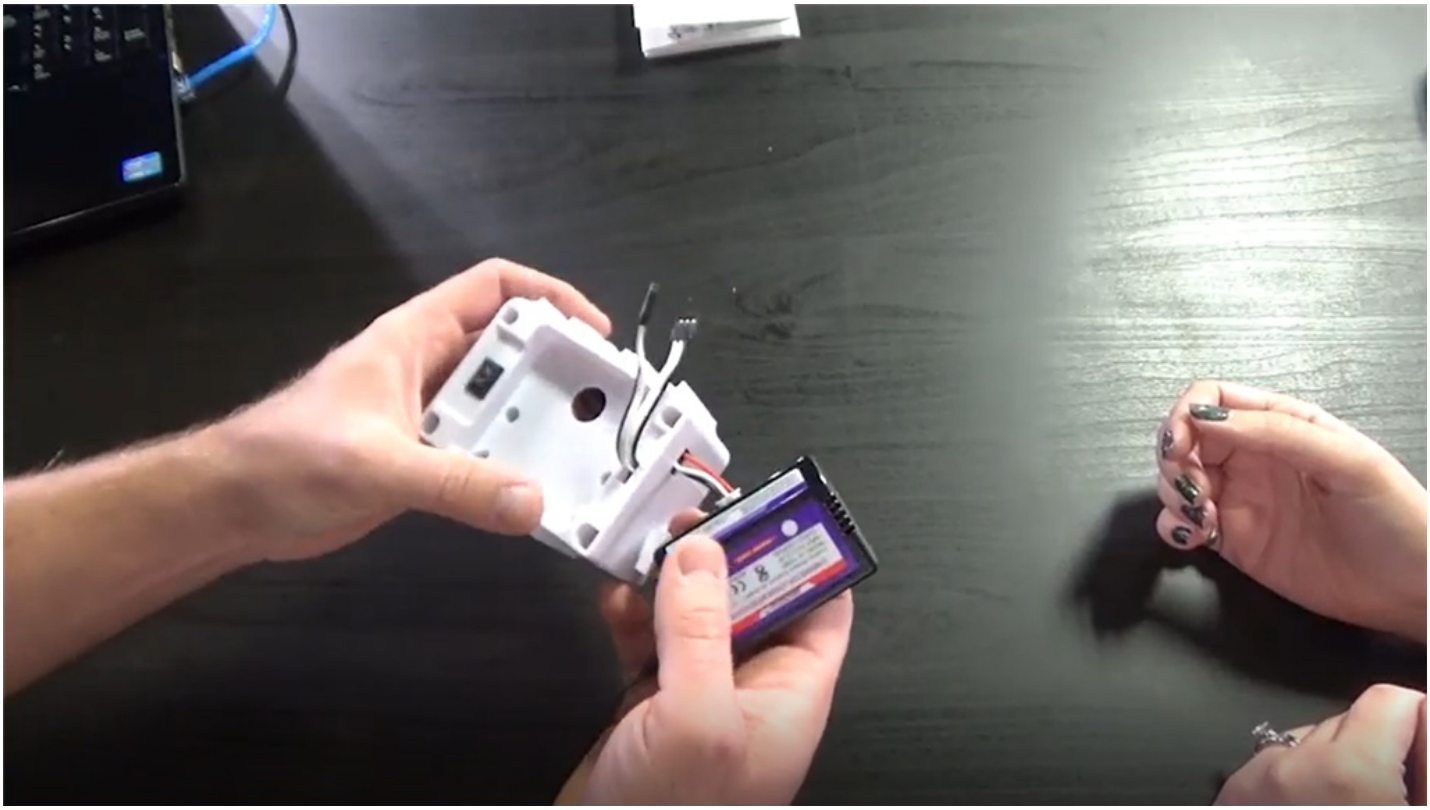
Step 5

EZ-Bits are robot parts. Sync to update the library for the most recent designs and information and select **Yes** to view the build instructions.



Step 6

Always charge the battery before using **JD**. Disconnect gently without pulling on the wires directly.



Step 7

Insert the **EZ-B Robot Controller** into the body. The cables use a male-to-female connection, with pins that fit securely into corresponding holes.

Step 8

Connect the **Right Shoulder Servo** cable to **D2** and **Left Shoulder Servo** cable to **D3**. Match the black wire on the cable to the black side of the **EZ-B** port.

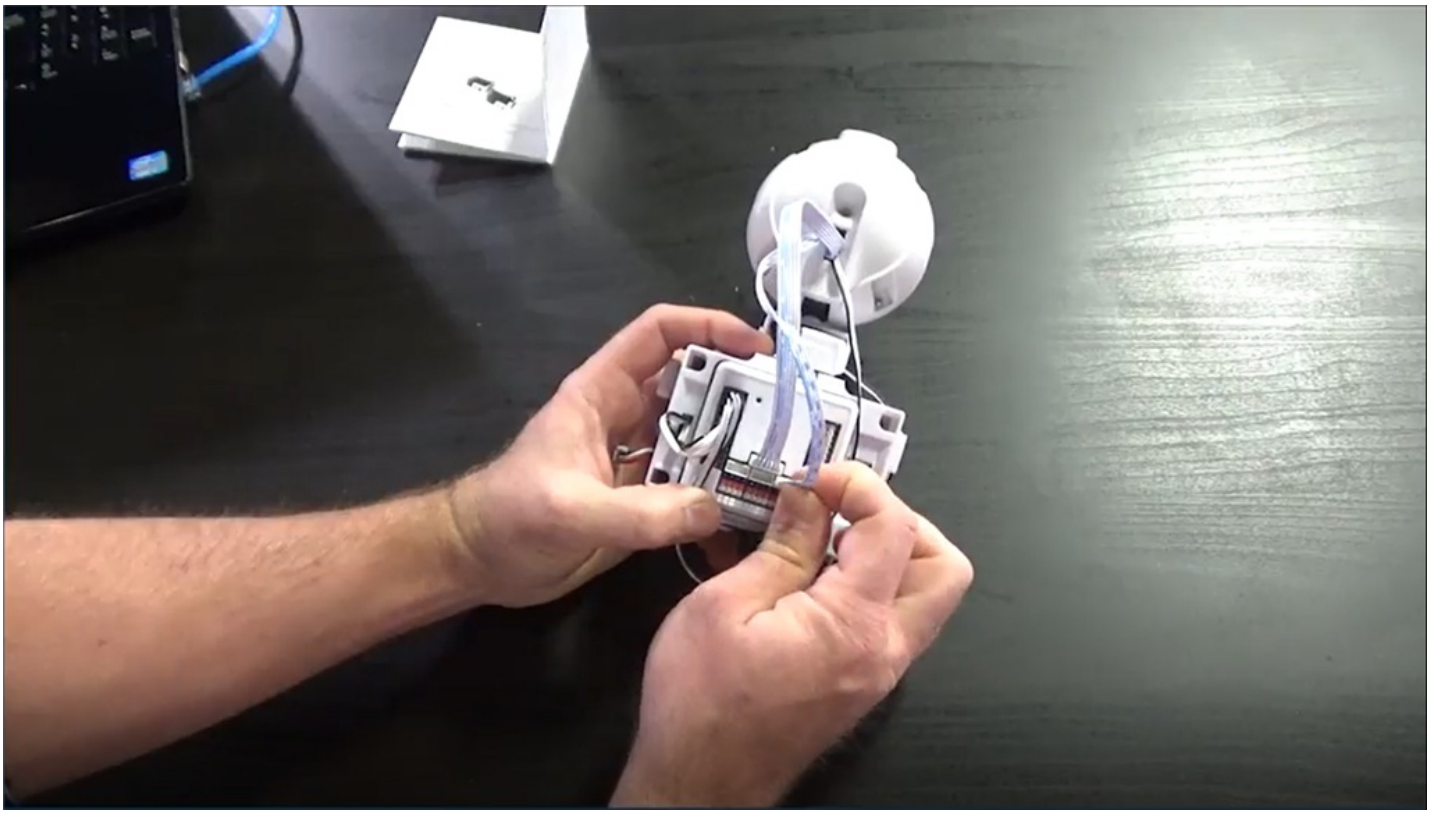
Step 9

EZ-Robot Clip'n'Play Technology allows **EZ-Bits** to be connected using a simple pressure fit clip. Insert the male clip into the female side of the **EZ-Bit** and press together. To remove, reverse the process.

To begin building, **Clipâ€™nâ€™Play JDâ€™s Head Assembly** to the slot at the top of the humanoid body.

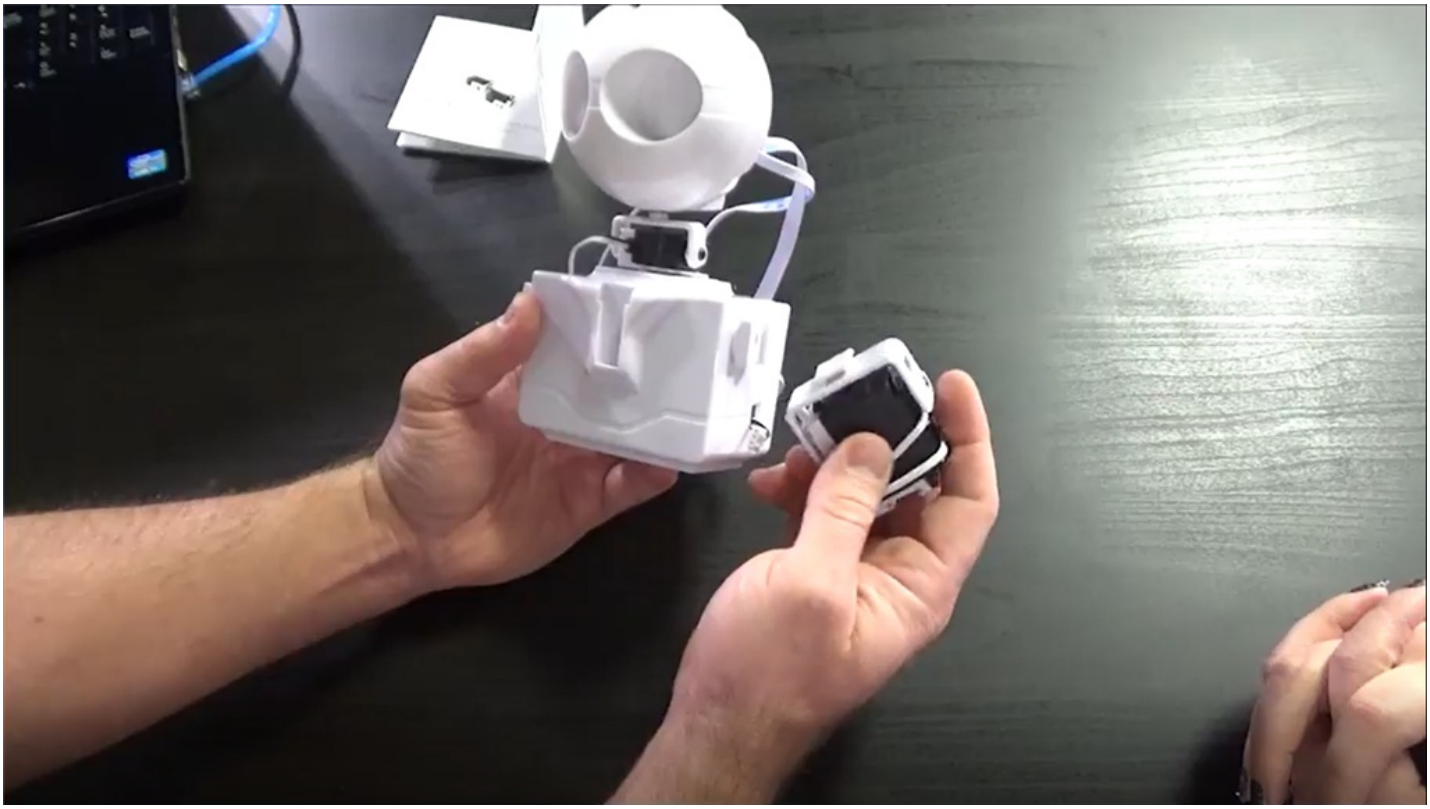
Step 10

Connect the horizontal (left-to-right motion) servo to **D0**. Connect the vertical (up-and-down motion) servo to **D1**. Connect the **Camera** cable to the **camera port**. Connect the **RGB Eyes** cable to any of the **i2c ports**. Review the **Getting Started Guide** for a full diagram of the port configuration.



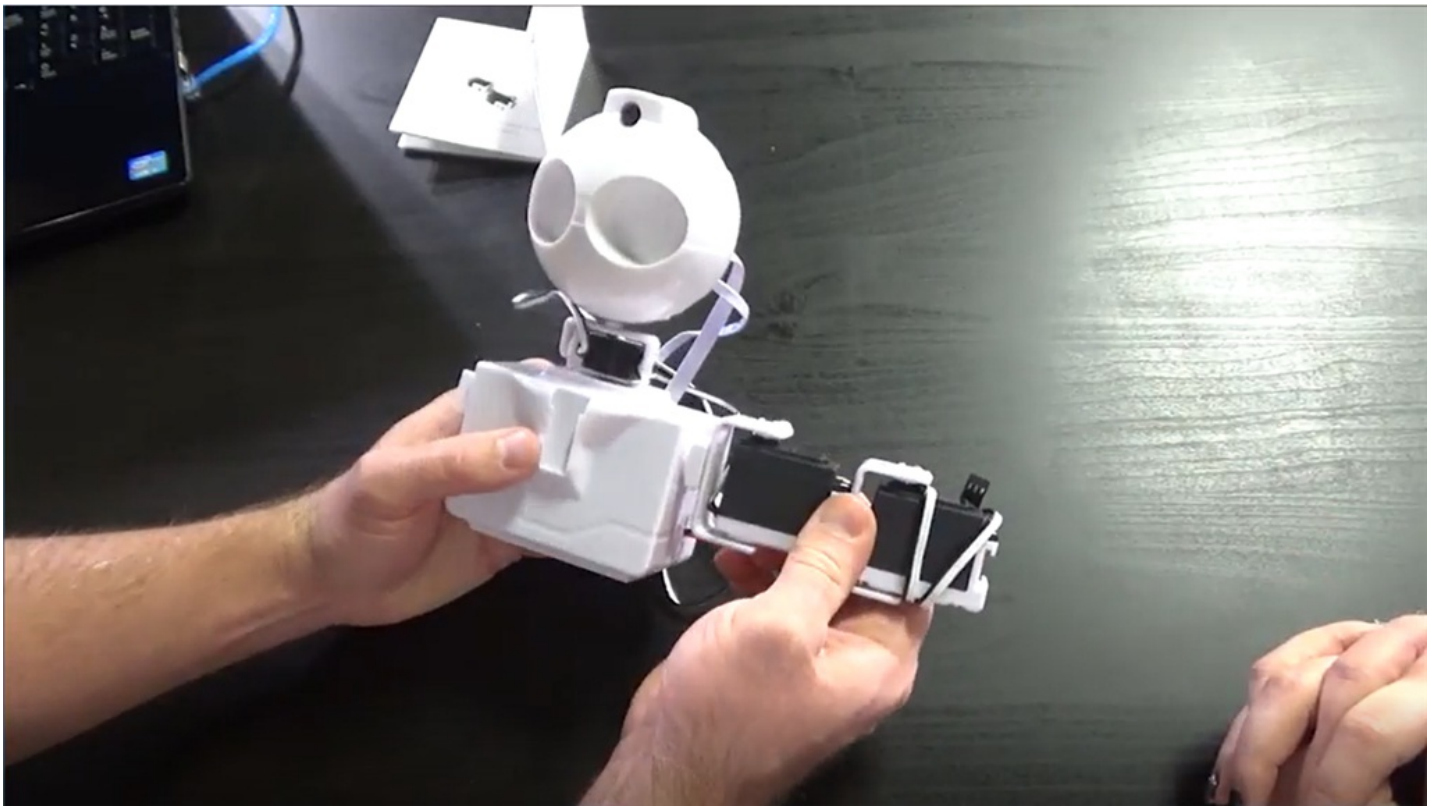
Step 11

Rotate the left shoulder bracket to be vertically aligned, leaving the female slot open at the top of the bracket. **Clipâ€™nâ€™Play Left Upper Arm Servo** into the shoulder bracket with the white edge of the servo facing downwards. Connect the cable to **D4**.



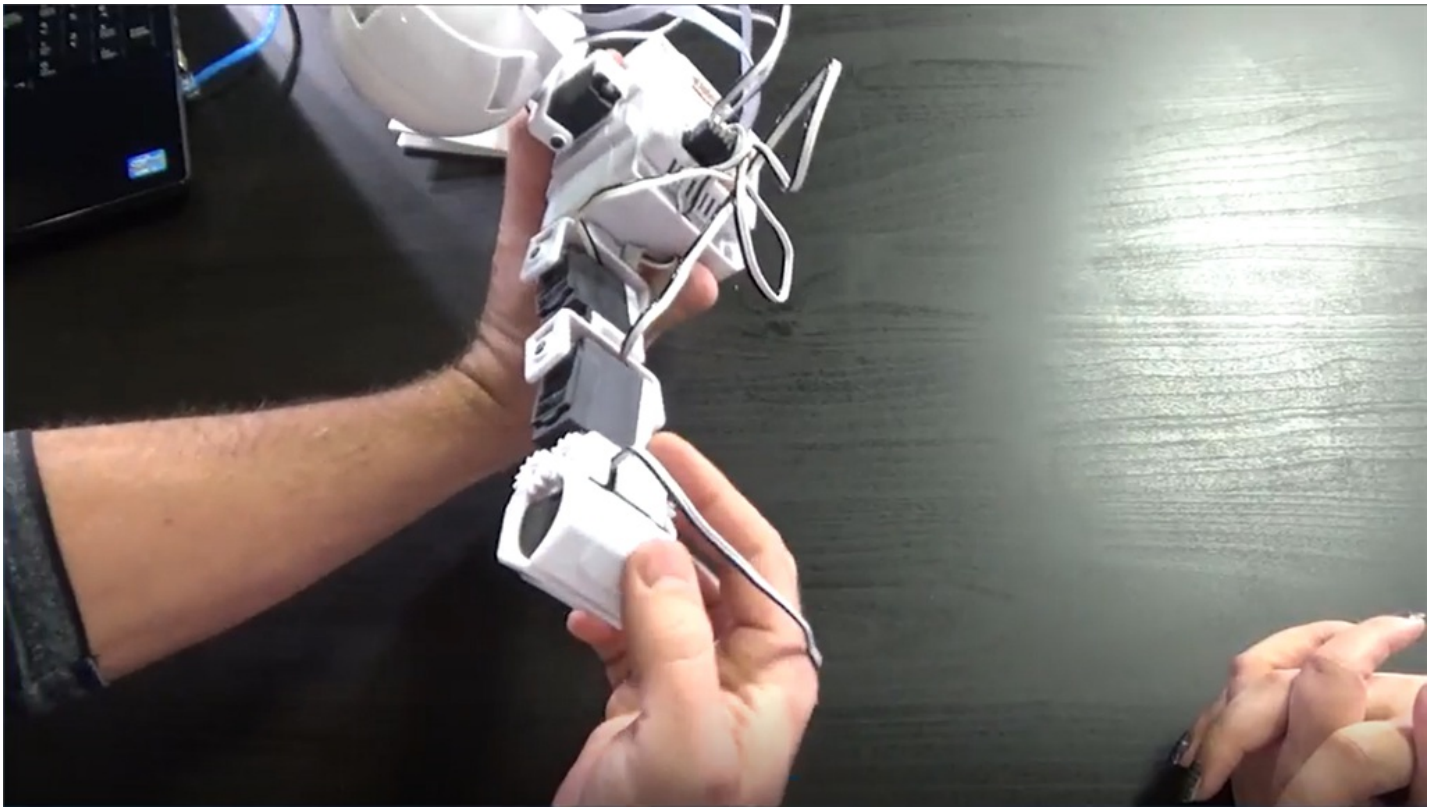
Step 12

Clipâ€™nâ€™Play Left Forearm Servo to the **Left Upper Arm Servo**. Connect the cable to **D5**.



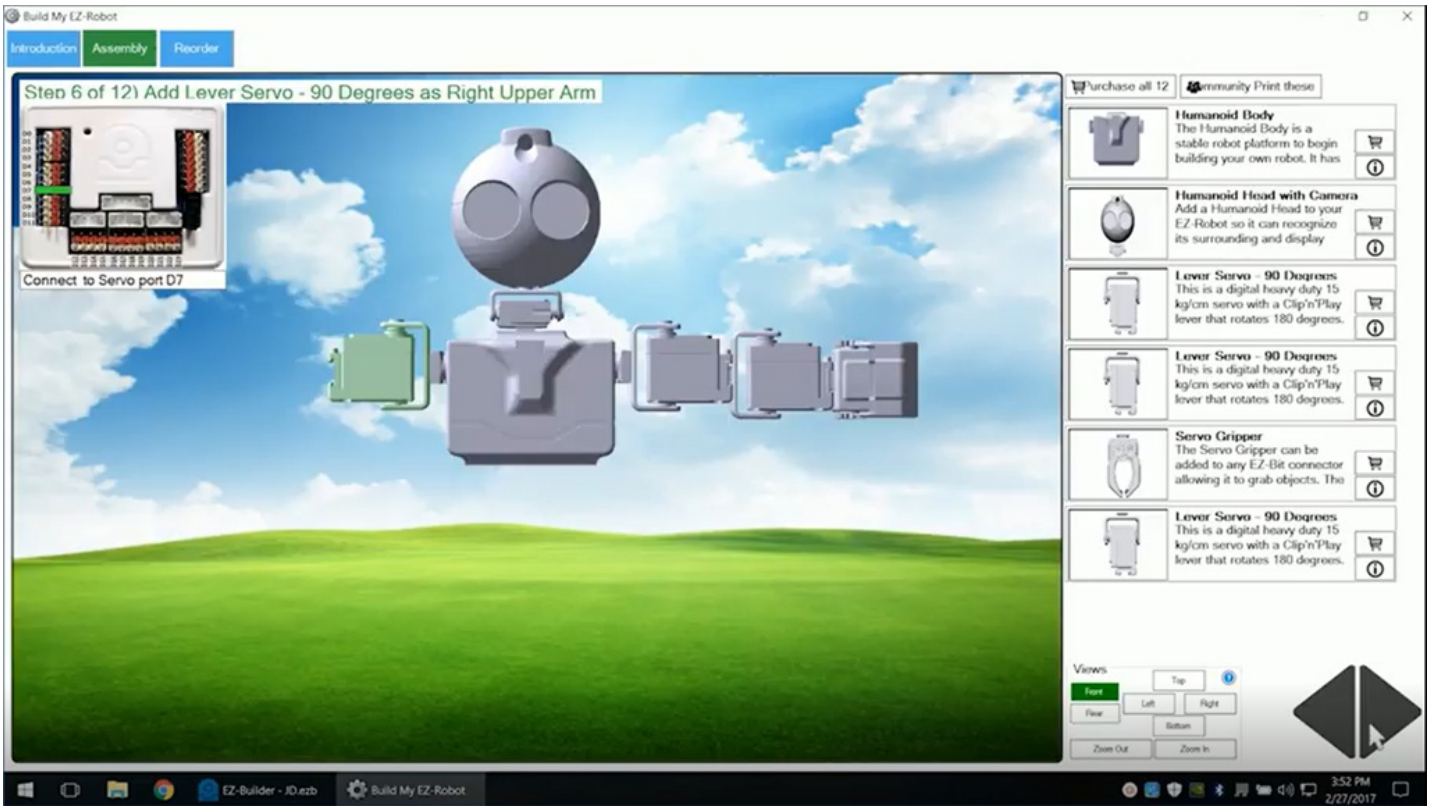
Step 13

Clipâ€™nâ€™Play Left Gripper to the **Left Forearm Servo**. Connect the cable to **D6**.



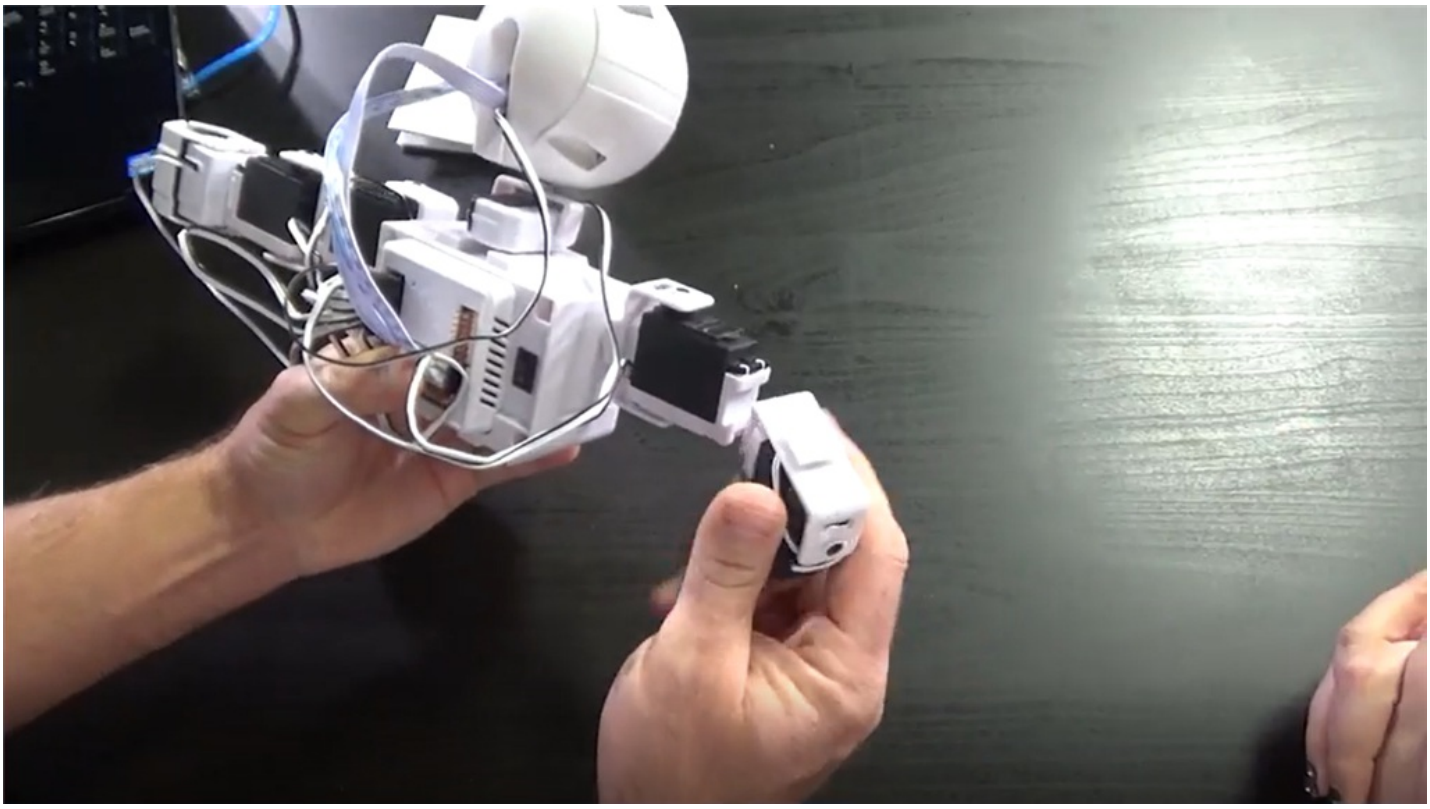
Step 14

Rotate the right shoulder bracket to be vertically aligned. **Clipâ€™nâ€™Play Right Upper Arm Servo** into the shoulder bracket with white servo edge facing downwards. Connect cable to **D7**.



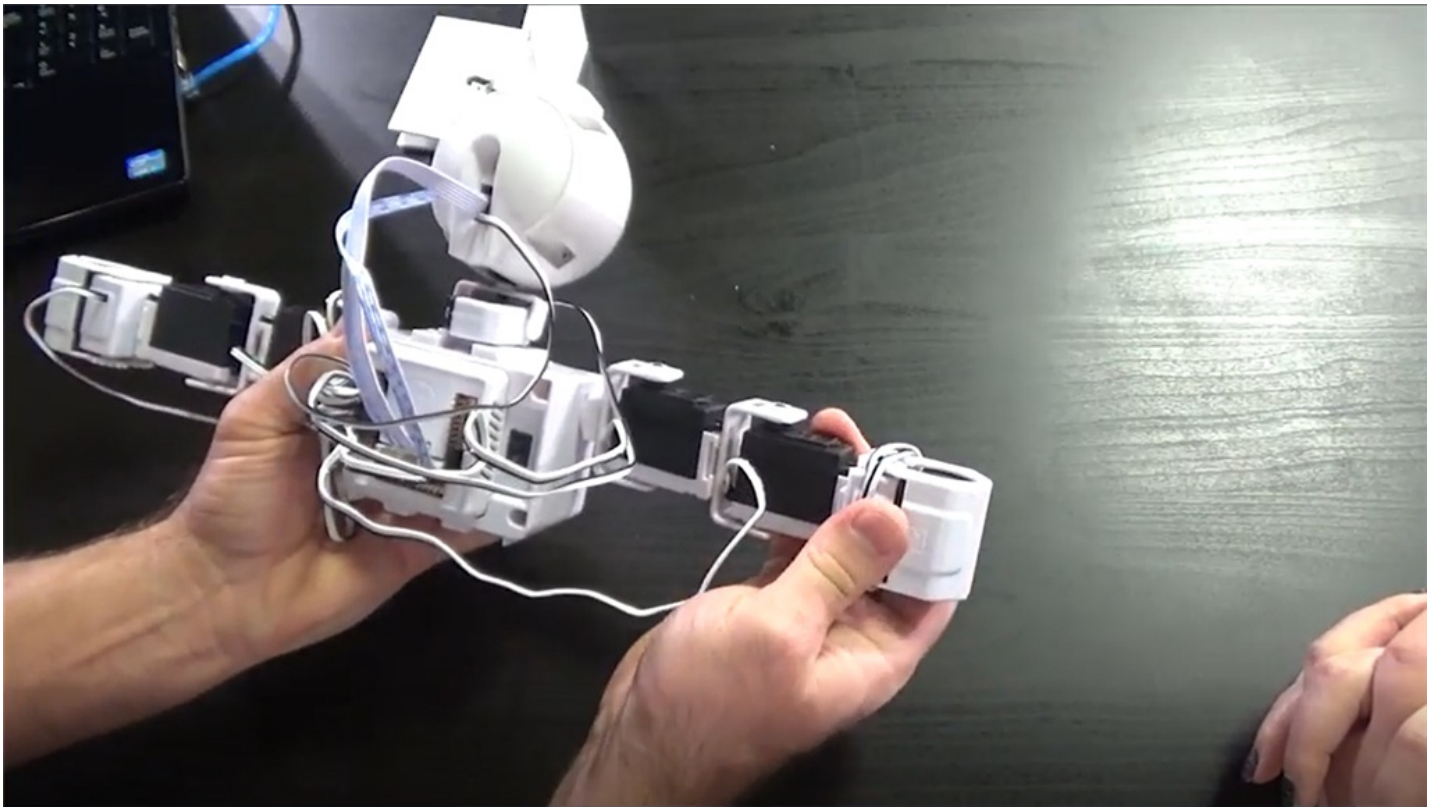
Step 15

Clipâ€™nâ€™Play Right Forearm Servo to the **Right Upper Arm Servo**. Connect the cable to **D8**.



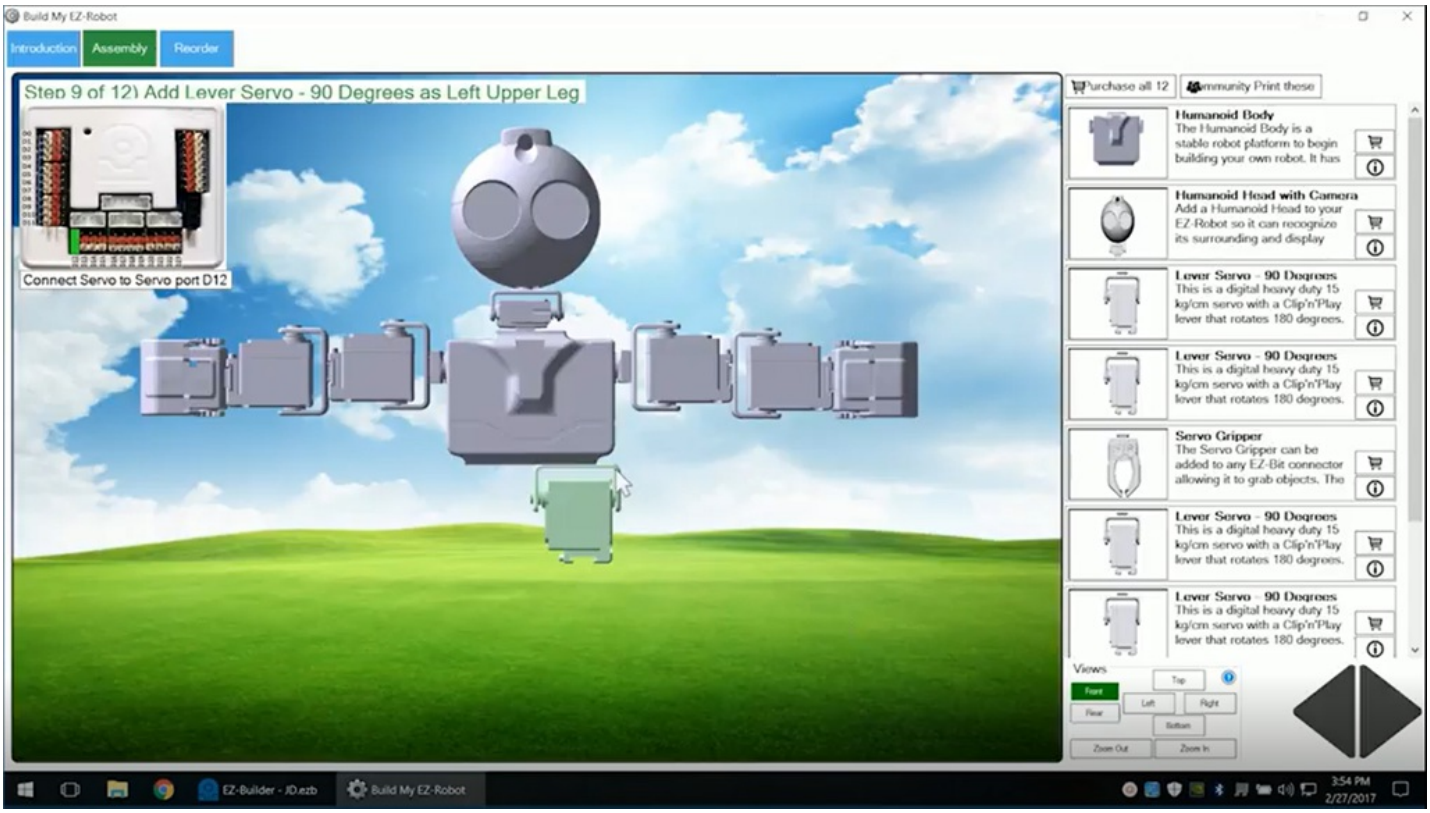
Step 16

Clipâ€™nâ€™Play Right Gripper to the **Right Forearm Servo**. Connect the cable to **D9**.



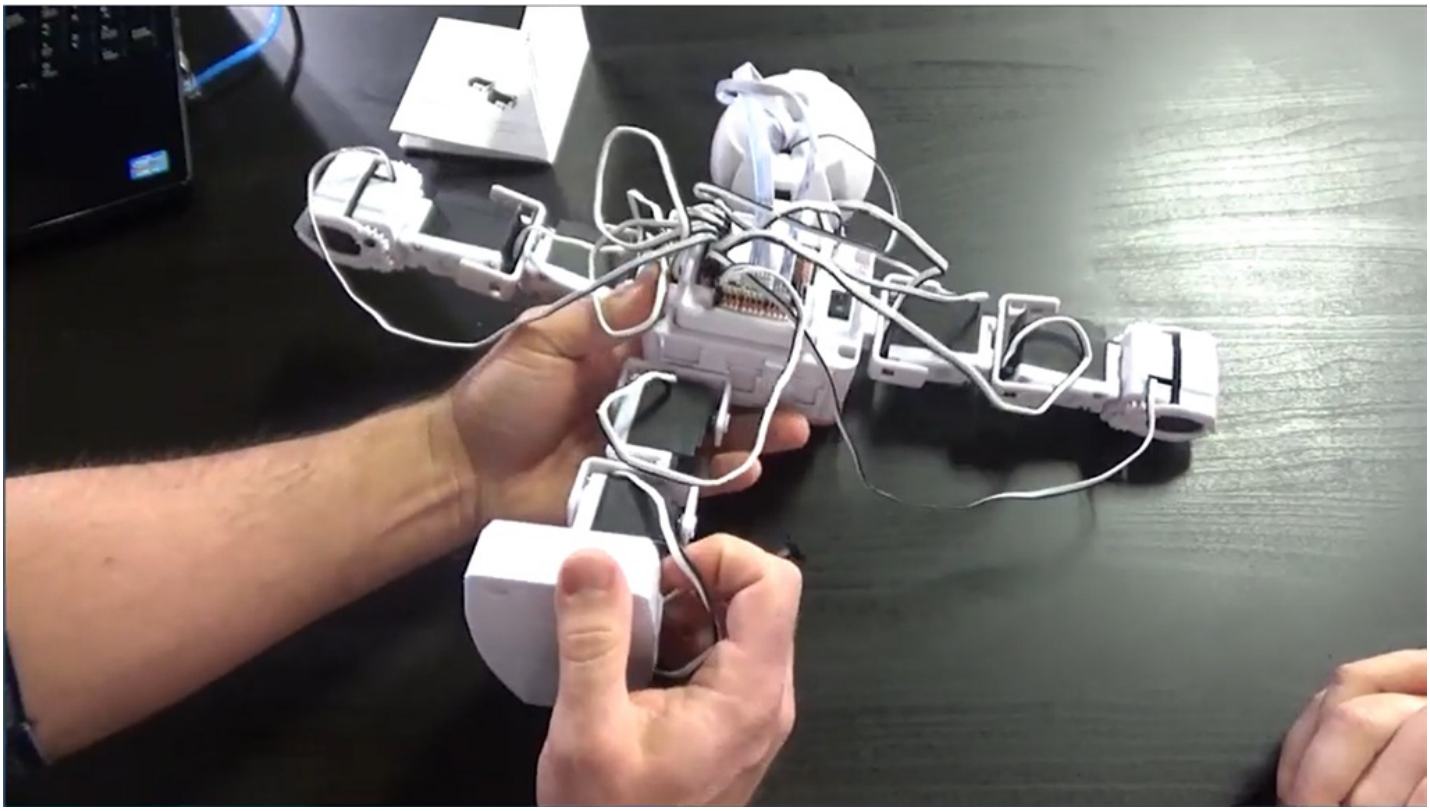
Step 17

Clipâ€™nâ€™Play Left Upper Leg Servo with the white servo edge facing outwards. Connect the cable to **D12**.



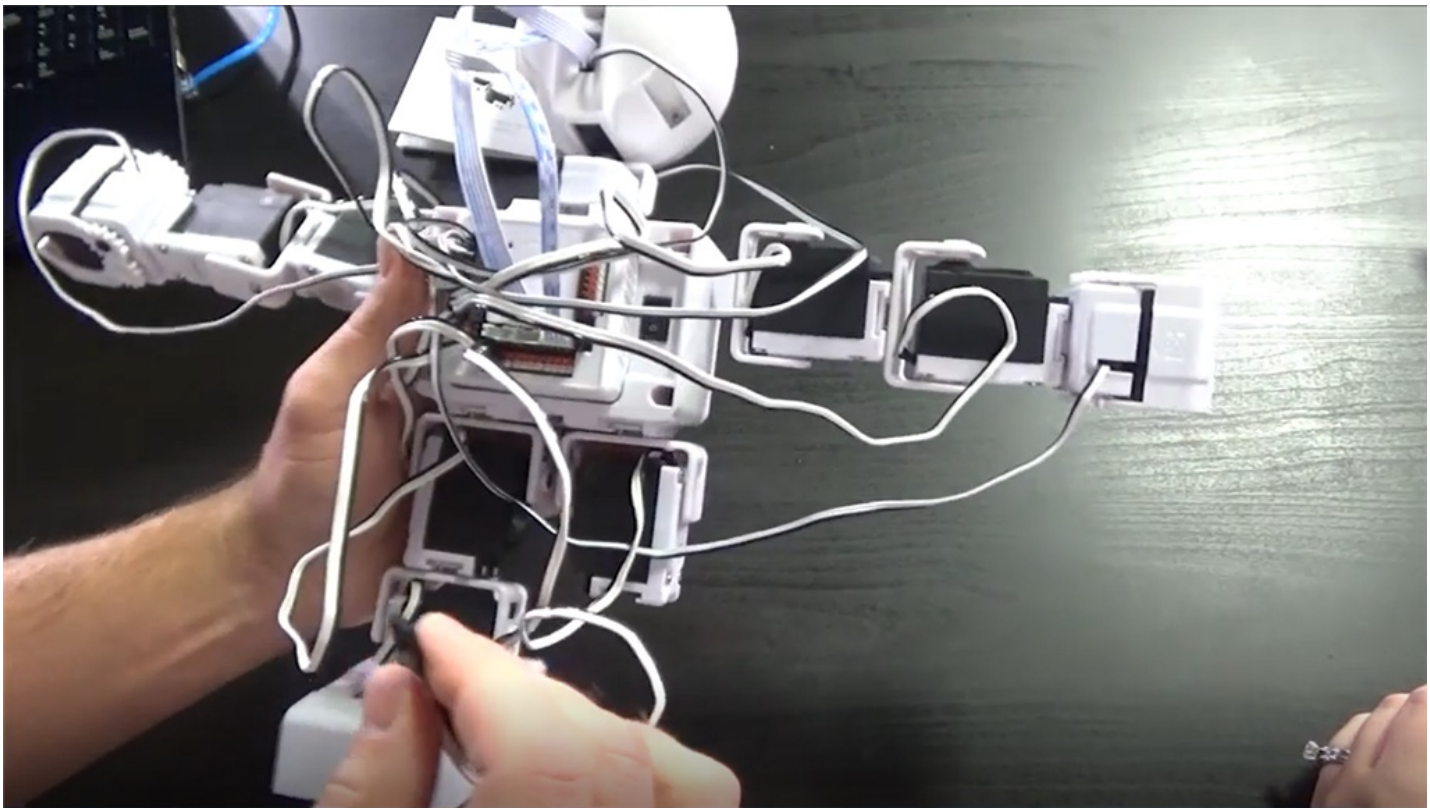
Step 18

Clipâ€™nâ€™Play Left Foot Assembly to **Left Upper Leg Servo** with the white servo edge facing outwards. Connect the left knee servo cable to **D13**. Connect the left ankle servo cable to **D14**.



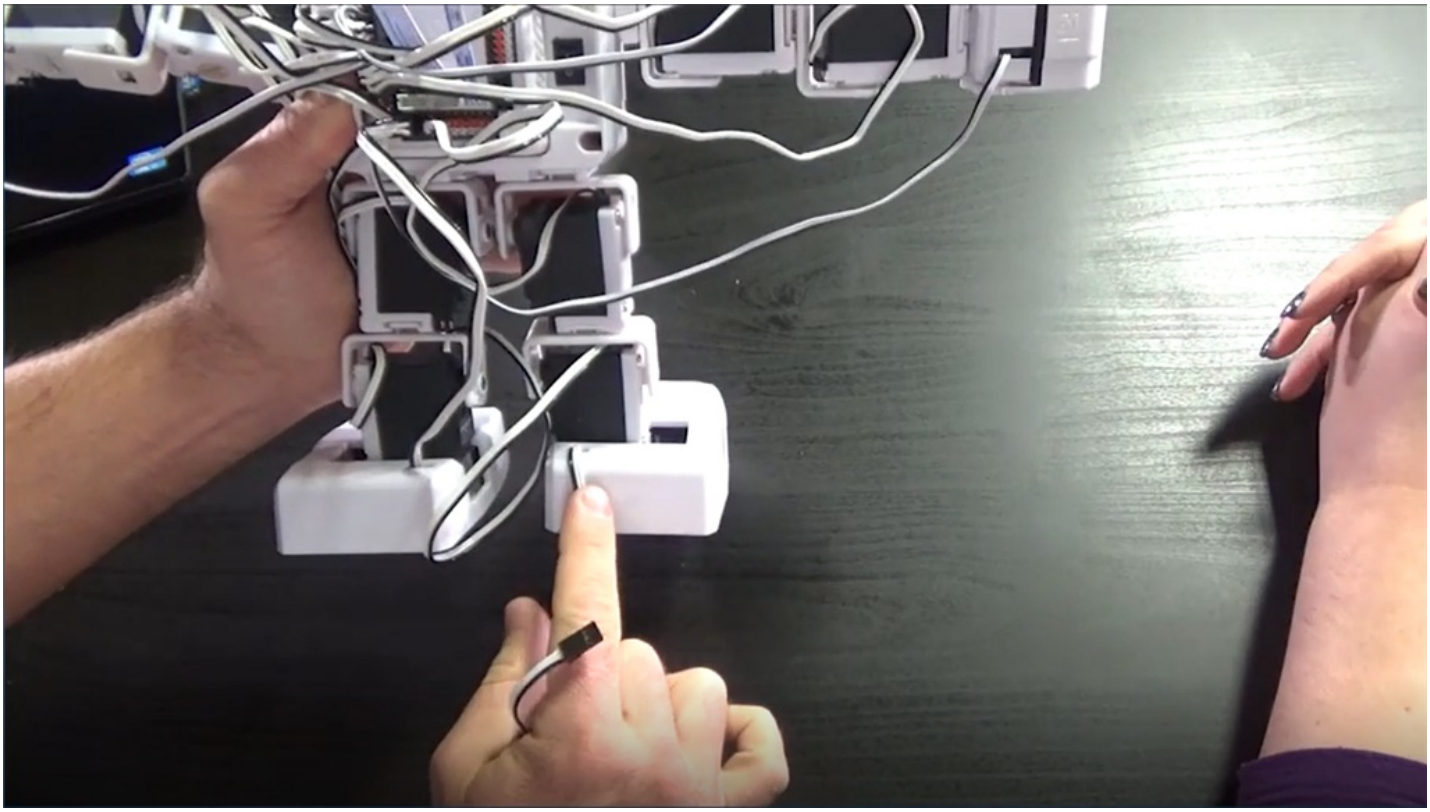
Step 19

Clipâ€™nâ€™Play Right Upper Leg Servo with the white servo edge facing outwards. Connect the cable to **D16**.



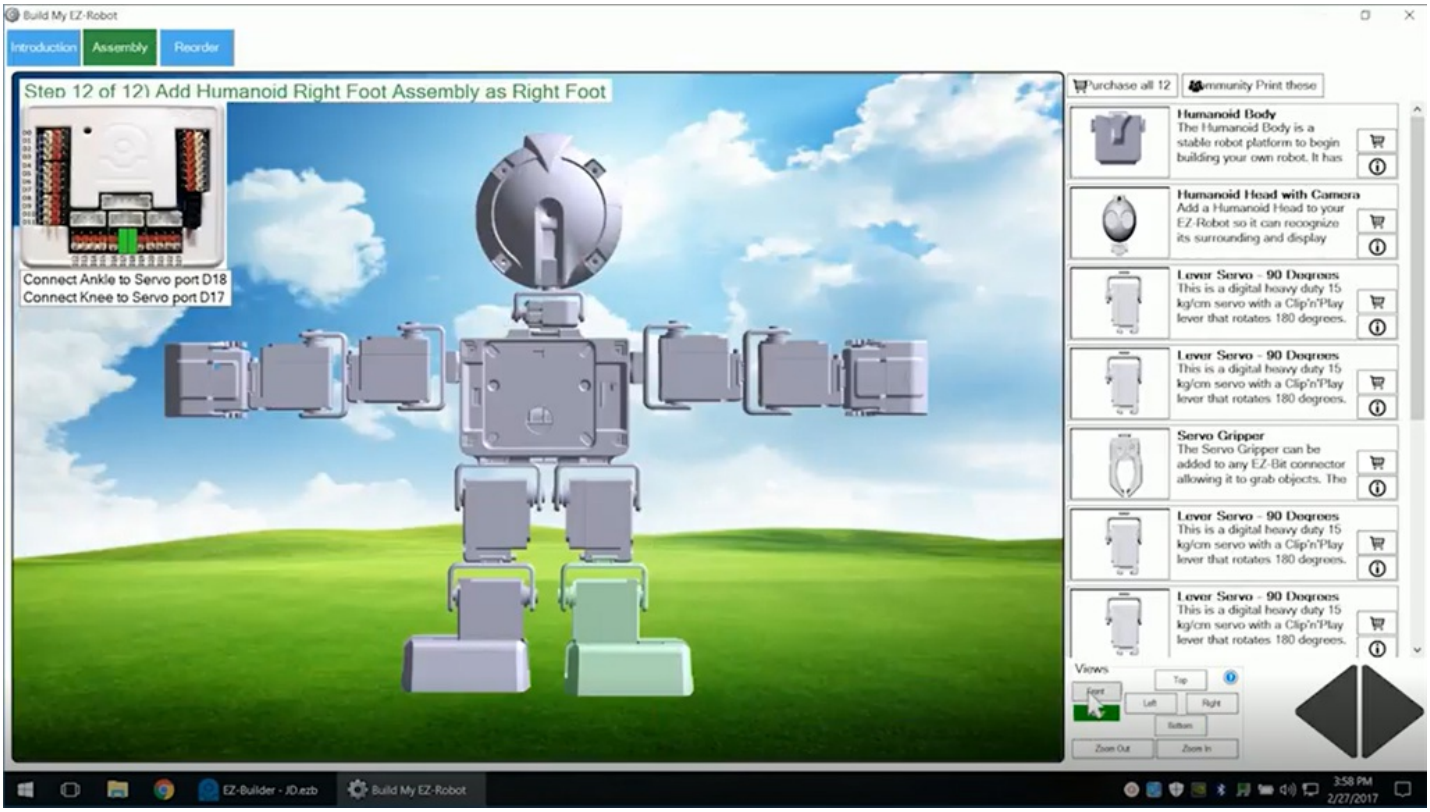
Step 20

Clipâ€™nâ€™Play Right Foot Assembly to the **Right Upper Leg Servo** with the white servo edge facing outwards. Connect the right knee servo cable to **D17**. Connect the right ankle servo cable to **D18**.



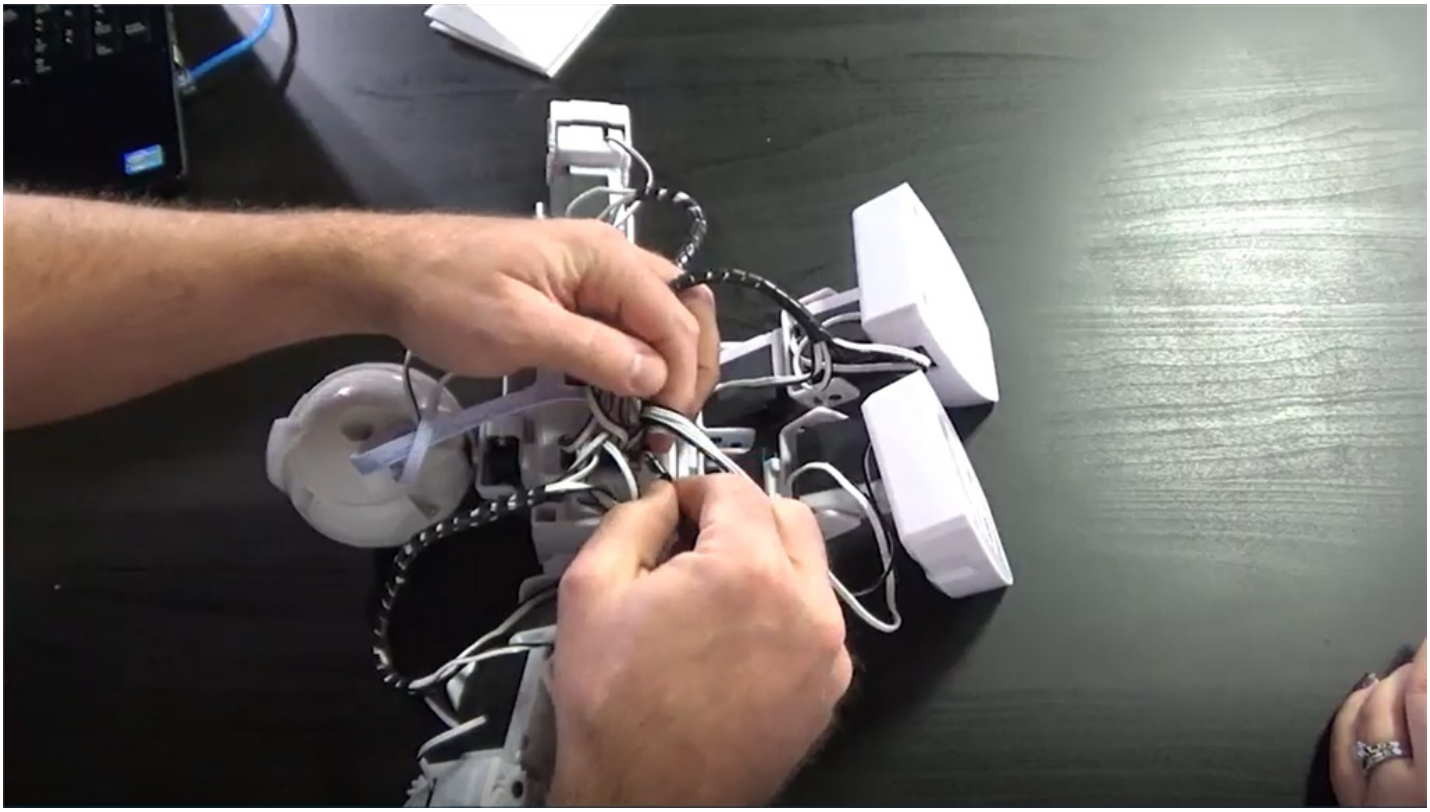
Step 21

Check that the cable connections are color-matched to the ports and that the servos are correctly positioned. Use the 3D view buttons to check the build from all angles.



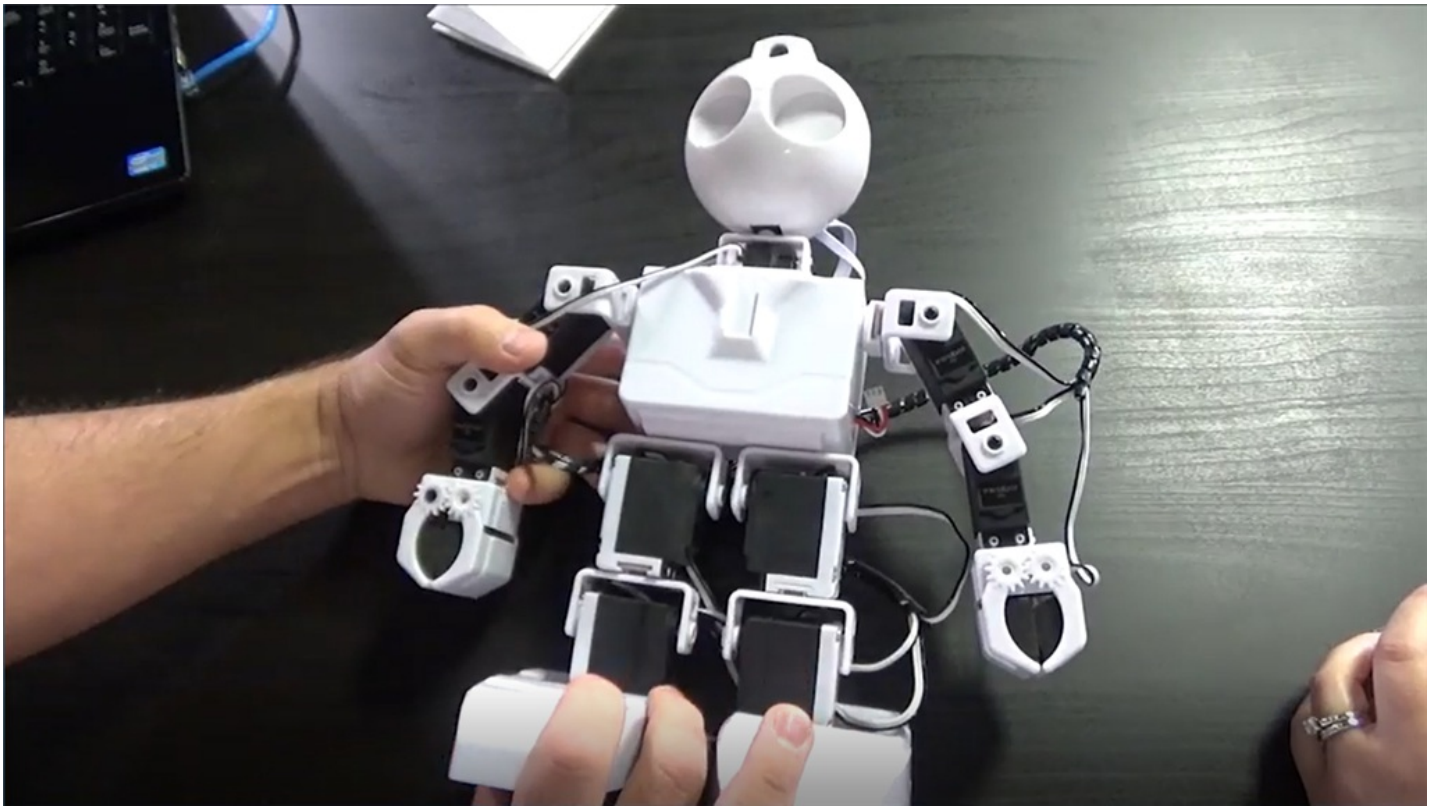
Step 22

Use **Wire Wraps** to organize the cables. Leave cable slack near the servos for full range of motion. When wrapping the leg cables, begin the wire wrapping near the **EZ-B** and wrap downwards toward the leg servos. Test for full motion.



Step 23

Your **Revolution JD** is now complete!



Quiz

Question #1 JDâ€™s cables are what type of connection?

Question #2 What is the label of the first digital port?

Question #3 Why is wire wrapping a good idea?

View the answers to this quiz at www.ez-robot.com/Tutorials/Lesson/61.

Visit www.TheRobotProgram.com for more episodes.