

# SYNTHIAM

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## The Robot Program Episode 012: Getting AdventureBot to Move

This lesson will demonstrate how to connect to and move the Revolution AdventureBot robot. Follow along with The Robot Program Episode 012: Getting AdventureBot to Move. At the end of this lesson, the reader will have learned how to connect to the robot using Wi-Fi, how to track color, access the the RoboScratch workspace for programming, and how to execute wheeled movement.

View the video episode here: <https://www.ez-robot.com/Tutorials/Lesson/83>

Last Updated: 5/29/2018

## ⑤ Professor E's Overview

This lesson demonstrated how to connect to **AdventureBot** for the first time.

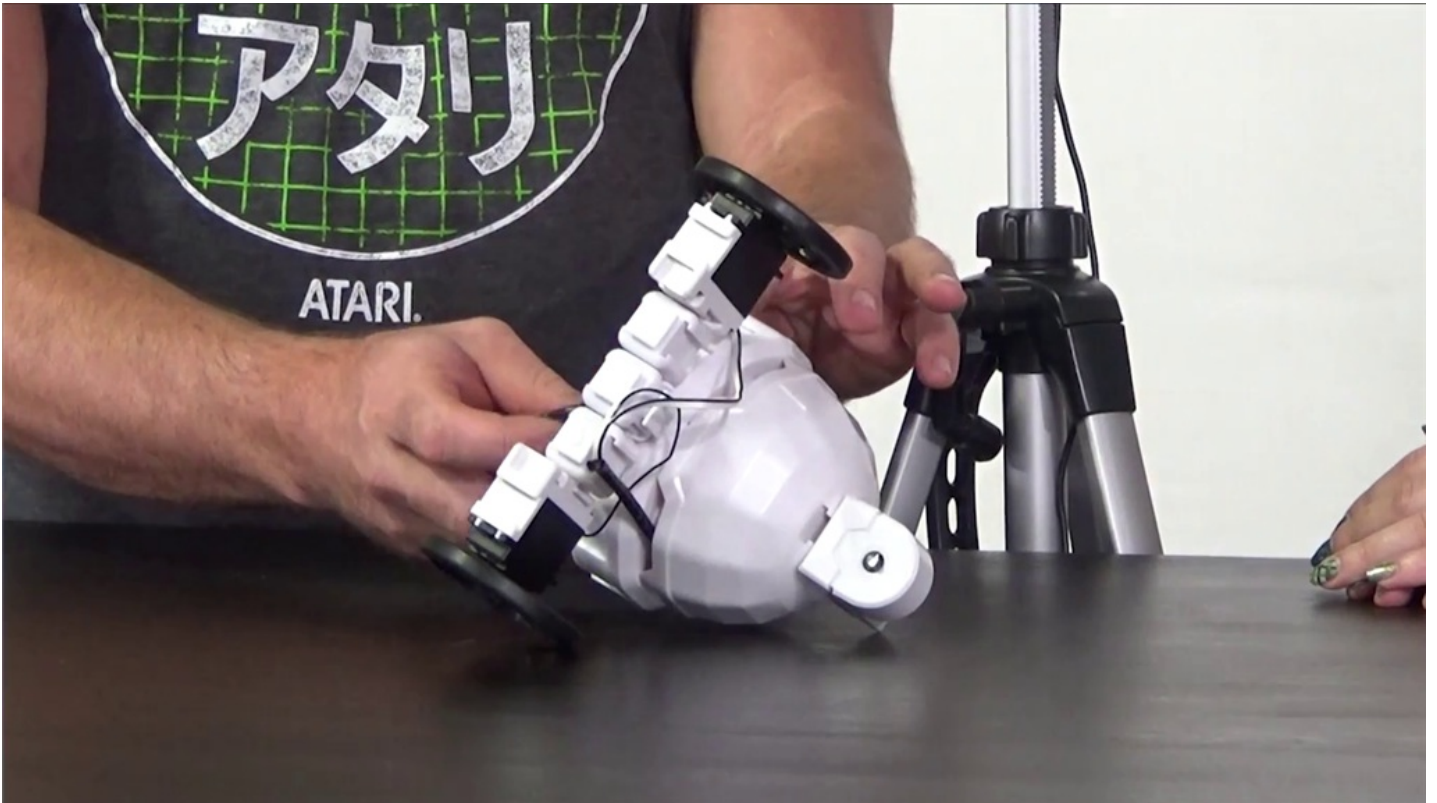
Remember to start with a fully charged robot. Load the **Example Project** for **AdventureBot** and connect to the robot using Wi-Fi.

**AdventureBot** is a wheeled robot. Use the arrow keys and sliders within the **Servo Movement Panel** to move the robot. Color tracking can be enabled using the **Camera** control. The **RoboScratch** workspace can be used to create custom programs. Remember to disconnect, power off, and charge the robot when finished.



## Step 1

Learn how to connect to **AdventureBot** for the first time. Disconnect from the battery charger.



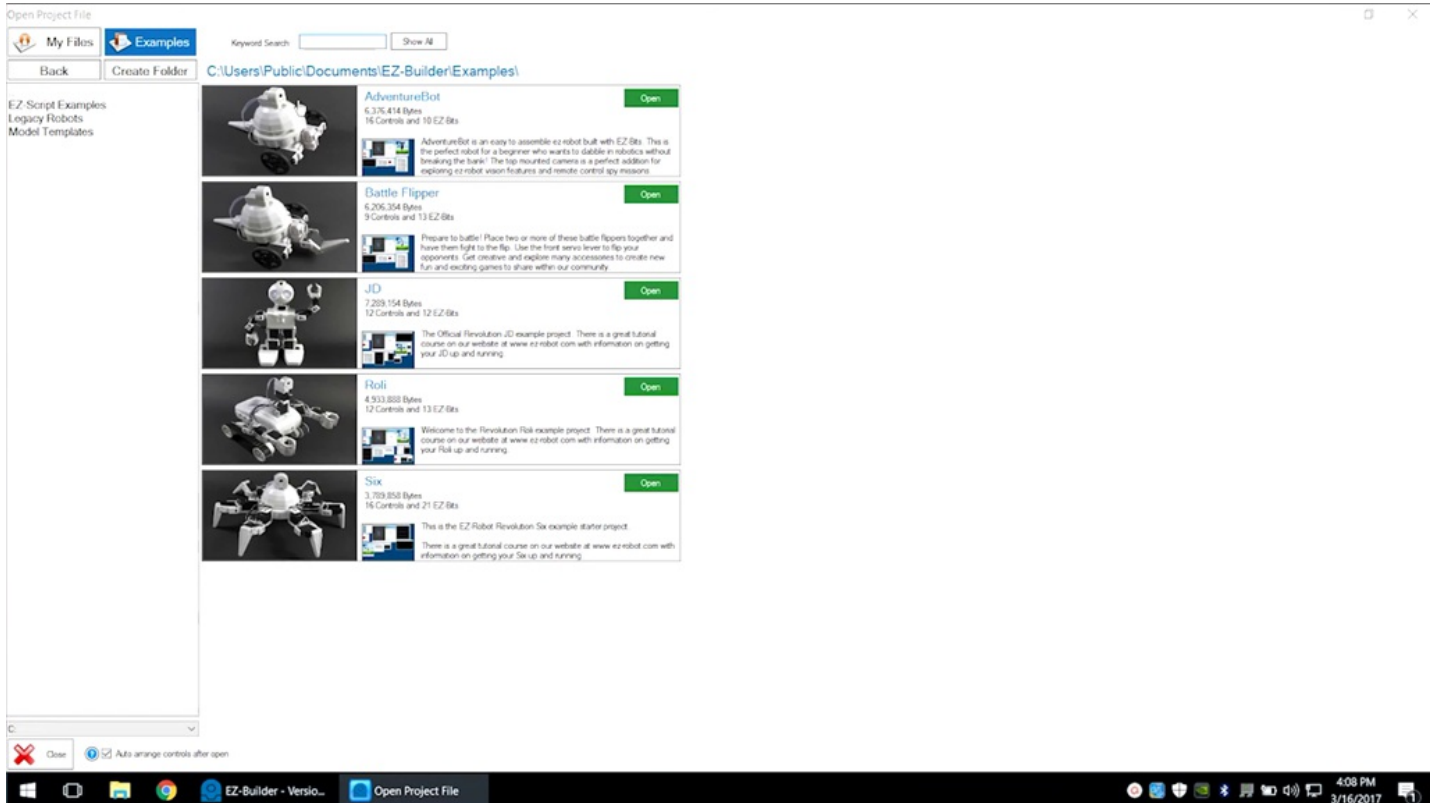
## Step 2

Power on the robot. Select the **EZ-B v4** Wi-Fi connection.



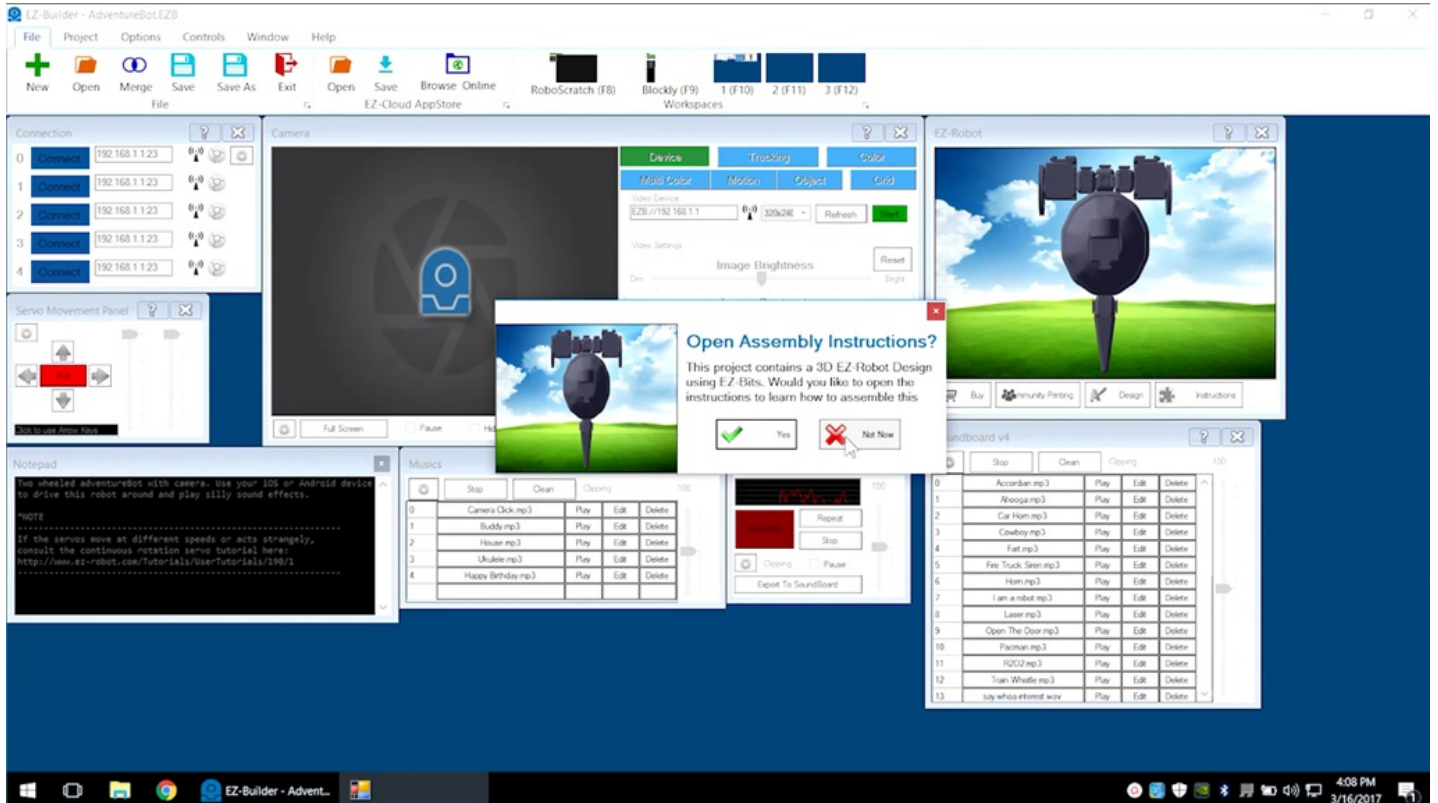
# Step 3

Open **EZ-Builder**. Select **Example Projects** and load the **AdventureBot** project.



# Step 4

See how to build **AdventureBot** in **Episode 010**.



## Step 5

Select **Connect to EZ-B** and listen for the chime.

The screenshot displays the EZ-Builder software interface for an AdventureBot. The interface includes several panels:

- Connection:** A list of four 'Connect' buttons, each associated with the IP address 192.168.1.123.
- Servo Movement Panel:** A panel with directional arrows and a 'Click to use Arrow Keys' button.
- Camera:** A central panel with a camera view and settings for Image Brightness, Image Contrast, and Image Saturation. It also includes Video Device, Video Settings, and Video Recording options.
- Music:** A table with columns for Step, Name, Play, Edit, and Delete. The table contains the following data:

Step	Name	Play	Edit	Delete
0	Camera Click.mp3	Play	Edit	Delete
1	Buddy.mp3	Play	Edit	Delete
2	Healer.mp3	Play	Edit	Delete
3	Ukulele.mp3	Play	Edit	Delete
4	Happy Birthday.mp3	Play	Edit	Delete
- Microphone:** A panel with a 'RECORD' button, 'Repeat', and 'Stop' buttons, and an 'Export To Soundboard' button.
- Soundboard v4:** A list of 13 sound effects with columns for Name, Play, Edit, and Delete. The list includes: Accordion.mp3, Ahooog.mp3, Car Horn.mp3, Cowboy.mp3, Fat.mp3, Fire Truck Seen.mp3, Hum.mp3, I am a robot.mp3, Laser.mp3, Open The Door.mp3, Pacman.mp3, R2D2.mp3, Train Whistle.mp3, and yay-whoa-interest.wav.
- EZ-Robot:** A panel showing a 3D model of the robot in a virtual environment.

The Windows taskbar at the bottom shows the time as 4:08 PM on 3/16/2017.



## Step 6

Use the arrow keys and sliders of the **Servo Movement Panel** to control wheel movement.

The screenshot displays the EZ-Builder software interface for controlling a robot. The main window is titled "EZ-Builder - AdventureBot.EZB" and features a menu bar (File, Project, Options, Controls, Window, Help) and a toolbar with icons for New, Open, Merge, Save, Save As, Exit, Open, Save, Browse Online, and EZ-Cloud AppStore. The interface is divided into several panels:

- Connection:** A list of four connection attempts, all showing "Connect" status with IP address 192.168.1.123.
- Servo Movement Panel:** A panel with four directional arrow keys (Up, Down, Left, Right) and a central slider, used for controlling the robot's movement.
- Camera:** A live video feed of a person sitting at a desk in front of a "ez-robot" banner. Below the feed are controls for "Full Screen", "Pause", "Hide Settings", and "Tracking".
- Device:** A panel with tabs for "Multi Color", "Tracking", "Motion", "Object", and "Grid". It shows "Video Device" as "EZB://192.168.1.1" and "Video Settings" for "Image Brightness", "Image Contrast", and "Image Saturation", each with a "Dim" slider and a "Reset" button.
- EZ-Robot:** A 3D model of a robot on a green field under a blue sky.
- Microphone:** A panel with a "RECORD" button, "Repeat", and "Stop" buttons, and an "Export To Soundboard" button.
- Music:** A table with columns for "Stop", "Clean", and "100". It lists several music files with "Play", "Edit", and "Delete" buttons.
- Soundboard v4:** A panel with a "Stop" and "Clean" button, and a list of 13 sound effects with "Play", "Edit", and "Delete" buttons.
- Notepad:** A text area containing a note about driving the robot with a camera and a link to a tutorial.

The Windows taskbar at the bottom shows the time as 4:59 PM on 3/16/2017.



## Step 7

Use the **Microphone** control to record and playback sounds.

The screenshot displays the EZ-Builder software interface for controlling a robot. The main window is titled "EZ-Builder - AdventureBot.EZB" and features a menu bar (File, Project, Options, Controls, Window, Help) and a toolbar with icons for New, Open, Merge, Save, Save As, Exit, Open, Save, Browse Online, EZ-Cloud AppStore, RoboScratch (F8), Blockly (F9), and Workspaces (1 (F10), 2 (F11), 3 (F12)).

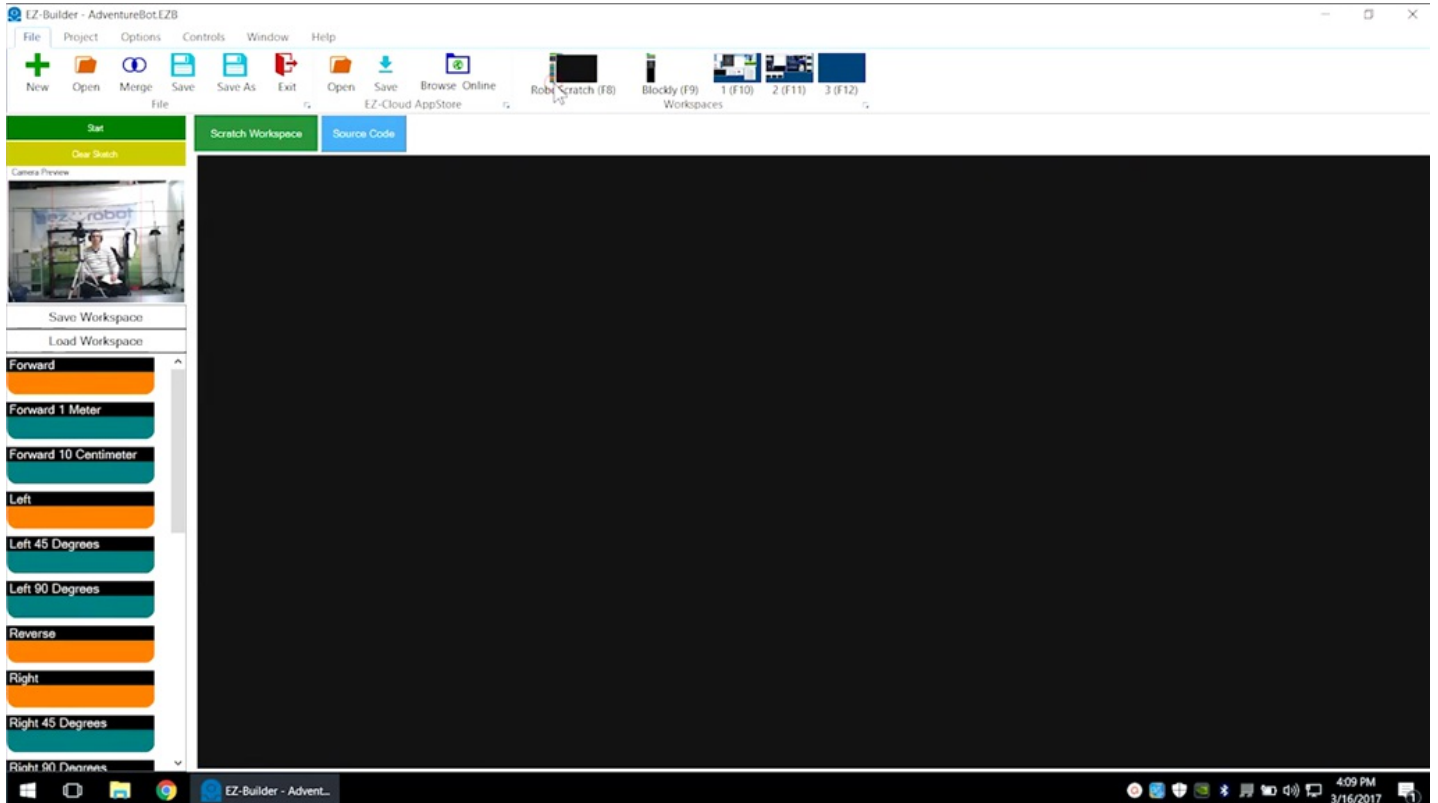
Key components of the interface include:

- Connection Panel:** Lists four connection attempts with IP addresses (192.168.1.123) and status (Disconnect, Connect).
- Servo Movement Panel:** Contains directional arrow buttons and a "Click to use Arrow Keys" button.
- Camera Panel:** Shows a live video feed of a person operating a robot. It includes tabs for Device, Tracking, and Color, and sliders for Image Brightness, Image Contrast, and Image Saturation. A "Video Recording" section has Start and Pause buttons.
- Microphone Panel:** Features a "STOP (1.5s)" button, a "Repeat" button, and an "Export To Soundboard" button. A waveform visualization is visible above the controls.
- Music Panel:** A table listing various sound effects with columns for Stop, Clean, and volume (100).
- Soundboard v4 Panel:** A list of 13 sound effects (e.g., Accordion.mp3, Alroog.mp3) with Play, Edit, and Delete buttons for each.
- Notepad:** Contains a note about driving the robot with a camera and a link to a servo tutorial.
- EZ-Robot Panel:** Displays a 3D model of the robot against a background of a green field and blue sky.

The Windows taskbar at the bottom shows the time as 4:59 PM on 3/16/2017.

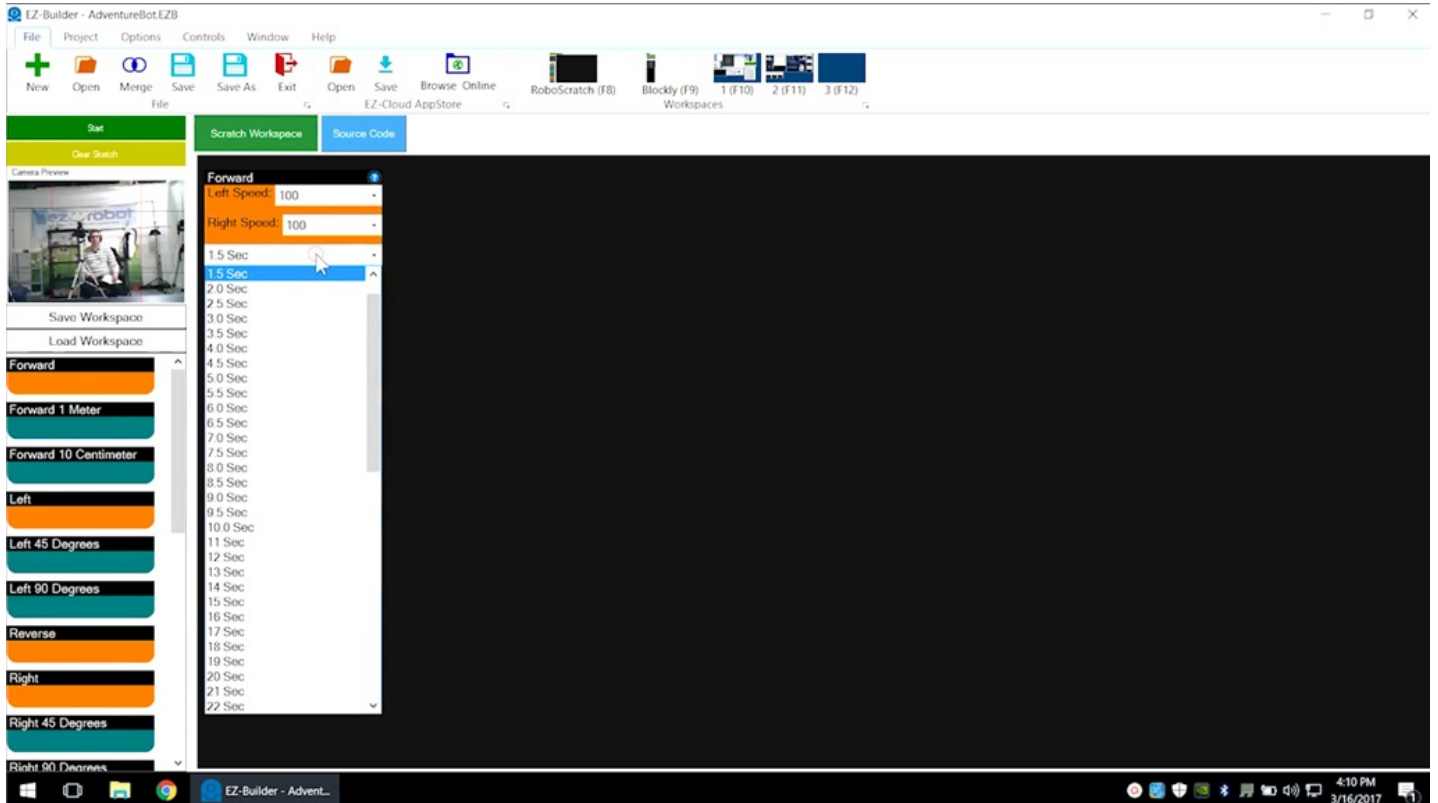
## Step 8

**RoboScratch** can be used to create custom programs.



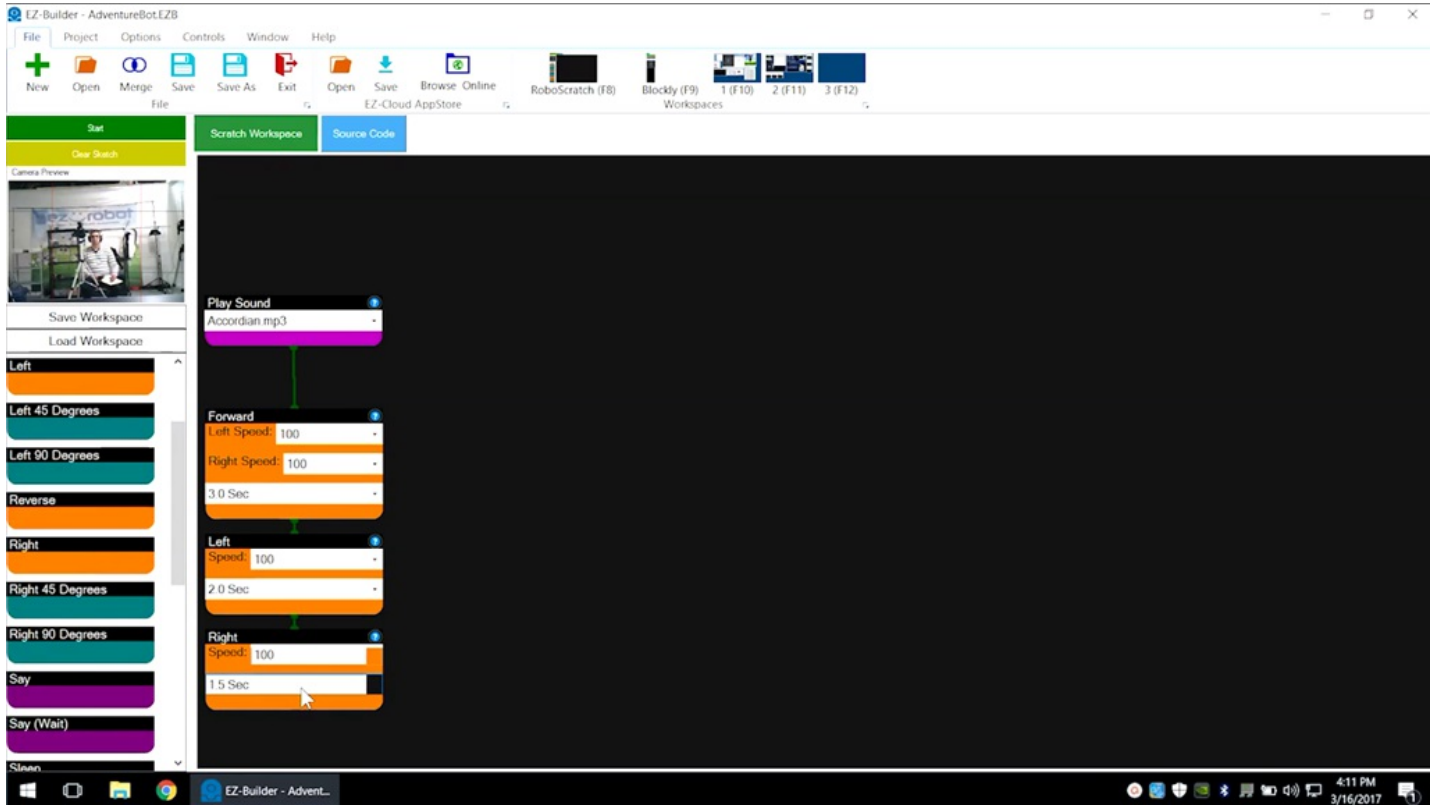
# Step 9

Build programs by selecting actions.



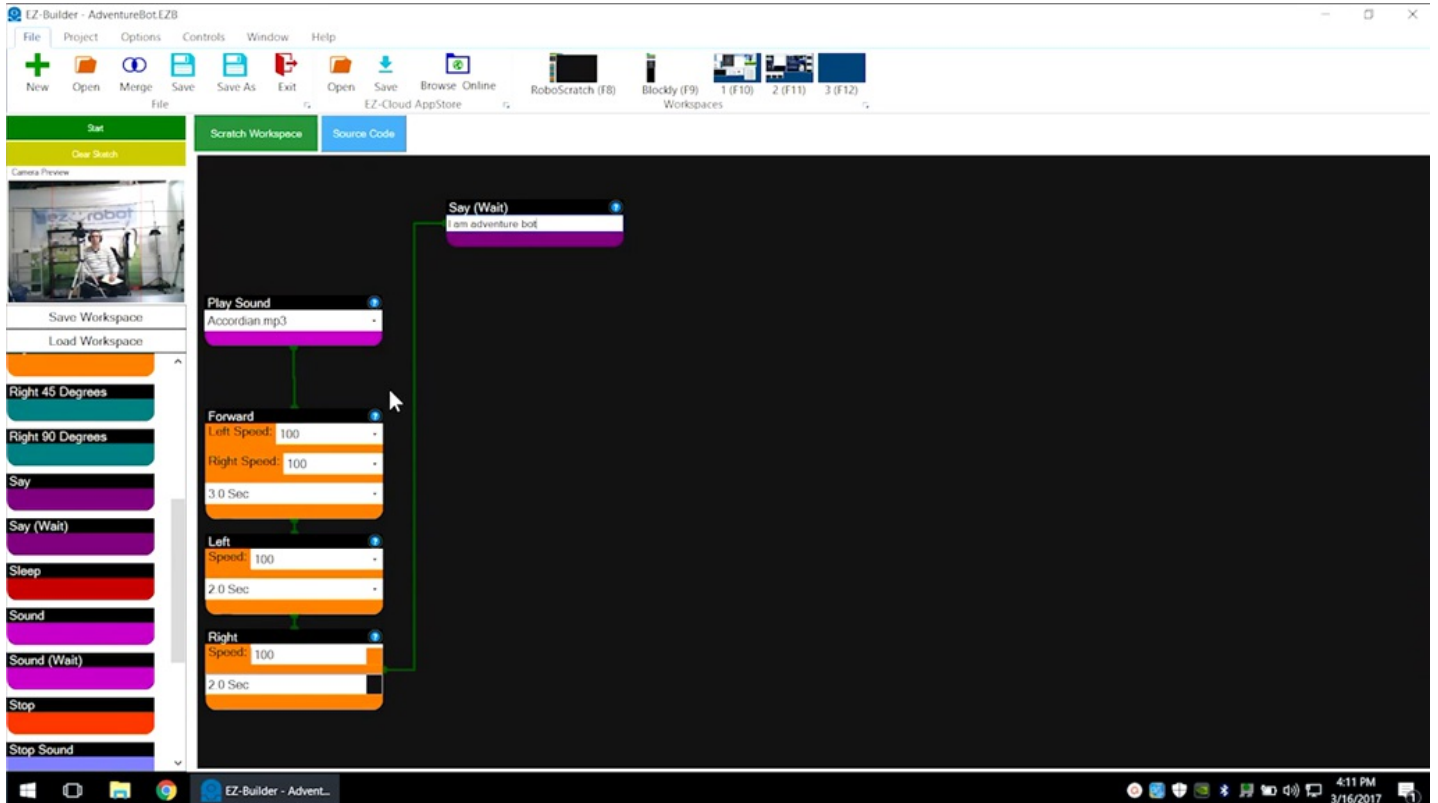
# Step 10

Learn more about **RoboScratch** in **Episode 006**.



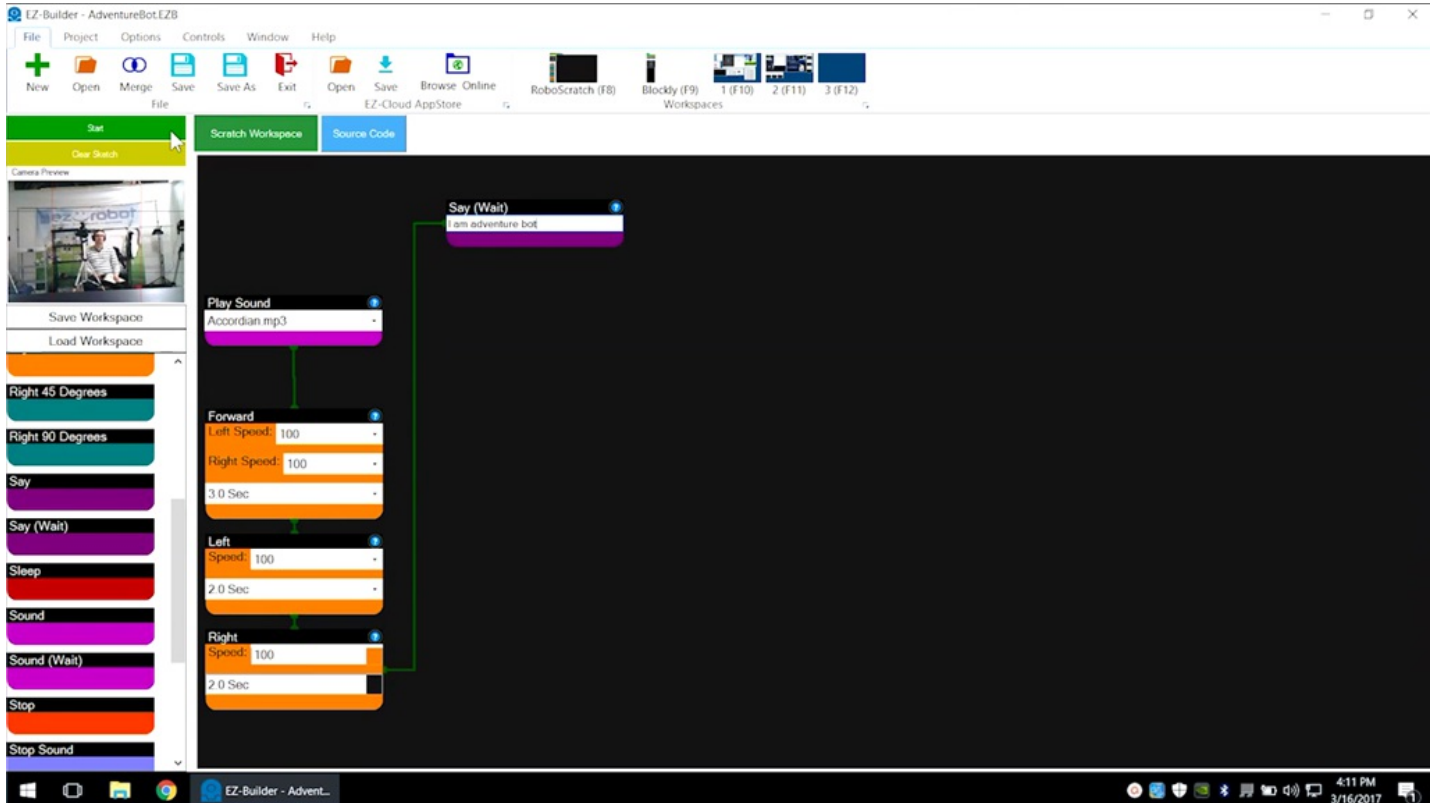
# Step 11

Follow the green line to see the action execution order.



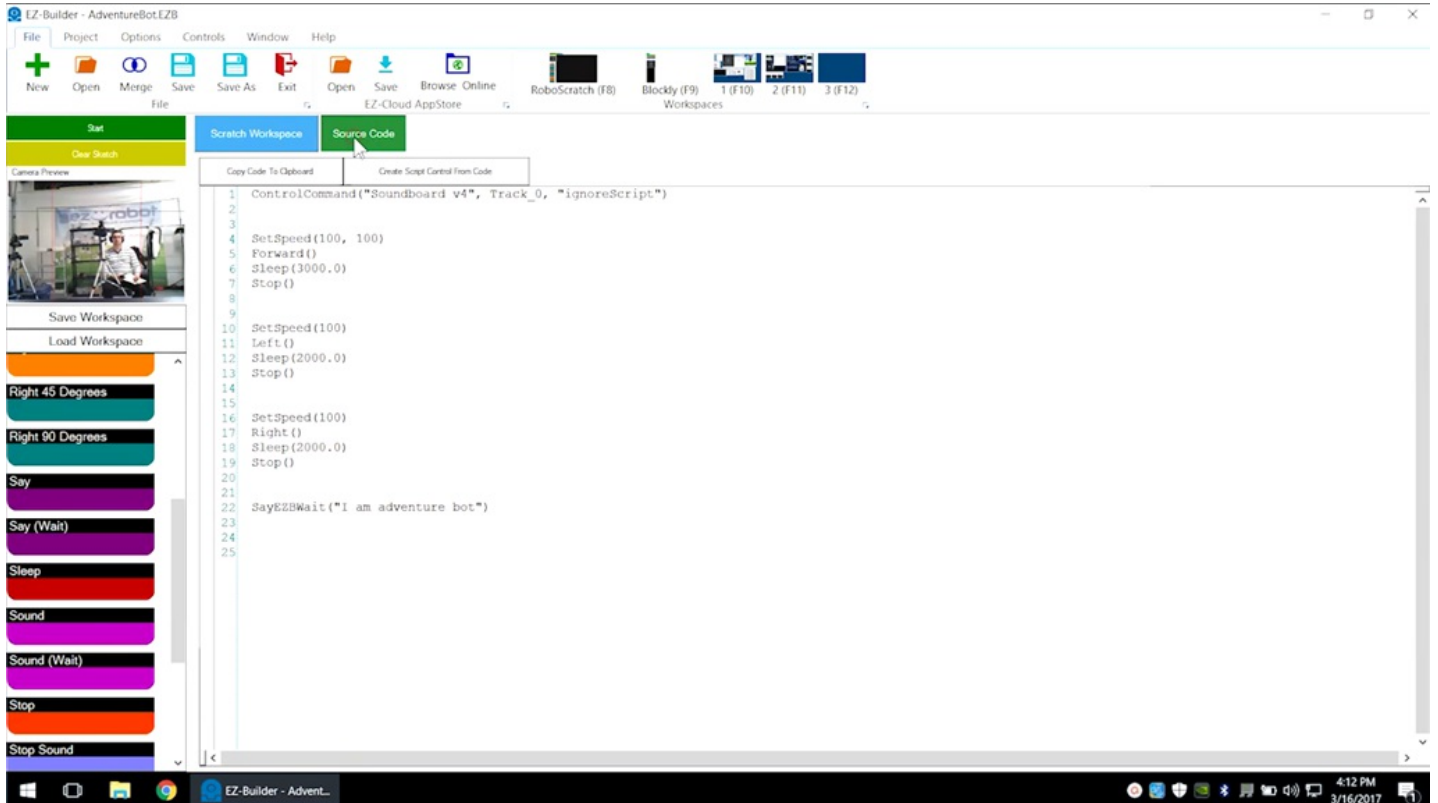
# Step 12

Click on **Start** to run the program.



## Step 13

Click on **Source Code** to view the generated code.



The screenshot displays the EZ-Builder software interface for the 'AdventureBotEZB' project. The 'Source Code' tab is active, showing a list of 25 lines of code. The code includes commands for controlling a soundboard, setting motor speeds, and making the robot move in various directions (forward, left, right) with specific sleep durations. A 'Say' command is also present, with a 'Wait' parameter.

```
1 ControlCommand("Soundboard v4", Track_0, "ignoreScript")
2
3
4 SetSpeed(100, 100)
5 Forward()
6 Sleep(3000.0)
7 Stop()
8
9
10 SetSpeed(100)
11 Left()
12 Sleep(2000.0)
13 Stop()
14
15
16 SetSpeed(100)
17 Right()
18 Sleep(2000.0)
19 Stop()
20
21
22 SayEZBWait("I am adventure bot")
23
24
25
```



## Step 14

In the **Camera** control, click on the **Gear Icon** and select **Enable Movement Tracking**.

The screenshot displays the EZ-Builder software interface for a robot. The main window shows a connection list on the left with four 'Connect' buttons. A 'Servo Movement Panel' is visible below the connection list. The 'Camera' control is active, showing a live video feed of a person's arm. A 'Camera Config' dialog box is open, showing various settings. The 'Settings' tab is selected, and the 'Movement Tracking' section is expanded. The 'Enable Movement Tracking' checkbox is checked. Other settings include 'Horizontal Increment Steps' set to 3, 'Vertical Increment Steps' set to 2, 'Turn Speed' set to 30, and 'Forward Speed' set to 100. The 'Movement Delay' is set to 50 ms. The 'Save' and 'Cancel' buttons are visible at the bottom of the dialog box. The taskbar at the bottom shows the Windows taskbar with the EZ-Builder application icon and the system clock showing 4:15 PM on 3/16/2017.

## Step 15

In the **Camera** control, click on **Tracking** and select the **Color** checkbox.

The screenshot displays the EZ-Builder software interface for controlling a robot. The main window is titled "EZ-Builder - AdventureBot.EZB". The interface includes a menu bar (File, Project, Options, Controls, Window, Help) and a toolbar with various icons for file operations and workspace management. The central area is divided into several panels:

- Connection:** A list of four connection attempts, all showing "Connect" status and the IP address "192.168.1.123".
- Servo Movement Panel:** A control panel for servo motors with directional arrows and a "Click to use Arrow Keys" button.
- Camera:** The primary control panel, featuring a video feed of a person's hands on a keyboard. The "Tracking" tab is active, and the "Color" checkbox is checked. Other options include "Multi Color", "Motion", "Object", "Grid", "Face", "Glyph", "QR Code", "Custom Haar", and "Object". A "Tracking Speed" slider is set to "High (< Low)".
- EZ-Robot:** A 3D model of the robot in a virtual environment.
- Notepad:** A text editor containing instructions for using a camera with the robot.
- Music:** A table of music files for playback.
- Microphone:** A control panel for recording audio.
- Soundboard v4:** A list of sound effects for playback.

The Windows taskbar at the bottom shows the system clock as 4:15 PM on 3/16/2017.

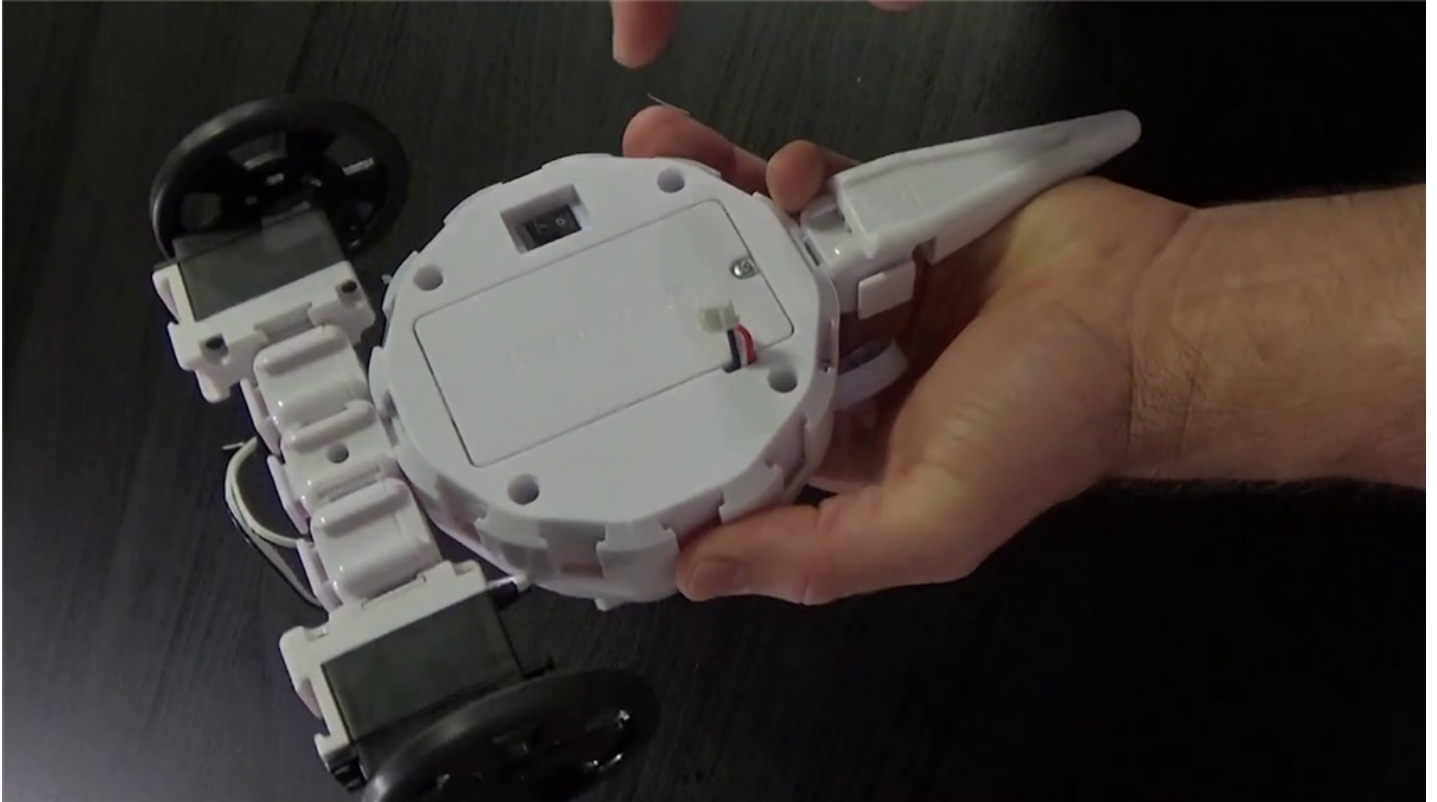
## Step 16

By default, **AdventureBot** will track the color red. Turn off tracking when finished.



## Step 17

Remember to disconnect, power off, and connect to the battery charger when finished.



## Quiz

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**Question #1** What letters are always at the start of the Wi-Fi connection name?

**Question #2** Which control panel is used for AdventureBot™'s movement?

**Question #3** What is the default color for camera color tracking?

View the answers to this quiz at [www.ez-robot.com/Tutorials/Lesson/83](http://www.ez-robot.com/Tutorials/Lesson/83).

Visit [www.TheRobotProgram.com](http://www.TheRobotProgram.com) for more episodes.