

# 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.



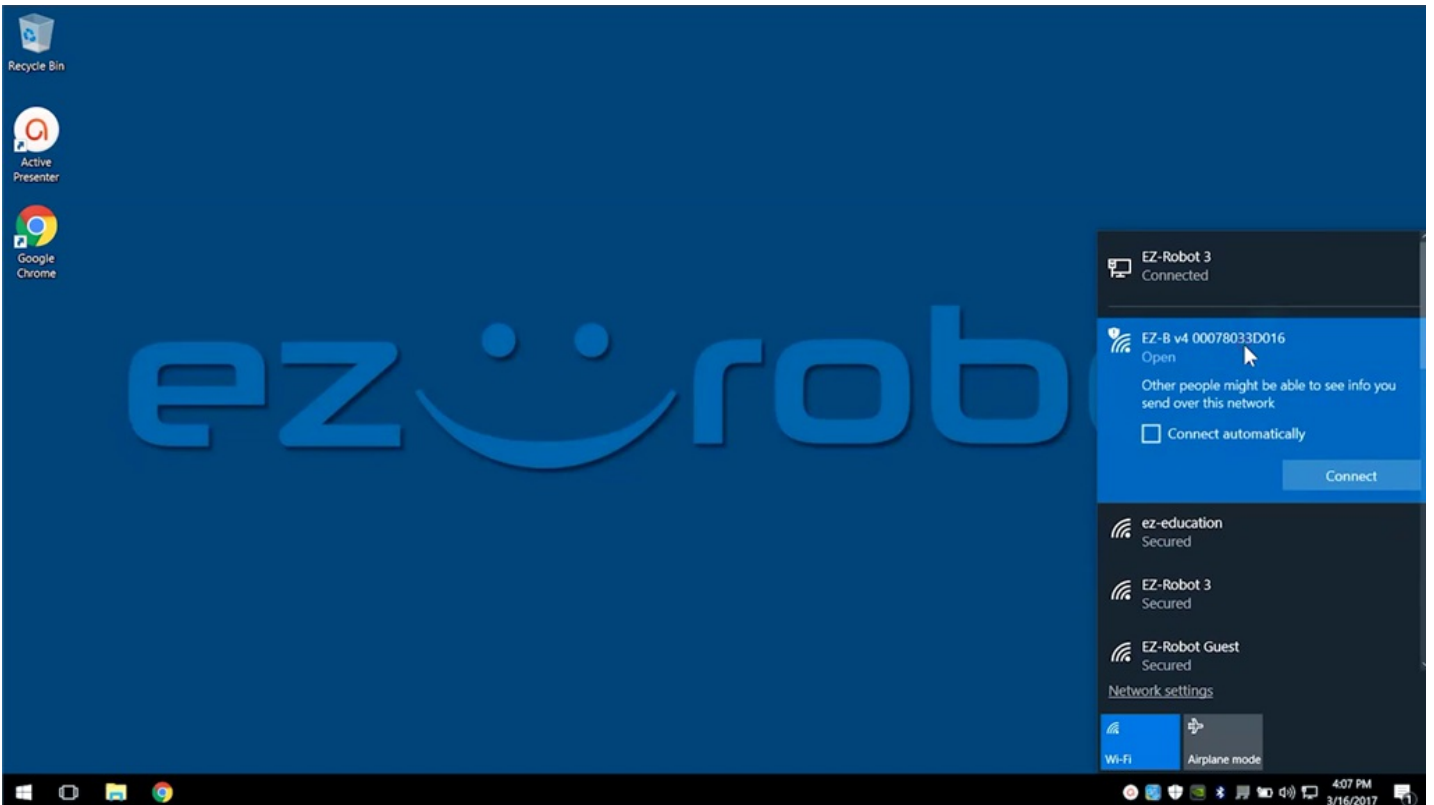
## Step 1

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



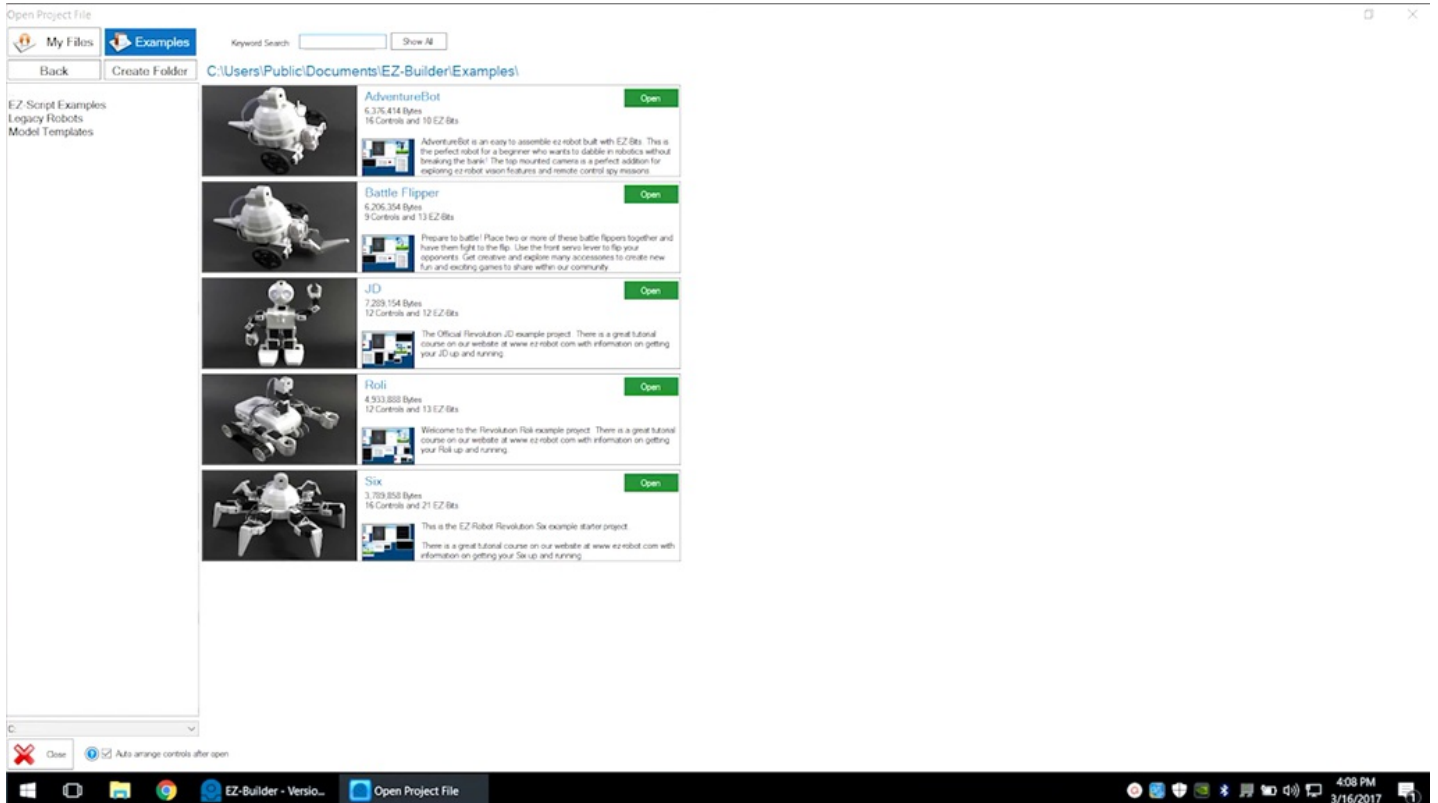
## Step 2

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



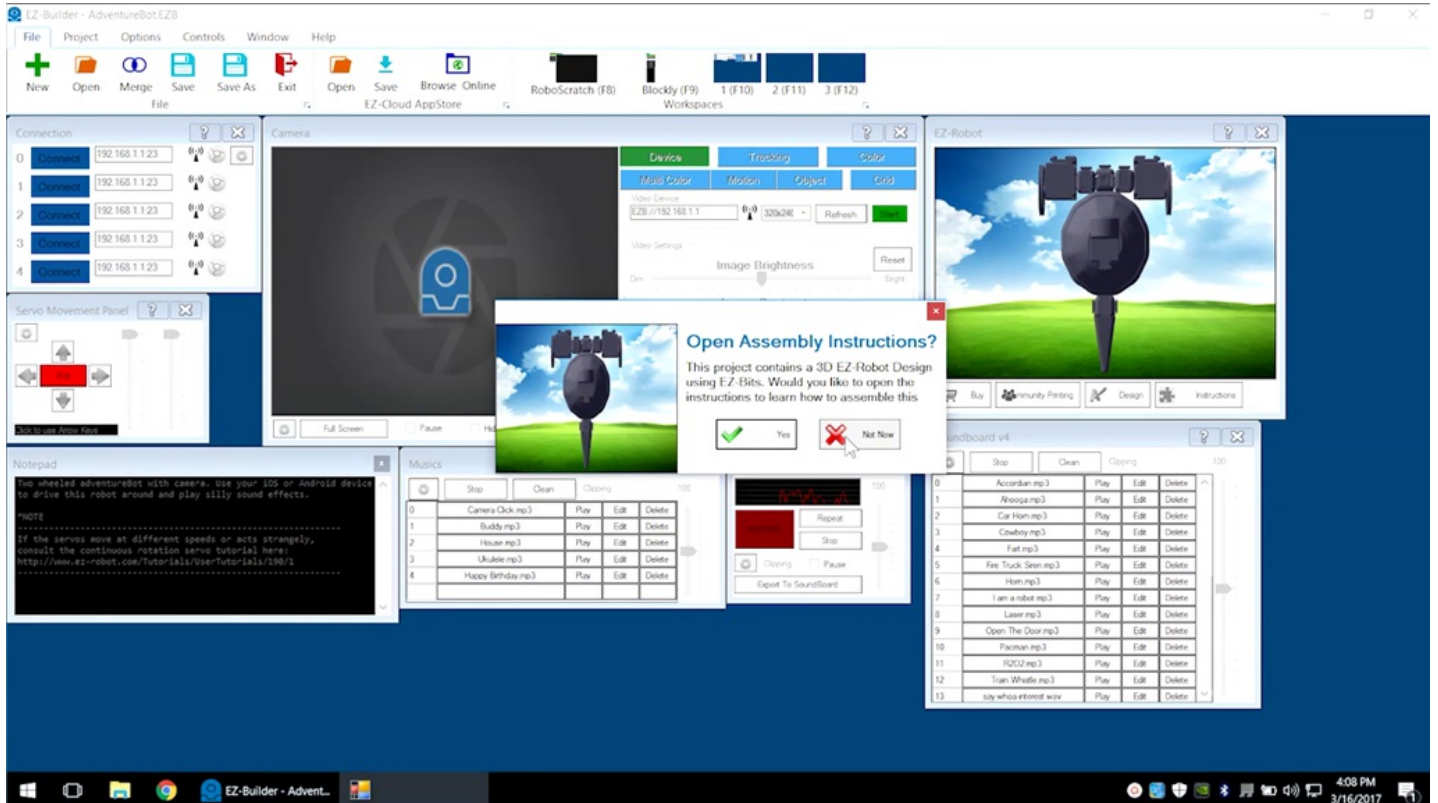
# Step 3

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 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 (F10, F11, F12).

Key components of the interface include:

- Connection Panel:** A list of four "Connect" buttons, each associated with the IP address 192.168.1.123. The first button is highlighted.
- Servo Movement Panel:** A control panel for servo motors with directional arrows and a "Click to use Arrow Keys" button.
- Camera Panel:** A central window showing a camera feed with a blue robot head icon overlaid. Below the feed are sliders for "Image Brightness", "Image Contrast", and "Image Saturation", each with a "Reset" button. There are also "Video Recording" (Start, Pause) and "Enhancements" (Sharpen Image) controls.
- EZ-Robot Panel:** A window showing a 3D model of a robot on a green field under a blue sky. It includes a "Buy" button, "Community Printing", "Design", and "Instructions" options.
- Notepad:** A text area containing instructions: "Two wheeled adventurebot with camera. Use your iOS or Android device to drive this robot around and play silly sound effects." It also includes a "NOTE" section with a URL: <http://www.ez-robot.com/Tutorials/UserTutorials/198/1>.
- Music Panel:** A table with columns for "Step", "Clean", "Play", "Edit", and "Delete". It lists several audio files for selection.
- Microphone Panel:** A panel with a "RECORD" button, "Repeat", "Stop", and "Export To Soundboard" options.
- Soundboard v4:** A list of 13 sound effects with "Play", "Edit", and "Delete" buttons for each.

The Windows taskbar at the bottom shows the system tray with the time 4:08 PM and date 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 with a camera on a tripod. The camera is labeled "ez-robot".
- EZ-Robot:** A 3D model of the robot in a virtual environment with a blue sky and green ground.
- Device:** A panel with tabs for Multi Color, Motion, Object, and Grid. It shows "Video Device: EZB://192.168.1.1" and "30024E".
- Image Settings:** Sliders for Image Brightness, Image Contrast, and Image Saturation, each with a "Reset" button.
- Video Recording:** Buttons for Start, Pause, and Stop, along with an "Enhancements" checkbox for "Sharpen Image".
- Music:** A table with columns for Stop, Clean, and a volume slider (set to 100). The table lists various music files:

Stop	Clean	Volume
0	Camera Click.mp3	Play Edit Delete
1	Buddy.mp3	Play Edit Delete
2	House.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 a "Pause" checkbox. It also has a volume slider (set to 100) and an "Export To Soundboard" button.
- Soundboard v4:** A list of 13 sound effects with "Play", "Edit", and "Delete" buttons for each:

Stop	Clean	Volume
0	Accordion.mp3	Play Edit Delete
1	Alto sax.mp3	Play Edit Delete
2	Car Horn.mp3	Play Edit Delete
3	Cowboy.mp3	Play Edit Delete
4	Fart.mp3	Play Edit Delete
5	Fire Truck Seen.mp3	Play Edit Delete
6	Hum.mp3	Play Edit Delete
7	I am a robot.mp3	Play Edit Delete
8	Laser.mp3	Play Edit Delete
9	Open The Door.mp3	Play Edit Delete
10	Pacman.mp3	Play Edit Delete
11	R2D2.mp3	Play Edit Delete
12	Train Whistle.mp3	Play Edit Delete
13	Joy whos interest waw	Play Edit Delete

The bottom status bar shows the Windows taskbar with the time 4:59 PM and date 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 (F10, F11, F12).

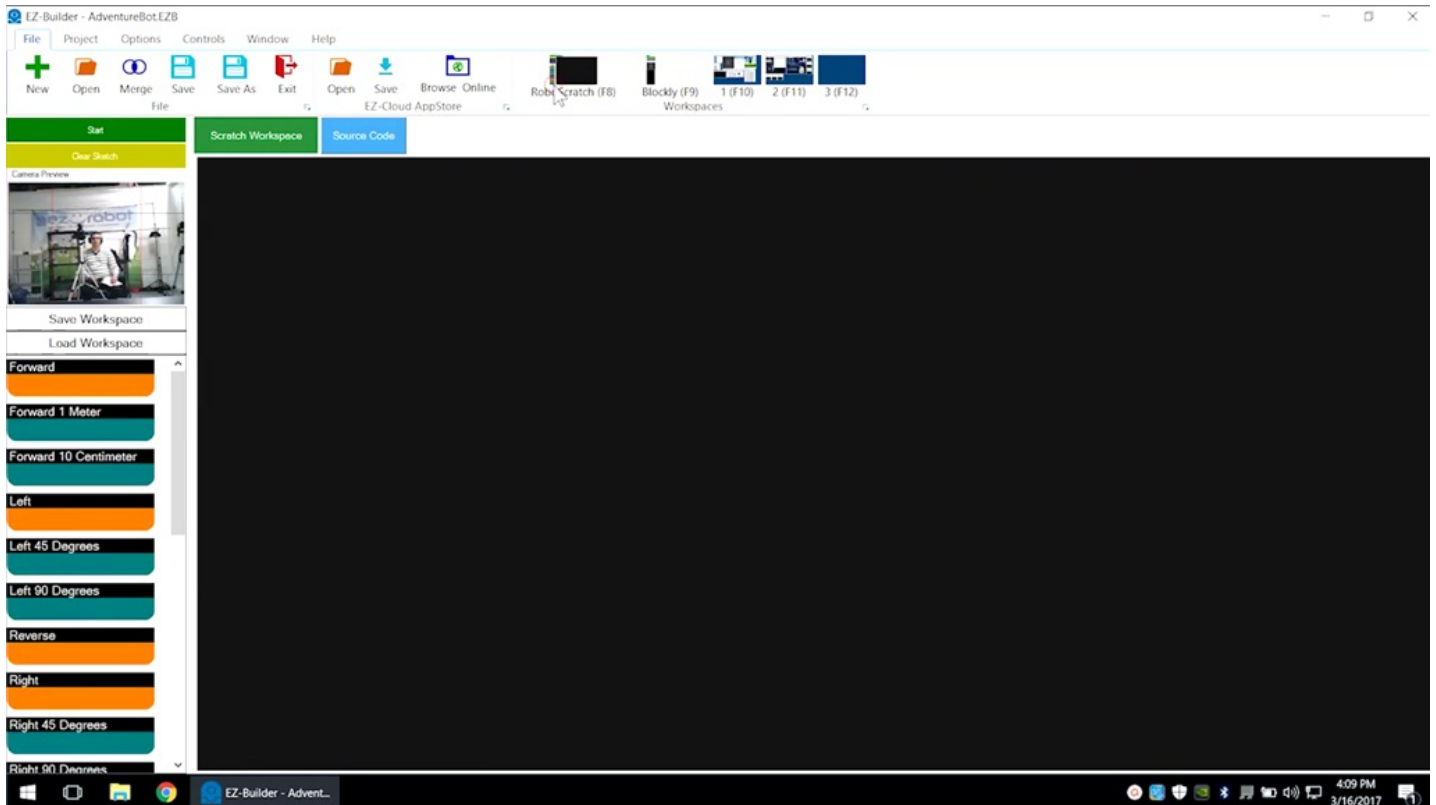
Key components of the interface include:

- Connection Panel:** Lists four connection attempts with IP addresses (192.168.1.123) and status (Disconnect, Connect).
- Servo Movement Panel:** Contains directional arrows and a "Click to use Arrow Keys" button.
- Camera Panel:** Shows a live video feed of a person at a computer. 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 green waveform 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.
- Notepad:** Contains a note about using a camera and a link to a servo tutorial.
- EZ-Robot Panel:** Shows a 3D model of the robot in a virtual environment.

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

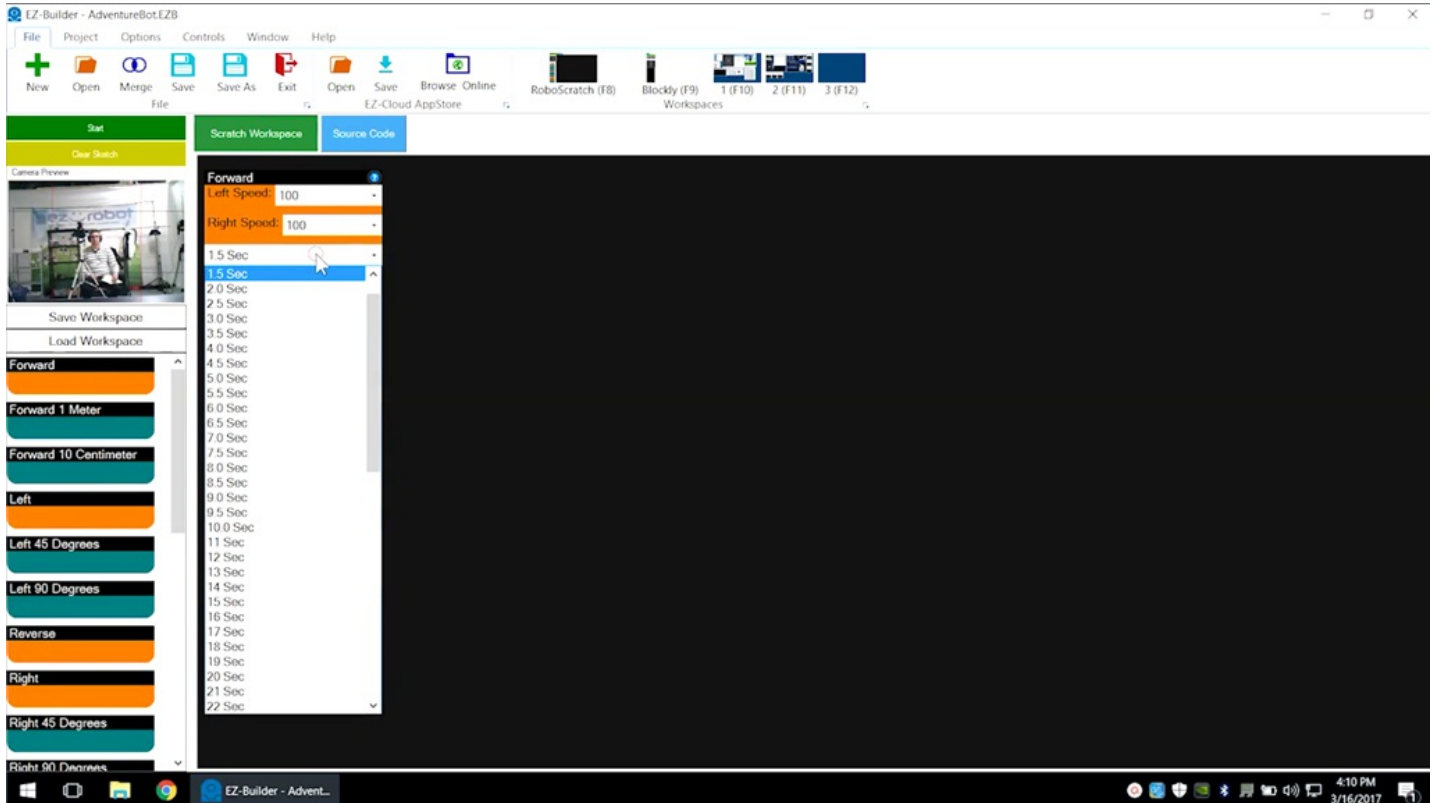
## Step 8

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



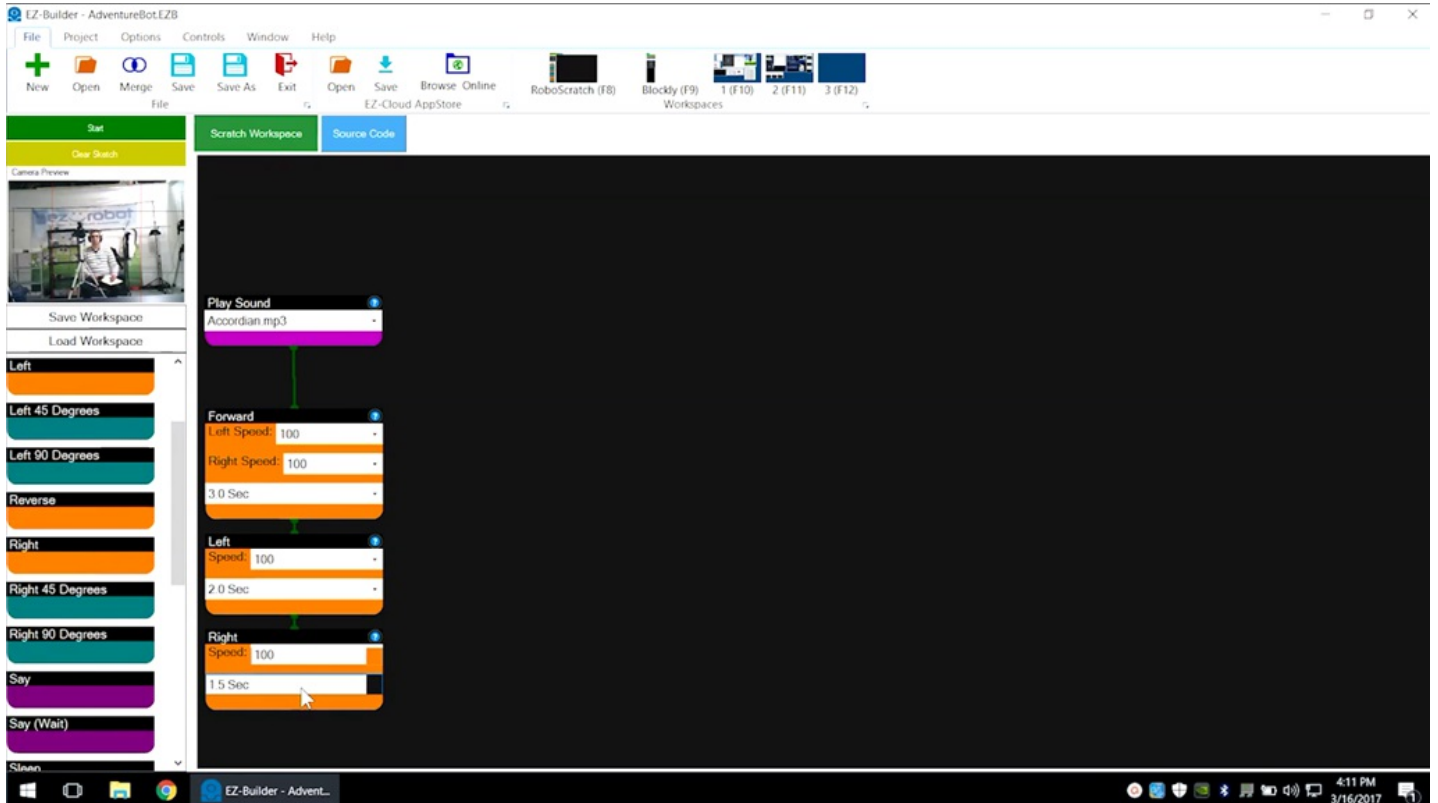
# Step 9

Build programs by selecting actions.



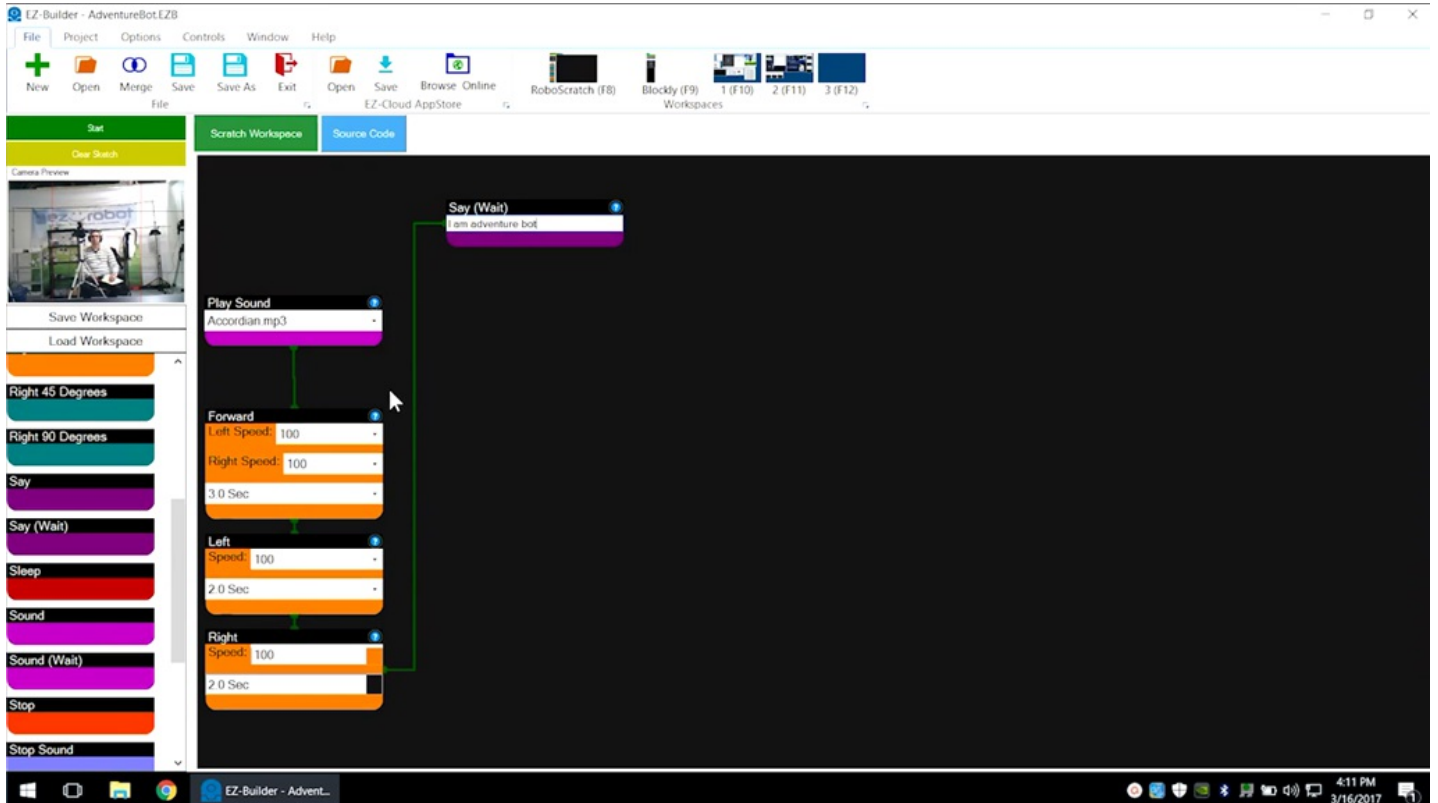
# Step 10

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



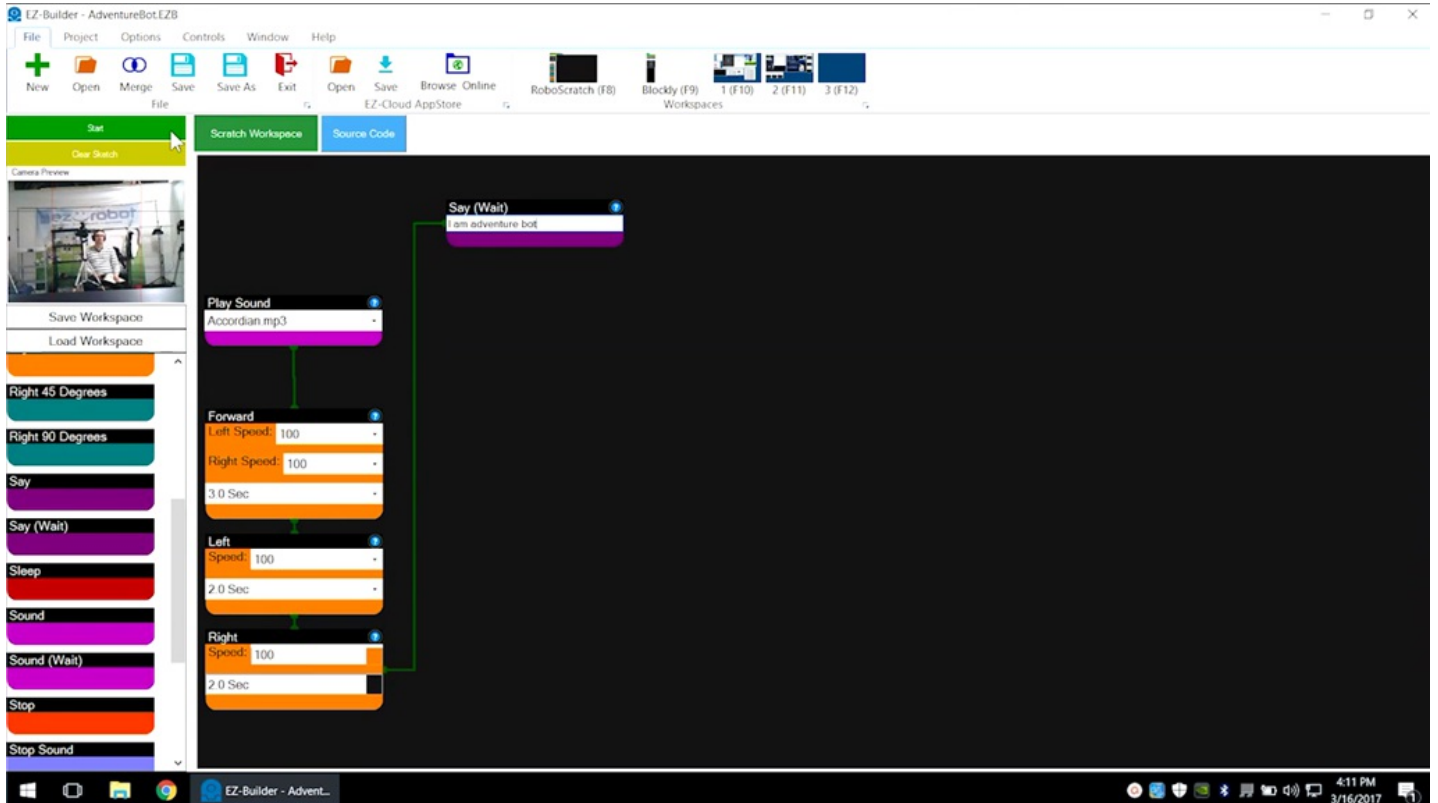
# Step 11

Follow the green line to see the action execution order.



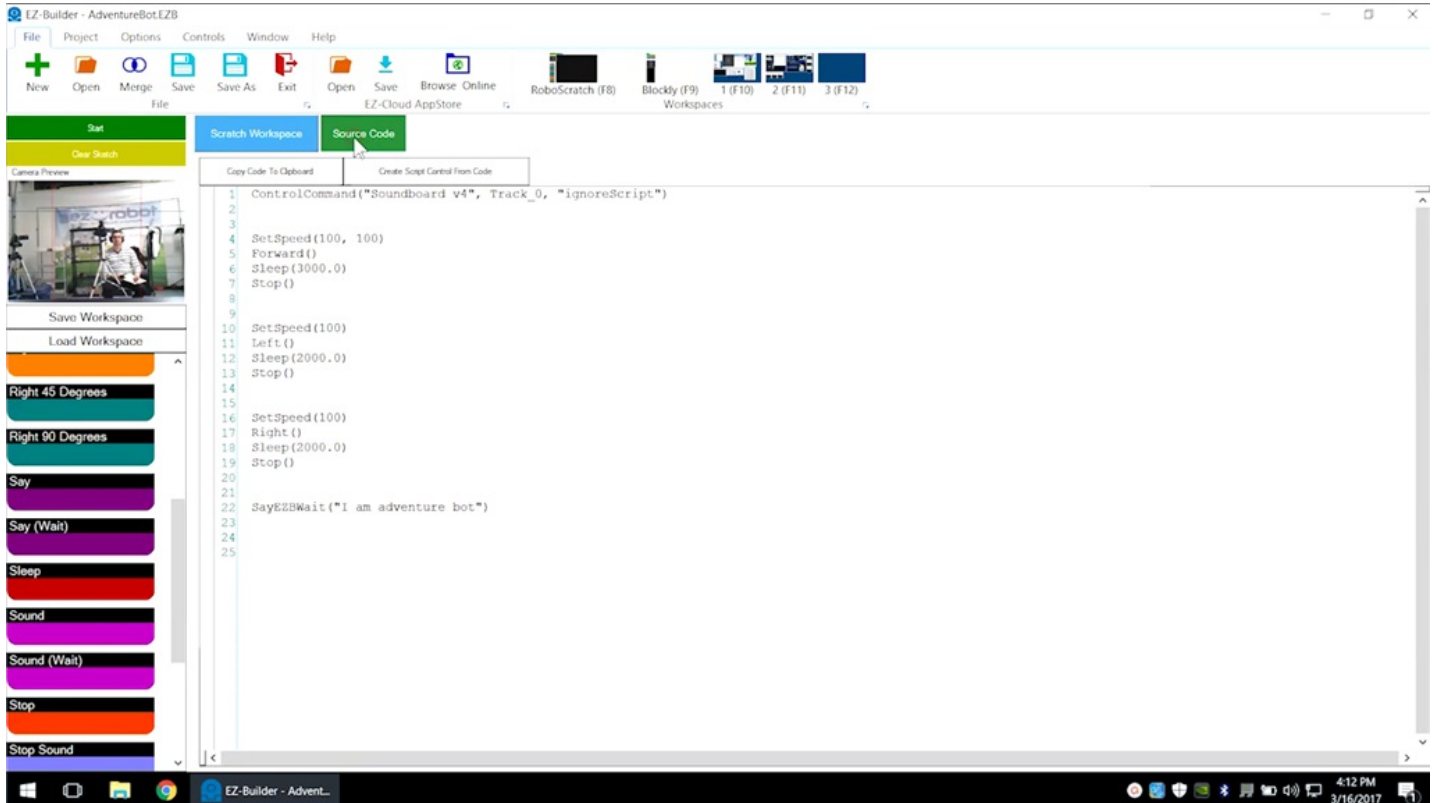
# Step 12

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. The main window is titled "EZ-Builder - AdventureBotEZB". The "Camera" control panel is active, showing a live camera feed of a person's arm. The "Camera Config" dialog box is open, with the "Settings" tab selected. The "Enable Movement Tracking" checkbox is checked. Other settings visible include "Enable Servo Tracking" (unchecked), "Track By Relative Position" (unchecked), "Use Grid Lines" (unchecked), "Horizontal Increment Steps" (3), and "Vertical Increment Steps" (2). The "Movement Tracking" section includes "Enable Movement Tracking" (checked), "Allow Forward Movement" (checked), "Allow Left/Right Movement" (checked), and "Allow Up/Down (Dance Only)" (unchecked). The "Movement Speed" section shows "Turn Speed" (30) and "Forward Speed" (100). The "Movement Delay" is set to 50 ms. The "Save" and "Cancel" buttons are at the bottom of the dialog. The taskbar at the bottom shows the time as 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" 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)).

The interface is divided into several panels:

- Connection:** A list of connection attempts with columns for status (Disconnect, Connect), IP address (192.168.1.123), and a refresh icon.
- Servo Movement Panel:** A control panel for servo motors with a central slider and directional buttons.
- Camera:** The primary control panel, showing a live video feed of a person's hands on a keyboard. It includes a "Tracking" section with checkboxes for "Color" (checked), "Motion", "QR Code", "Face", "Glyph", "Custom Haar", and "Object". A "Color" section is also visible with a "Multi Color" checkbox (checked) and "Grid" options. 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 for managing audio files.
- Microphone:** A control panel for recording audio.
- Soundboard v4:** A list of sound effects with columns for name, play, edit, and delete.

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

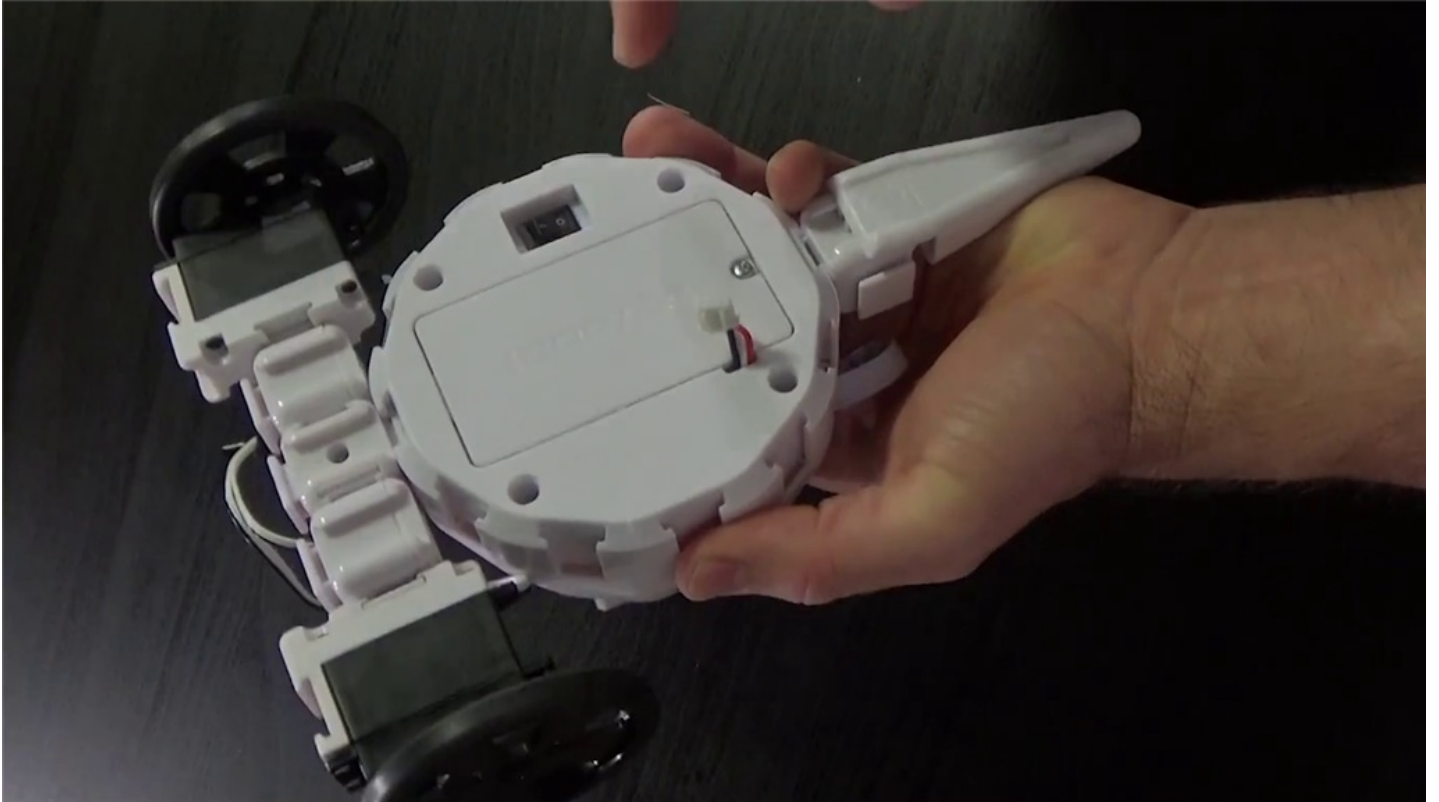
## Step 16

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.