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The Robot Program Episode 009: Getting Six to Move

This lesson will demonstrate how to connect to and move the Revolution Six robot. Follow along with The Robot Program Episode 009: Getting Six to Move. At the end of this lesson, the reader will have learned how to connect to the robot using Wi-Fi, how to move the robot, how to track the default color, and how to use the Auto Position and Soundboard controls to execute movements and routines.

View the video episode here: <https://www.ez-robot.com/Tutorials/Lesson/35>

Last Updated: 5/29/2018

⑤ Professor E's Overview

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

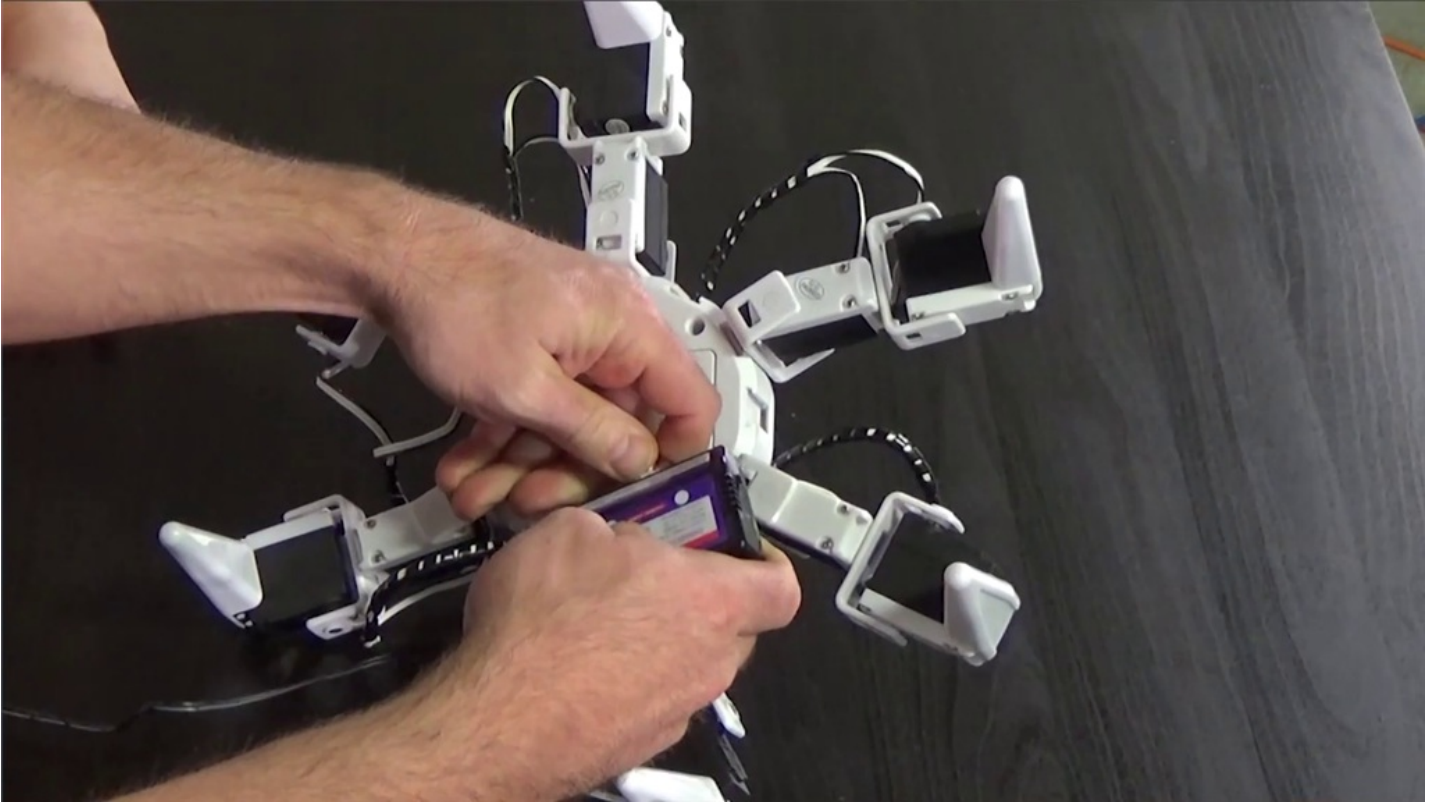
Remember to start with a fully charged robot. Load the **Example Project** for **Six** and connect to the robot using Wi-Fi.

Use the **Auto Position** and **Soundboard** controls to execute pre-built actions and routines. Use the **RobotScratch** workspace to create a linear program. In the **Camera** tab, enable color tracking and the robot will track the color red. Remember to disconnect, power off, and charge the robot when finished.



Step 1

Disconnect from the battery charger.



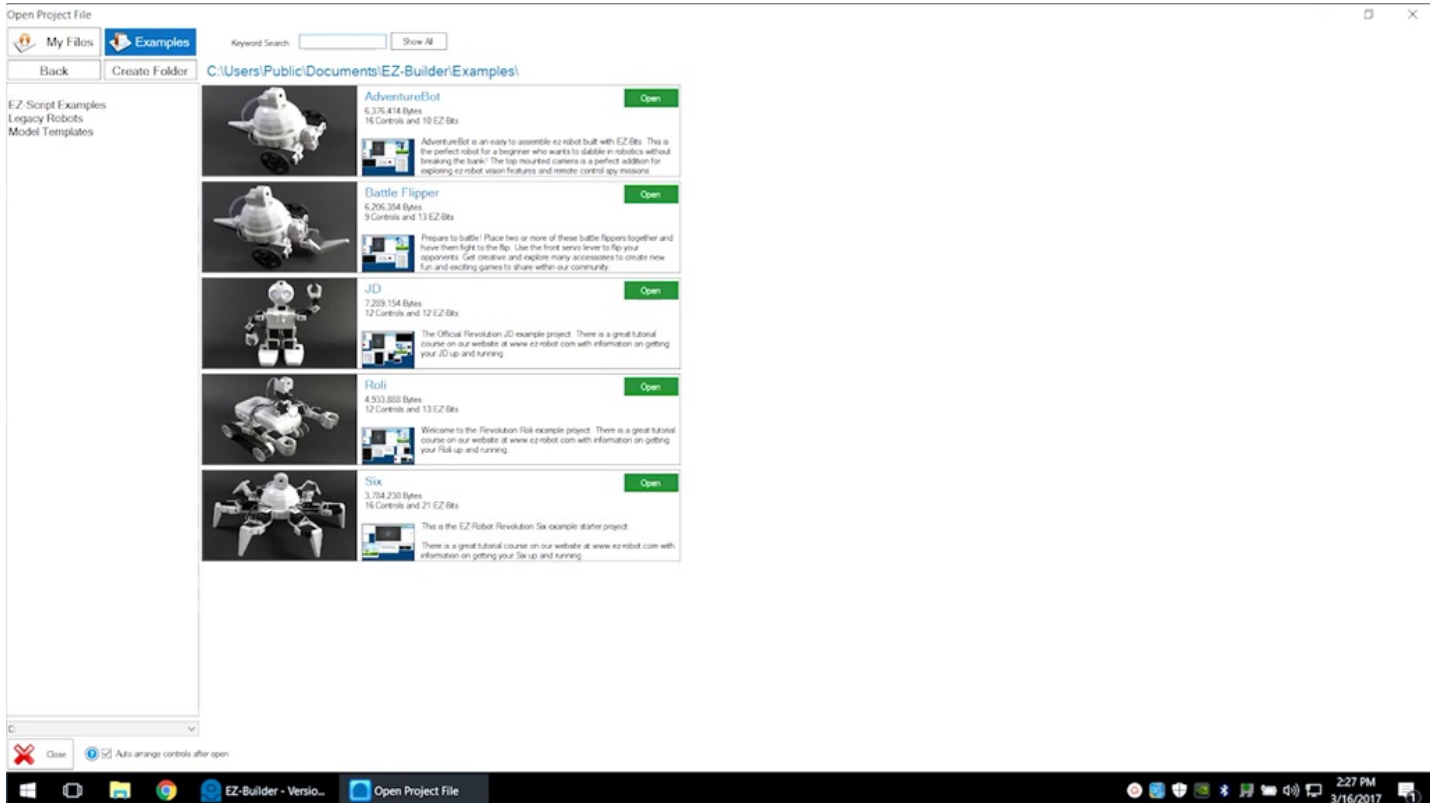
Step 2

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



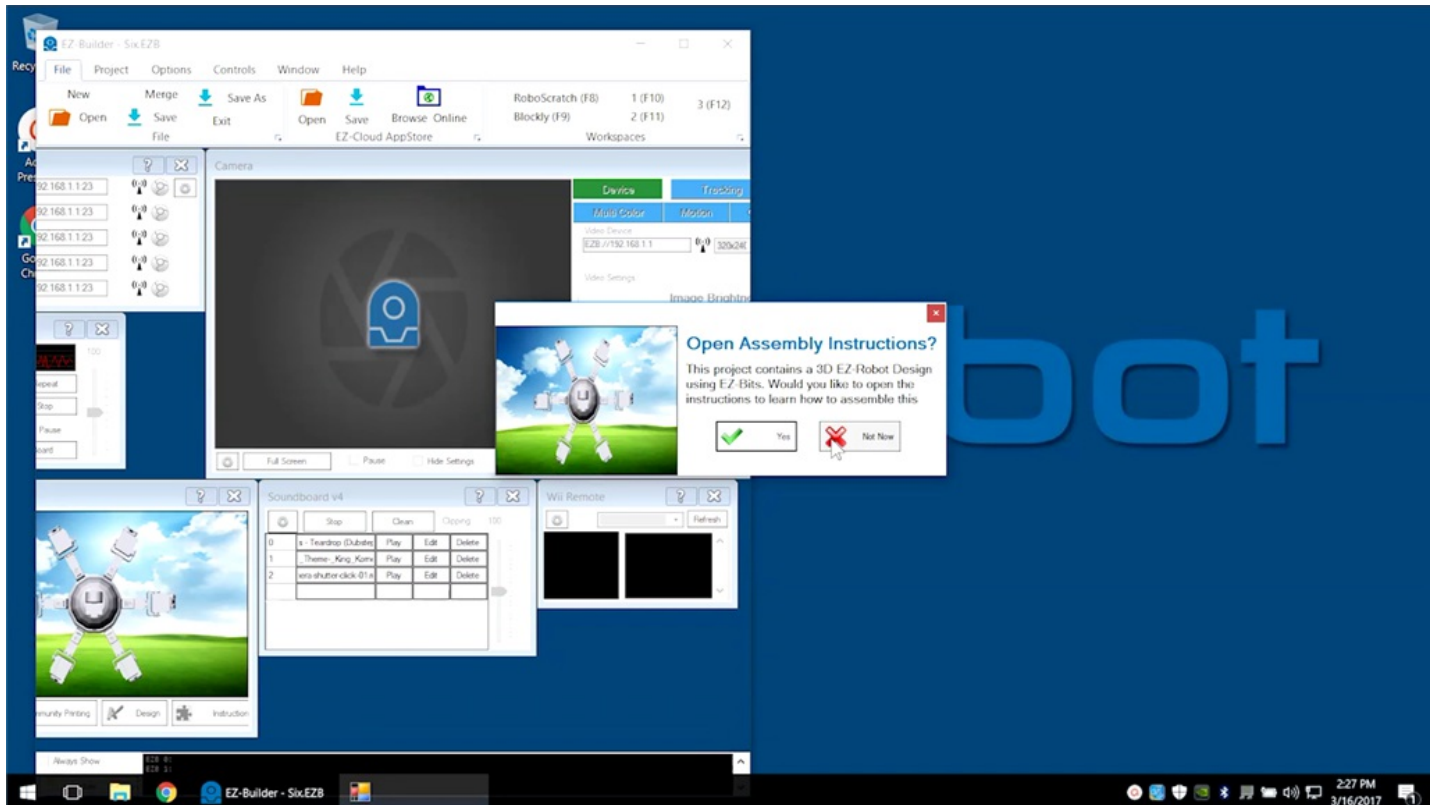
Step 3

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



Step 4

See how to build **Six** in **Episode 008**.



Step 5

Select **Connect to EZ-B**. The robot should move into the calibration position.

The screenshot displays the EZ-Builder software interface for a SixX robot. The main window is titled "EZ-Builder - SixX.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 Workspaces.

Key components of the interface include:

- Connection Panel:** A list of connection attempts, all showing the IP address 192.168.1.123. The first entry is highlighted with a mouse cursor.
- Camera Panel:** A central window showing a camera feed of the robot. Below the feed are sliders for Image Brightness, Image Contrast, and Image Saturation, along with a Video Device dropdown set to "EZB://192.168.1.1" and a "Start" button.
- Microphone Panel:** A panel with a "RECORD" button, "Repeat", "Stop", and "Pause" buttons, and an "Export To SoundBoard" option.
- Notepad:** A text area containing a welcome message and instructions for the SixX robot project.
- Auto Position Panel:** A panel with "Actions" and "Frames" tabs. The "Actions" tab shows a list of actions like "3 Legs Dance", "3 Legs Up Down", "Retask", "Bounce Dance", "Circle Dance", "Full Dance", "Fast Forward", "Fast Left", "Fast Right", and "Happy Dance". The "Frames" tab shows a list of frames like "3 Leg Step 1", "3 Leg Step 2", "3 Leg Step 3", "3 Legs Rotate 1", and "3 Legs Rotate 2".
- EZ-Robot Panel:** A panel showing a 3D model of the SixX robot on a green field.
- Soundboard v4 Panel:** A panel with a table of sound effects and their durations.
- WiI Remote Panel:** A panel with a "Refresh" button and a video feed.

The Windows taskbar at the bottom shows the system clock as 2:28 PM on 3/16/2017.

Step 6

Use the arrow keys of **Auto Position** to move **Six**.

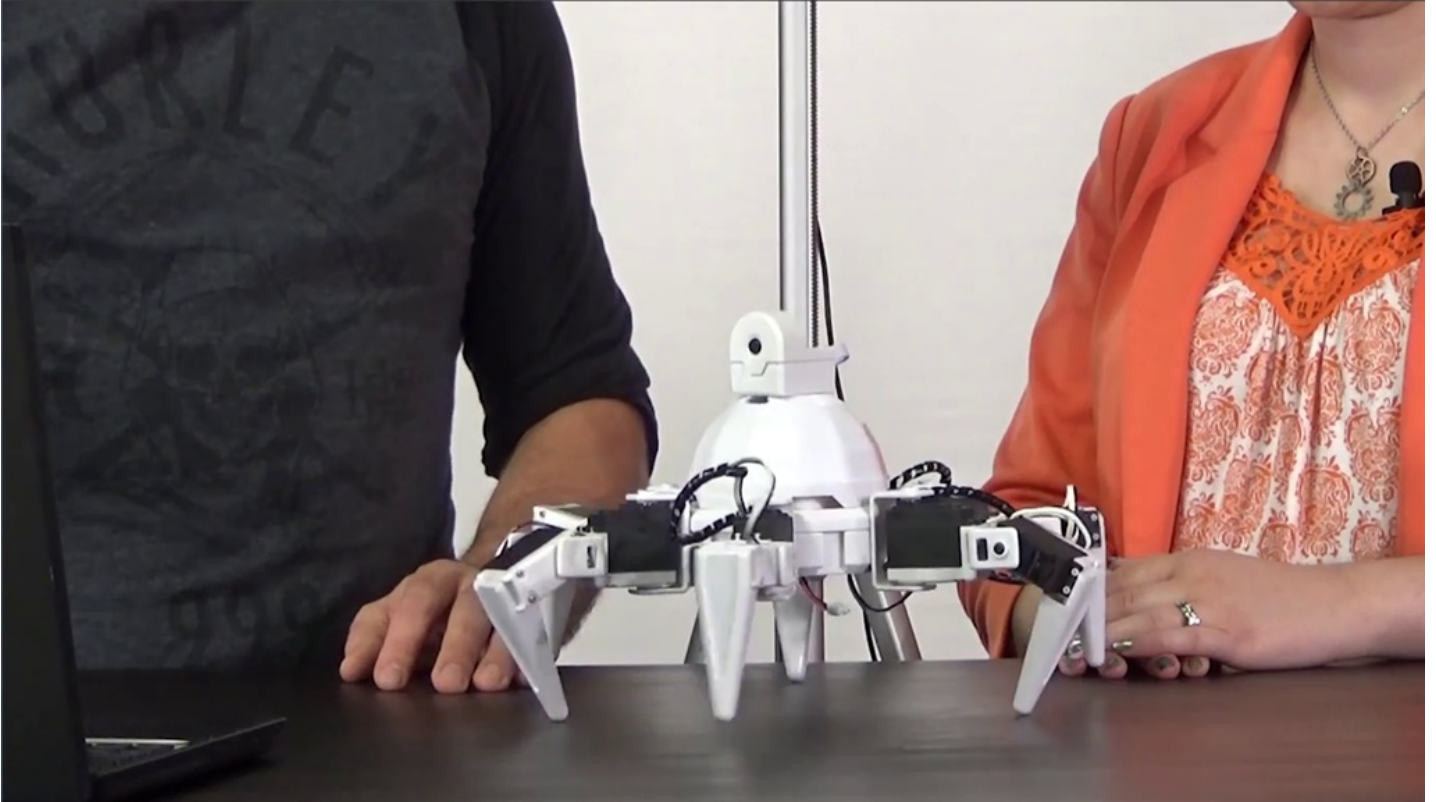
The screenshot displays the EZ-Builder software interface for controlling a robot named Six. The interface is divided into several panels:

- Connection Panel:** Shows four connection attempts, all labeled 'Connect' with the IP address 192.168.1.123.
- Microphone Panel:** Includes a 'RECORD' button, 'Repeat', 'Stop', and 'Pause' buttons, and an 'Export To SoundBoard' option.
- EZ-Robot Panel:** Features a 3D model of the robot Six on a green field under a blue sky. Below the model are buttons for 'Buy', 'Community Posting', 'Design', and 'Instruction'.
- Soundboard v4 Panel:** A table with columns for 'Stop', 'Clean', and '100'. It contains three rows of sound effects with 'Play', 'Edit', and 'Delete' buttons for each.
- WiI Remote Panel:** A panel for remote control, currently showing a black screen.
- Auto Position Panel:** The primary control panel for the robot's movement. It includes a 'Pause' button, a list of actions (e.g., '3 Legs Dance', '3 Legs Up Down', 'Retask', 'Bounce Dance', 'Circle Dance', 'Full Dance', 'Fast Forward', 'Fast Left', 'Fast Reverse', 'Fast Right', 'Happy Dance'), and a list of frames (e.g., '3 Leg Step 1', '3 Leg Step 2', '3 Leg Step 3', '3 Legs Rotate 1', '3 Legs Rotate 2'). It also has 'Jump To...', 'Speeded' (set to 50), and 'Steps' (set to 2) controls.
- Camera Panel:** Shows a live video feed of a person operating the robot. It includes settings for 'Device' (EZ6/192.168.1.1), 'Video Device', 'Image Brightness', 'Image Contrast', 'Image Saturation', 'Video Recording', and 'Enhancements'.
- Notepad Panel:** Contains a welcome message and instructions for the tutorial course.

The bottom status bar shows the system time as 2:28 PM on 3/16/2017.

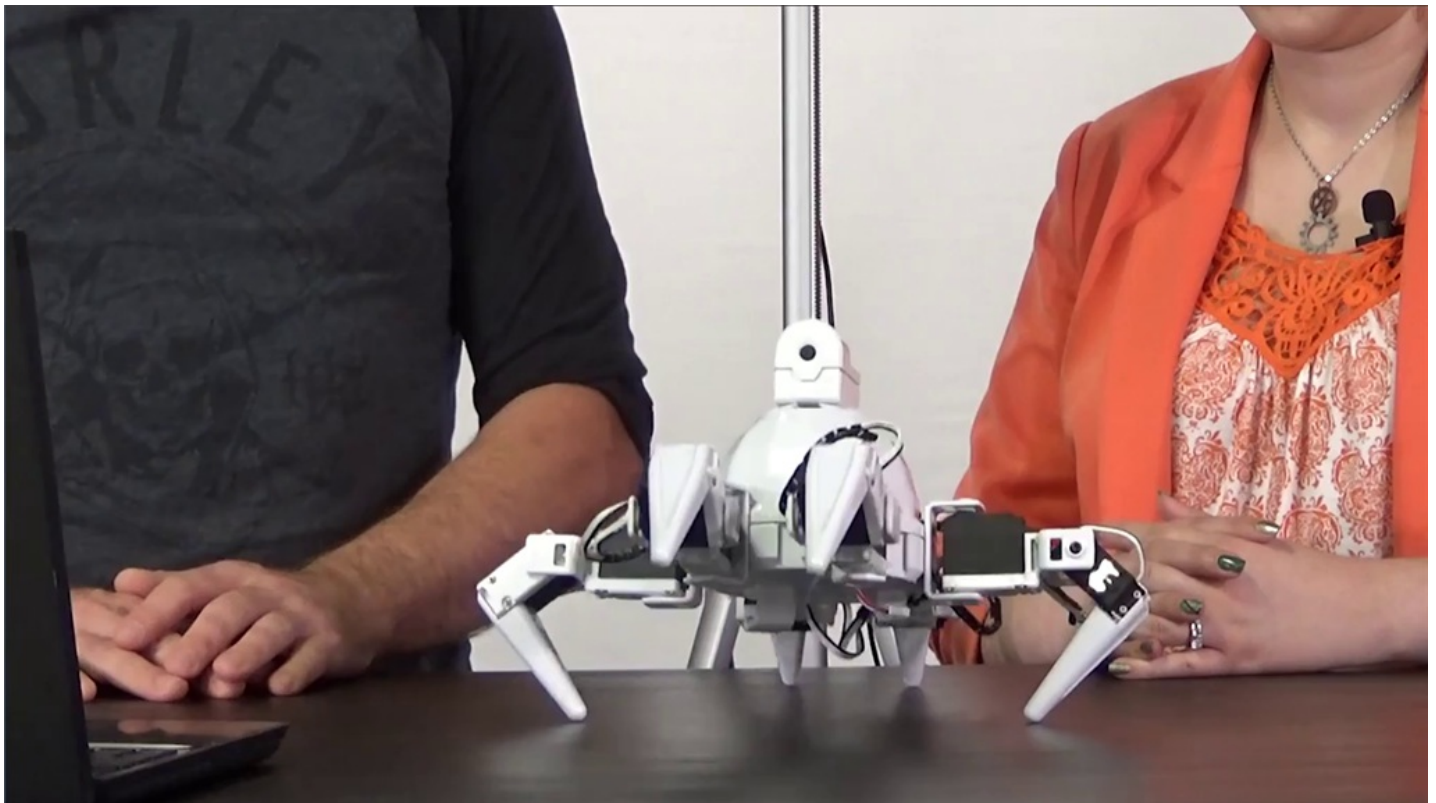
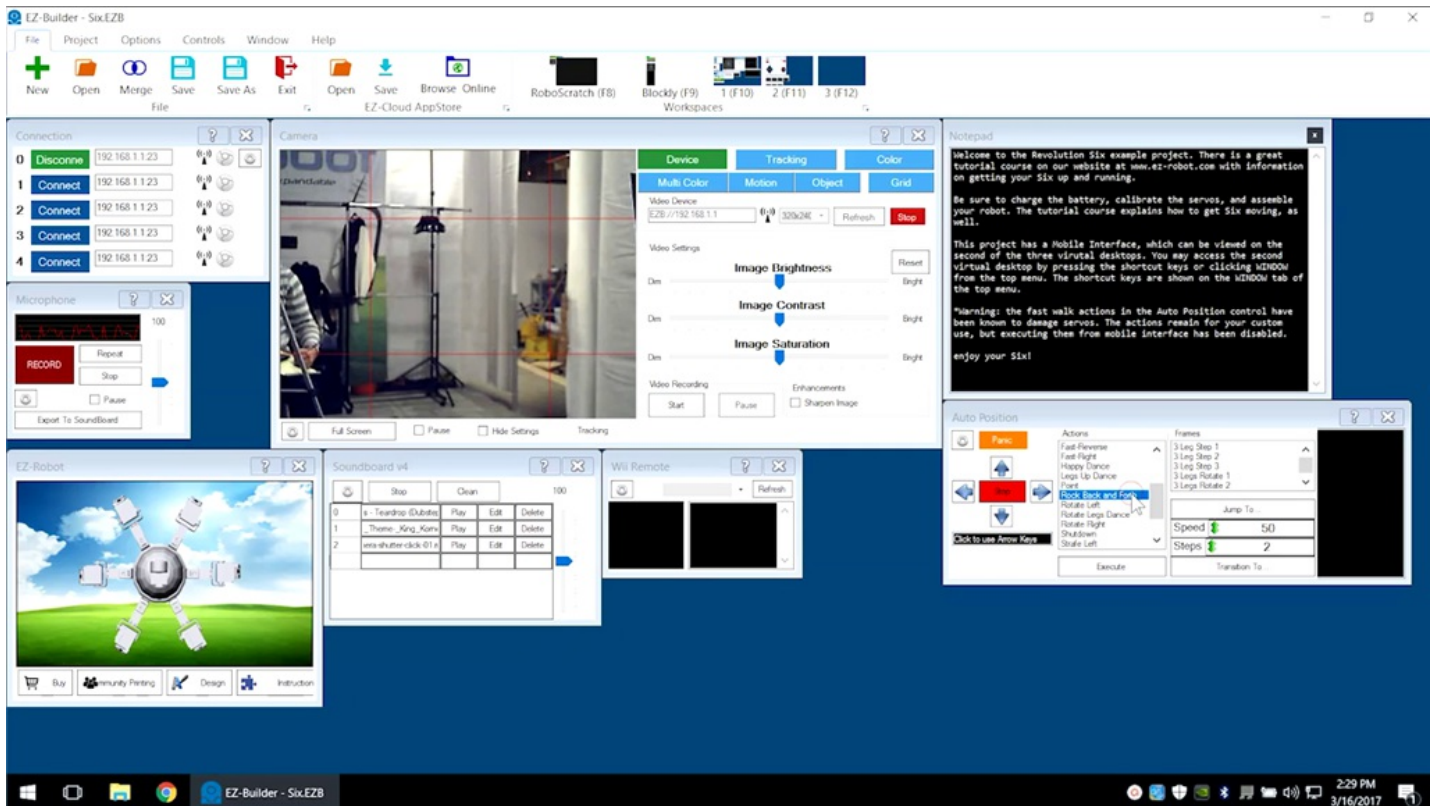
Step 7

Six can balance on a minimum of three legs.



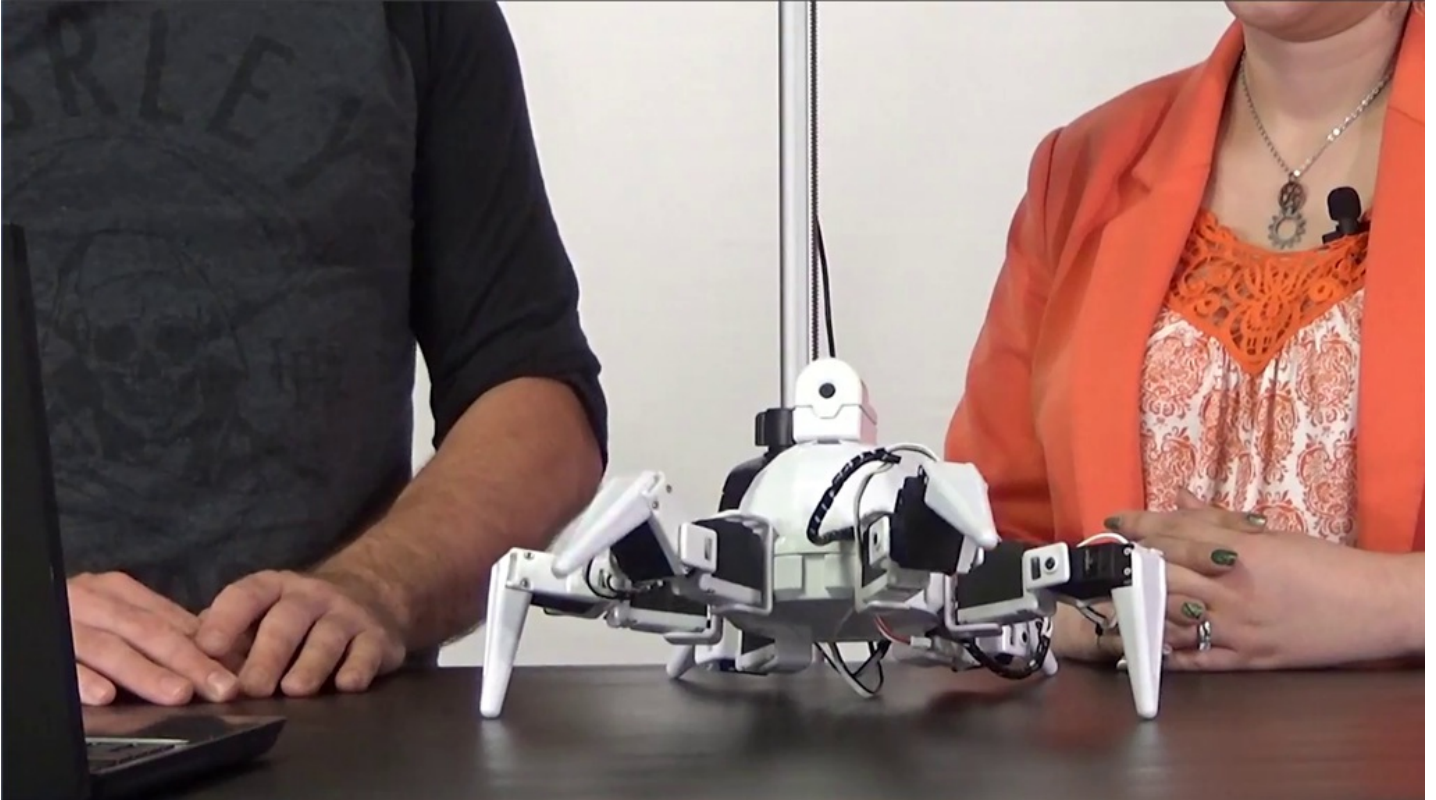
Step 8

Scroll through **Auto Position** actions to select the **Rock Back and Forth** command. Click the **Execute** button.



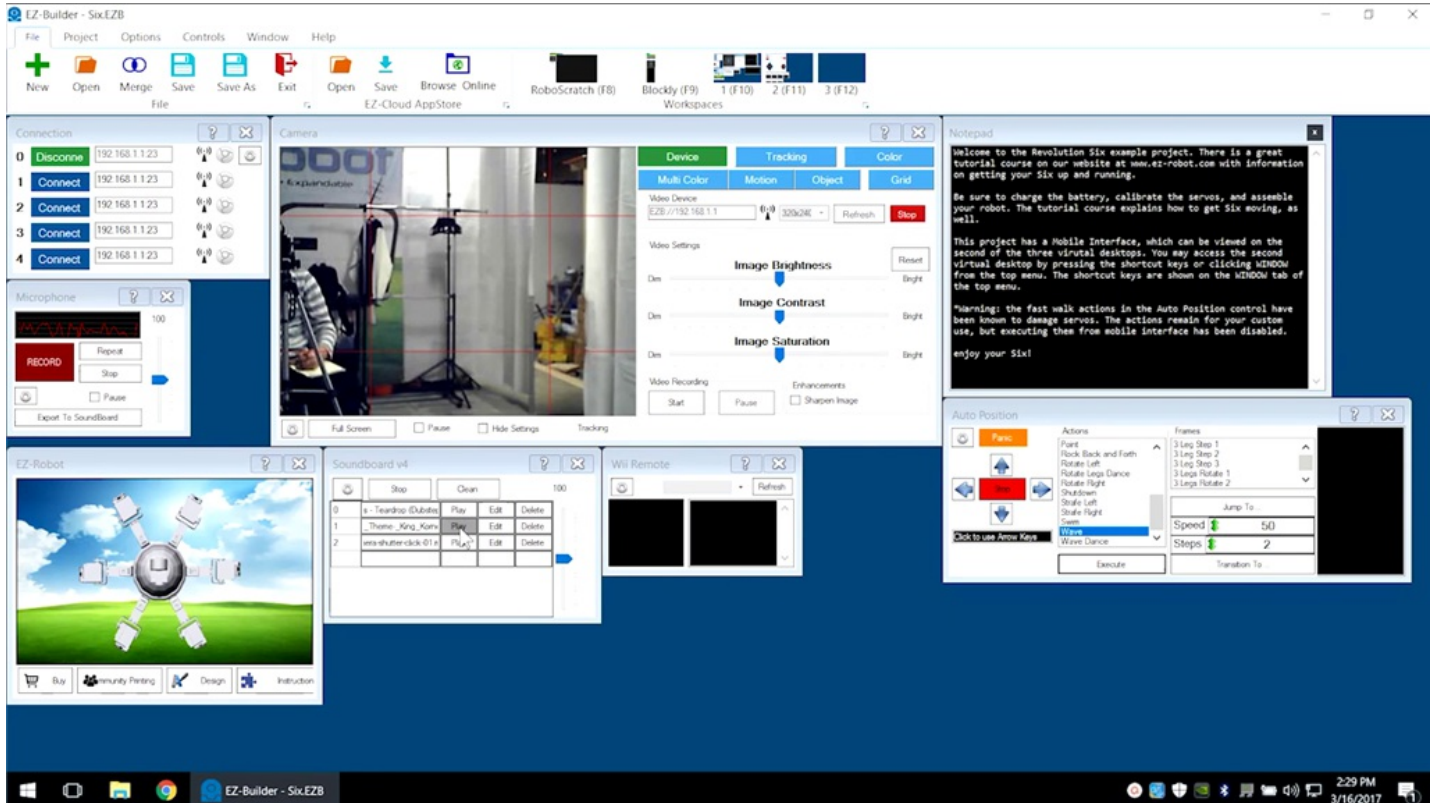
Step 9

Try executing another pre-built command. Select and execute **Wave**.



Step 10

In the **Soundboard** control, scroll to the dance theme and select the **Play** button.



Step 11

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 - Six.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).

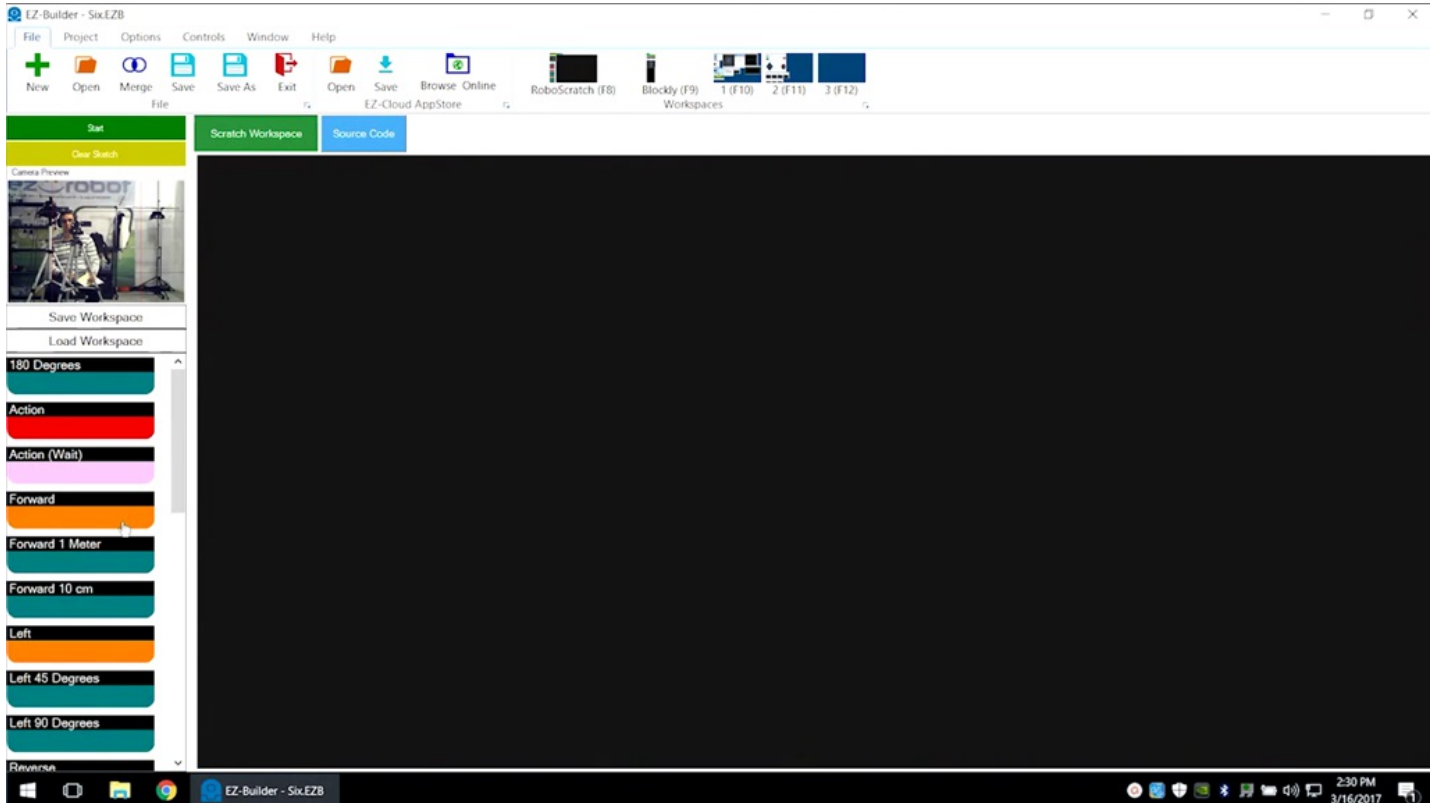
Key components of the interface include:

- Connection Panel:** A list of connection attempts with columns for status (Disconnect, Connect), IP address (192.168.1.123), and a signal strength indicator.
- Microphone Control:** A panel with a volume slider set to 100, a red "RECORD" button, a "Start" button, a "Pause" button, and an "Export To Soundboard" button.
- Camera View:** A live video feed showing a person operating a robot in a workshop setting.
- Device Settings:** A panel with tabs for Multi Color, Motion, Object, and Grid. It includes a "Video Device" dropdown (EZB/192.168.1.1), a "30FPS" indicator, a "Refresh" button, and a "Stop" button. Below are sliders for "Image Brightness", "Image Contrast", and "Image Saturation", each with a "Reset" button and a "Bright" label. There are also "Video Recording" (Start, Pause) and "Enhancements" (Sharpen Image) options.
- Notepad:** A text area containing a welcome message: "Welcome to the Revolution Six example project. There is a great tutorial course on our website at www.ez-robot.com with information on getting your Six up and running. Be sure to charge the battery, calibrate the servos, and assemble your robot. The tutorial course explains how to get Six moving, as well. This project has a Mobile Interface, which can be viewed on the second of the three virtual desktops. You may access the second virtual desktop by pressing the shortcut keys or clicking WINDOW from the top menu. The shortcut keys are shown on the WINDOW tab of the top menu. Warning: the fast walk actions in the Auto Position control have been known to damage servos. The actions remain for your custom use, but executing them from mobile interface has been disabled. enjoy your Six!"
- Auto Position Control:** A panel with a "Park" button, a list of actions (Park, Back Block and Path, Rotate Left, Rotate Right, Rotate Left Dance, Rotate Right Dance, Shake Left, Shake Right, Shutdown, Wave Dance), and a "Click to use Arrow Keys" button. It also features a "Frames" list (3 Leg Step 1, 3 Leg Step 2, 3 Leg Step 3, 3 Legs Rotate 1, 3 Legs Rotate 2), a "Jump To:" field, a "Speed" slider (set to 50), and a "Steps" slider (set to 2). There are "Execute" and "Transition To" buttons.
- Soundboard v4:** A table with columns for sound effects and their durations.
- Wii Remote:** A panel with a "Refresh" button and a visual representation of the Wii Remote.
- EZ-Robot:** A panel showing a 3D model of the robot and buttons for "Buy", "Community Posting", "Design", and "Instruction".

The Windows taskbar at the bottom shows the time as 2:30 PM on 3/16/2017.

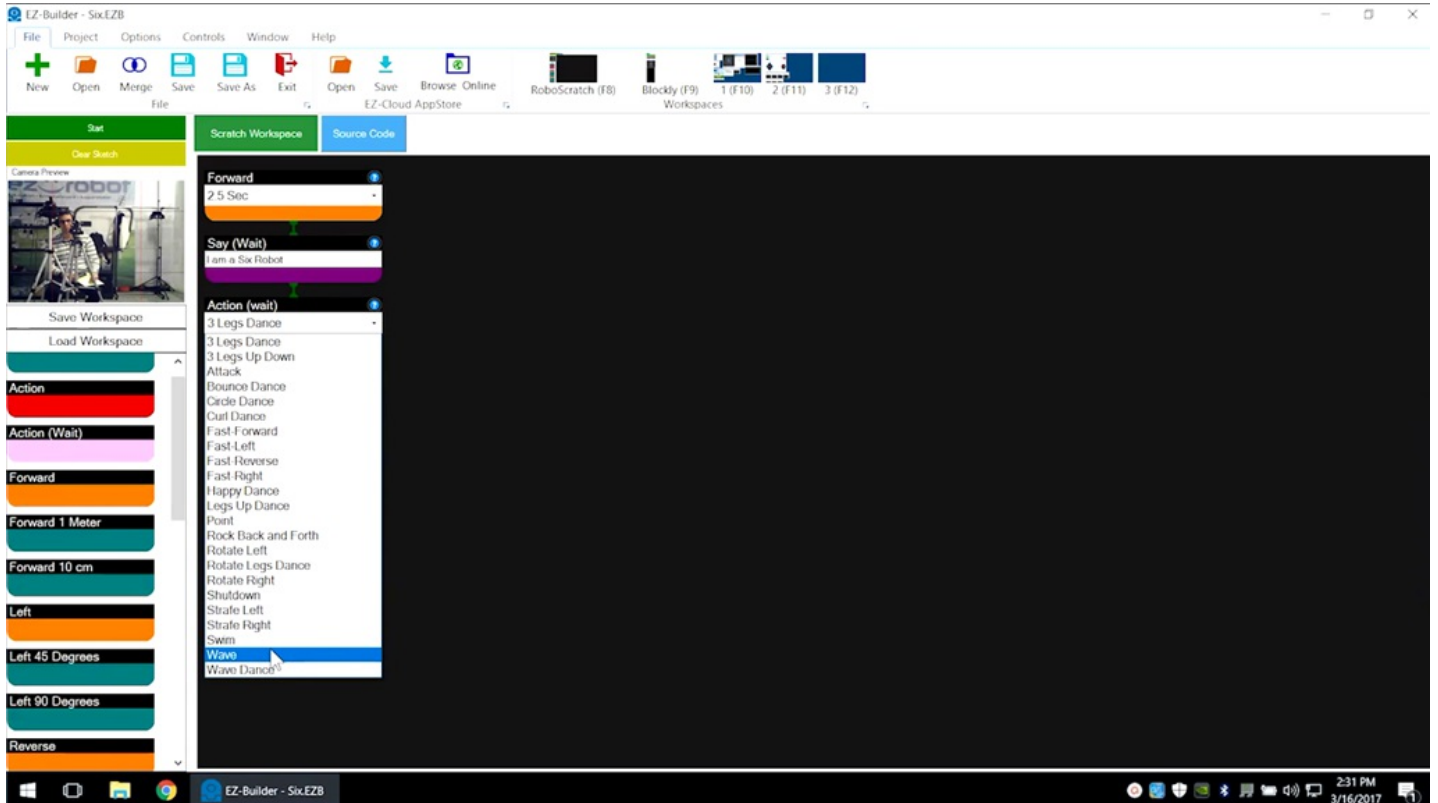
Step 12

RoboScratch can be used to create custom programs.



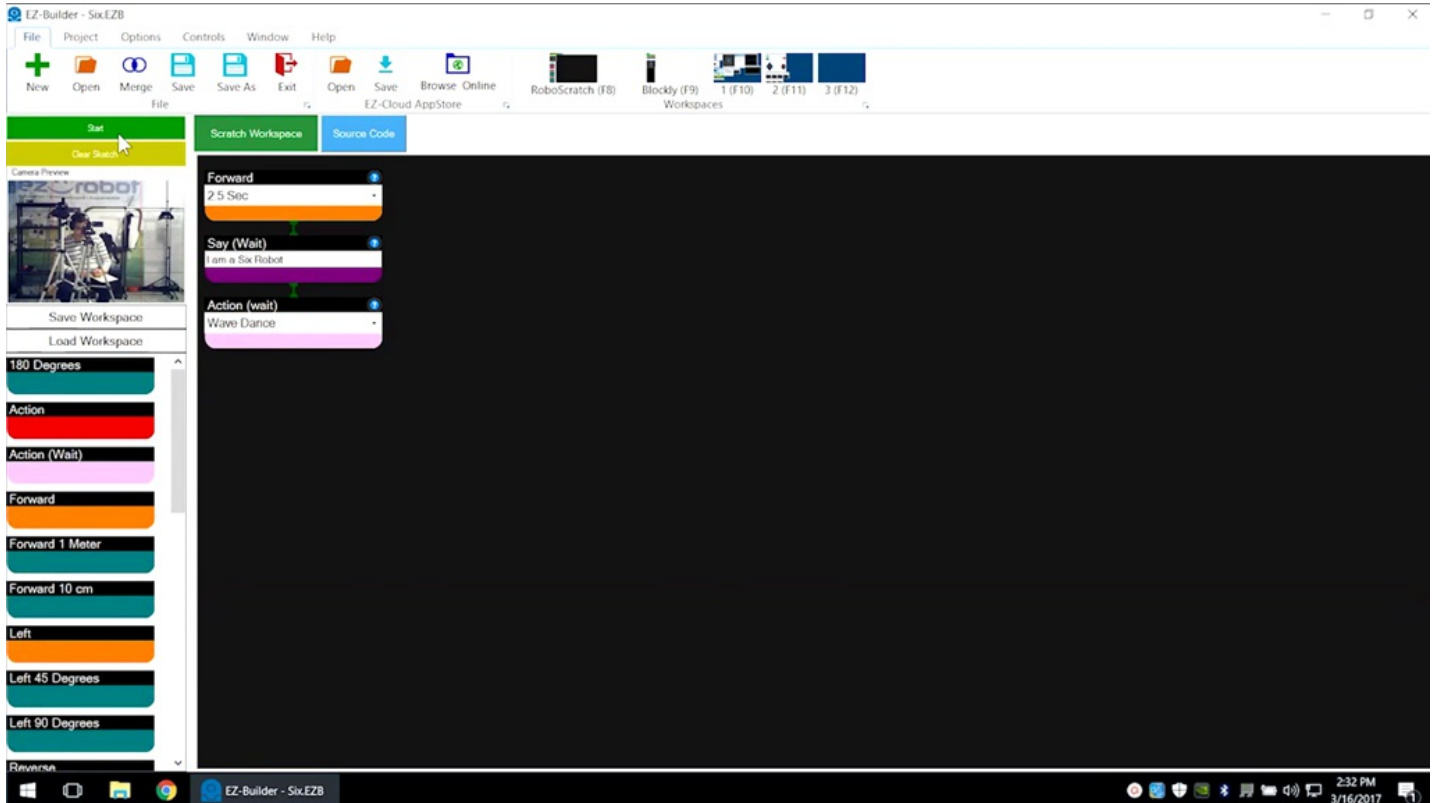
Step 13

Build programs by selecting actions.



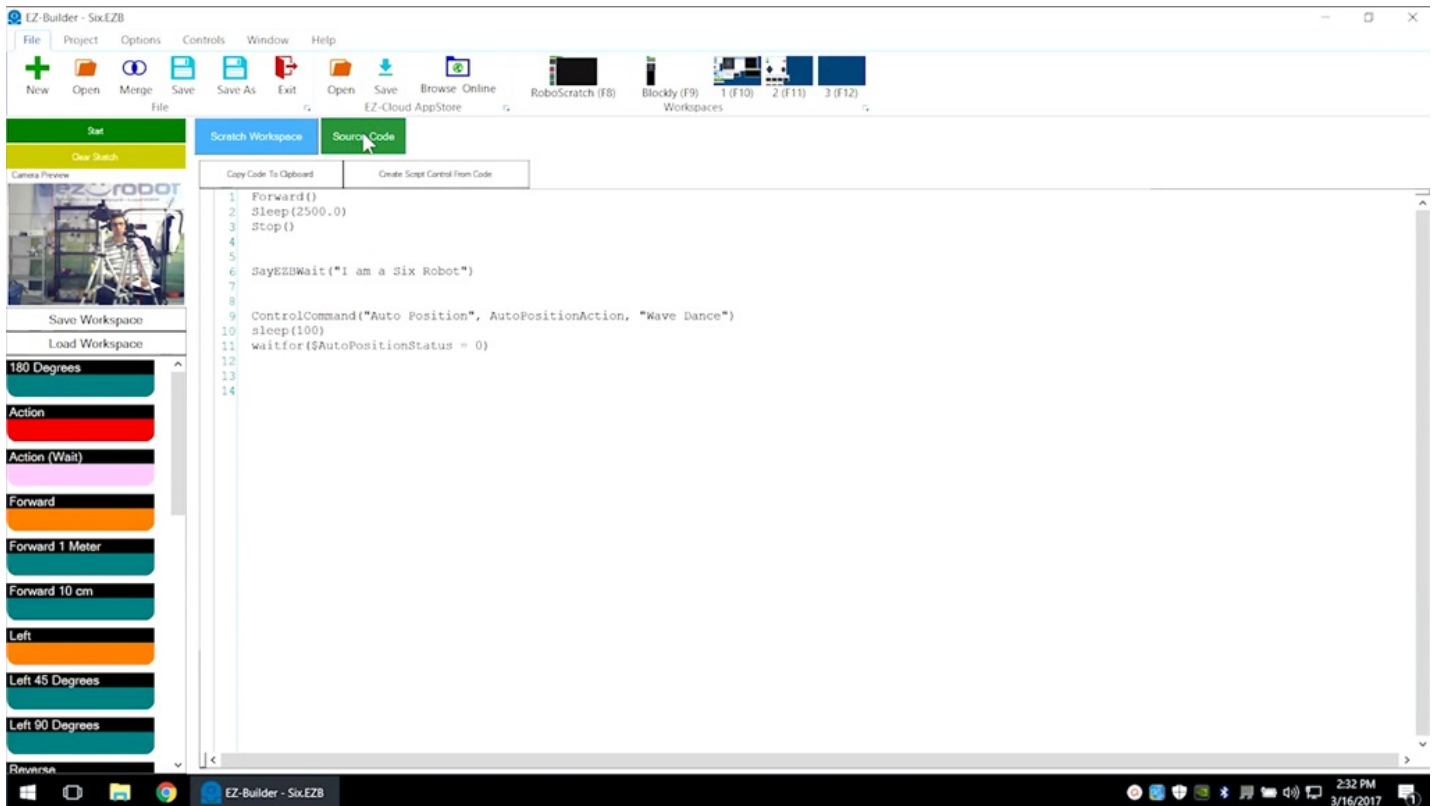
Step 14

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



Step 15

Click on **Source Code** to view the generated code. Learn more about **RoboScratch** in **Episode 006**.



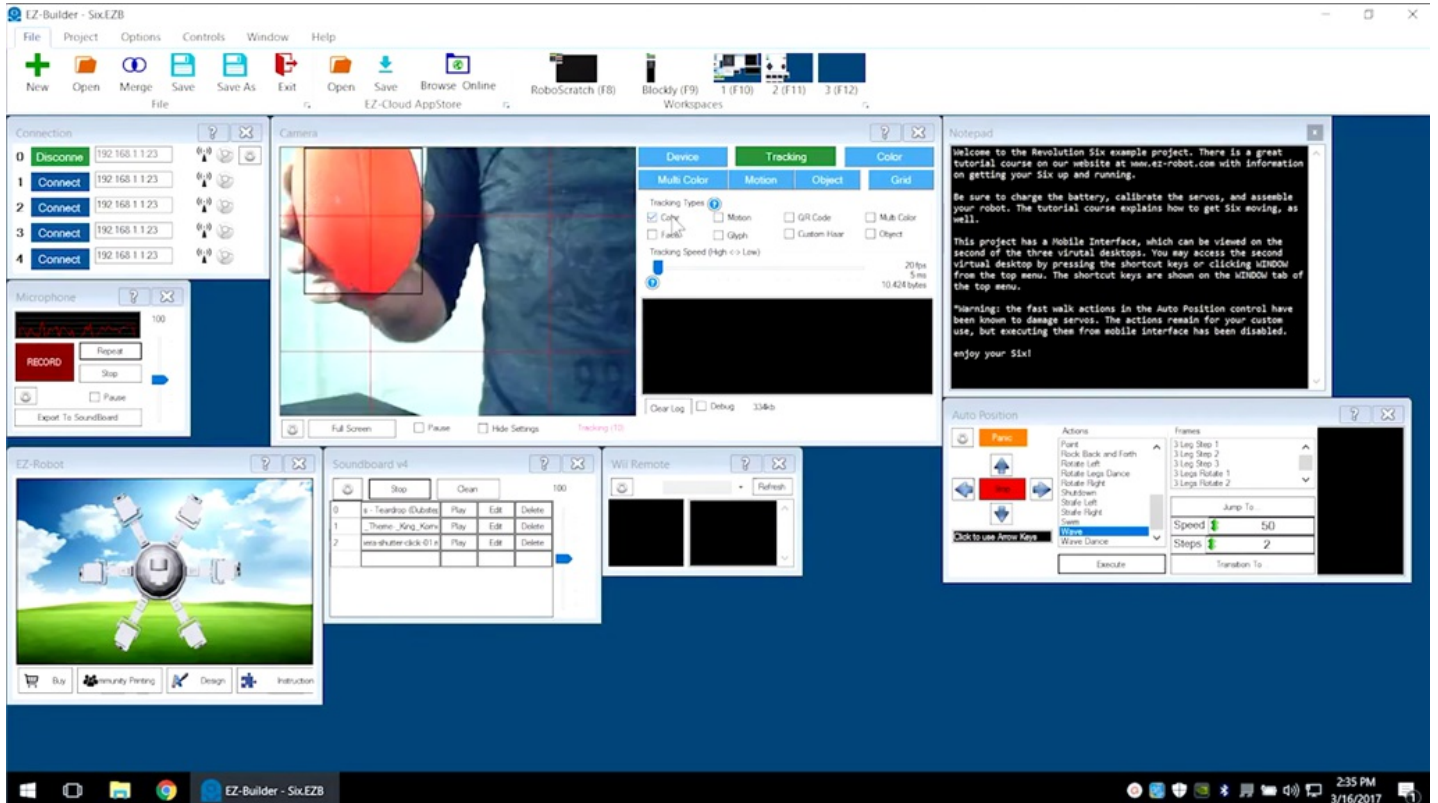
The screenshot displays the EZ-Builder software interface for a SixEZB robot. The window title is "EZ-Builder - SixEZB". The menu bar includes File, Project, Options, Controls, Window, and Help. The toolbar contains icons for New, Open, Merge, Save, Save As, Exit, Open, Save, Browse Online, EZ-Cloud AppStore, RoboScratch (F8), Blockly (F9), and Workspaces (F10, F11, F12). The main workspace is divided into two tabs: "Scratch Workspace" and "Source Code". The "Source Code" tab is active, showing a list of code blocks:

```
1 Forward ()
2 Sleep (2500.0)
3 Stop ()
4
5
6 SayEZBWait("I am a Six Robot")
7
8
9 ControlCommand("Auto Position", AutoPositionAction, "Wave Dance")
10 sleep (100)
11 waitfor ($AutoPositionStatus = 0)
12
13
14
```

On the left side, there is a "Camera Preview" window showing a robot. Below it are buttons for "Save Workspace" and "Load Workspace". A vertical list of action blocks is visible, including "180 Degrees", "Action", "Action (Wait)", "Forward", "Forward 1 Meter", "Forward 10 cm", "Left", "Left 45 Degrees", "Left 90 Degrees", and "Reverse". The Windows taskbar at the bottom shows the time as 2:32 PM on 3/16/2017.

Step 16

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



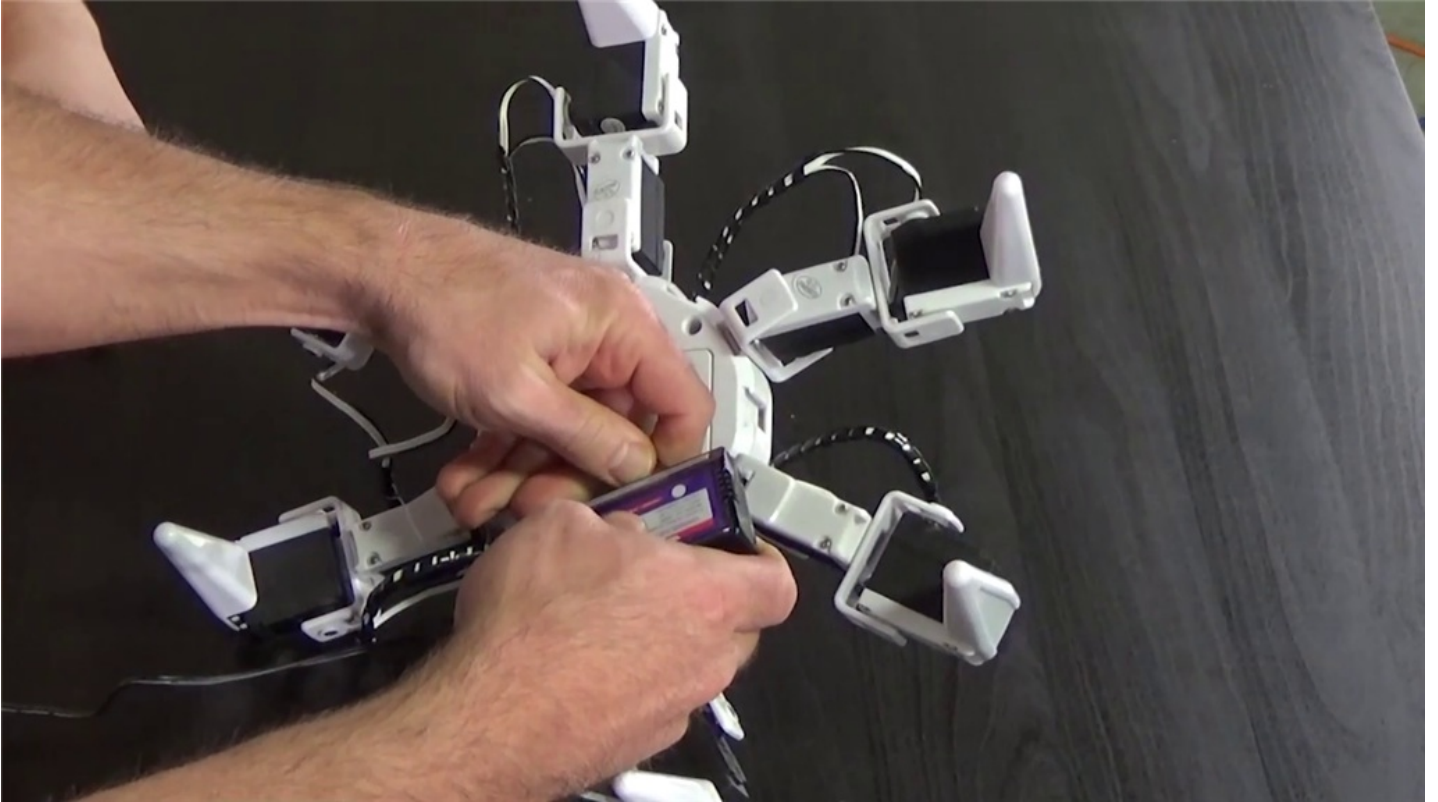
Step 17

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



Step 18

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



Quiz

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

Question #2 What is the minimum number of legs that Six needs for balance?

Question #3 What is the name of the control panel used to execute pre-built commands?

View the answers to this quiz at www.ez-robot.com/Tutorials/Lesson/35.

Visit www.TheRobotProgram.com for more episodes.