

# SYNTHIAM

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## **The Robot Program Episode 020: Detect Face and Wave - RoboScratch**

This lesson will demonstrate how to use RoboScratch to have the robot wave once it detects a face. At the end of this lesson, readers will be able to enable facial detection and code a basic script using RoboScratch. Follow along with The Robot Program Episode 020: Detect Face and Wave - RoboScratch.

View the video episode here: <https://www.ez-robot.com/Tutorials/Lesson/94>

Last Updated: 6/12/2018

## ⑤ Professor E's Overview

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This episode demonstrated how to enable facial detection and how to trigger an action using a **RoboScratch** script.

Always start with a fully charged, disconnected robot. Load **EZ-Builder** and connect to the robot. Open the bare robot project, which provides a clean workspace without unnecessary controls.

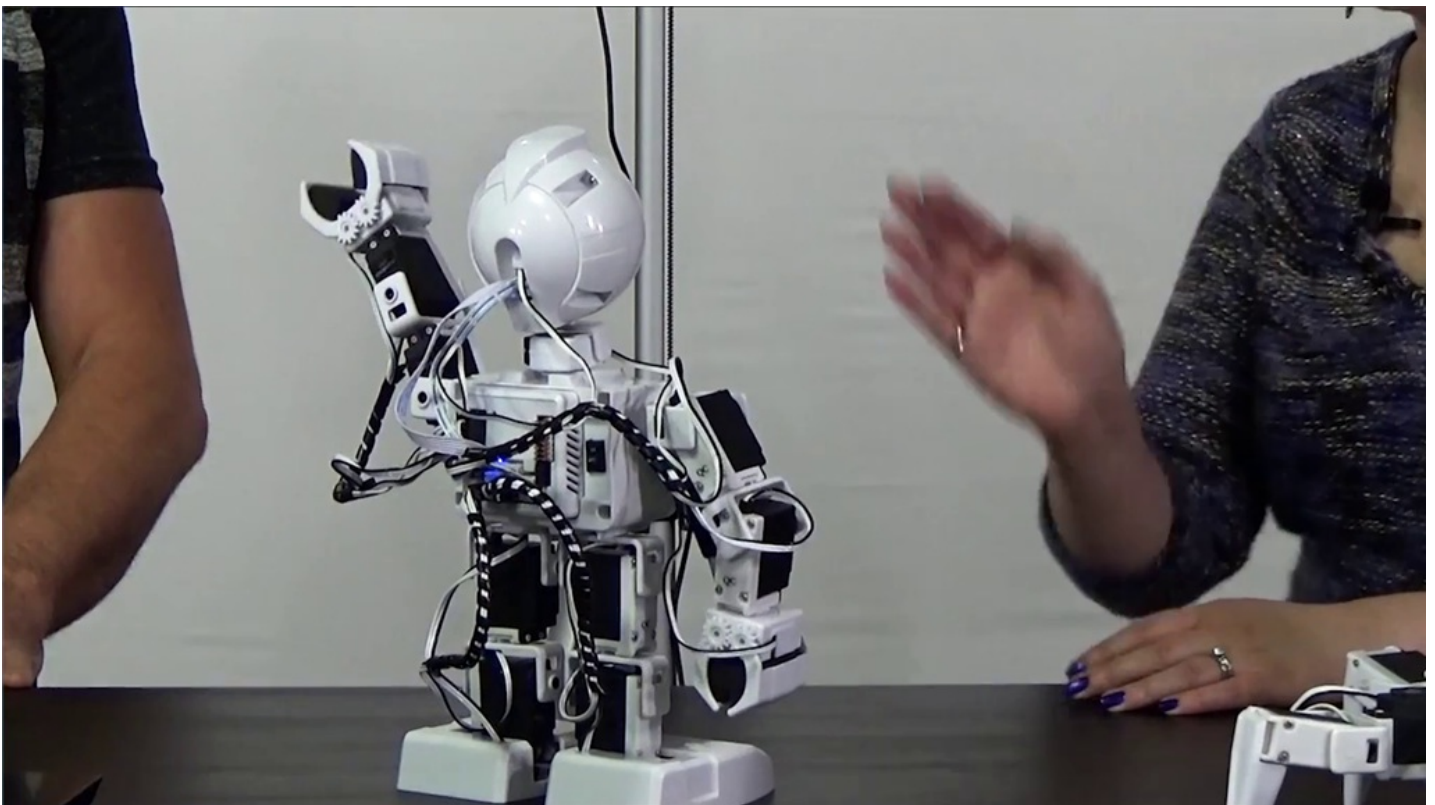
Add the control for the camera and test the camera view. The camera will provide peripheral information (external input/output that can be used to provide information).

Open the **RoboScratch** workspace. Add the **WaitForFace** command. This command tells the robot to wait until it detects a face before moving on to the next line of code.

Add **Say** and type in the desired speech. This command does not include a **Wait**, so it will execute and move immediately to the next command while the robot is still speaking.

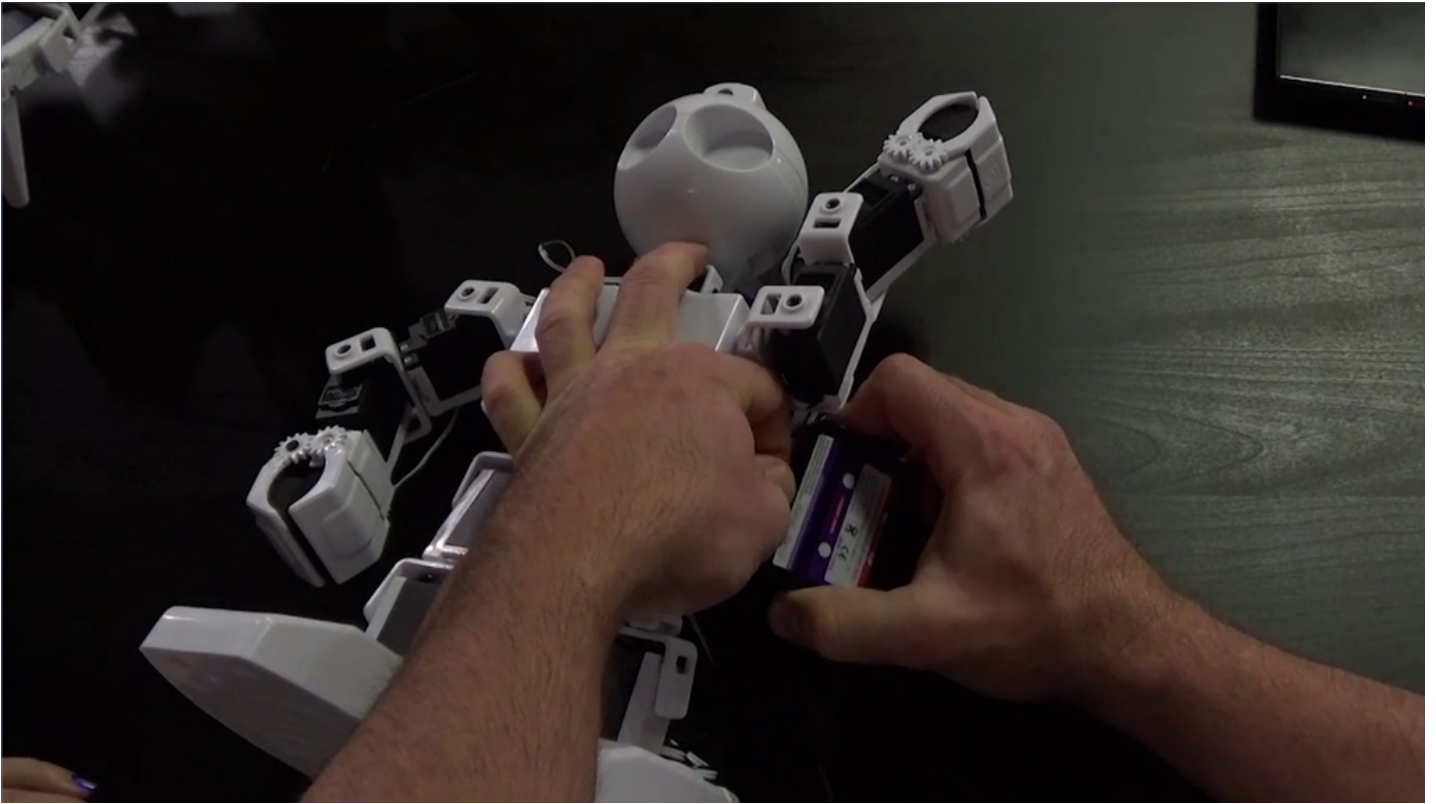
Add **Action (Wait)** and choose an action, such as **Wave**. The use of **Wait** means that the action will be fully completed before moving on to the next line of code.

Use the green line and highlighting features to follow along with the linear execution of the script. Remember to disconnect, power off, and charge the robot when finished.



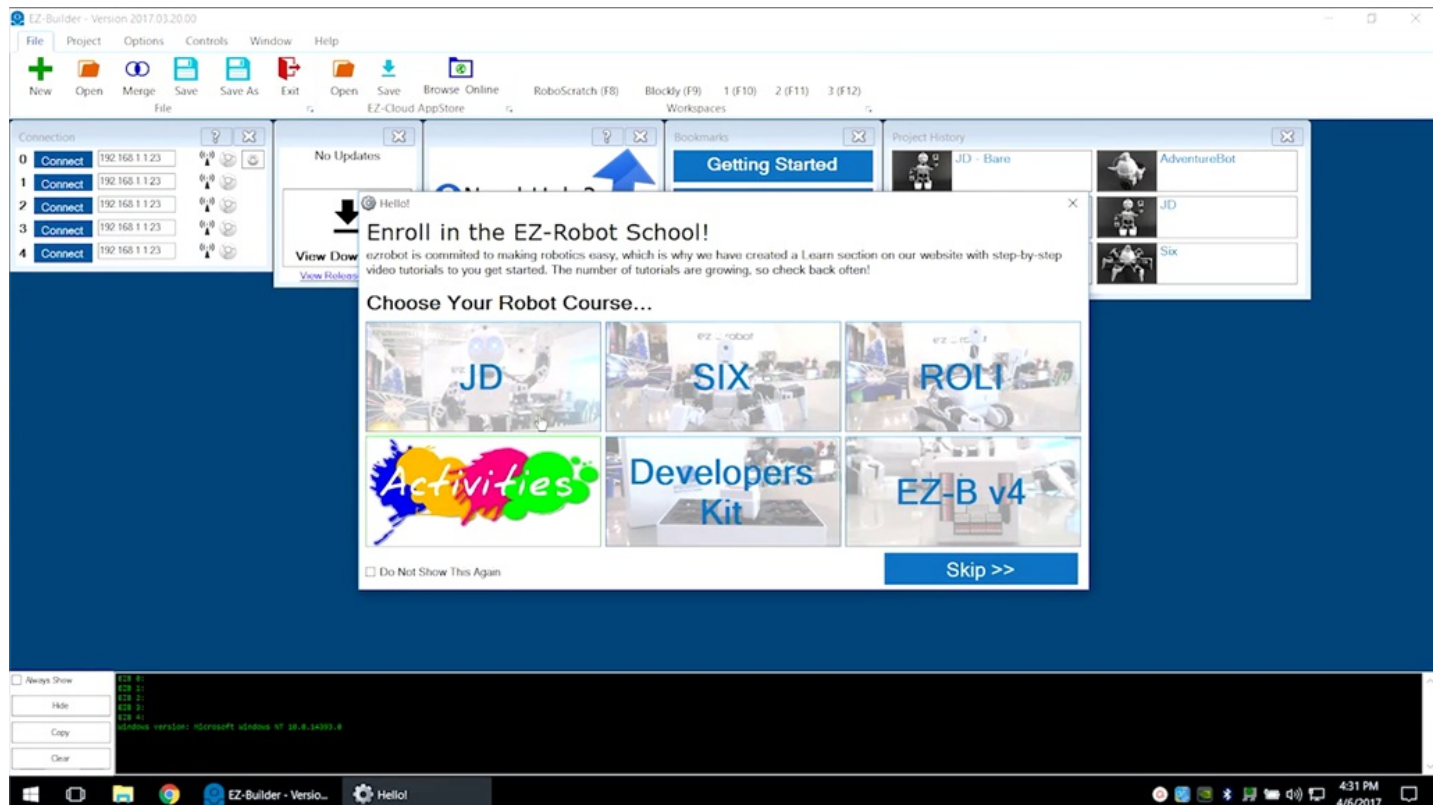
## Step 1

Learn how to use **RoboScratch** to make the robot wave when it recognizes a face. Power on the fully charged robot. This example will use **Revolution JD**.



## Step 2

Load the **EZ-Builder** software.



## Step 3

Open the bare project for the desired robot.

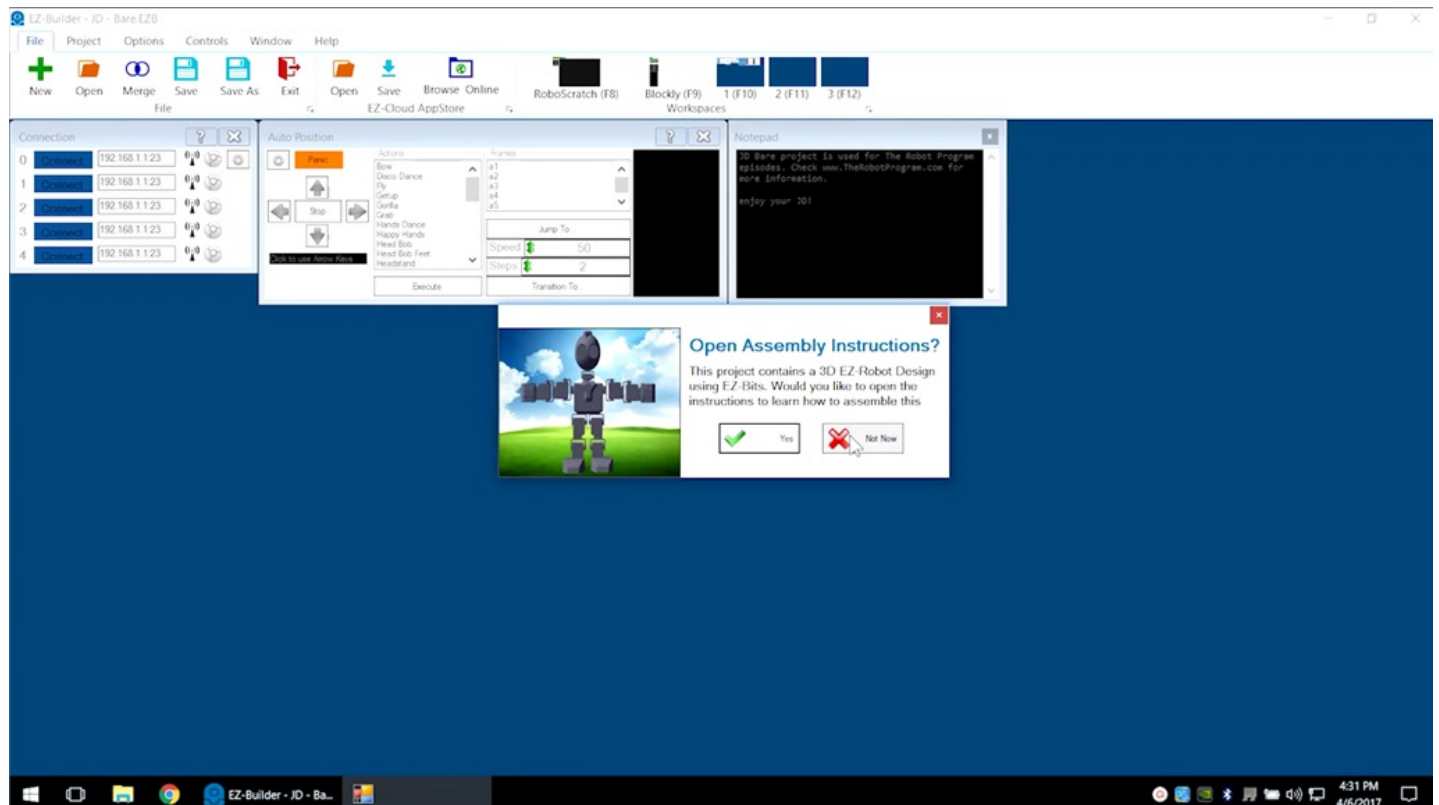
The screenshot shows the 'Open Project File' dialog in the EZ-Builder software. The dialog has a sidebar on the left with 'My Files' and 'Examples' tabs. The 'Examples' tab is selected, showing a list of example projects. The main area displays a grid of project thumbnails and details. The projects listed are:

- AdventureBot**: 6,326,414 Bytes, 16 Controls and 10 EZ-Bits. Description: AdventureBot is an easy to assemble ez robot built with EZ-Bits. This is the perfect robot for a beginner who wants to dabble in robotics without breaking the bank! The top mounted camera is a perfect addition for exploring ez robot vision features and remote control app missions.
- Battle Flipper**: 6,206,364 Bytes, 9 Controls and 13 EZ-Bits. Description: Prepare to battle! Place two or more of these battle flippers together and have them fight to the flip. Use the front 'legs' lever to flip your opponents. Get creative and explore mBlock3 consoles to create new fun and exciting games to share with our community.
- JD - Bare**: 462,387 Bytes, 3 Controls and 12 EZ-Bits. Description: JD Bare project is used for The Robot Program episodes. Visit [www.TheRobotProgram.com](http://www.TheRobotProgram.com) for more information.
- JD**: 7,141,859 Bytes, 12 Controls and 12 EZ-Bits. Description: The Official Revolution JD example project. There is a great tutorial course on our website at [www.ez-robot.com](http://www.ez-robot.com) with information on getting your JD up and running.
- Ruli - Bare**: 321,782 Bytes, 4 Controls and 13 EZ-Bits. Description: Rik Bare project is used for The Robot Program episodes. Visit [www.TheRobotProgram.com](http://www.TheRobotProgram.com) for more information.
- Ruli**: 4,933,888 Bytes, 12 Controls and 13 EZ-Bits. Description: Welcome to the Revolution Rik example project. There is a great tutorial course on our website at [www.ez-robot.com](http://www.ez-robot.com) with information on getting your Rik up and running.

At the bottom of the dialog, there are buttons for 'Close' and 'Auto arrange controls after open'. The taskbar at the bottom shows the EZ-Builder - Versio... window and the Open Project File button. The system clock indicates 4:31 PM on 4/6/2017.

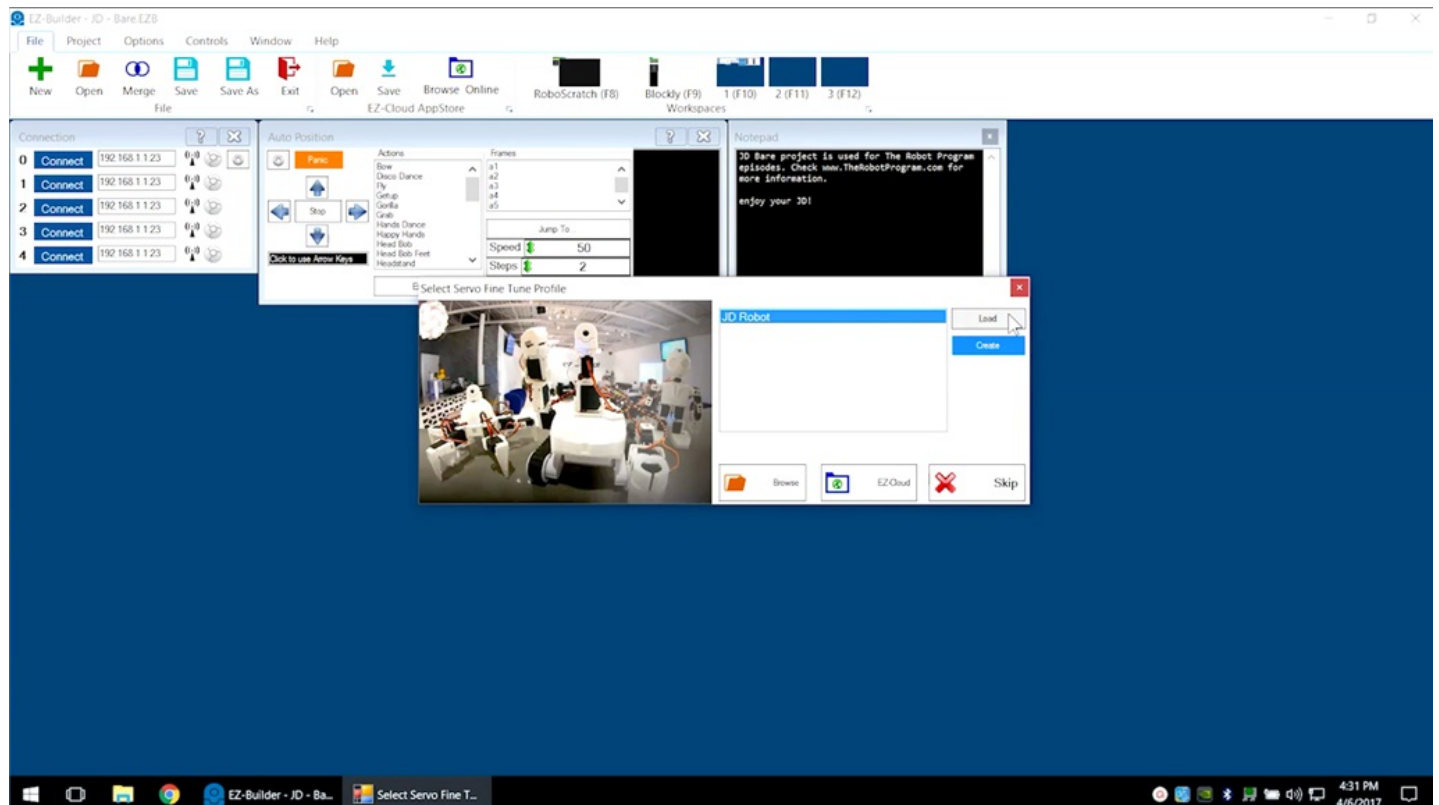
## Step 4

Skip the build instructions. View past episodes for more build information.



## Step 5

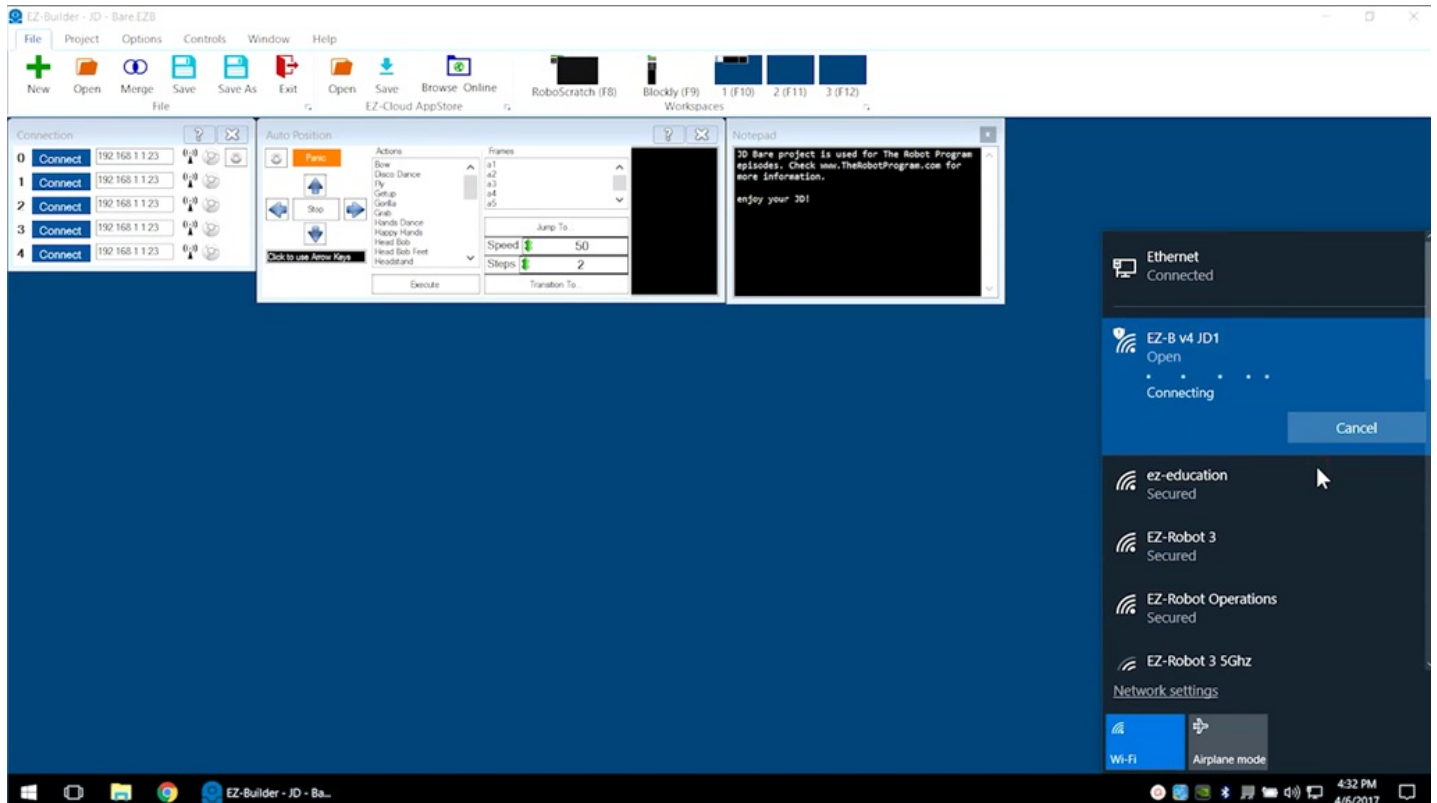
If using **Revolution JD**, load the calibrated servo profile as necessary.





## Step 6

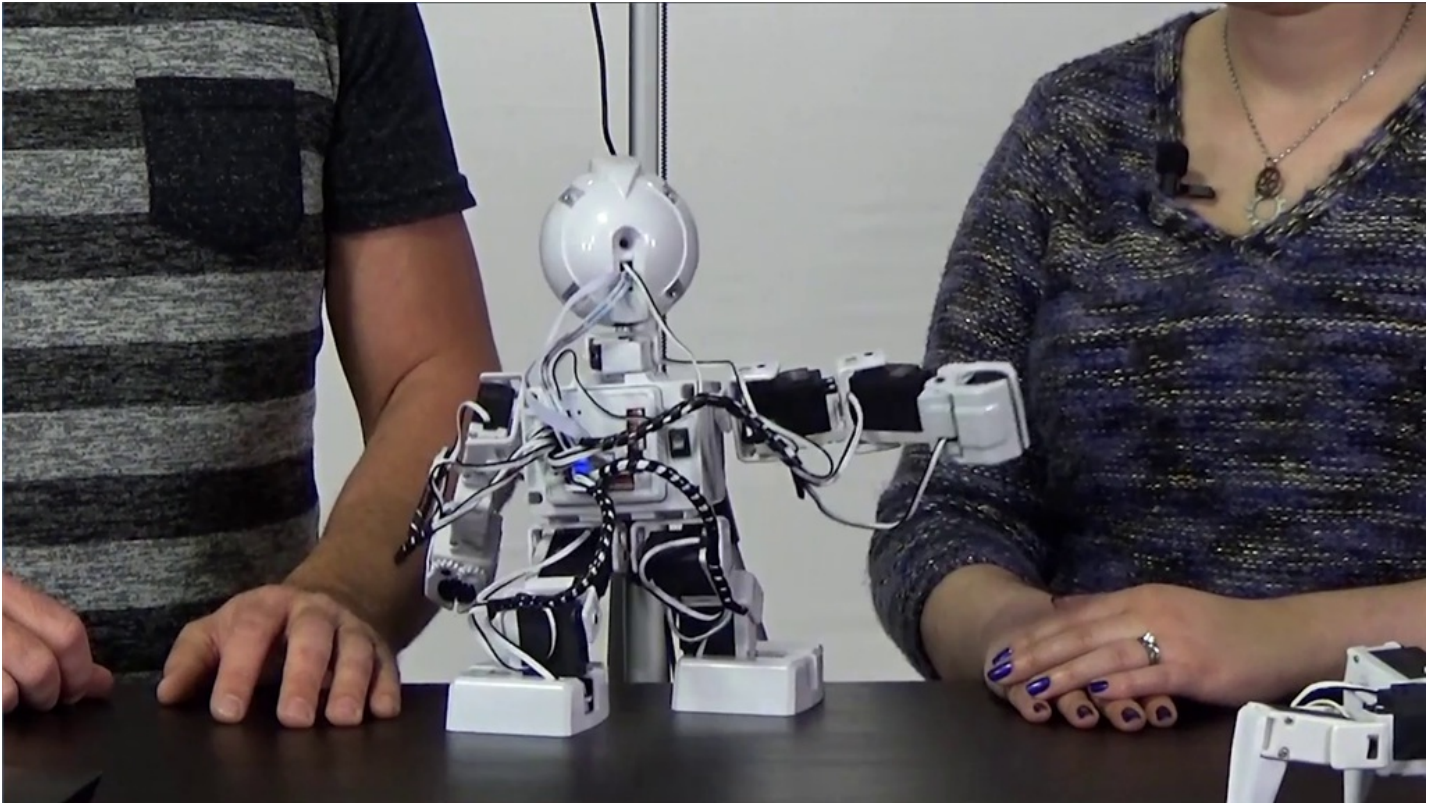
Use Wi-Fi to connect to the **EZ-B** and click on the blue **Connect** button.





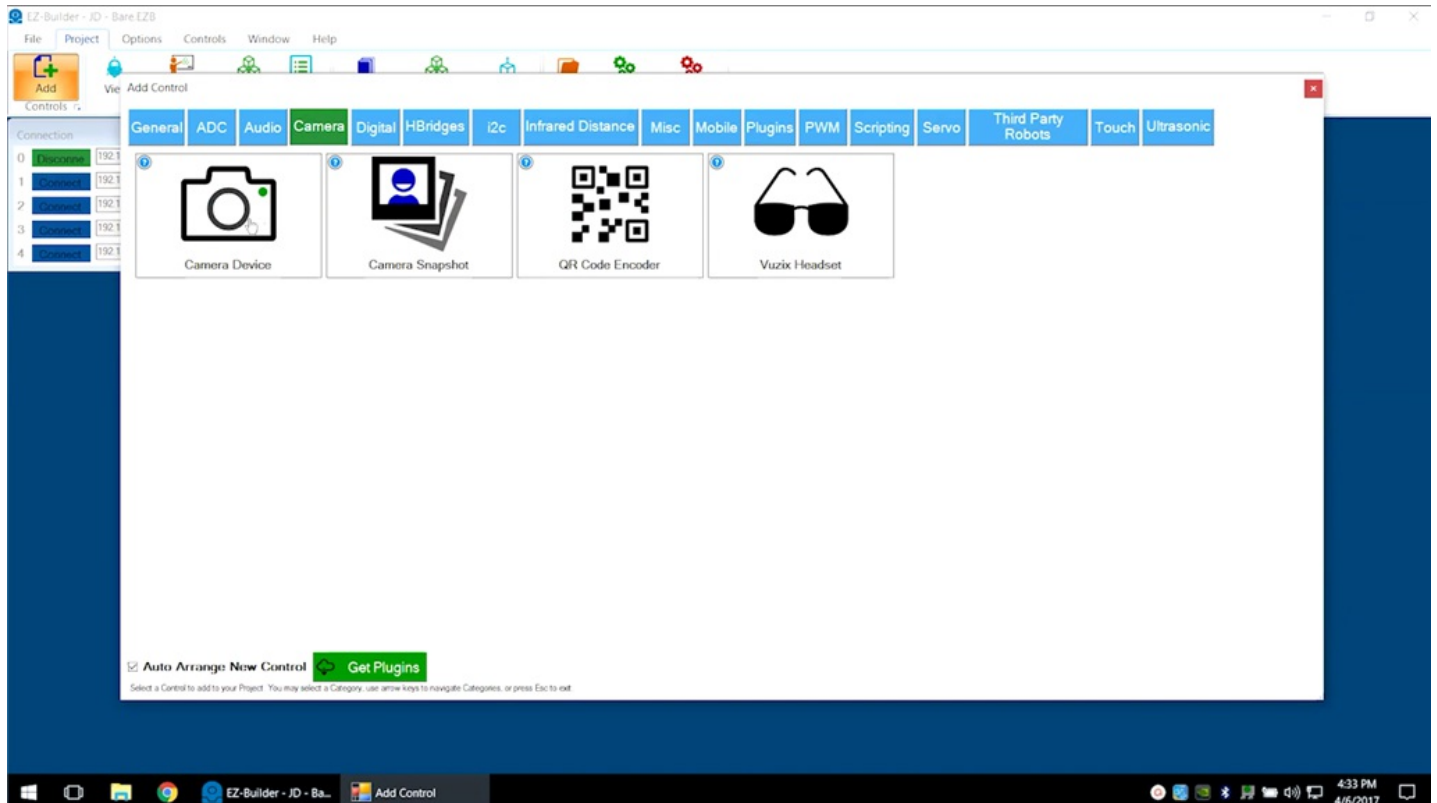
## Step 7

If using **Revolution JD**, execute **Stand From Sit** in the **Auto Position** control window to bring the robot to a standing position.



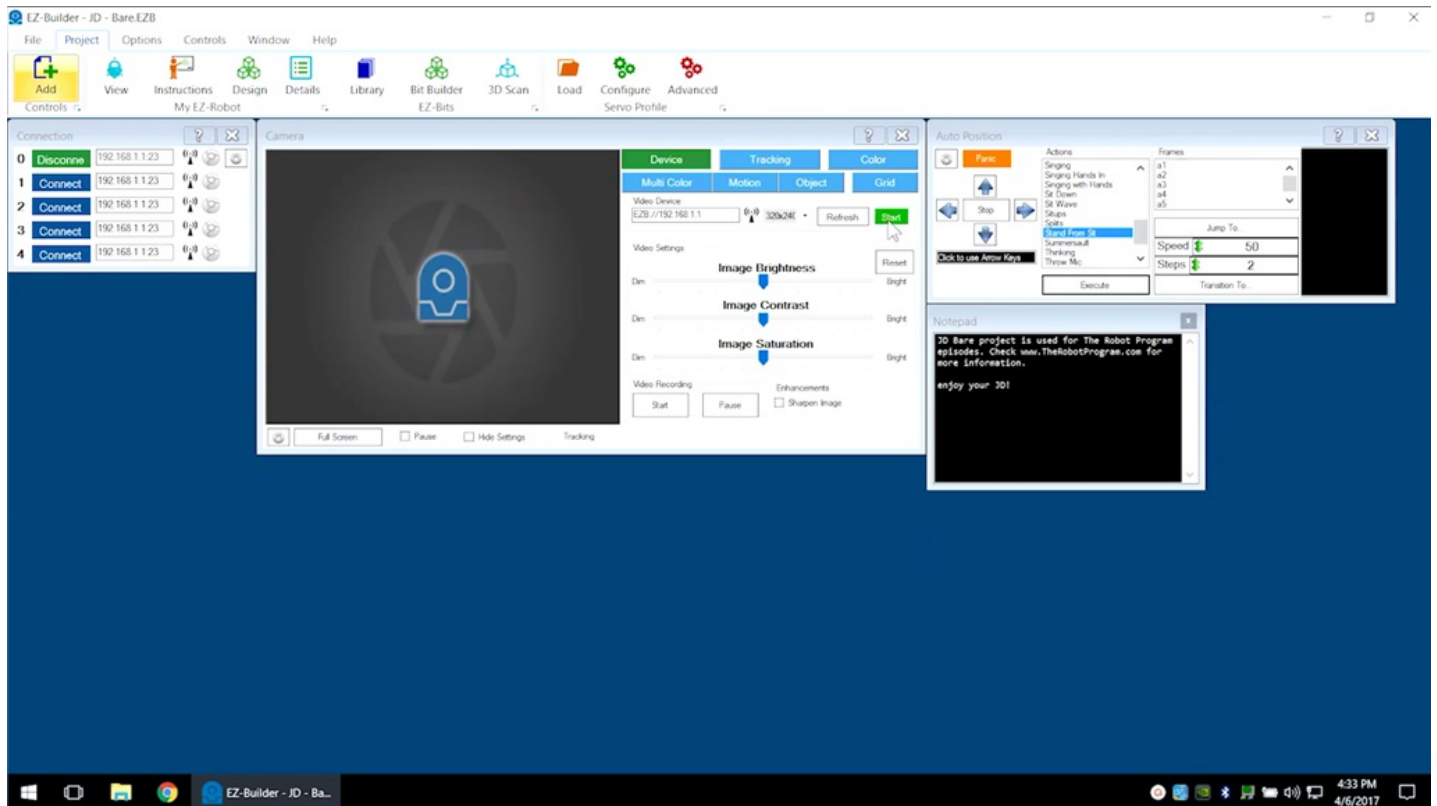
## Step 8

Select **Project** -> **Add Controls** -> **Camera** -> **Camera Device** to add the camera controls.



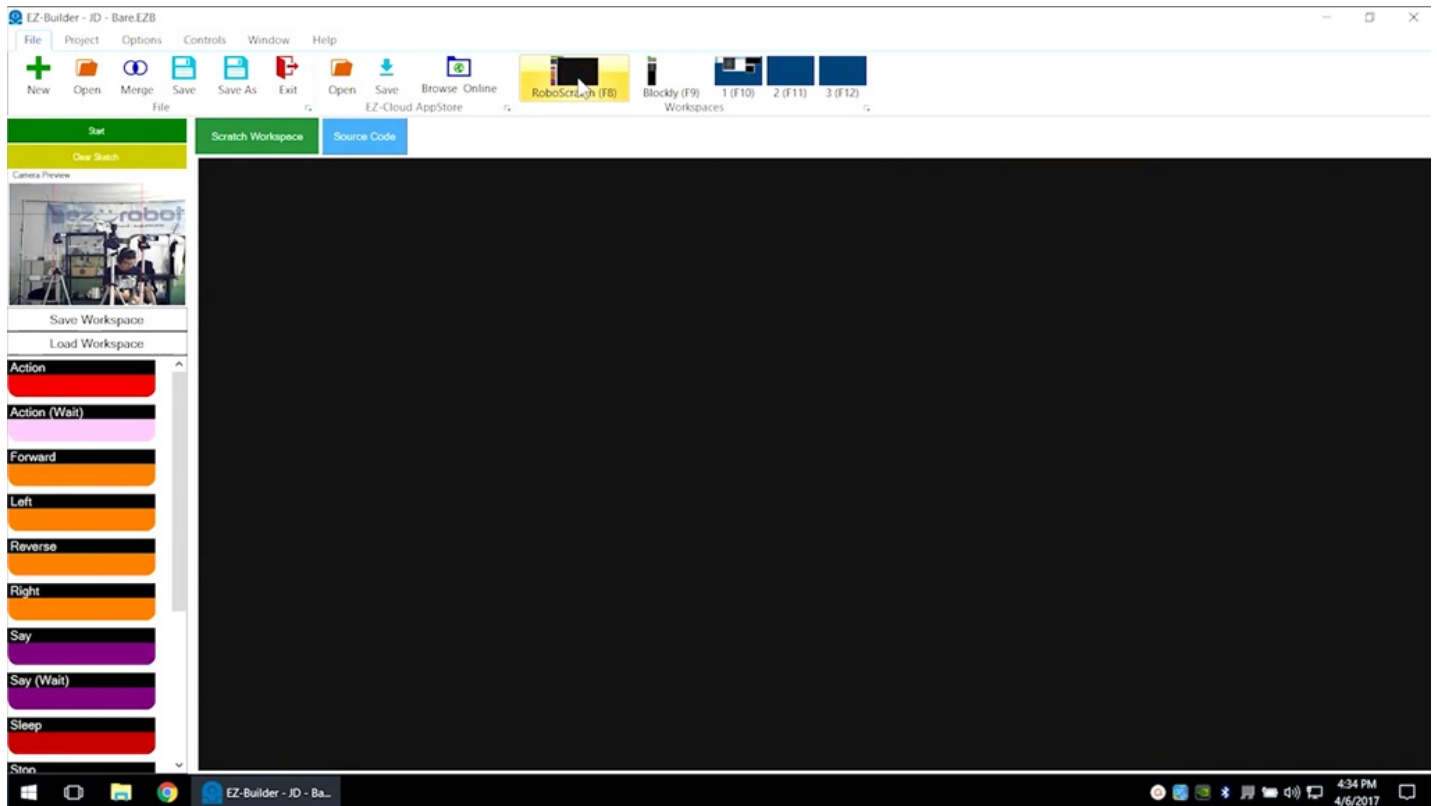
## Step 9

Click the green **Start** button. The camera will provide peripheral information that will be used within the program.



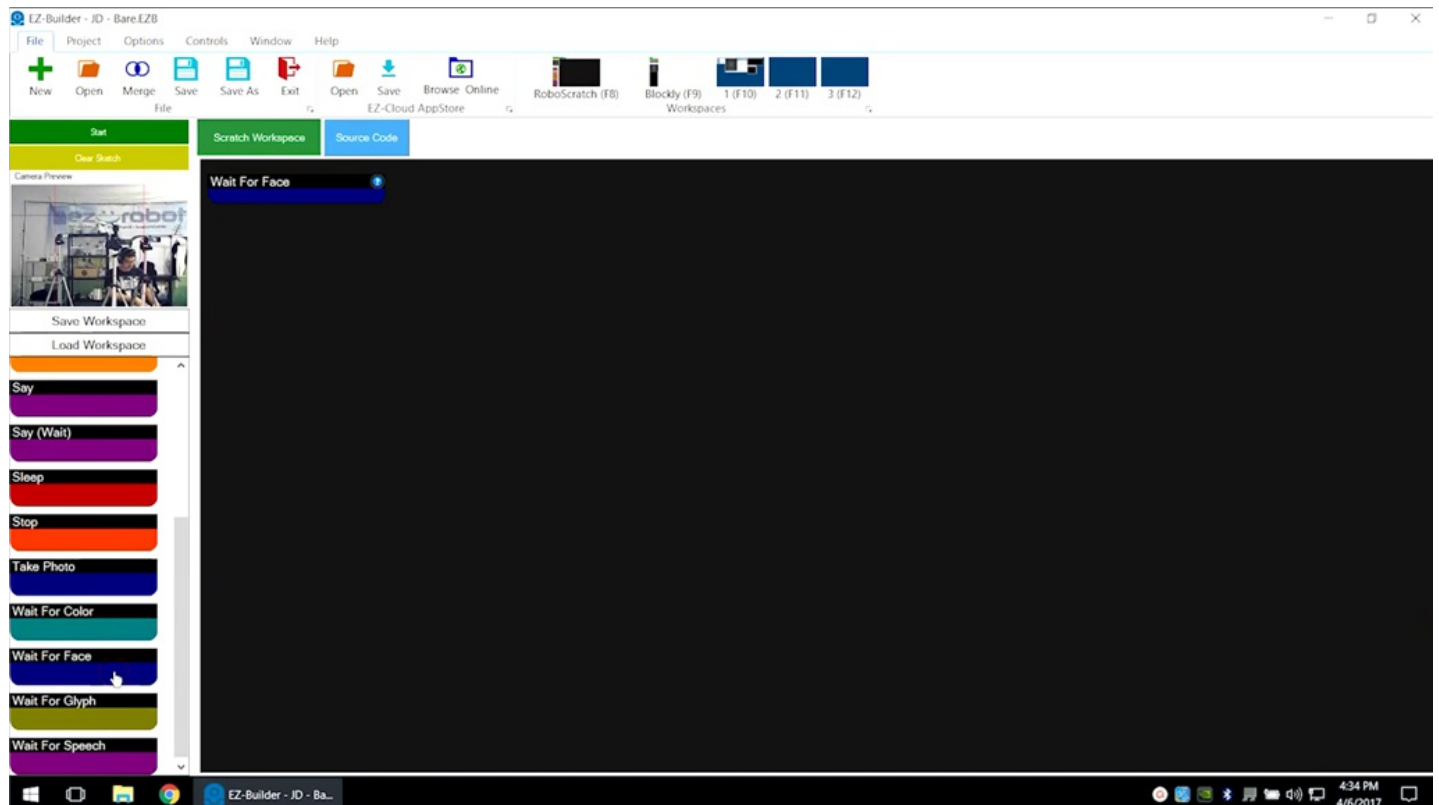
## Step 10

Select **File** -> **RoboScratch** to enter the **RoboScratch** workspace. The available functions are listed on the left-hand menu. Click as needed to add them to the workspace.



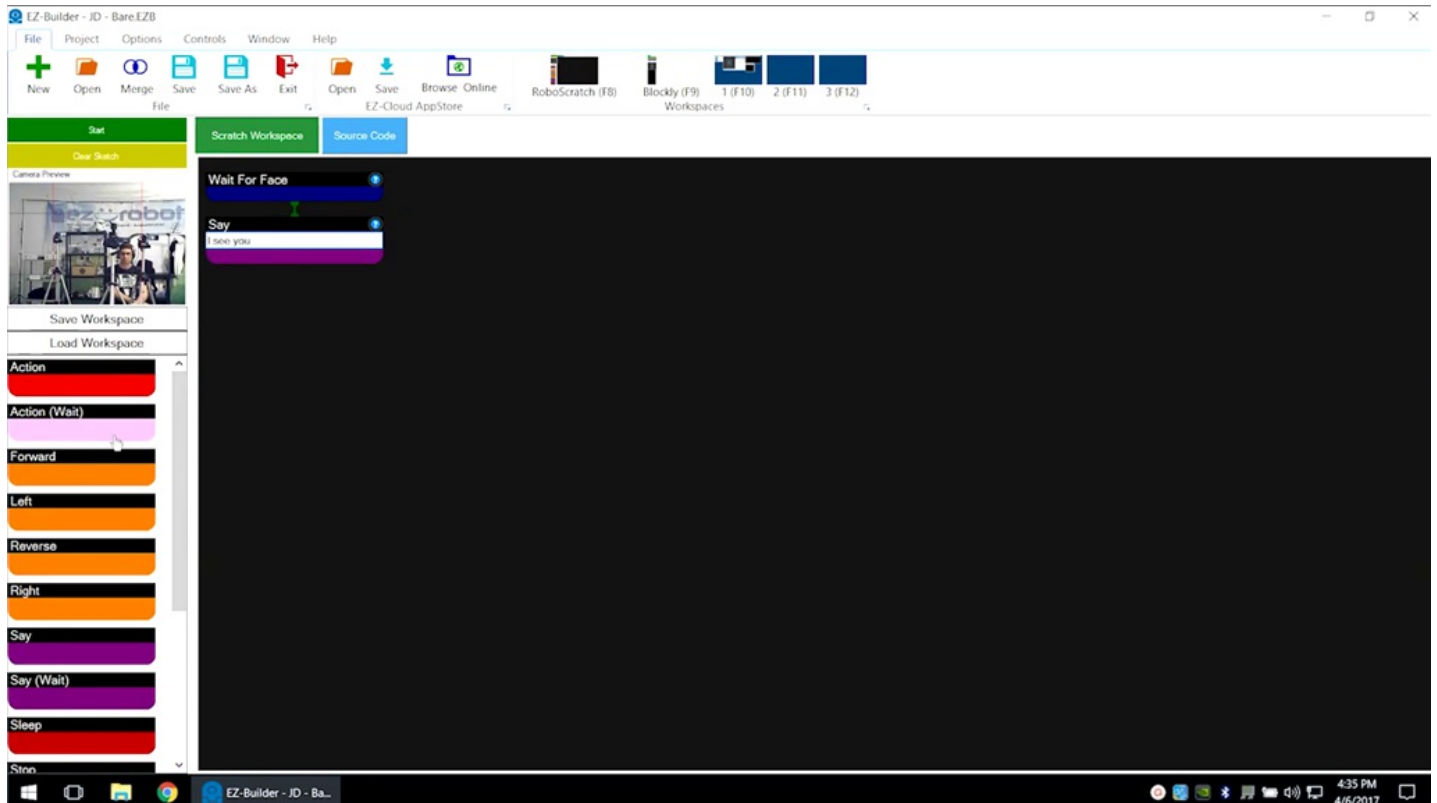
## Step 11

Click to add **Wait For Face**.



## Step 12

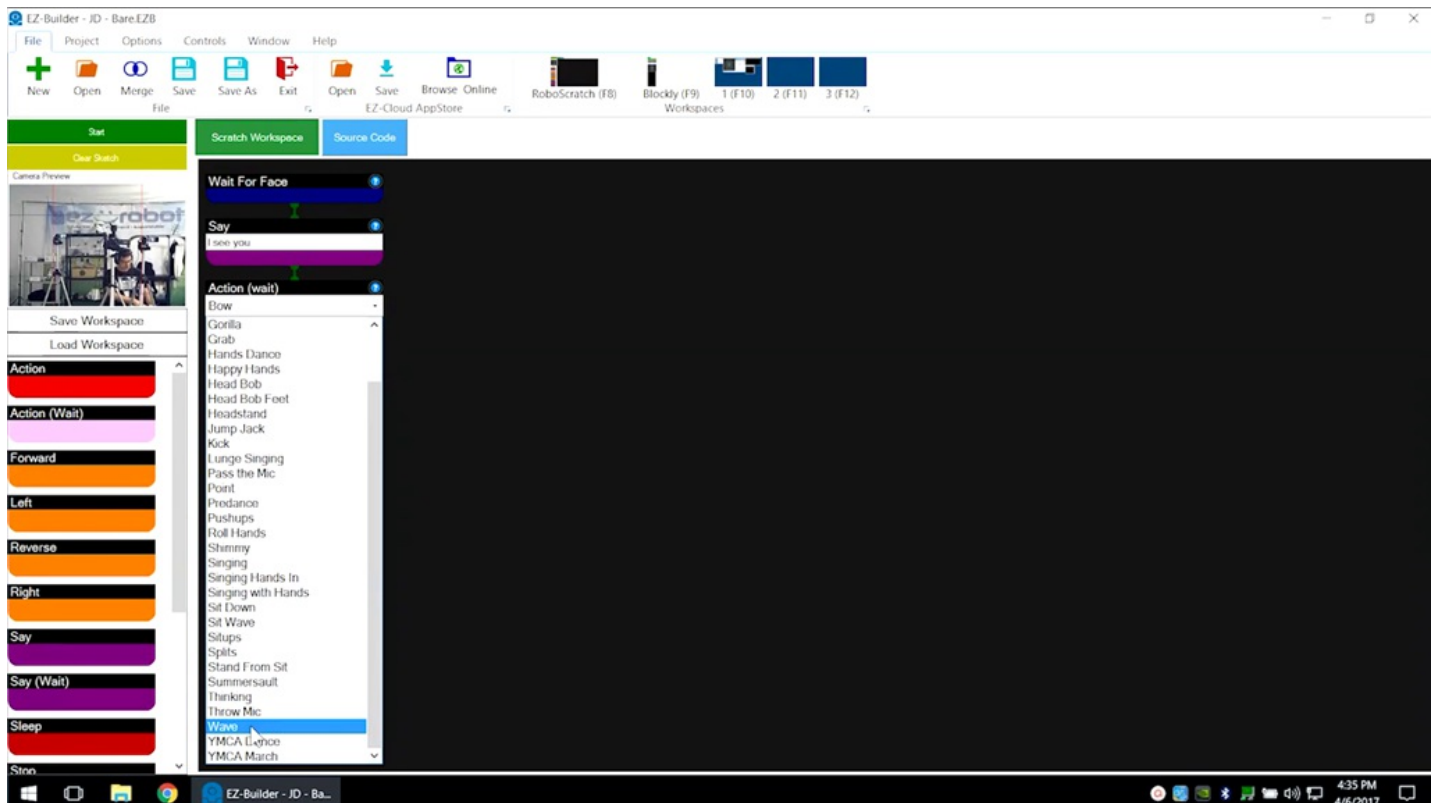
Click to add **Say**. Enter the phrase **I see you.**



## Step 13

Click to add **Action (Wait)** and choose **Wave** from the list of options.

Functions that have [b\[/b\]](#) in their name will run completely before moving on to the next function.

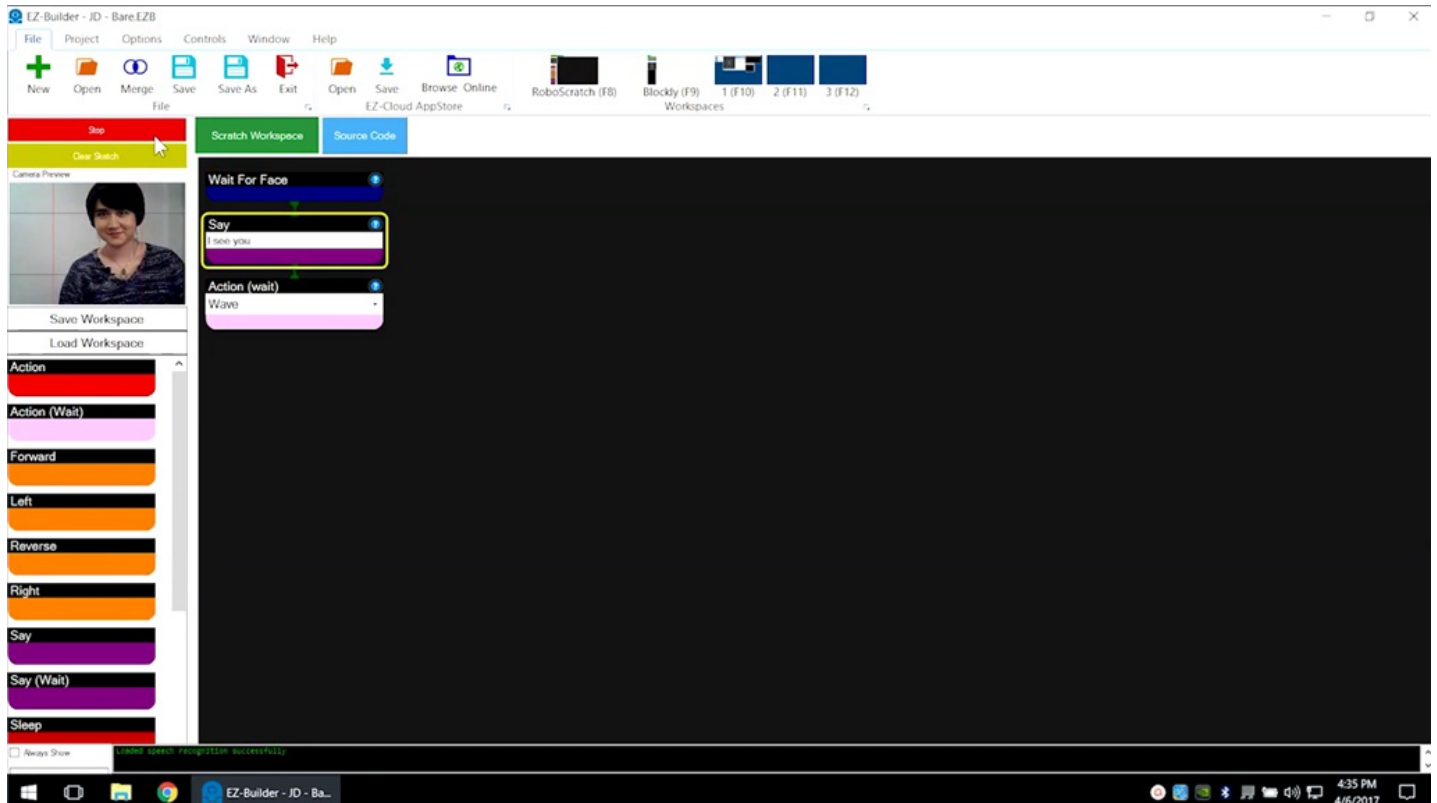




## Step 14

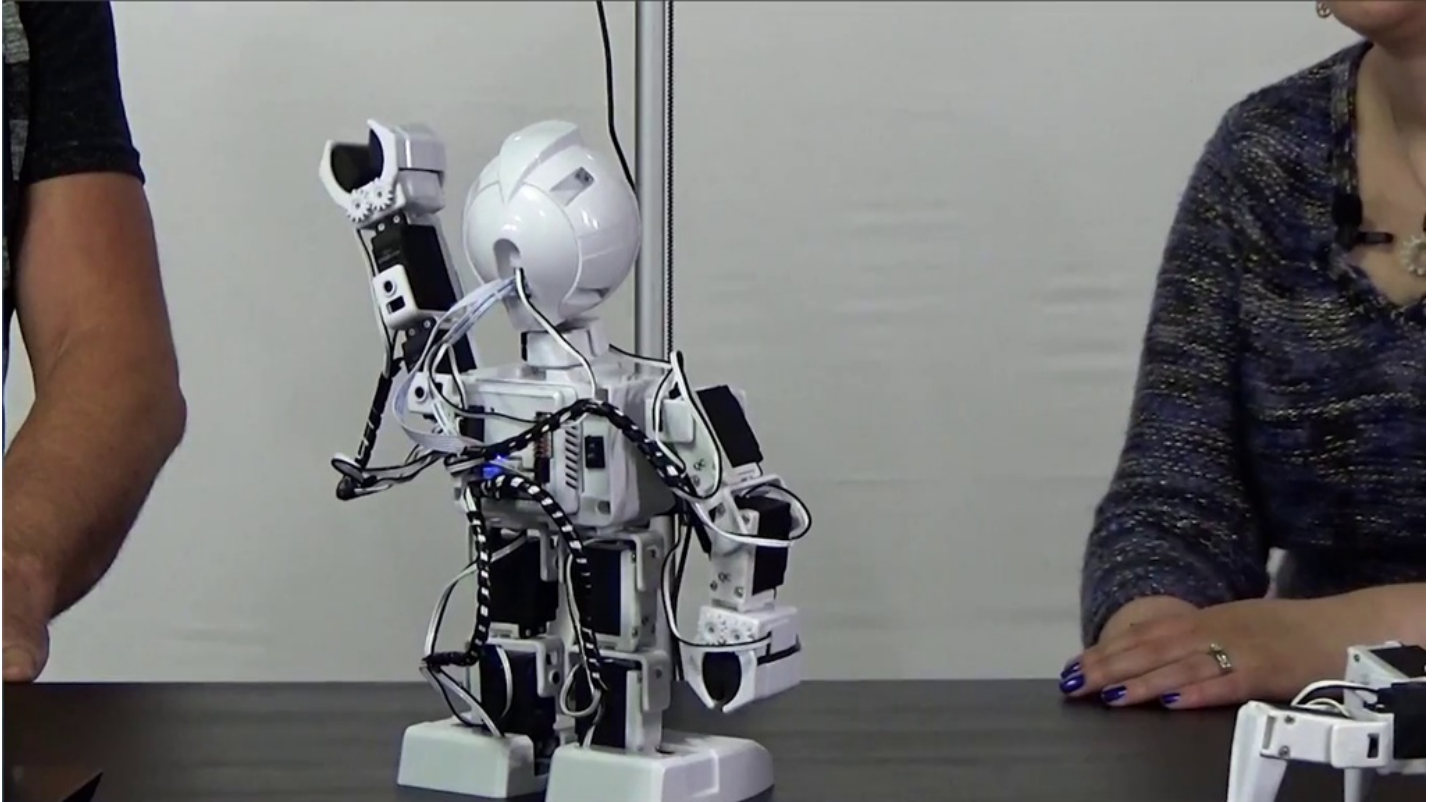
These three components will cause the robot to speak and wave once a face is detected.

Execute the program using the green **Start** button. Follow the green line and highlighting as the program runs.



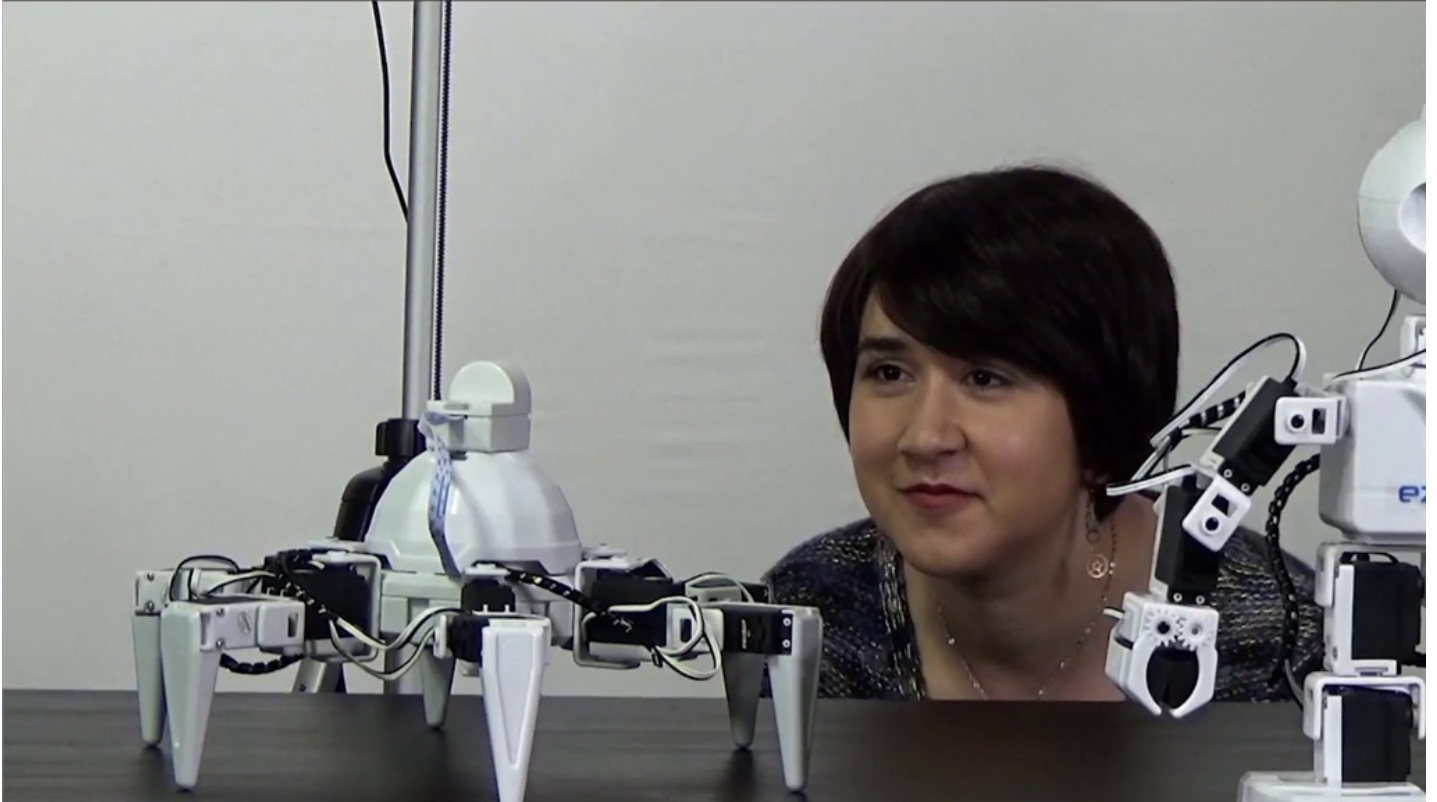
## Step 15

Once the robot detects a face, it will speak and complete the wave action.



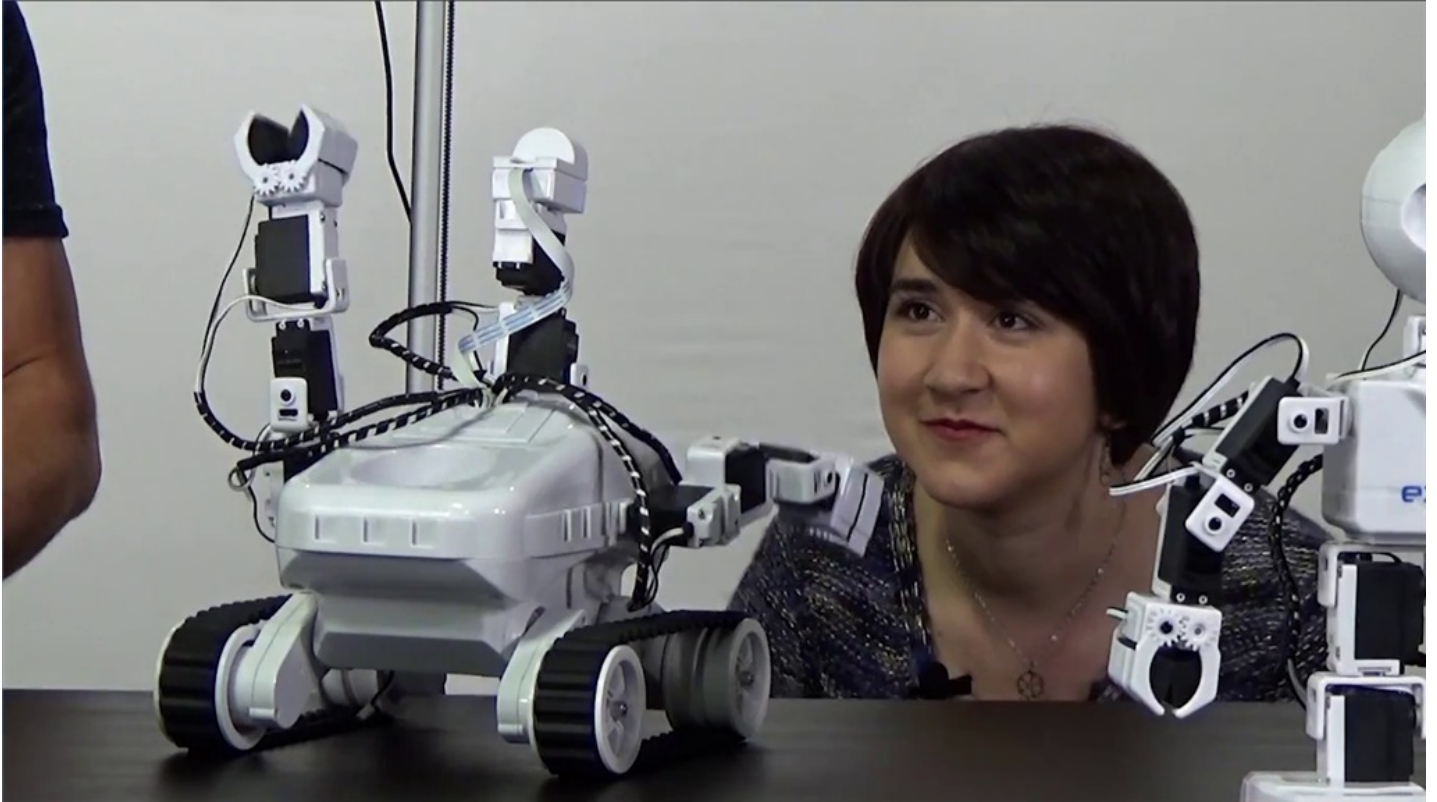
## Step 16

**Revolution Six** will execute the same steps.



## Step 17

**Revolution Roli** will execute the same steps.



## Step 18

Save the project for future use.



**Question #1** What peripheral device is used to detect a face?

**Question #2** What does Action (Wait) mean?

**Question #3** What is linear programming?

View the answers to this quiz at [www.ez-robot.com/Tutorials/Lesson/94](http://www.ez-robot.com/Tutorials/Lesson/94).

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