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# The Robot Program Episode 021: Detect Face and Wave - Blockly

This lesson will demonstrate how to use Blockly 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 **Blockly**. Follow along with The Robot Program Episode 021: Detect Face and Wave - Blockly.

View the video episode here: https://www.ez-robot.com/Tutorials/Lesson/95

Last Updated: 6/12/2018

# Professor E's Overview

This lesson demonstrated how to enable facial detection and how to trigger an action using a **Blockly** 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).

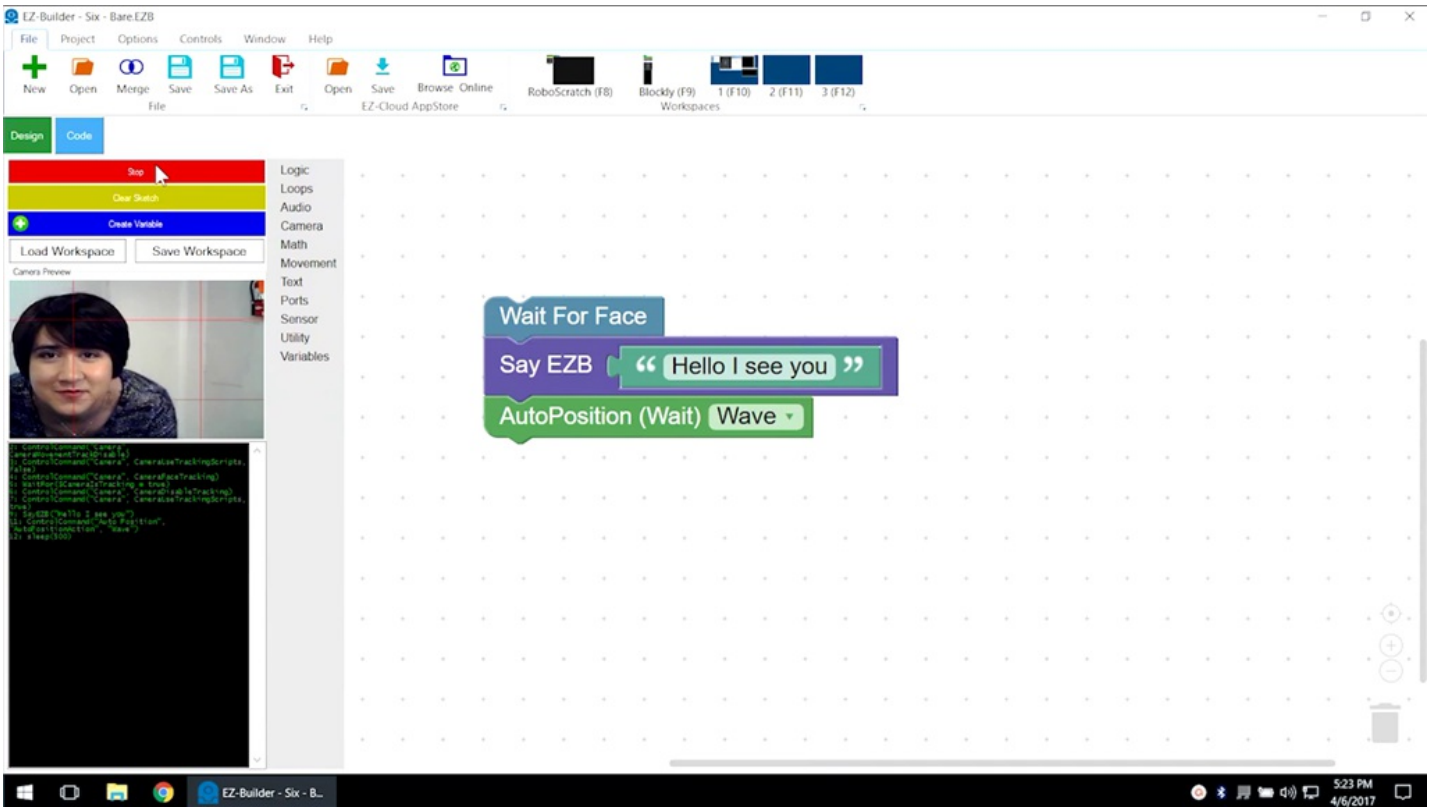
Open the **Blockly** workspace. Add the **Wait For Face** command. This command tells the robot to wait until it detects a face before moving on to the next line of code.

Add **Say EZB** 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. The audio will be output through the **EZ-B Robot Controller**.

Add **AutoPosition (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.

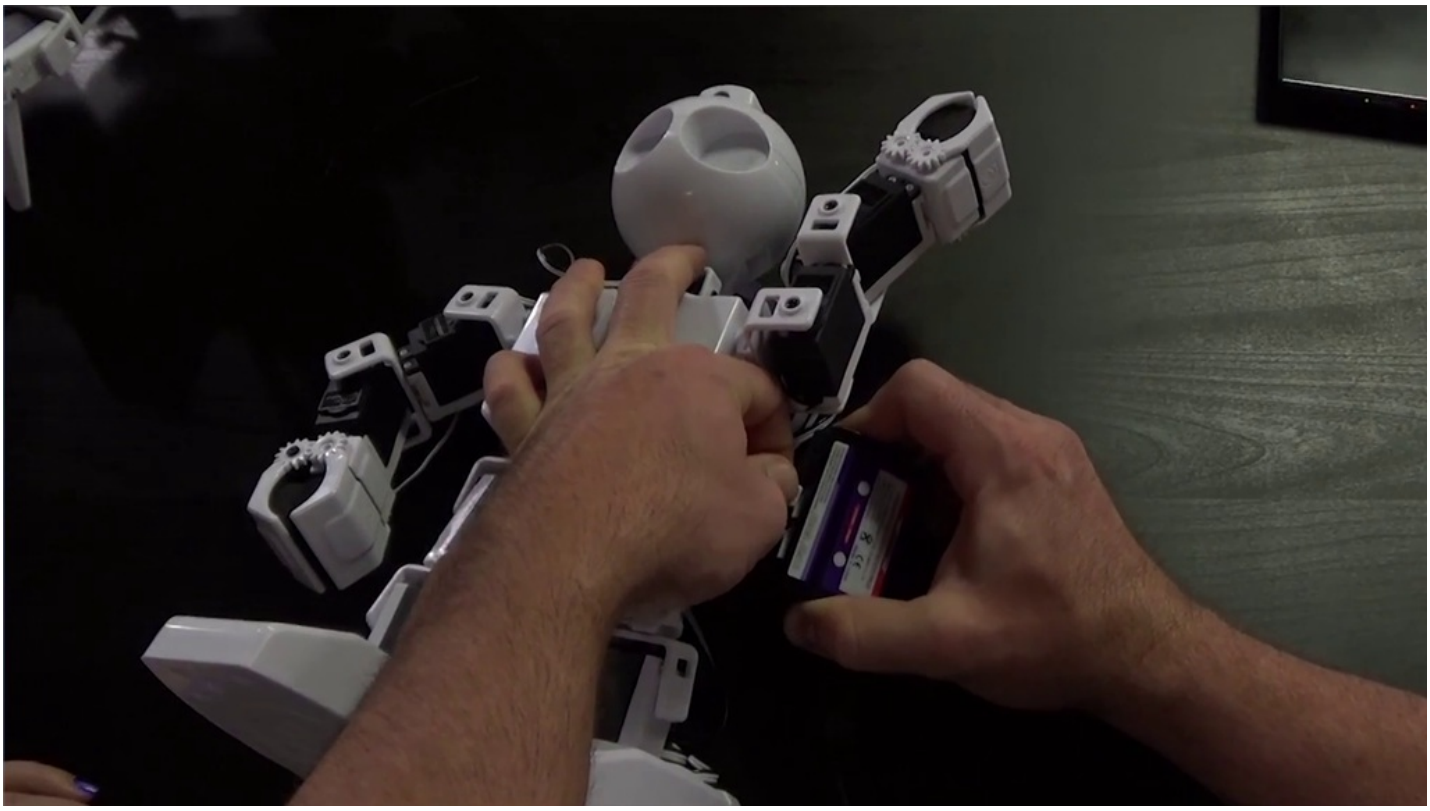
Click on **Start** to begin execution. Use the **Code** tab to view the **EZ-Script** code that was generated by the **Blockly** commands.

Remember to disconnect, power off, and charge the robot when finished.



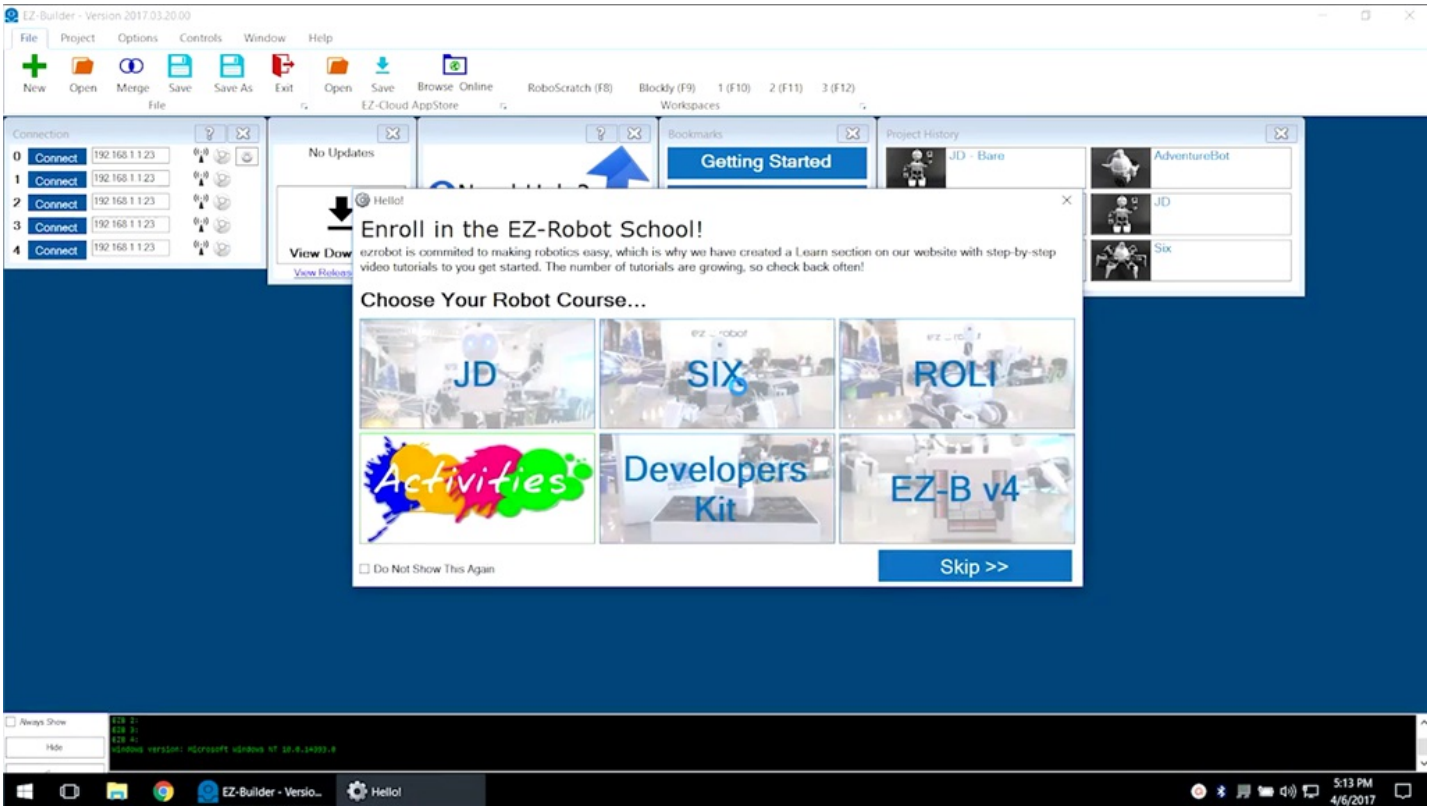
# Step 1

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



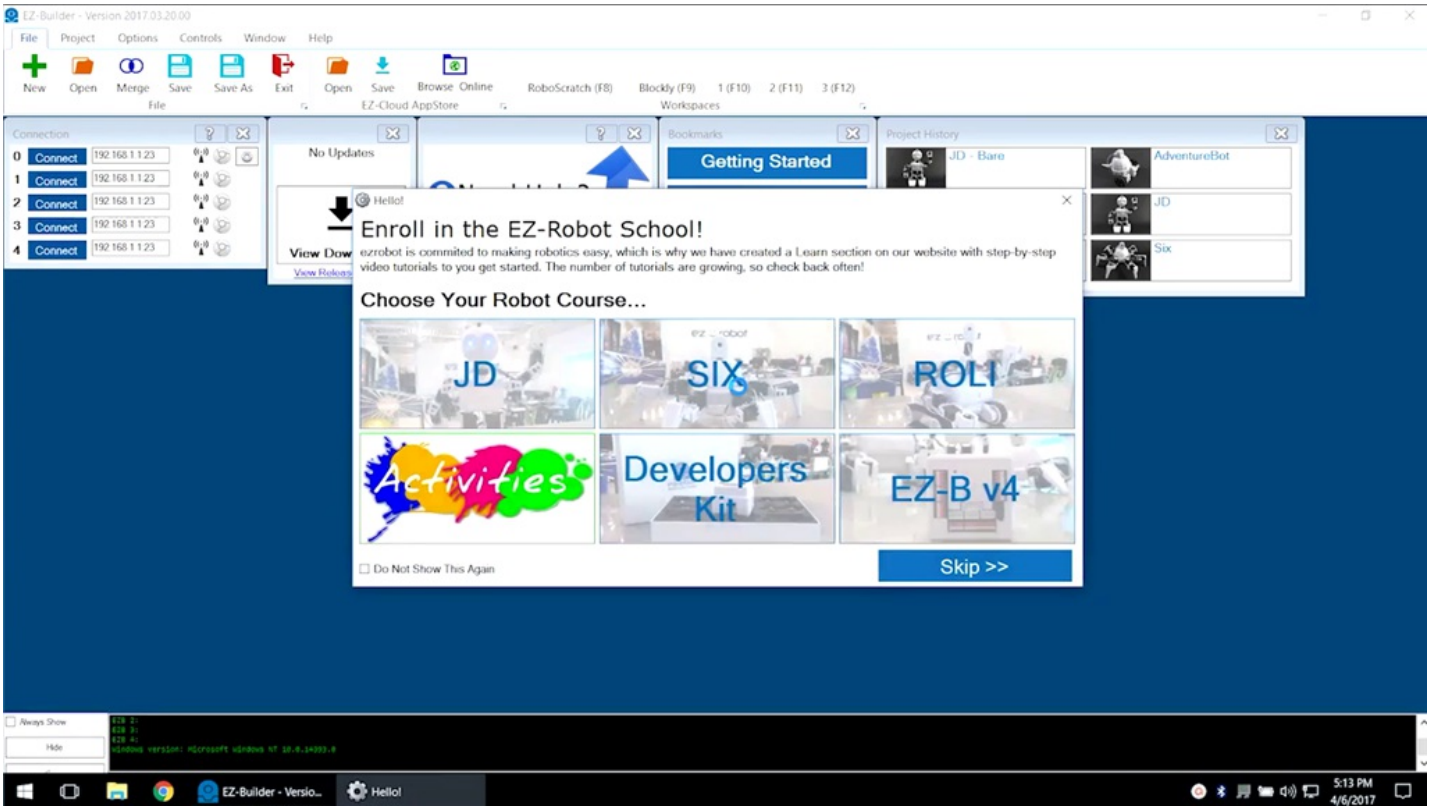
## Step 2

Load the **EZ-Builder** software.



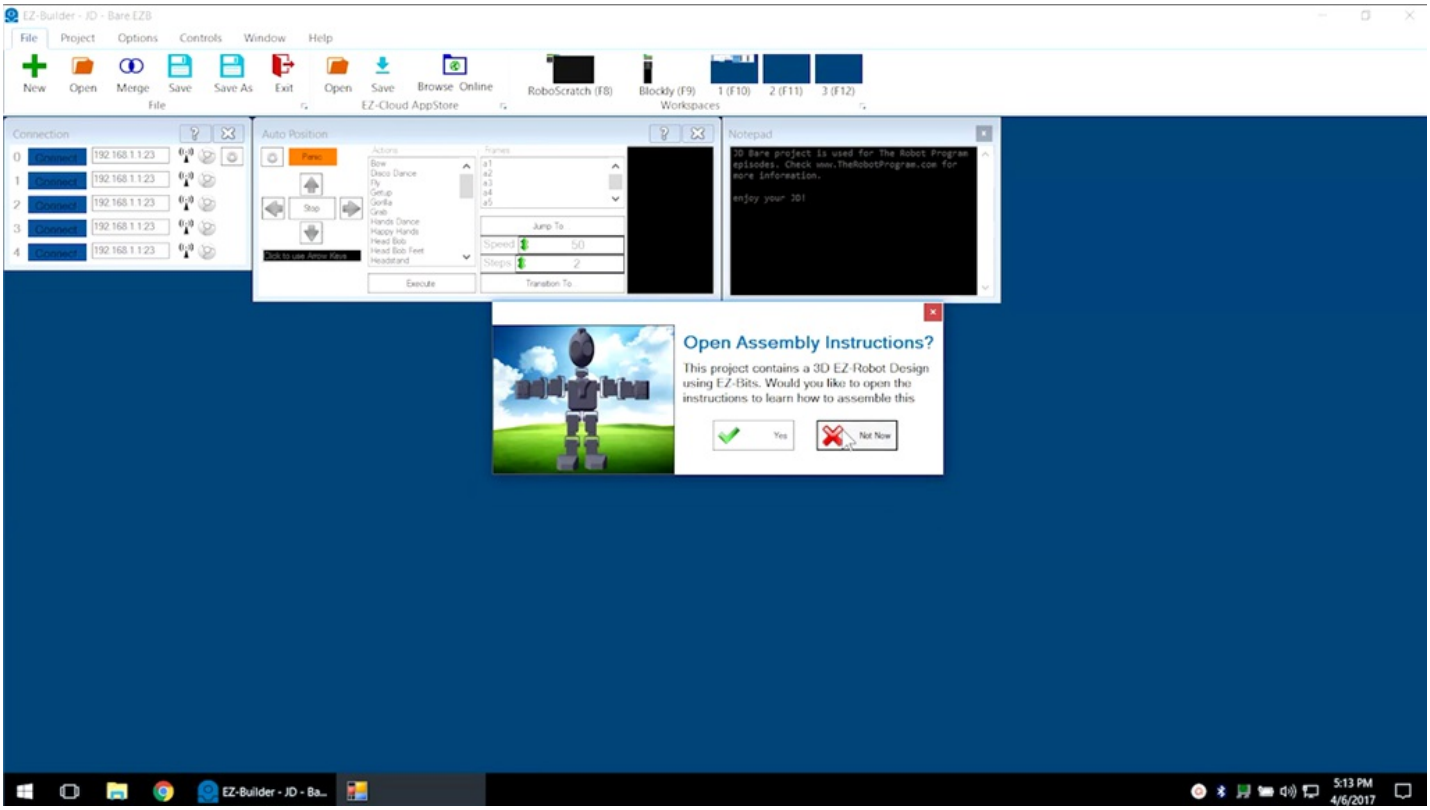
## Step 3

From **Example Projects**, open the bare project for the desired robot.



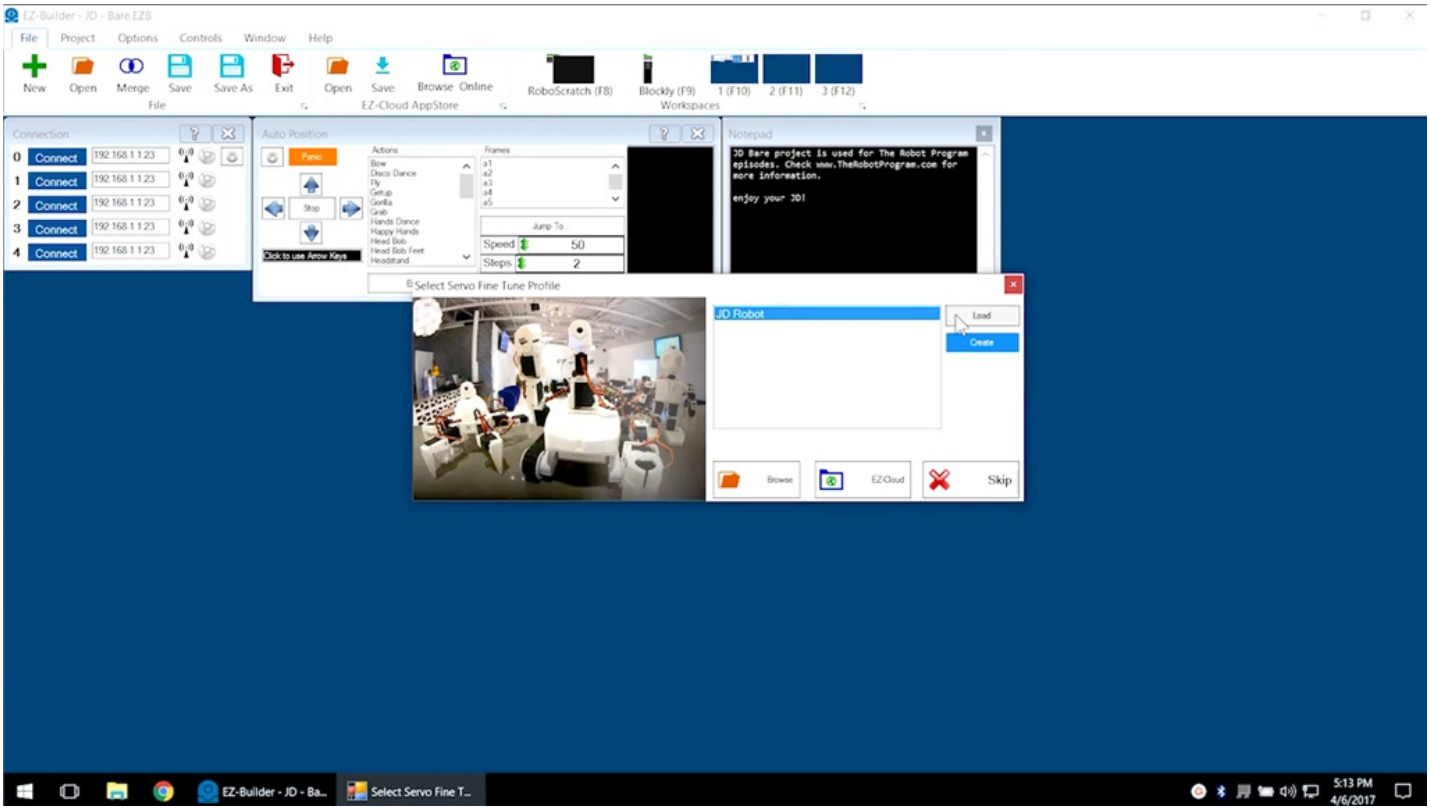
## Step 4

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



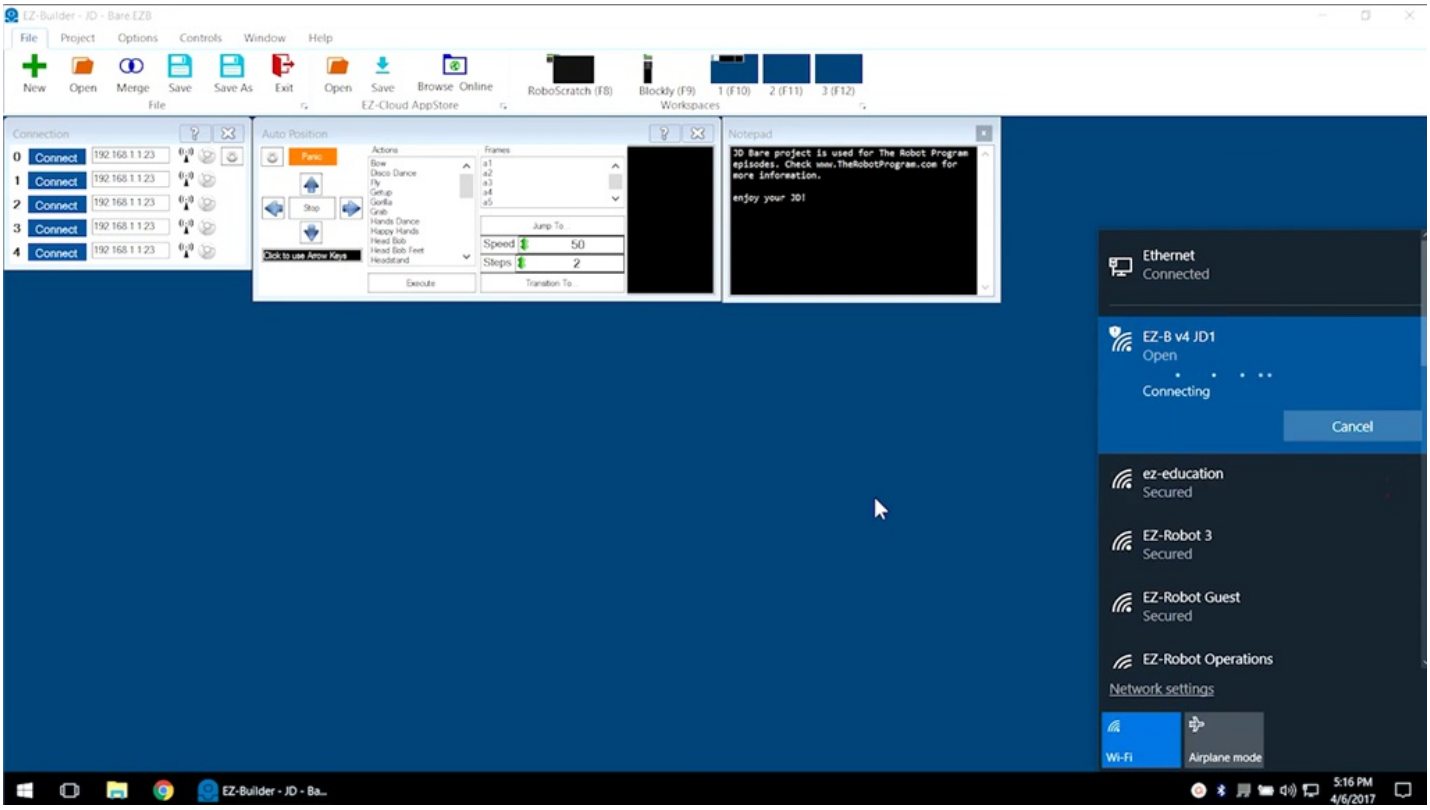
# Step 5

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



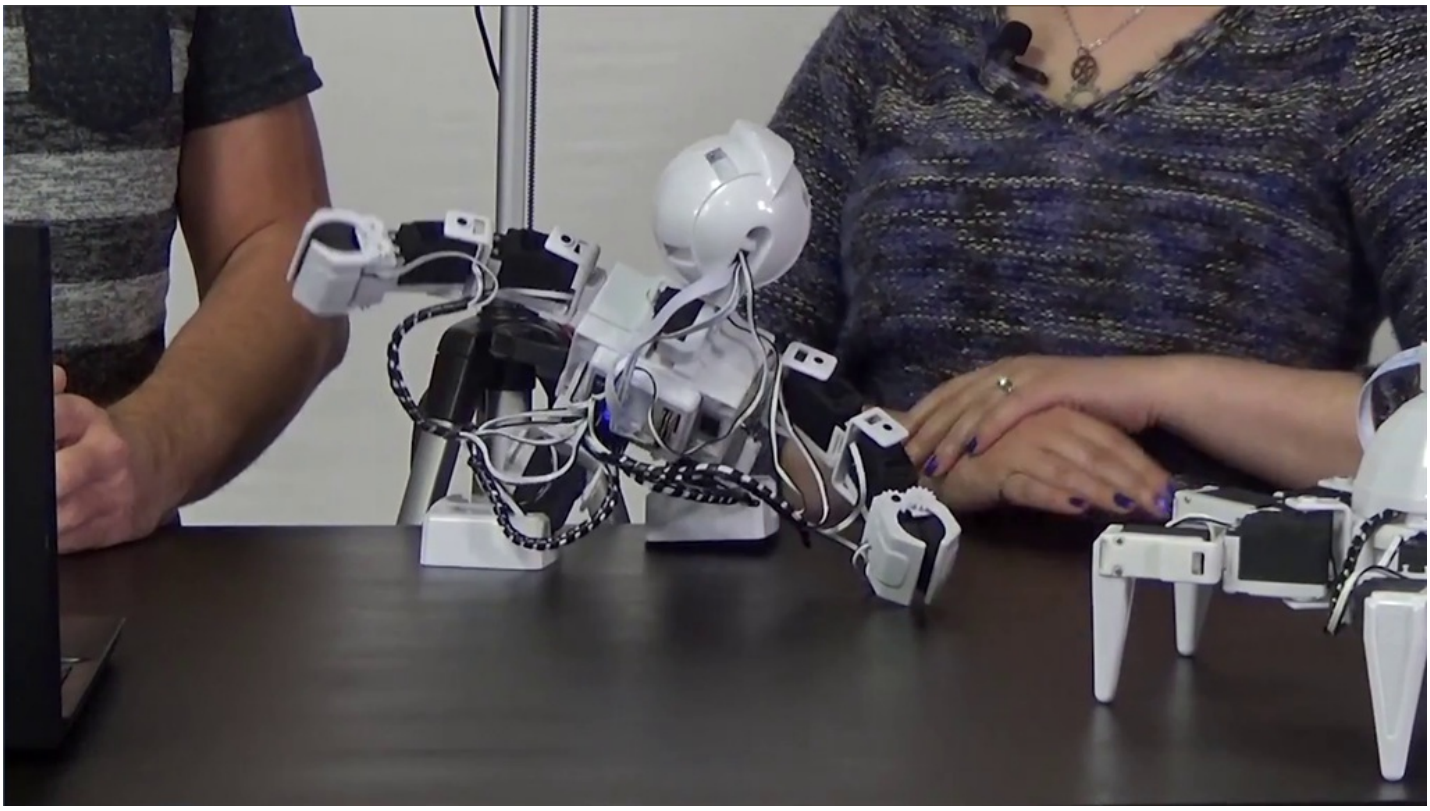
# Step 6

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



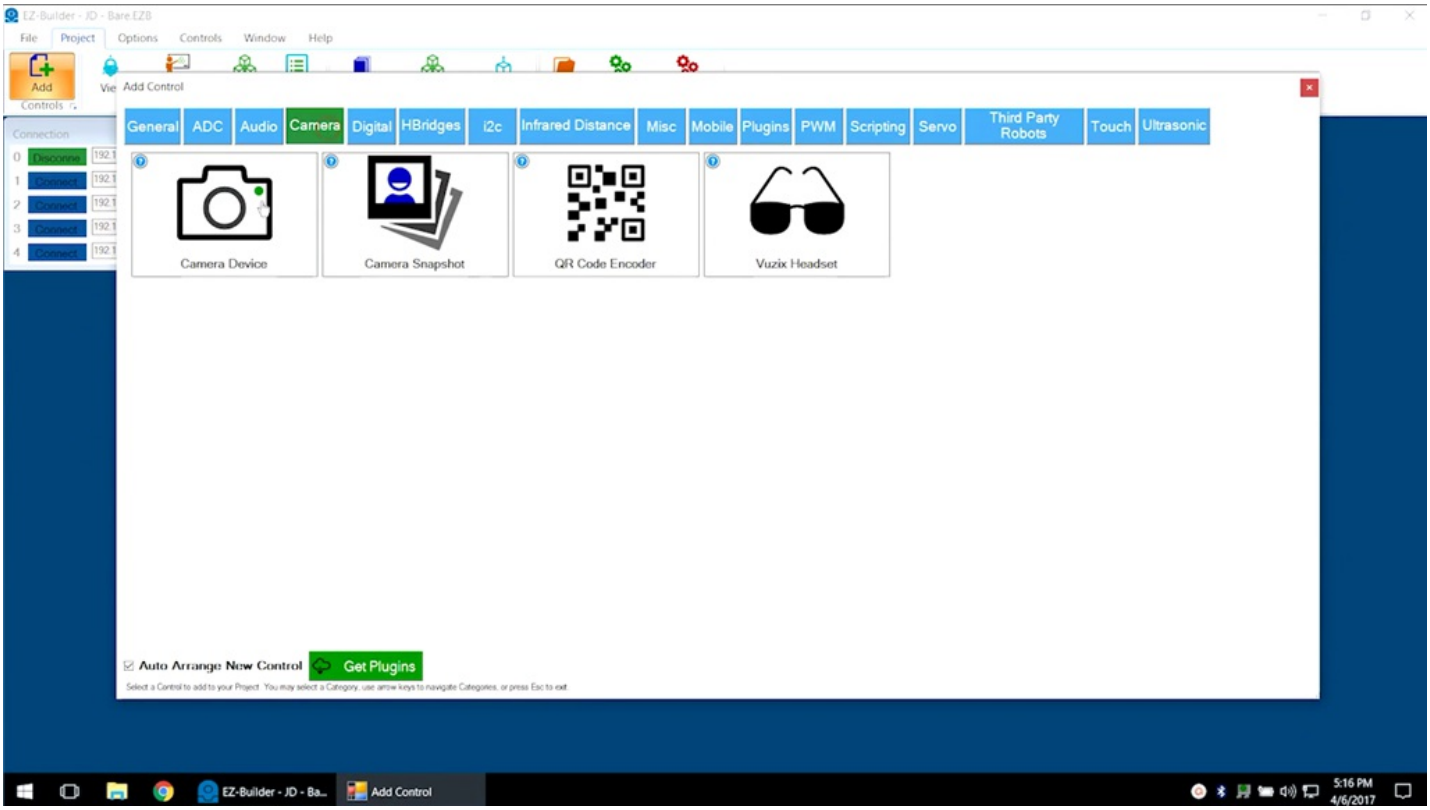
## Step 7

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



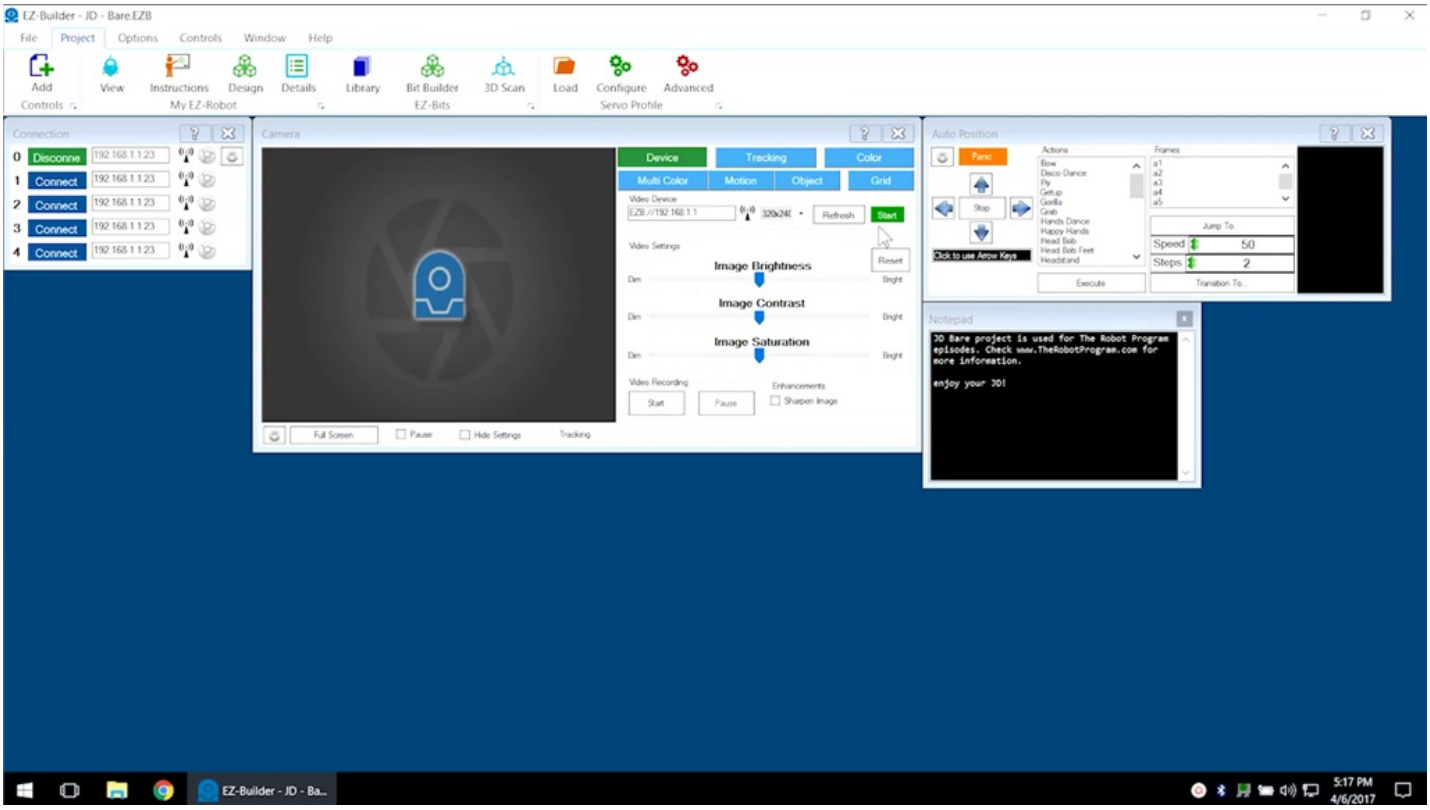
# Step 8

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



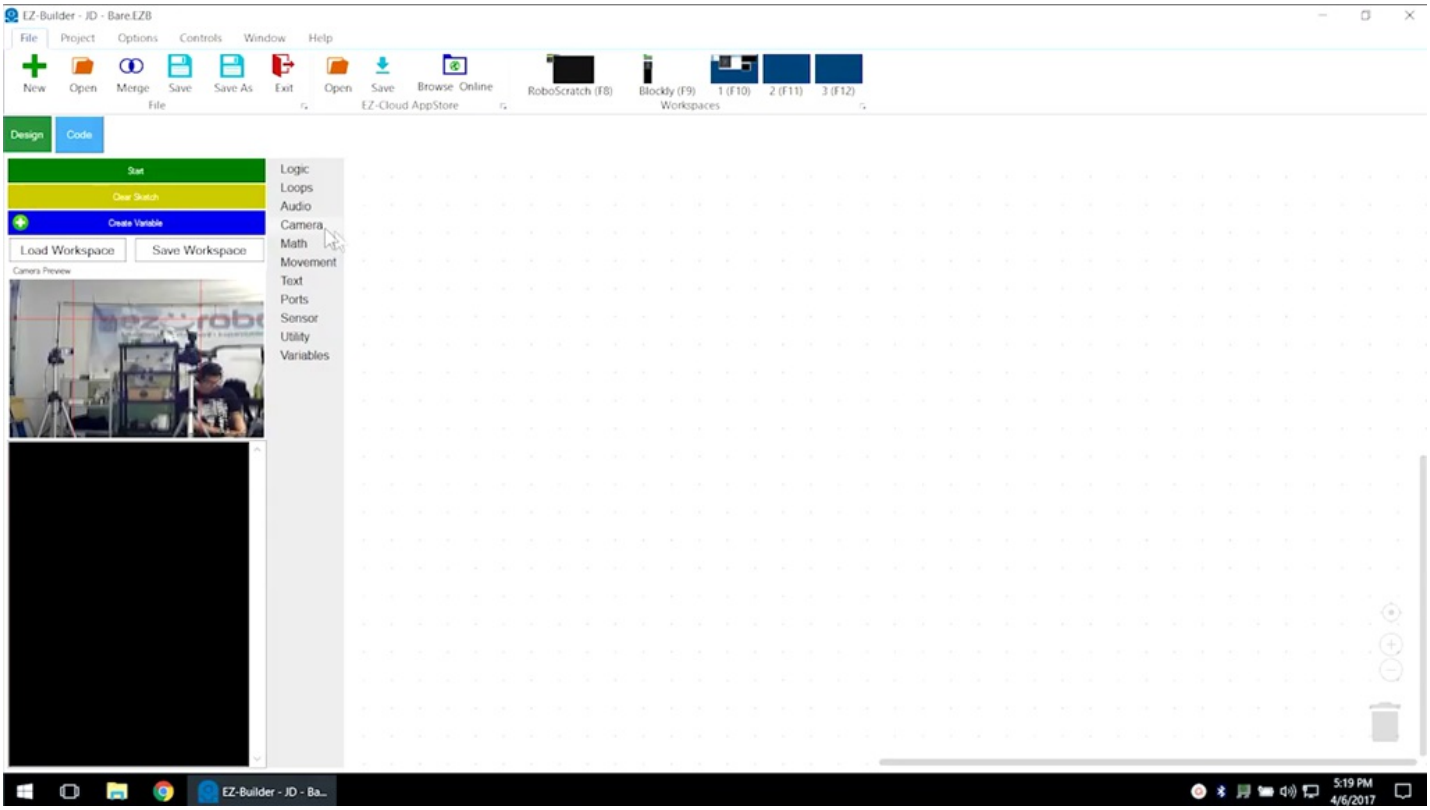
# Step 9

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



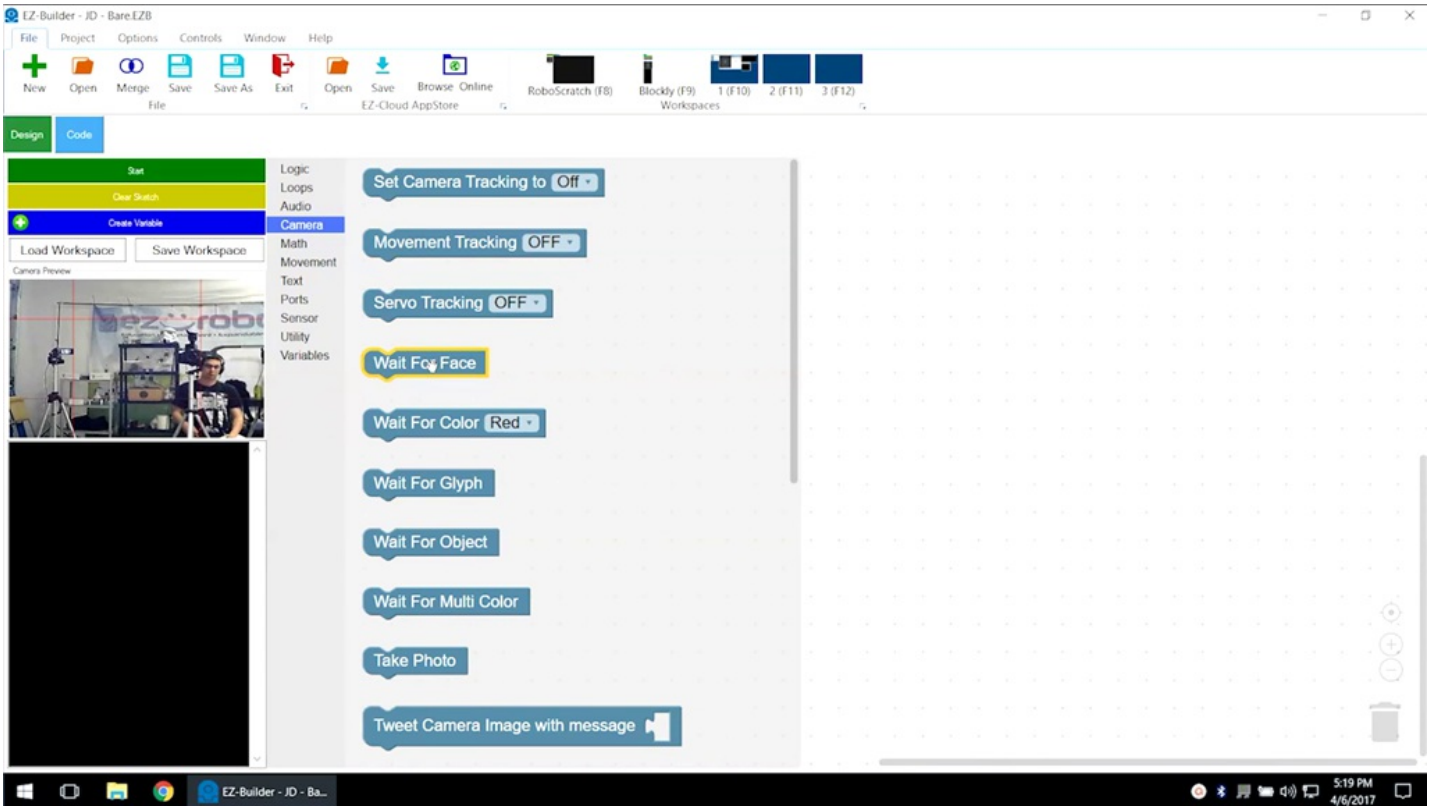
# Step 10

Select **File** -> **Blockly** to enter the **Blocky** workspace for graphical programming.



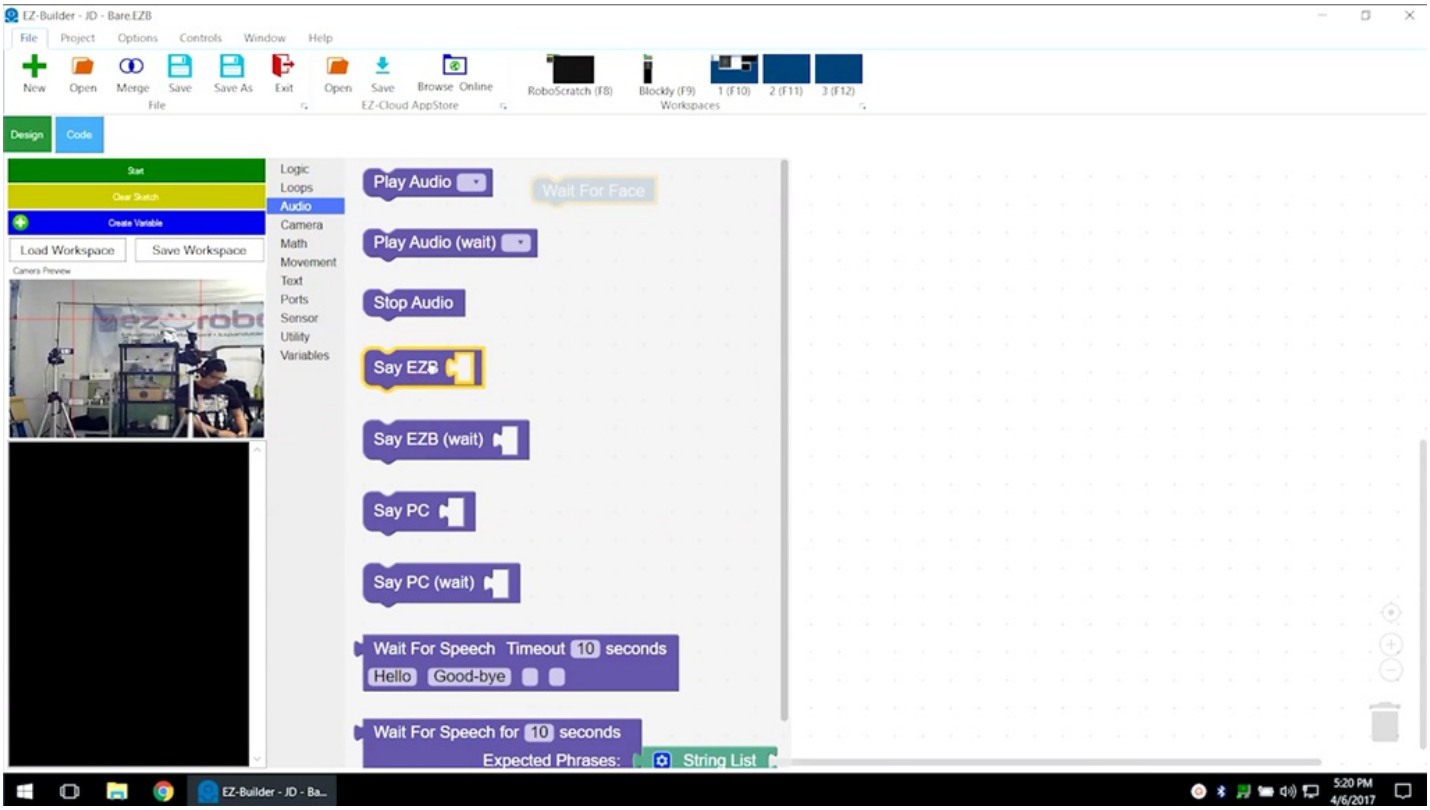
# Step 11

Select **Camera** from the menu, then click and drag **WaitForFace** into the editing space.



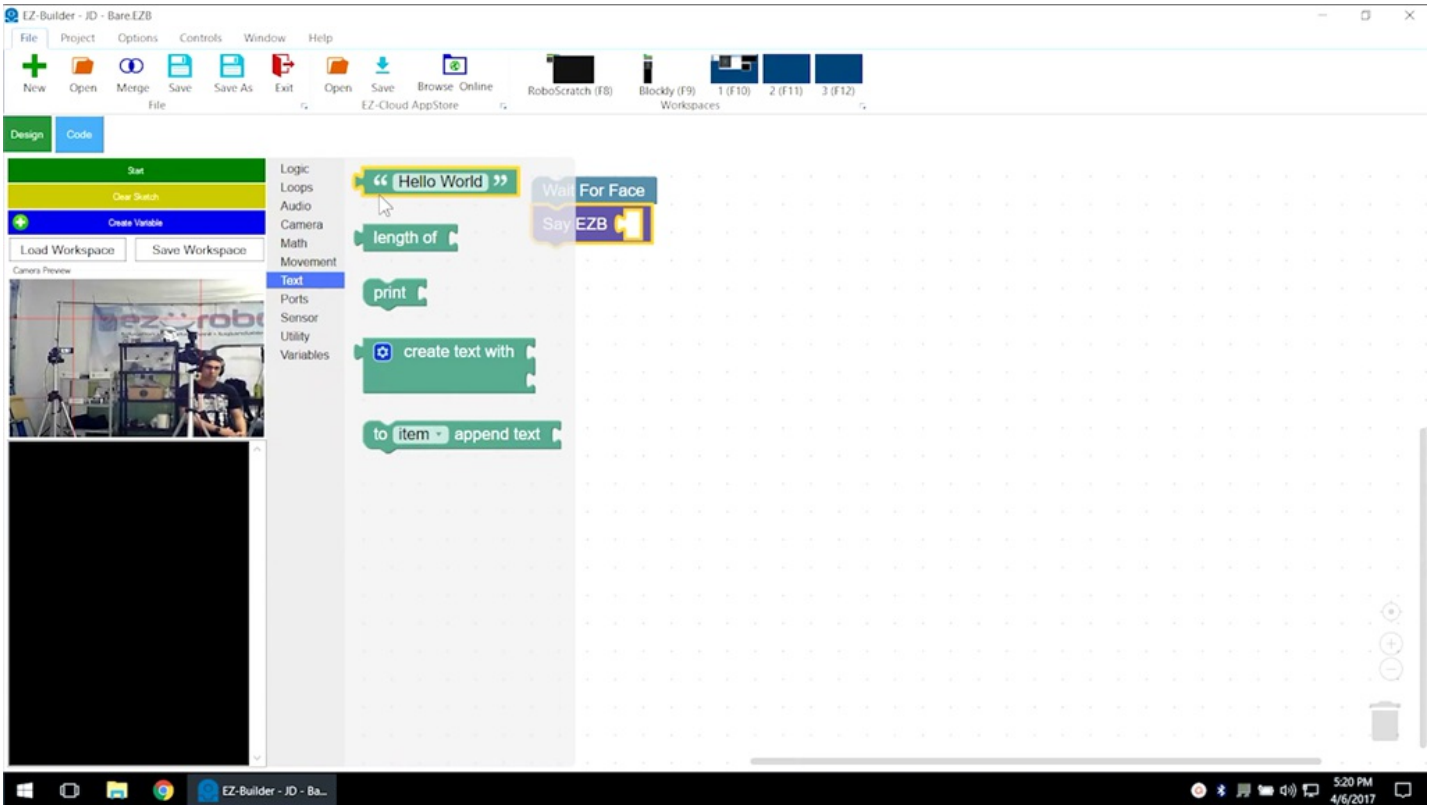
# Step 12

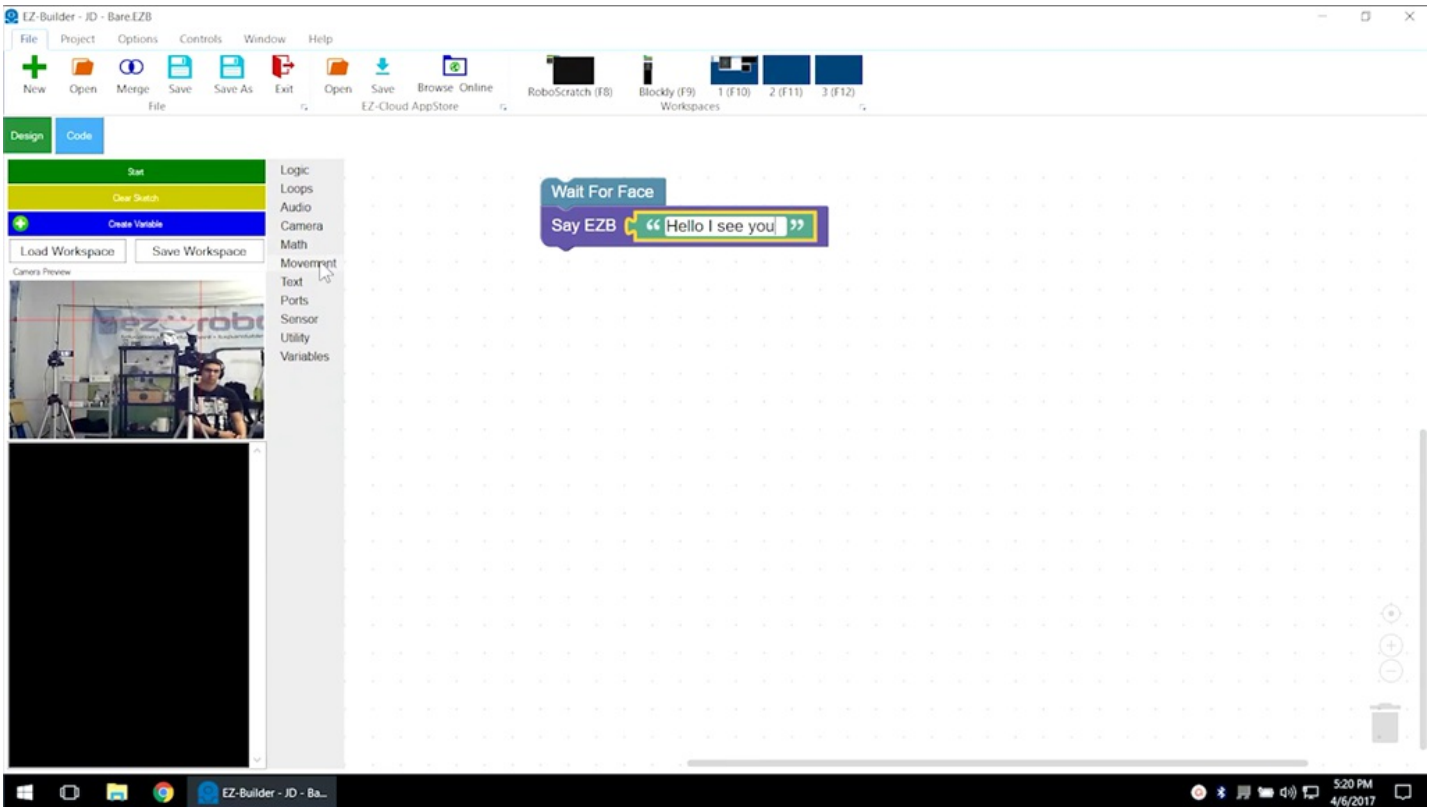
From the **Audio** tab, click and drag **Say EZB** underneath the previous command.



# Step 13

From the **Text** tab, add blank text to the audio command. Type **Hello I see you** between the quotation marks.

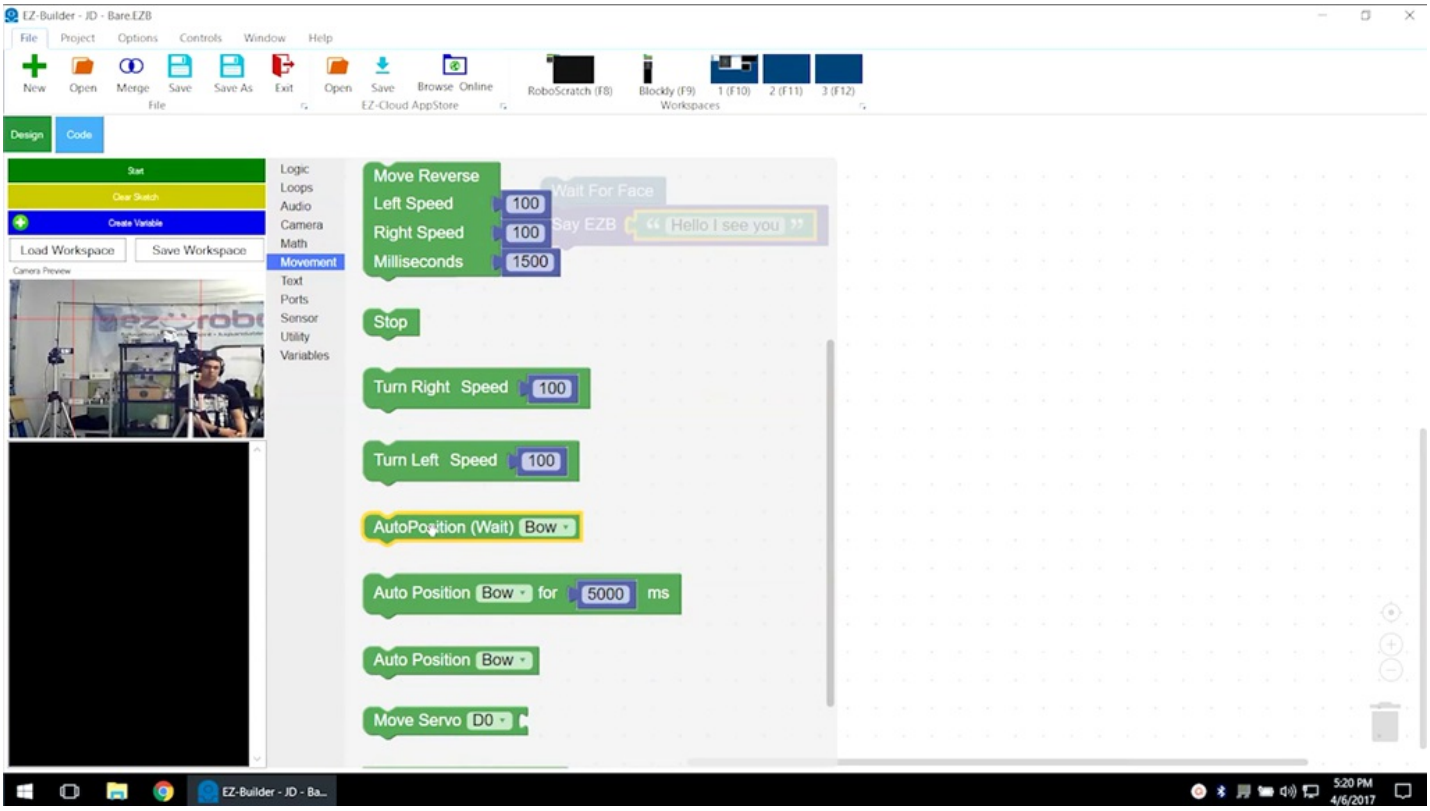


# Step 14

Select **Movement** from the menu, then click and drag **AutoPosition (Wait)** underneath the previous command.

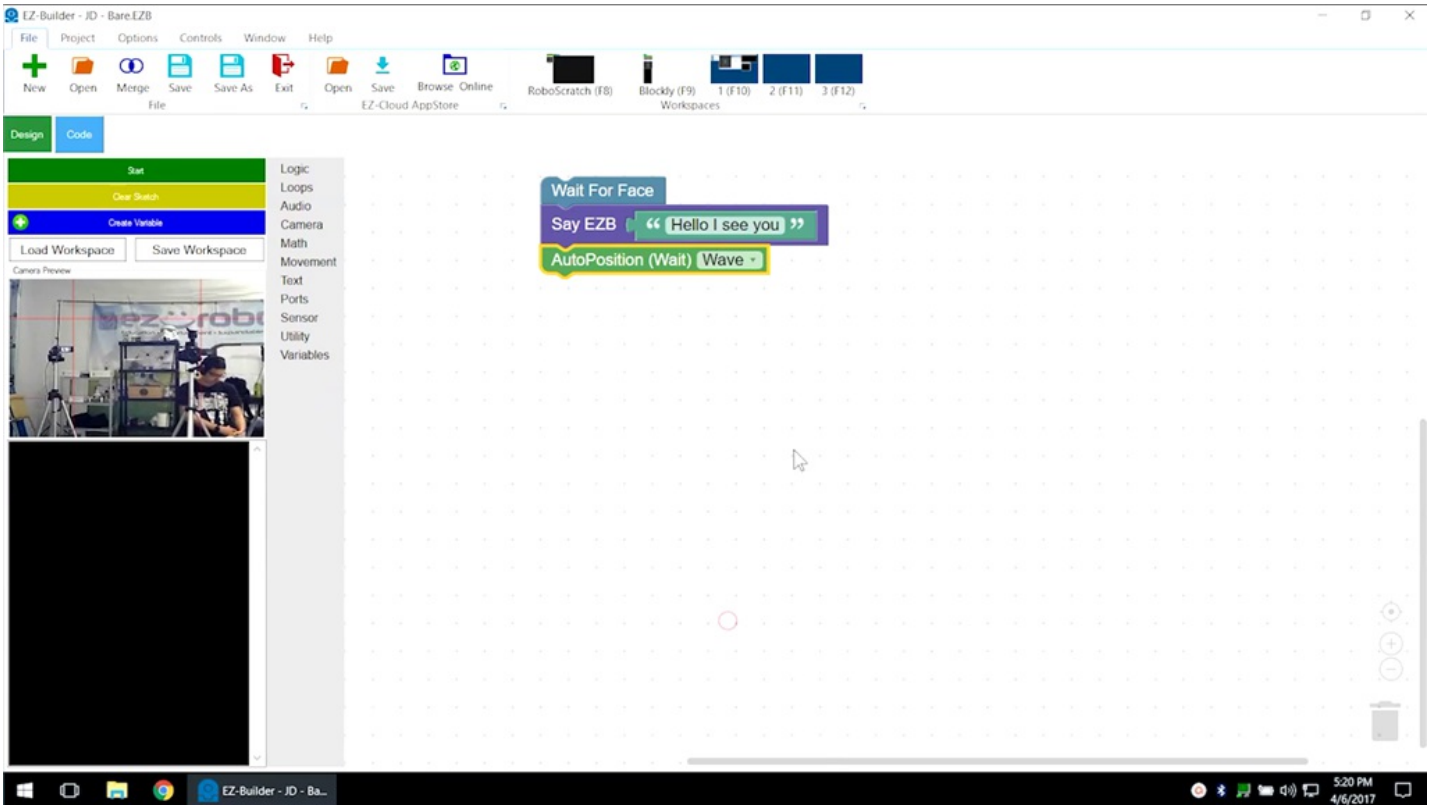
Functions that have b[/b] in their name will run completely before moving on to the next command.



# Step 15

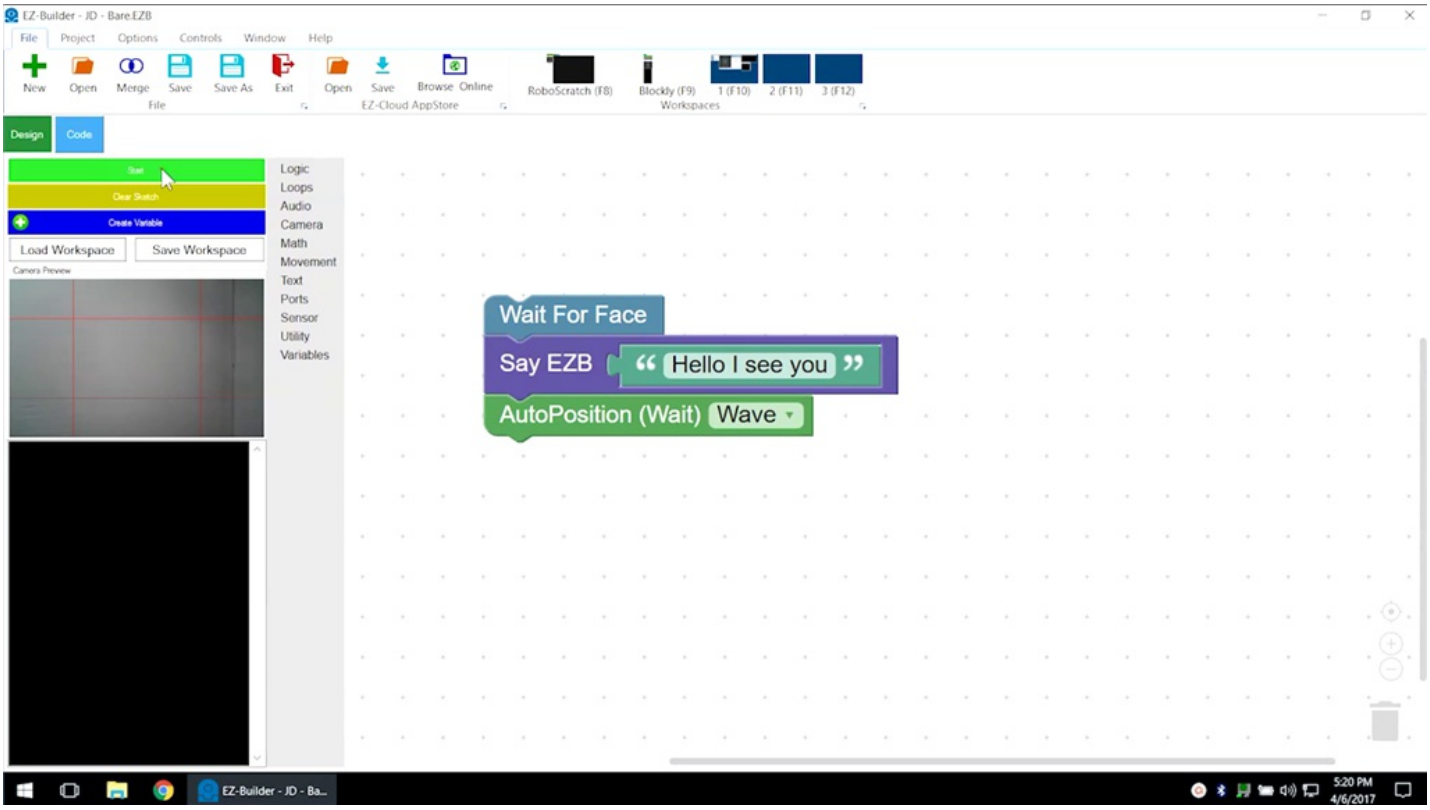
Choose **Wave** from the list of action options.

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



# Step 16

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

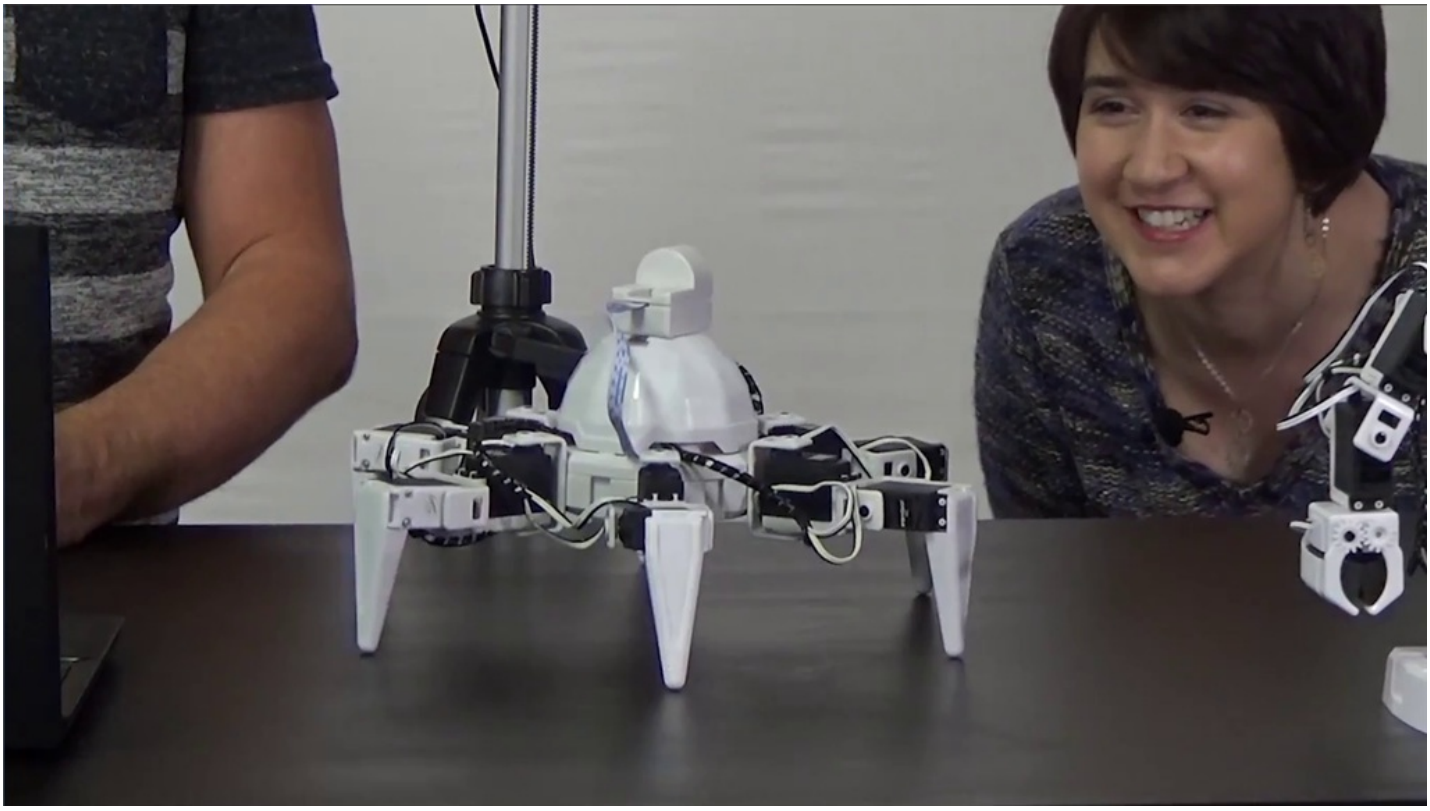


## Step 17

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

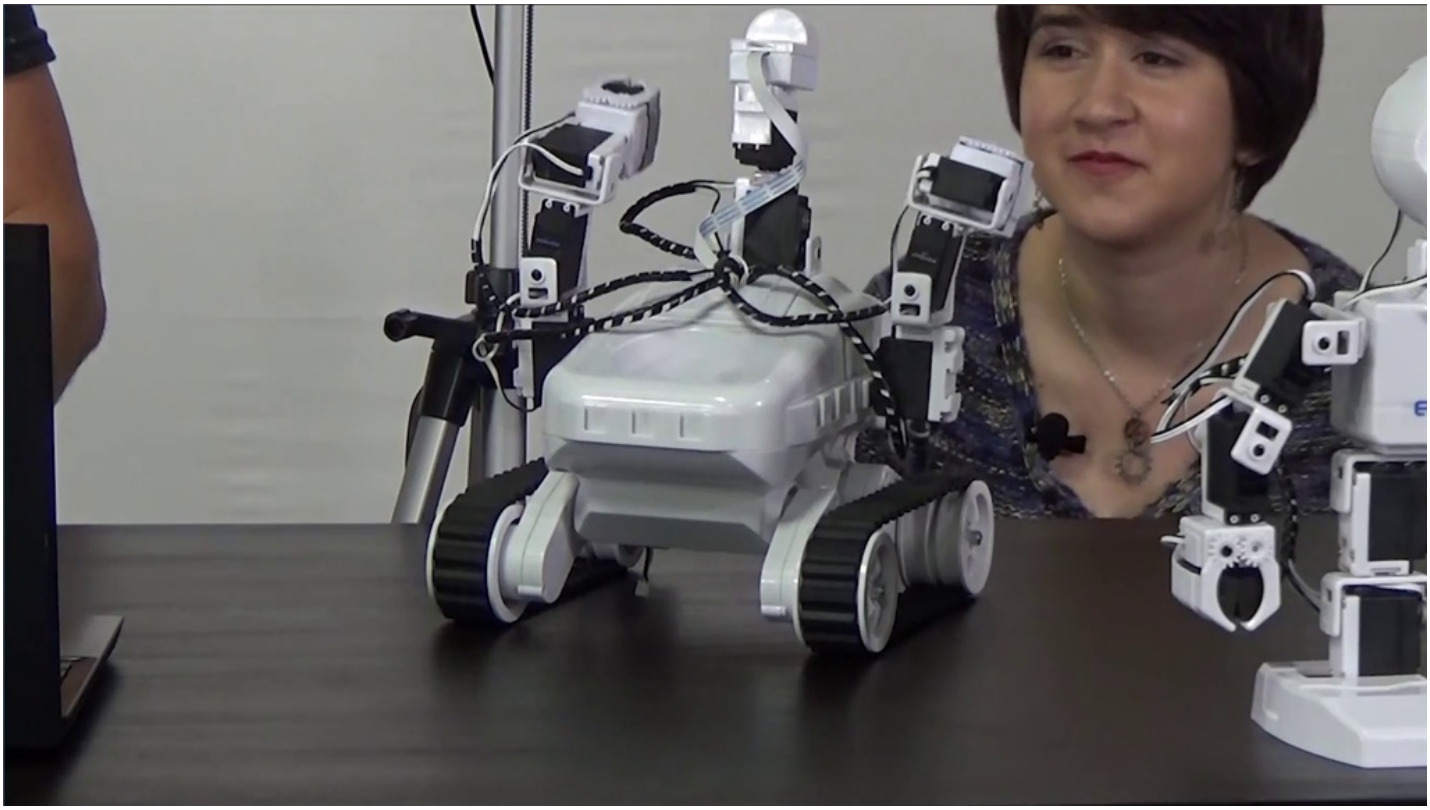
## Step 18

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



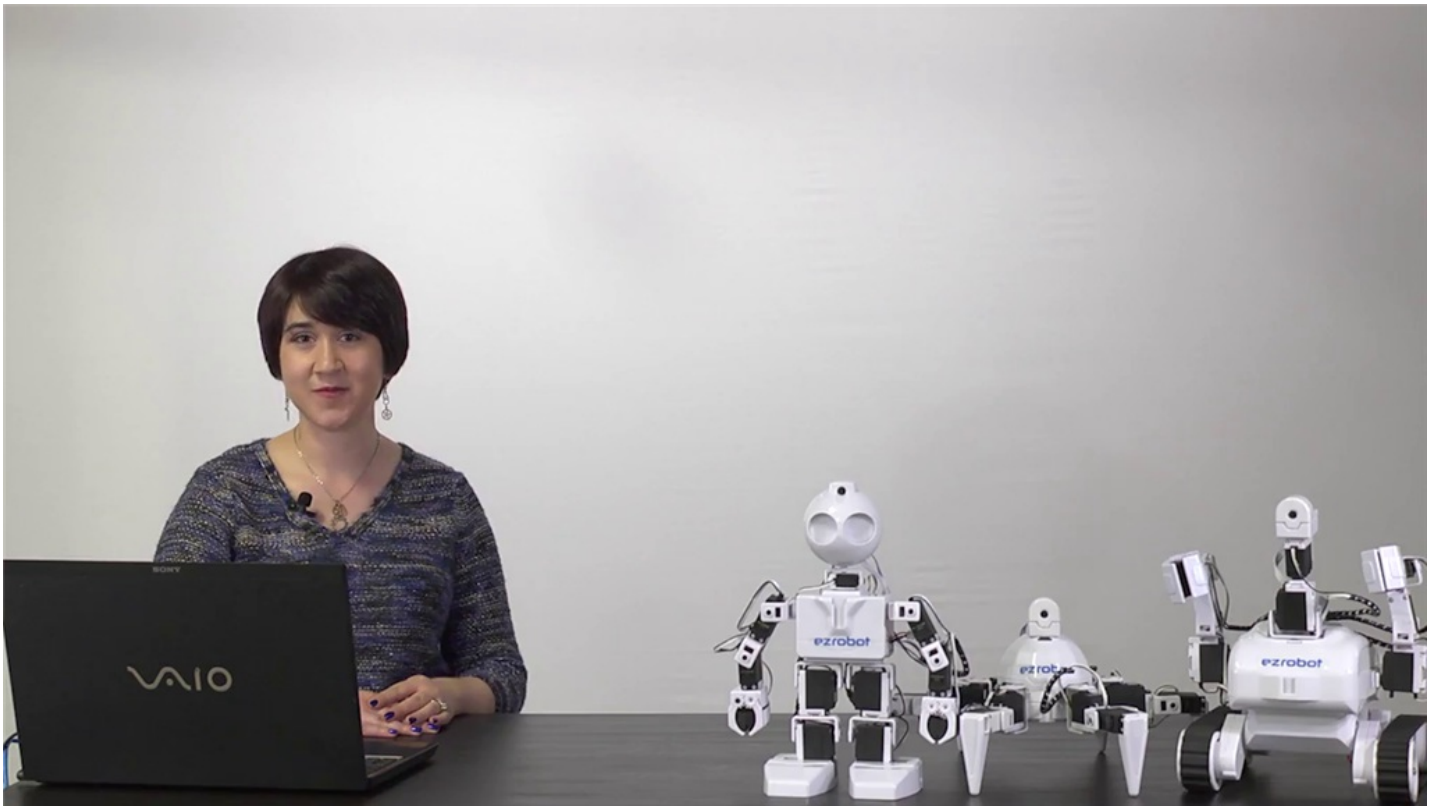
## Step 19

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



## Step 20

Save the project for future use.



# Quiz

**Question #1** Why is a camera a peripheral device?

**Question #2** Which command was used to convert text to robot audio output?

**Question #3** What does AutoPosition (Wait) mean?

View the answers to this quiz at www.ez-robot.com/Tutorials/Lesson/95.

*Visit www.TheRobotProgram.com for more episodes.*