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#### The Robot Program Episode 023: Mobile JD

This lesson will demonstrate how to control the Revolution JD Humanoid with an iOS or Android phone or tablet. At the end of this lesson, readers will be familiar with how to access and connect to the mobile JD example project, how to execute basic controls, and how to access the available programming workspaces. Follow along with The Robot Program Episode 023: Mobile JD. View the video episode here: <a href="https://www.ez-robot.com/Tutorials/Lesson/55">https://www.ez-robot.com/Tutorials/Lesson/55</a>

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#### S Professor E's Overview

This lesson demonstrates how to enable facial detection and how to control **Revolution JD** using the **EZ-Builder Mobile** software.

Always start with a fully charged, disconnected robot. Download **EZ-Builder Mobile** from the Google Play or Android App Store. Use **EZ-Cloud** to access robot project apps.

Download and install the **JD** example project. Power on the robot and connect to the **EZ-B v4** Wi-Fi connection.

The mobile interface enables the execution of various actions, movement control, sounds, and even color tracking. Access the **RoboScratch** or **Blockly** mobile workspaces to create a custom program.





Control **Revolution JD** using **EZ-Builder Mobile**. **EZ-Builder Mobile** is available for Android or iOS mobile devices such as phones or tablets.





Download **EZ-Builder Mobile** from Google Play or the Apple App Store.





Install and open the app. Read and accept the **Terms of Use**.

pattery replacement.

\* Provide a 30 minute cool-down period before charging batteries after using the robot.

\* EZ-Robot products are powerful electrical equipment. Even with the included fuse protection, take care to prevent electrical shorting which may cause fire or severe burns.

\* Online tutorials and community support is provided for safety, care and product longevity usage; and ignoring these resources may void warranty.

\* Use the Getting Started guide on www.ez-robot.com which is also specified in the product packaging.

I Agree

I Disagree



Login or create an **EZ-Cloud** account.



## S Step 5

Use **EZ-Cloud** to access example and public robot project apps. Click on **Search** to access the **EZ-Robot** certified project apps.

Installed Robot Apps	JD		Details
Lindate Installed Apps		By DJ Sures	
	20 C	2017-04-18 5:21:31 PM	
Public EZ-Cloud Apps		7,133,329 Bytes	
		4,509 downloads	
My EZ-Cloud Apps			
	AdventureBot		Details
Preferences		By DJ Sures	
Application Log		2017-03-06 2:56:10 PM	l
		6,374,470 Bytes	

## S Step 6

Select the default **JD** project. Choose **Download & Install** to load the project.

Installed Robot Apps	JD		Details
Lindata Installed Apps		By DJ Sures	
	<u>بو دی</u>	2017-04-18 5:21:31 PM	
Public EZ-Cloud Apps		7,133,329 Bytes	
		4,509 downloads	
My EZ-Cloud Apps			
	AdventureBot		Details
Preferences		By DJ Sures	
Application Log		2017-03-06 2:56:10 PM	1
		6,374,470 Bytes	





Click on the **Connect** button. Power on the robot and lay it down on a flat surface.



Select the **EZ-B v4** Wi-Fi connection and click **Connect**.

Connection				
Connected V IP Address	Vifi SSID EZ-B v4 280 192.168.1.1	07 Configure	Scan	
Back	Servo Pr	ofile		Connect



Servos may need calibration to compensate for any slight hardware discrepancies. Click on **Servo Profile** and choose **New** to create a profile.





The servos of each arm and leg should be set in a straight line.





Adjust the software servo values to line up each servo. Start with the servos closest to the body and move outwards.





The robot grippers should not make a vibrating or grinding noise. Adjust the gripper servos as necessary to prevent damage.





Name the servo profile and save for future use. Return to the main screen to access pre-built actions and movement control.





The red stop button will return **JD** to a standing pose.





Clicking on buttons such as  $\ensuremath{\textbf{Fly}}$  will execute pre-designed actions.





The arrow buttons can be used for movement control.





Explore other actions such as **Headstand** or **Sit Down**. The right hand joystick can be used to move the camera by controlling the head servos. **Revolution JD** can return to standing from a forward or backwards position. The default project also includes audio control, which can be used in features such as dance actions.





The top-left "hamburger†menu icon will access other features of the app.





**RoboScratch** or **Blockly** can be used to create custom programs. Click on **RoboScratch** to get started.





Scroll through left-hand menu to view the available command options. Click on an action to add it to the workspace.



For example, click on **Forward** to add the forward movement command. Click on the timing value and scroll to **2.0 Sec**.





Click on **Mic** and then click on **Play**. Nine channels are available for recording. Select a channel number and click **Start Recording** to record an audio clip.





Click on **Wait For Face**. This action will wait for a face to be detected in the camera view.

Back	Forward
	2.0 Sec
	Mic (Wait) Play: 0 Wait For Face
Start	
Left	
Mic	



Add another **Mic** command and click on **Play**. Select a different channel number to record an audio clip that will be played once a face is detected.





Click on **Action (Wait)** and scroll to the **Wave** action. A  $\underline{b}$ [/b] action will execute entirely before moving to the next command.





Click on Take Photo to capture a photo of the camera view.

Back	Forward	Take Photo
Start	2.0 Sec Mic (Wait) Play: 0 Wait For Face Mic Play: 1	
Take Photo	Action (Wait) Wave	
Wait For Color		

This code will make the robot walk forward for two seconds, play an audio clip, wait for a face to be detected, and then play another audio clip while waving. When the waving is complete, the robot will take a photo. Click on the **Start** button to execute the code. Follow the highlighting and the green line to view the execution progress.





Click on **Save** and name the project for future use. The captured photos will be stored directly to the device.



# **S Step 29**

**Blockly** can be used to create a more complicated custom program.



The default **JD** project app includes color tracking. The default color for tracking is red. Choose a red object and hold it against a contrasting background. Color tracking works best when the light source is not directly behind the robot.





Select the **Red Color Tracking** checkbox. The robotâ€<sup>™</sup>s head will follow the movements of the object.





Keep exploring all of the mobile app features.





Question #1 What is the purpose of a servo profile?

Question #2 How does the mobile app connect to a robot?

**Question #3** What two programming workspaces can be accessed via the "hamburger" menu button?

View the answers to this quiz at <u>www.ez-robot.com/Tutorials/Lesson/55</u>.

Visit <u>www.TheRobotProgram.com</u> for more episodes.