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The Robot Program Episode 006: Introducing ARC

This lesson introduces the EZ-Builder Robot Software by exploring options and describing features. At the end of this lesson, the reader will be familiar with the overall layout and features of EZ-Builder. Follow along with The Robot Program Episode 006: Introducing EZ-Builder.
View the video episode here: https://www.ez-robot.com/Tutorials/Lesson/20

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Professor E's Overview

This lesson introduces and demonstrates the EZ-Builder software. Follow along with The Robot Program Episode 006: Introducing EZ-Builder. At the end of this lesson, readers will be familiar with the layout, workspaces, and available controls of the EZ-Builder software. The RoboScratch and Blockly workspaces will also be introduced, as well as EZ-Script and third-party plugins. Blue question marks and window questions marks can be used to find more information about a specific aspect or control.

Software Download

Download **EZ-Builder** from www.ez-robot.com. Find more tutorials at **EZ-Robot School**.

Loading an Example Project

Power on the robot. This example uses **Revolution JD**. Load an example project for the robot.

Building Instructions

View building instructions by selecting **Instructions** from the **Project** tab.

Click on the **i** icon for more information about a part, including 3D printing designs.

Use the arrow buttons to view the robot from different angles.

Servo Profile

Load a servo profile if needed (humanoid robots only).

Connecting

Connect to the robot using the **EZ-B v4** Wi-Fi connection. Click on the blue **Connect** button. Once connected, each robot has an initialization pose.

Microphone Control

There are many different control windows. Use the **Microphone** control to record and playback a sound.

Soundboard Control

Use the **Soundboard** control to play and edit audio files. Code can also be added in sync with the audio waveform.

Other controls include **Camera**, **RGB Animator**, and **PointAndTrack**.

Gear Icon

Click on the **Gear Icon** to see the control configuration code.

Camera Control

Camera control can be used to change the robot camera settings and to track objects.

Auto Position Control

Auto Position is a movement panel. Each robot has its own type of movement panel for controlling motion.

Frame Creation

Click on the **Auto Position** gear icon to create frame-by-frame movement control.

Coding Workspaces

Custom controls can also be created through coding. View available coding **Workspaces** using the **File** tab.

Select **RoboScratch** from the **Workspaces** to create a linear program that runs step-by-step from start to finish.

Click on commands, drag into position, and edit the parameters as desired.

Using Wait

Wait will allow an **Action** to complete before moving to the next command.

RoboScratch Program Execution

Click on **Start** to run the program. Each command is highlighted in yellow as it executes.

RoboScratch Program Flow

Follow the green line for program flow. Commands can be reordered by dragging into a new position.

Blue Question Marks

Hover over any blue question mark for more information. Click on window question marks for additional details.

Click on the **Source Code** button to view the generated **EZ-Script** code.



Blockly Workspace

Select **Blockly** from the **Workspaces** to create a more complicated program that uses logic, loops, and branches.



Blockly Commands

Click on commands, drag into position, and edit the parameters as desired.

Blockly Audio

Audio can be output through either the **EZ-B** controller or the **PC** itself.

Blockly Logic

Blockly uses coding elements such as variables to count, track, and repeat.

Blockly Execution

Click on the green **Start** button to execute the program.



Blockly Source Code

Click on the **Code** button to view the generated **EZ-Script** code.

Additional Workspaces

Select **Workspace 2** or **3** for more space to add controls. **Main** control shows the interface for creating an **EZ-Robot** mobile app. Click on the gear to customize the app interface.

Adding Controls

Find more controls through the **Project** -> **Add** menu.

Third Party Plugins

Third party plugins can also be downloaded. These are added under **Plugins**.

Scripting

Scripting can be used to create custom controls with the **Blockly** editor. **IntelliSense** will automatically show the available syntax options.

Scripting Control Options

See all of the control options by right-clicking in the editor, or by selecting the **Cheat Sheet**.

Editing in **EZ-Script** will clear the **Blockly** editor.

Design Mode

Enter **Design Mode** by selecting **Project** -> **Design**. Design options are available through the **Bit Library**.

Connecting Custom Components

Choose which ports will be used for connecting custom components.

Updating Build Instructions

Select **Save**. Updating the robot image will change the build instructions.

Reorder Build Steps

Select the **Reorder** tab to change the order of build instructions.

Share with EZ-Cloud

Access the **EZ-Cloud** through **File** -> **Open** to save and share programs.

Public Sharing

Check **Is Public** to share programs with others.

The **EZ-Cloud AppStore** saves all revisions and logs change notes.

Load Revisions

Reload a previous version by selecting **File** -> **Open**. Click on the desired project's **Version History** to see listed revisions.

Learn More

Follow The Robot Program episodes to see all the features **EZ-Builder** has to offer.

Quiz

Question #1
Which workspace is designed for linear programming?
Question #2
Which workspace is designed for programming with logic, branches, and loops?
Question #3
What is the EZ-Robot scripting language called?
View the answers to this quiz at www.ez-robot.com/Tutorials/Lesson/20.
Visit www.TheRobotProgram.com for more episodes.