

Introduction to the EV3 Brick and Software

By Sanjay and Arvind Seshan



BEGINNER PROGRAMMING LESSON

LESSON OBJECTIVES

1. Learn how the EV3 brick operates
2. Learn about the main components of the EV3 software

THE “BRICK” BUTTONS

1 = Back

Undo

Stop Program

Turn robot off

2 = Center Button

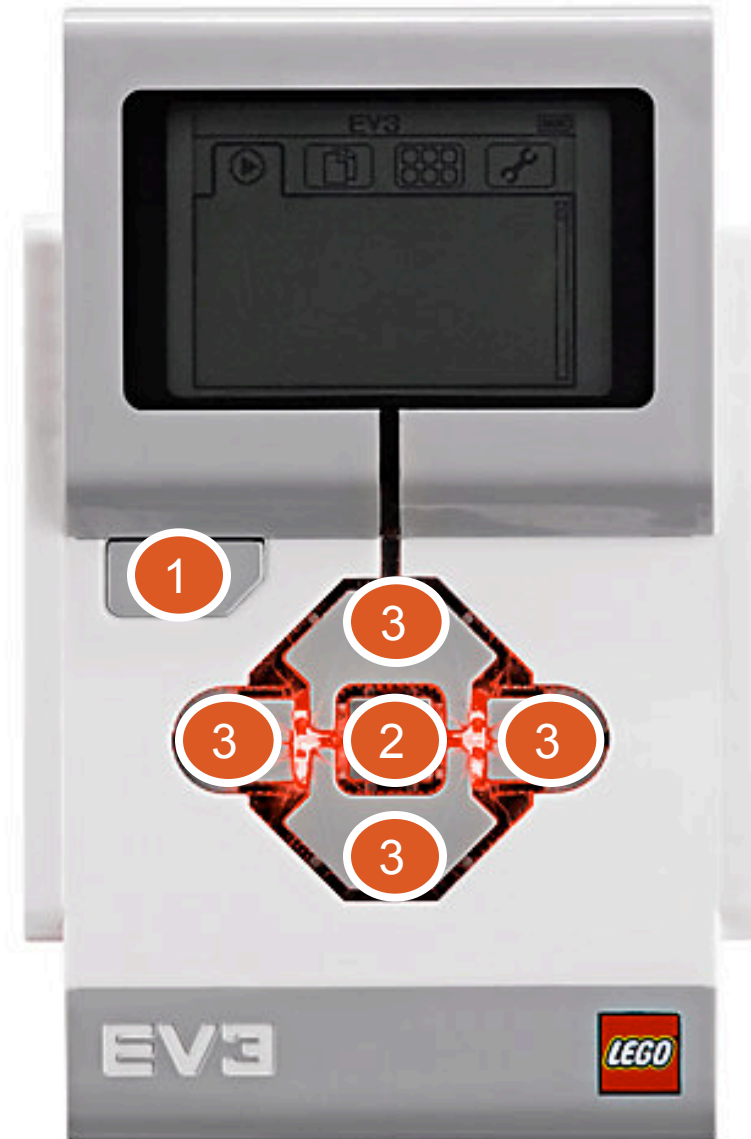
Select options

Run Program

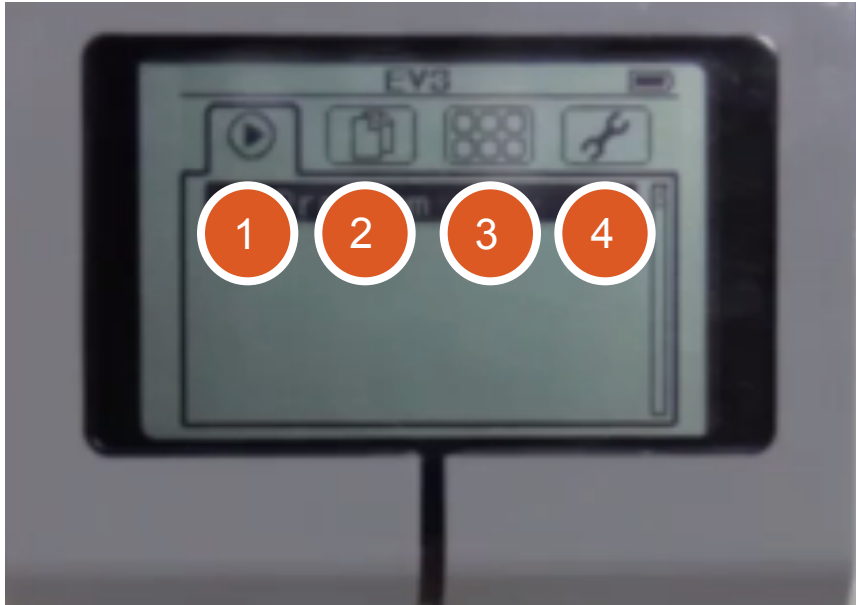
Turn robot on

3 = L, R, Up, Down

Navigate menus



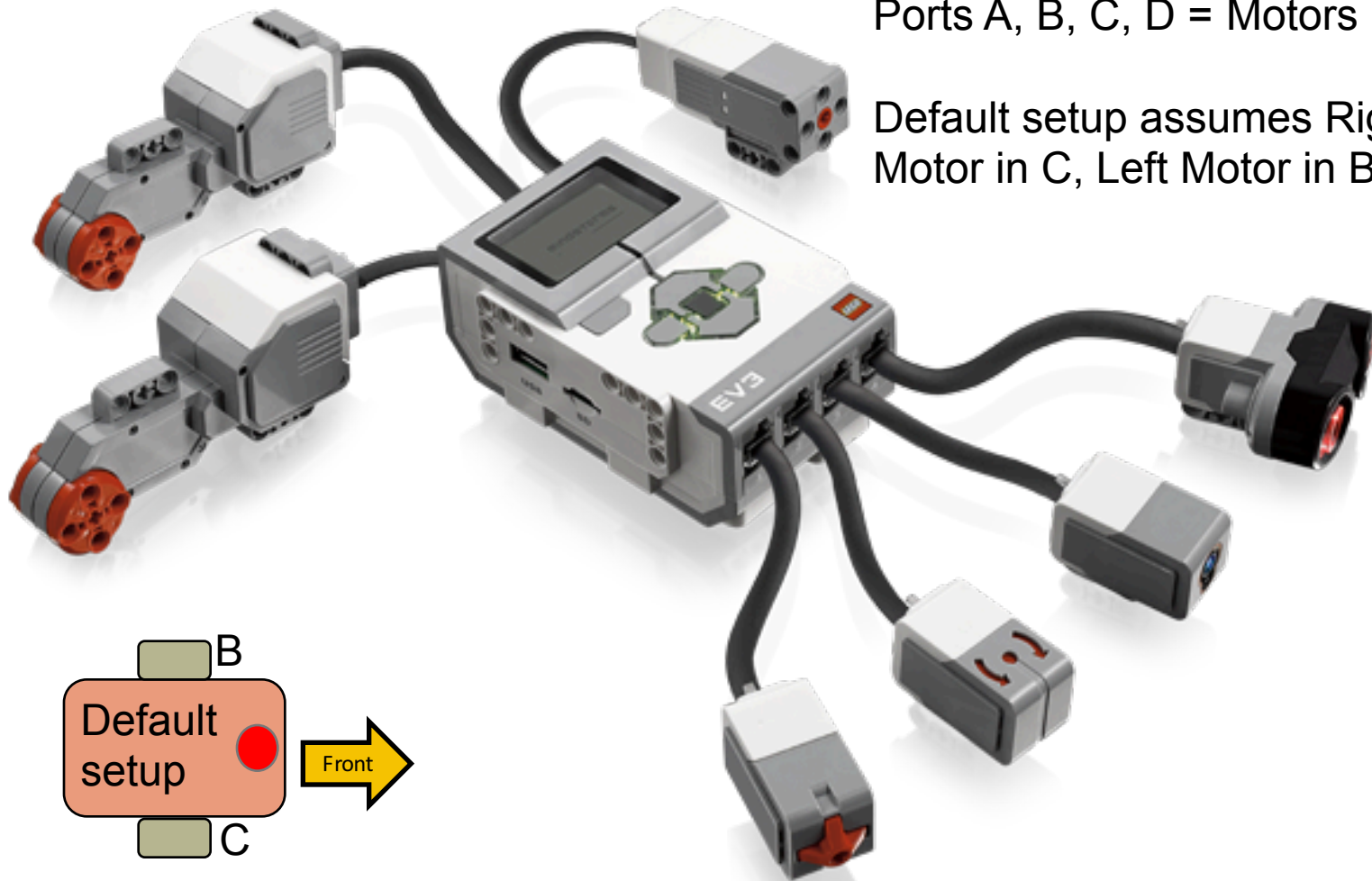
THE “BRICK” SCREEN



Tabs on Screen

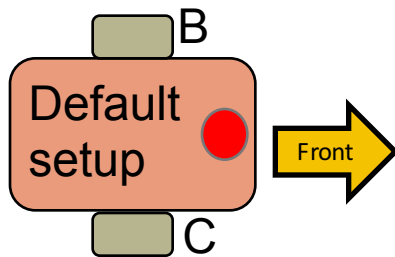
- 1. Run Recent**
Find programs you ran recently
- 2. File Navigation**
Find all programs by project
- 3. Brick Apps**
Port views
- 4. Settings**
Bluetooth, Wifi, Volume

PORTS, SENSORS, MOTORS



Ports A, B, C, D = Motors

Default setup assumes Right Motor in C, Left Motor in B



Ports 1, 2, 3, 4 = Sensors

EV3 SOFTWARE

LEGO MINDSTORMS Education EV3 Teacher Edition

File Edit Tools Help

LabVIEW

Open New Project

Open Saved Project

Model Core Set

Quick Start

User Guide

Programming

Programming Overview

Data Logging

Data Logging Overview

Quick Start

These small videos will help you get started with the LEGO MINDSTORMS EV3 technology and software.

EV3 SOFTWARE: STARTING A NEW PROGRAM

Opened Projects

Project Properties

List of programs

The screenshot shows the EV3 software interface. At the top, there is a window title bar with a tab labeled 'Project* x' and a '+' icon. Below this is a toolbar with a wrench icon and a 'Program x' tab with a '+' icon. The main workspace is divided into two sections: 'PROJECT PICTURE' (containing a red document icon) and 'PROJECT DESCRIPTION' (containing a red video camera icon). Below these is a 'Daisy-Chain Mode' checkbox. At the bottom, there is a 'Programs' list with columns for 'Type', 'Name', 'Show', and 'Teacher Only'. The first row is highlighted in blue and contains 'Program.ev3p', a checked 'Show' box, and an unchecked 'Teacher Only' box. Below the list are buttons for 'Copy', 'Paste', 'Delete', 'Import', and 'Export'. Red arrows point from text labels to these specific UI elements.

Create a Project

Opened Programs

Create a Program

Type	Name	Show	Teacher Only
	Program.ev3p	<input checked="" type="checkbox"/>	<input type="checkbox"/>

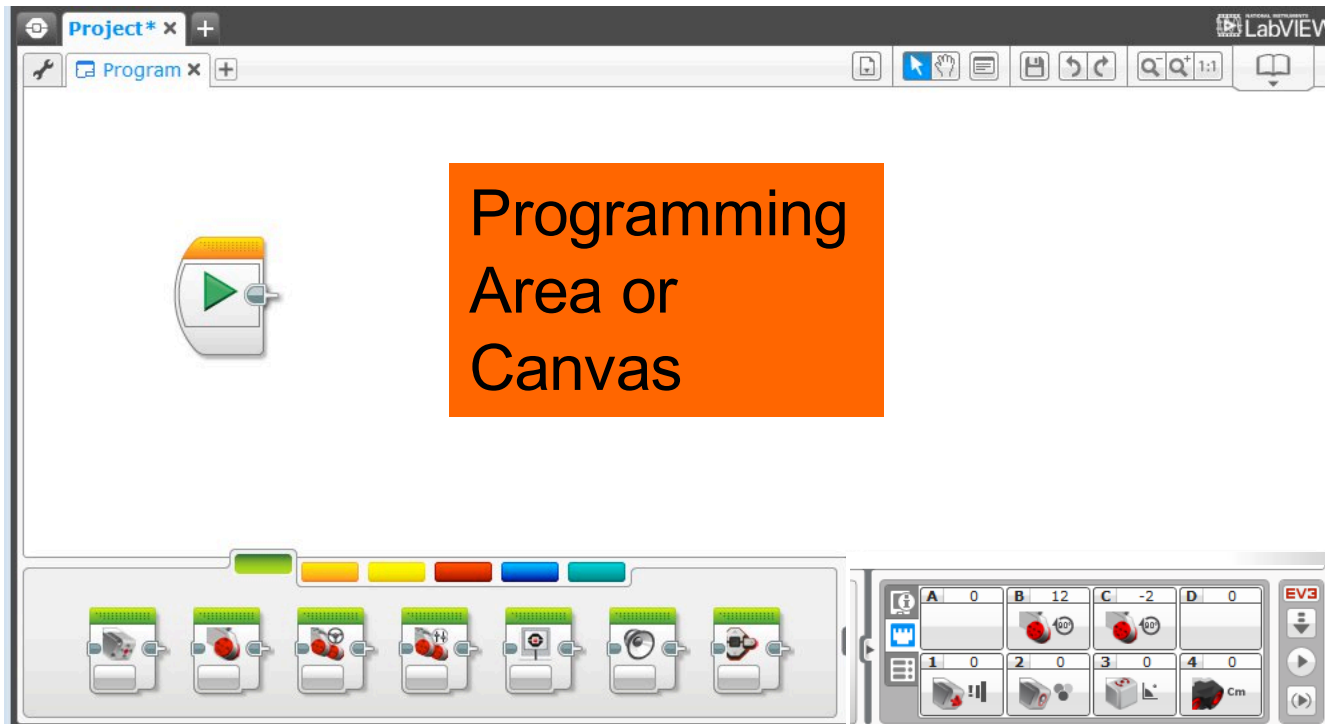
PROJECTS VS. PROGRAMS

- You will start by creating a PROJECT which has a .ev3 extension. You change the name of a project by using the Save Project As option from the File menu.
- You will write many PROGRAMS as part of each PROJECT file. You change the name of a program within a project by doubling clicking on the program's tab and typing in a new name.
- Note: If there is an * next to the project name, you have made changes to the project and you have not yet saved yet.
- There is a "x" next to project and program names. Clicking on it simply closes the file (it does not get deleted).

Here are some common file extensions in the EV3:

- Programs (.ev3p)
- Images (.rgf)
- Sounds (.rsf)
- Text (.rtf)
- Projects (.ev3) – the only type of file you can open with the EV3 software
- Import file (.ev3s) – can be imported by an EV3 project

EV3 SOFTWARE: PROGRAMMING SCREEN



USEFUL ICONS



1. **List Programs in Project:** List of **all** programs in the project
2. **Select:** The cursor looks like an arrow and you can pick specific blocks or areas of the screen
3. **Pan:** The cursor looks like a hand. When you click and move the mouse, you can move through the program when it goes beyond one screen.
4. **Comments:** Click on this icon to create the comment box
5. **Save Project:** Save the current version of your project
6. **Undo and Redo:** Undo or redo the last actions
7. **Zoom Out, Zoom In, and Reset Zoom:** Use to decrease, increase or reset the magnification

EV3 BLOCKS: COLORED TABS

ACTION BLOCKS

Move, Large & Medium
Motor, Display... 1

FLOW BLOCKS

Start, Wait, Loop,
Switch, Loop Interrupt 2

SENSOR BLOCKS

Brick Buttons, Gyro,
Color, Ultrasonic 3



DATA OPERATIONS

Variables, Array, Logic,
Math, Compare... 4

ADVANCED BLOCKS

Data Logging,
Unregulated Motor... 5

MY BLOCKS

Custom Blocks you
create 6

CREDITS

Author: Sanjay and Arvind Seshan

More lessons are available at www.ev3lessons.com



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