

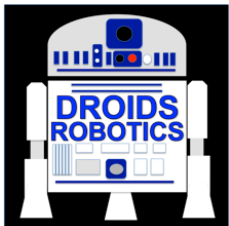
# BEGINNER EV3 PROGRAMMING LESSON



Topics Covered:

EV3 Basics

Introduction to the EV3 Brick and Software



By: Droids Robotics

# 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

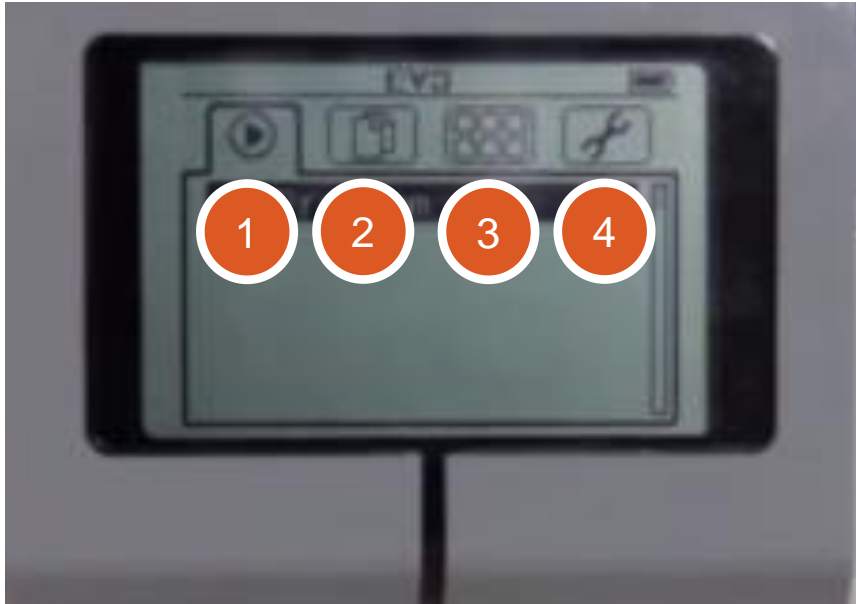
Turn robot on

## 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

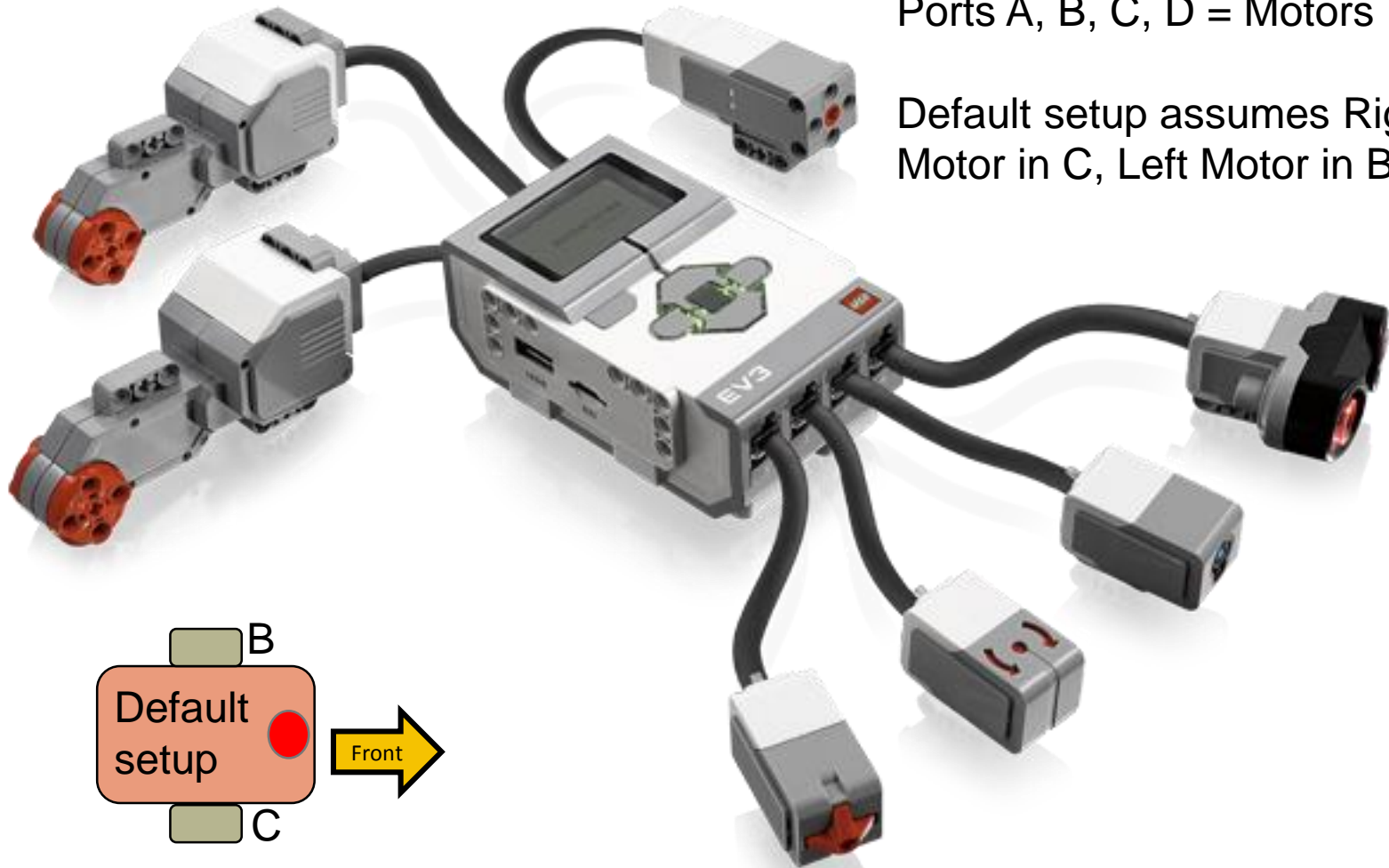
### 4. Settings

Bluetooth, Wifi, Volume

# PORTS, SENSORS, MOTORS

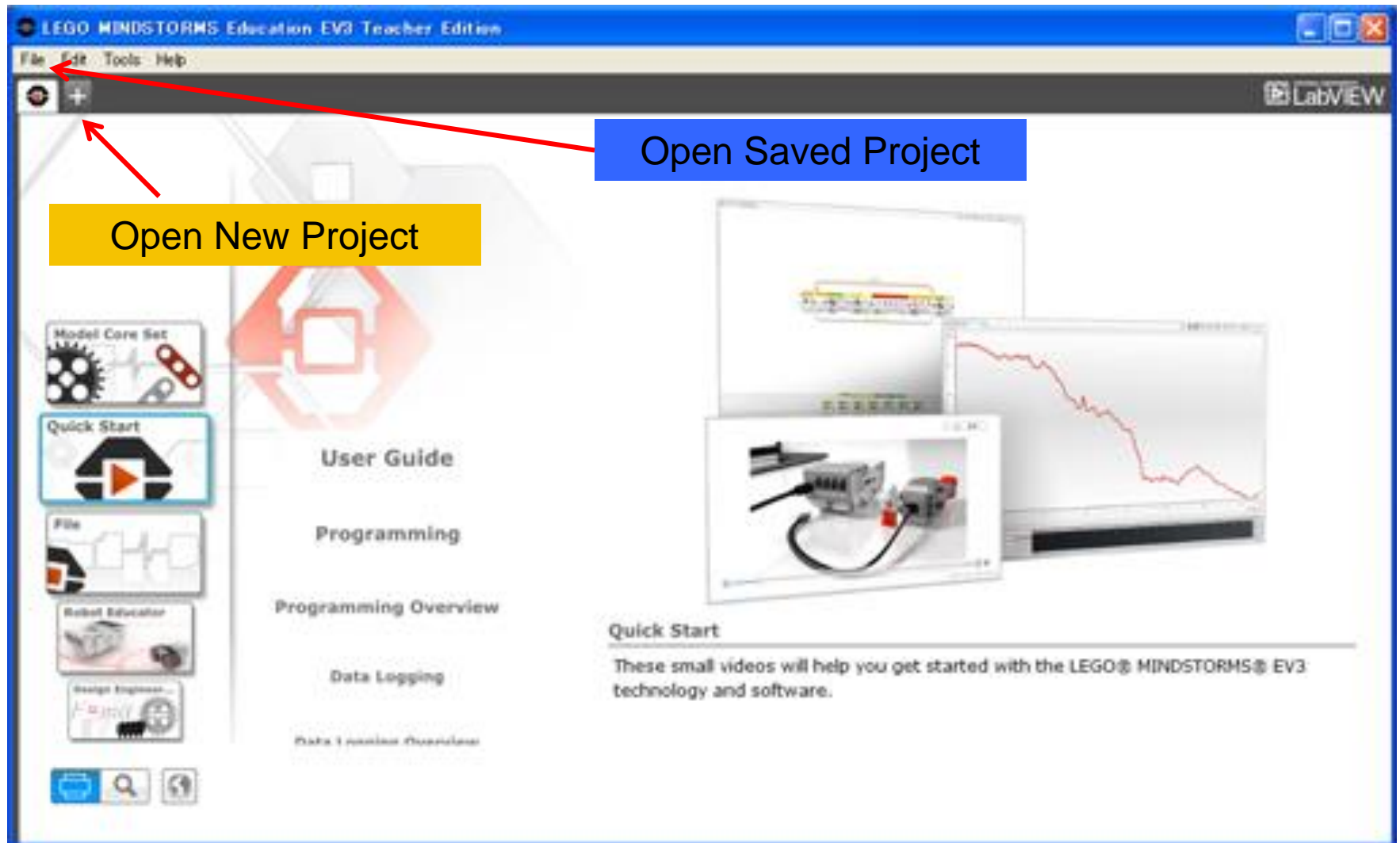
Ports A, B, C, D = Motors

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



Ports 1, 2, 3, 4 = Sensors

# EV3 SOFTWARE



# EV3 SOFTWARE: STARTING A NEW PROGRAM

The screenshot shows the EV3 Software interface. At the top, there is a toolbar with icons for opening projects, creating projects, opening programs, and creating programs. Below the toolbar, there are two main panels: 'Project Properties' on the left and a large black area on the right. The 'Project Properties' panel has two tabs: 'PROJECT PICTURE' and 'PROJECT DESCRIPTION'. The 'PROJECT PICTURE' tab is active, showing a red icon of a document with a picture. The 'PROJECT DESCRIPTION' tab is also visible. Below these panels, there is a 'Daisy-Chain Mode' checkbox. At the bottom, there is a 'Programs' tab with a table listing programs. The table has columns for 'Type', 'Name', 'Show', and 'Teacher Only'. The first row is highlighted in blue and contains a program named 'Program.ev3p'. Below the table, there are buttons for 'Copy', 'Paste', 'Delete', 'Import', and 'Export'.

Annotations:

- Opened Projects (points to the 'Project\*' icon in the toolbar)
- Create a Project (points to the '+' icon in the toolbar)
- Opened Programs (points to the 'Program' icon in the toolbar)
- Create a Program (points to the '+' icon in the toolbar)
- Project Properties (points to the 'Project Title' field)
- List of programs (points to the 'Programs' table)

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

# PROJECTS VS. PROGRAMS

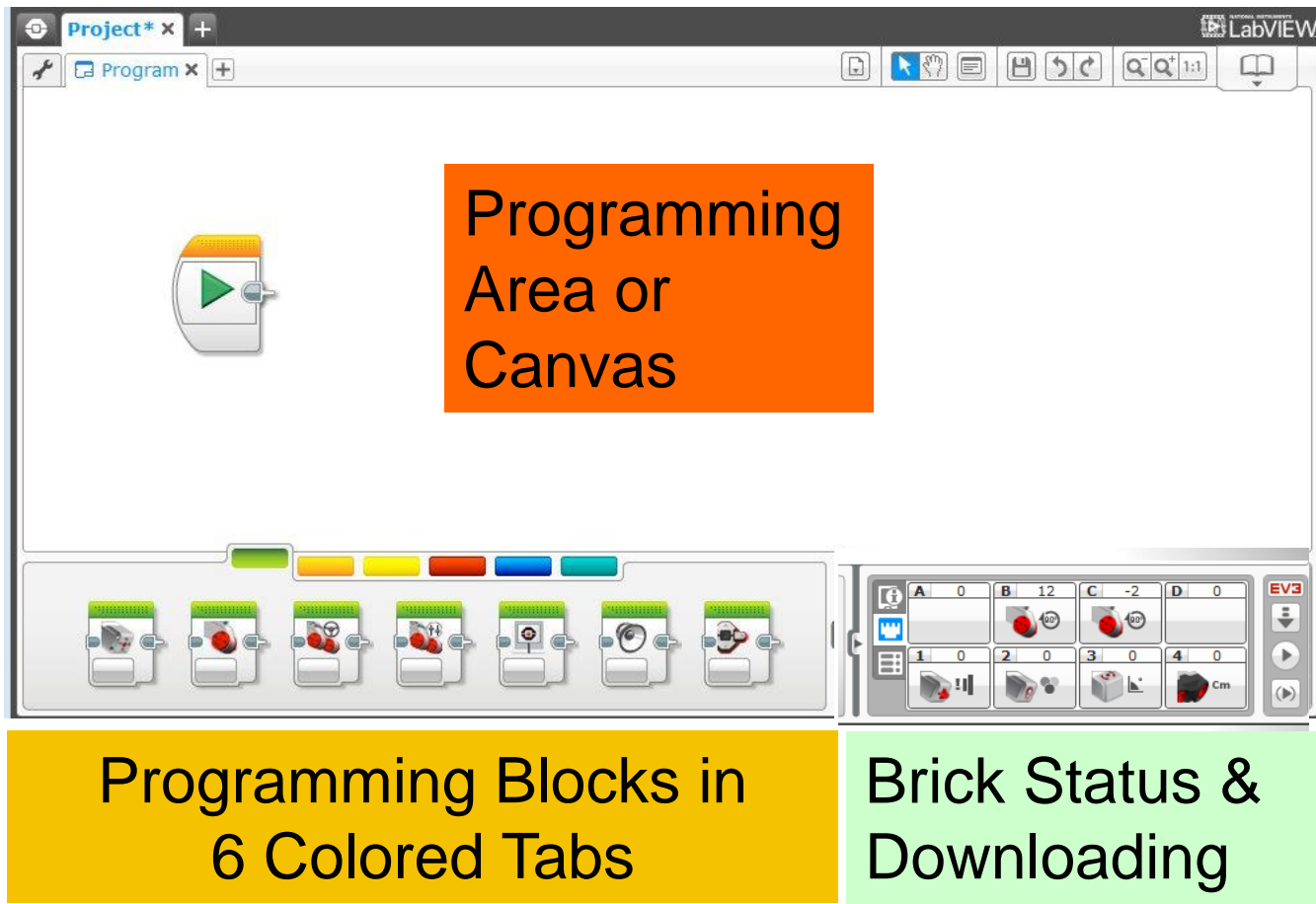
- You will start by creating a PROJECT which has a .ev3 extension. You change the name of a project by using the Save Project As option from the the File menu.
- You will write many PROGRAMS as part of each PROJECT file. You change the name of a program within a project by doubling clicking on the program's 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

- This tutorial was created by Sanjay Seshan and Arvind Seshan from Droids Robotics.
- More lessons are available at [www.ev3lessons.com](http://www.ev3lessons.com)
- Author's Email: [team@droidsrobotics.org](mailto:team@droidsrobotics.org)



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