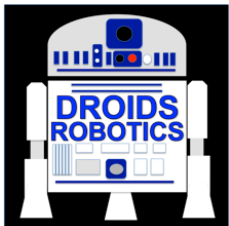# BEGINNER EV3 PROGRAMMING LESSON

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

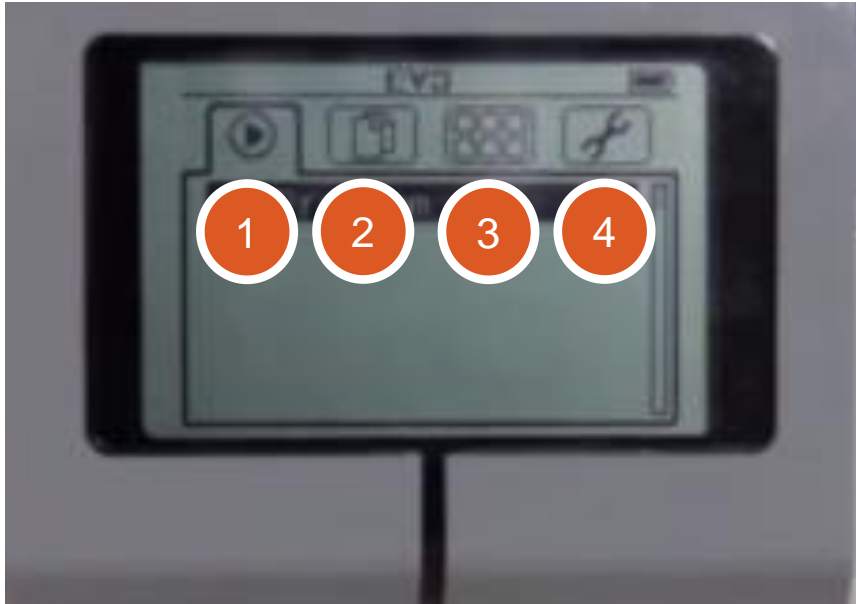**2 = Center Button**
  Select options
  Run Program
  Turn robot on

3 = L, R, Up, Down
  Navigate menus

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THE "BRICK" SCREEN

Tabs on Screen

1. **Run Recent**
   Find programs you ran recently

2. **File Navigation**
   Find all programs by project
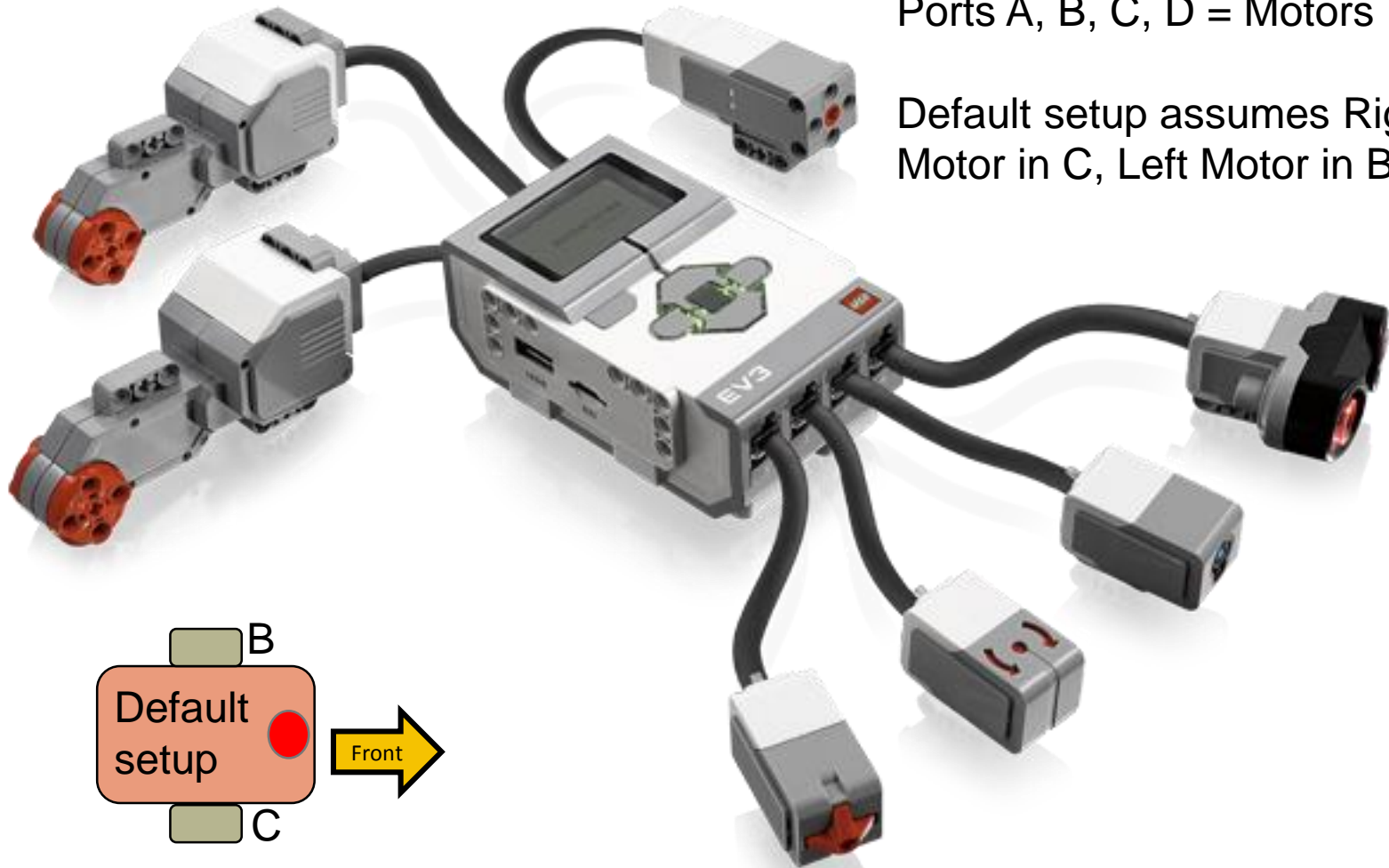
3. **Brick Apps**
   Port views

4. **Settings**
   Bluetooth, Wifi, Volume
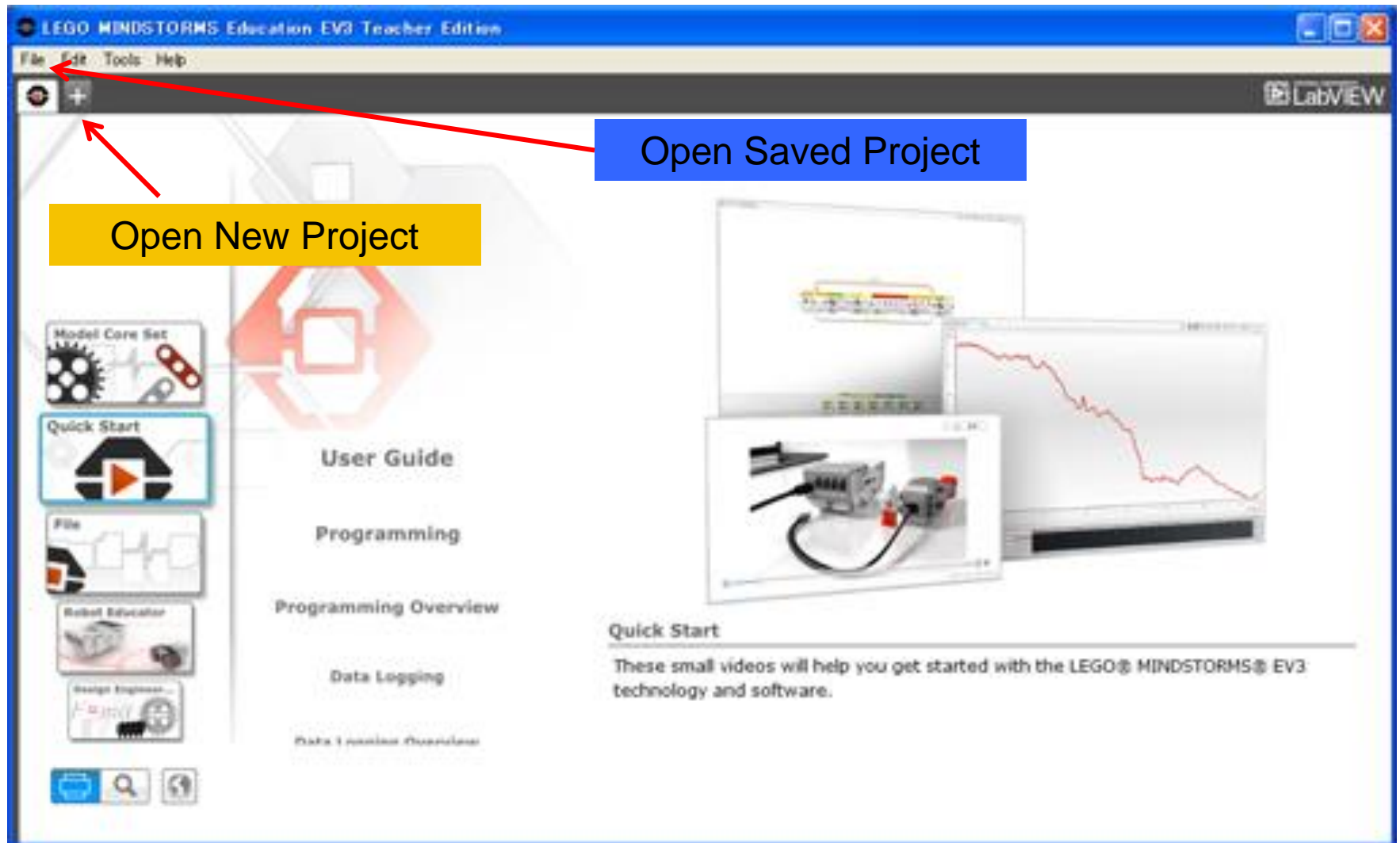
PORTS, SENSORS, MOTORS

Ports A, B, C, D = Motors

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

Ports 1, 2, 3, 4 = Sensors

B

Default setup

Front

C

EV3 SOFTWARE

Open Saved Project

Open New Project

EV3 SOFTWARE: STARTING A NEW PROGRAM

Create a Project

Opened Programs

Create a Program

Opened Projects

Project Properties

List of programs
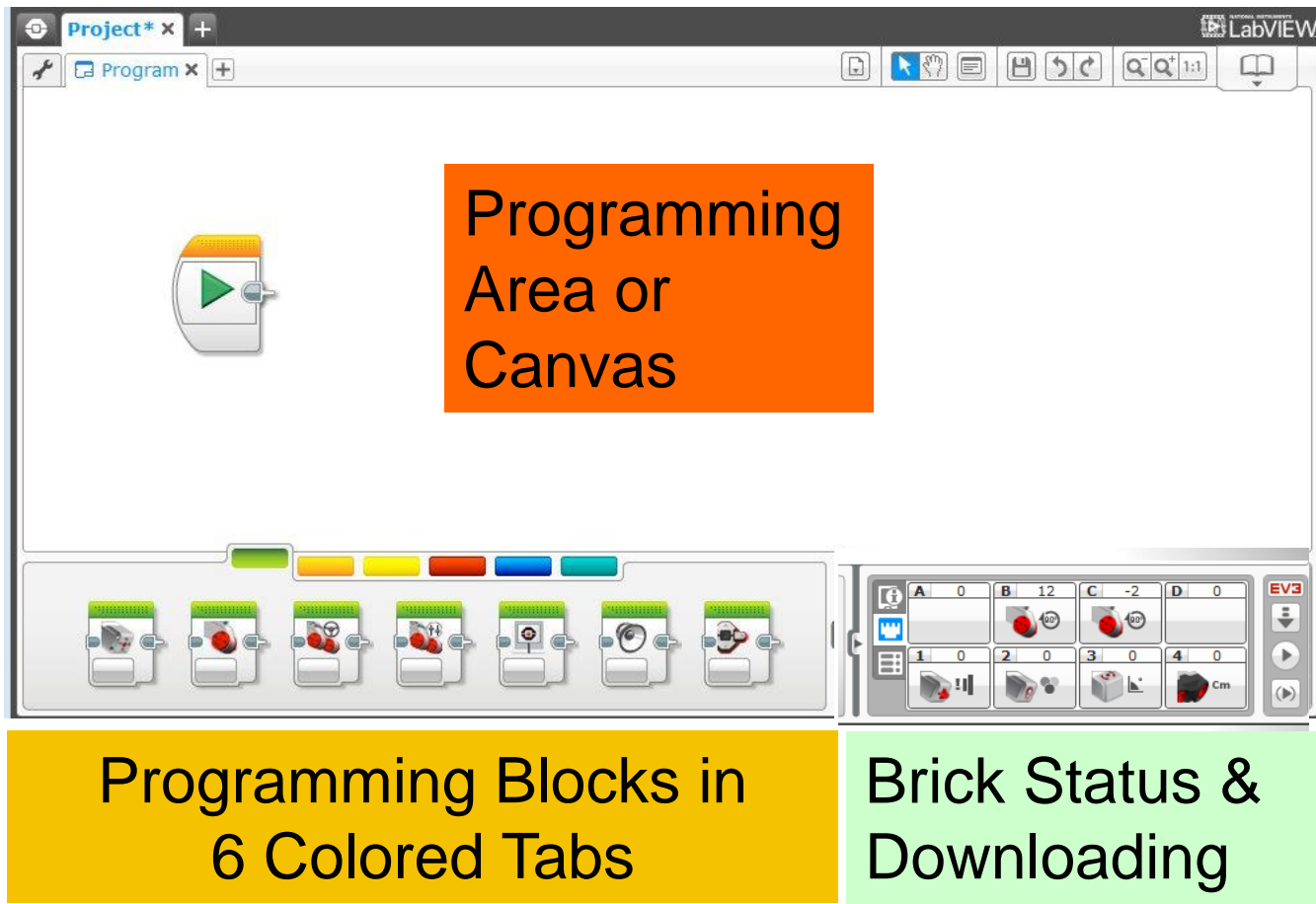
PROJECTS VS. PROGRAMS

- 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

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EV3 SOFTWARE: PROGRAMMING SCREEN

Programming Area or Canvas

Programming Blocks in 6 Colored Tabs

Brick Status & Downloading

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**

- **Author's Email: team@droidsrobotics.org**

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