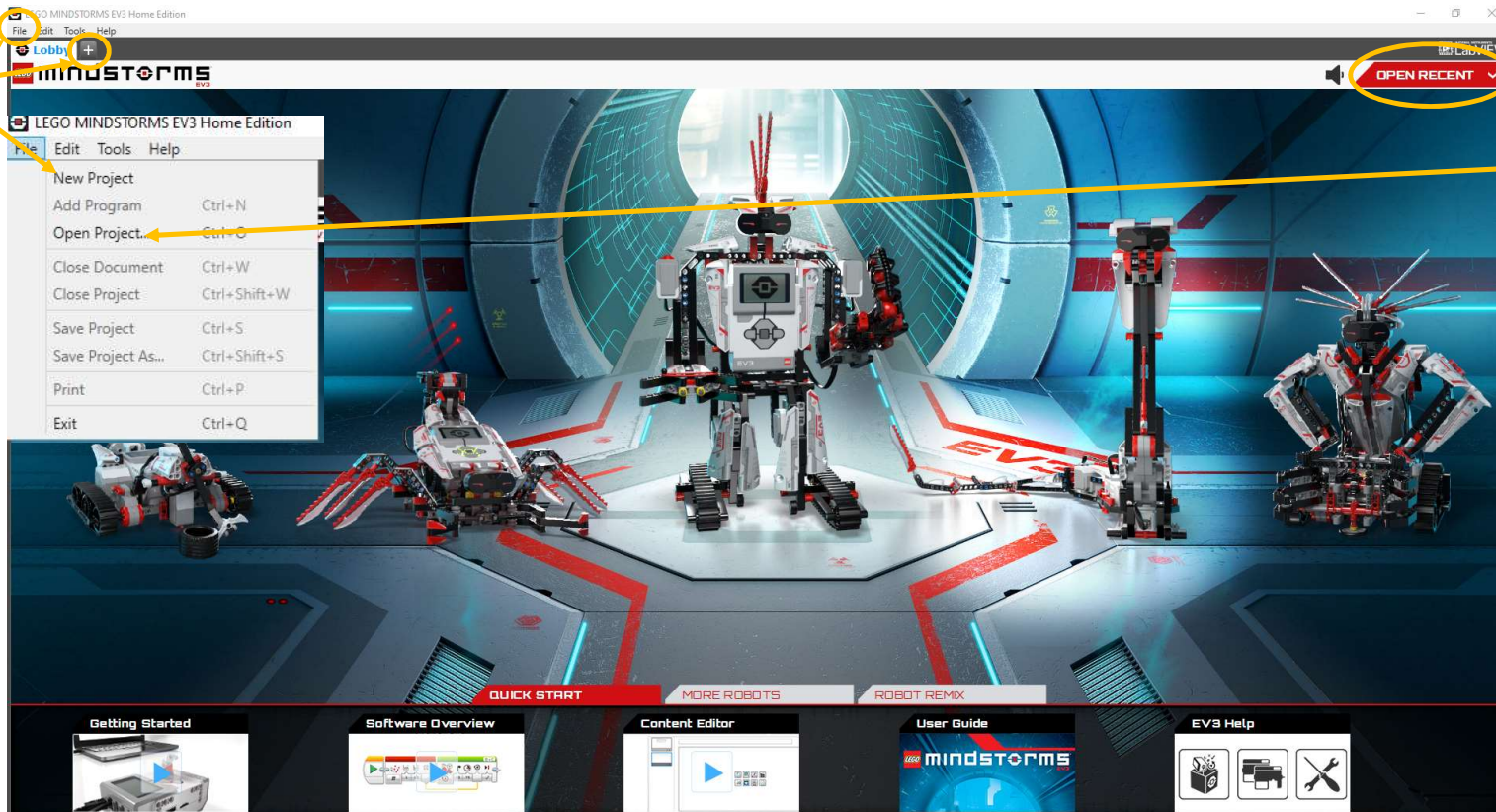# MINDSTORM Programming Software Overview

Thomas Newton

MINDSTORM Programming Software Overview

To create a new project click on the plus Sign or select File

To Open an existing project click on the plus Sign or select File

MINDSTORM Programming Software Overview

The EV3 Programming environment consists of the following main areas:

1. **Programming Canvas**—Lay out your program here.

2. **Programming Palettes**—Find the building blocks for your program here.

3. **Hardware Page**—Establish and manage your communication with the EV3 Brick here and see what motors and sensors are connected where. This is also where you download programs to the EV3 Brick.

4. **Content Editor**—A digital workbook integrated into the software. Get instructions or document your project using text, images, and videos.

5. **Programming Toolbar**—Find basic tools for working with your program here. Learn more about these tools in the **EV3 Software Help**.

Programming environment
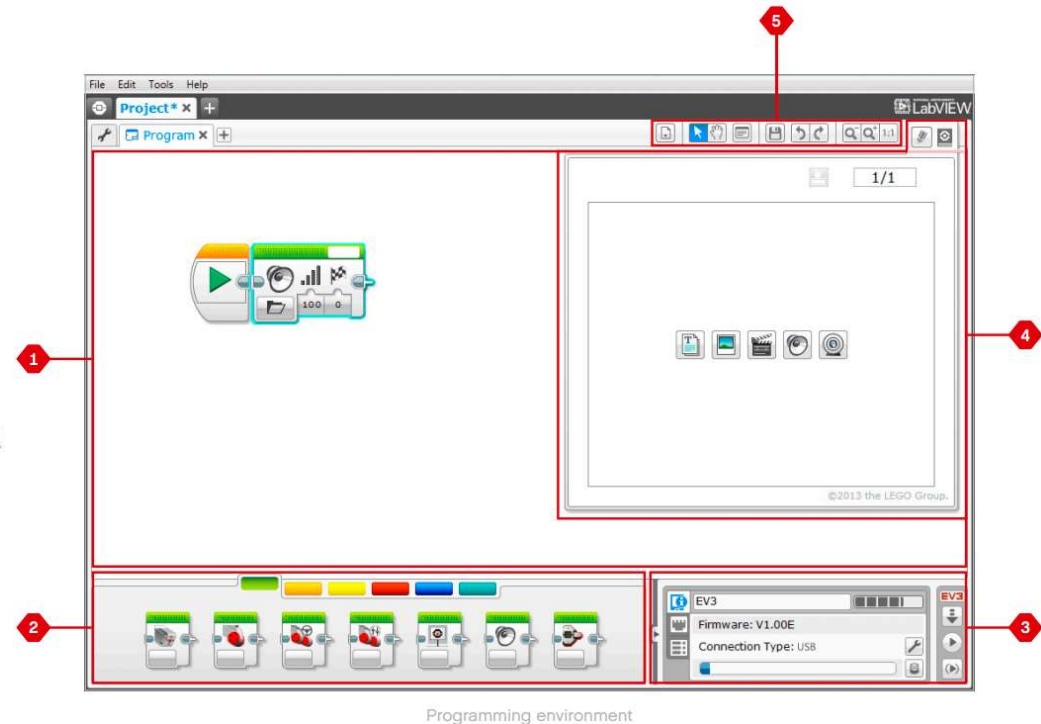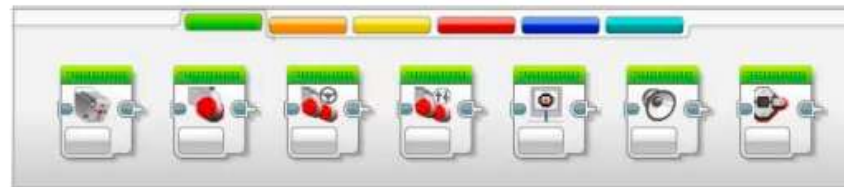
MINDSTORM Programming Software Overview

Programming Blocks and Palettes

All the programming blocks that are used for controlling your robot are located in Programming Palettes at the bottom of the Programming environment underneath the Programming Canvas. The Programming blocks are divided into categories according to type and nature, making it easy to find the block you need.

ACTION BLOCKS
(In order from left to right)
+ Medium Motor
+ Large Motor
+ Move Steering
+ Move Tank
+ Display
+ Sound
+ Brick Status Light

MINDSTORM Programming Software Overview
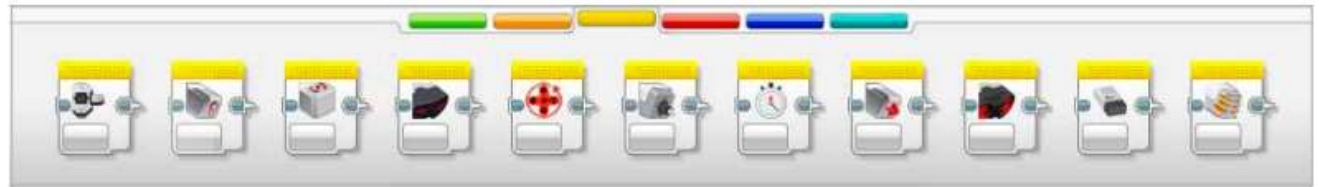
FLOW BLOCKS

(In order from left to right)

+ Start
+ Wait
+ Loop
+ Switch
+ Loop Interrupt

SENSOR BLOCKS

(In order from left to right)

+ Brick Buttons
+ Color Sensor
+ Gyro Sensor
+ Infrared Sensor
+ Motor Rotation
+ Temperature Sensor
+ Timer
+ Touch Sensor
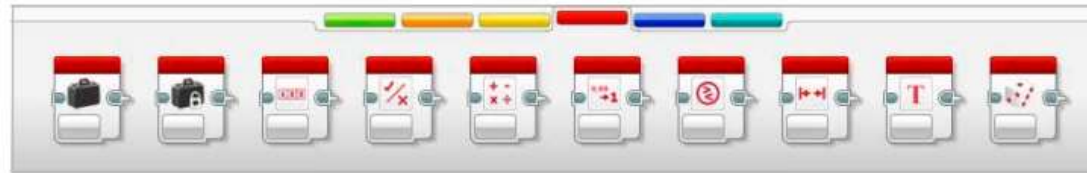+ Ultrasonic Sensor
+ Energy Meter
+ NXT Sound Sensor

MINDSTORM Programming Software Overview

DATA BLOCKS

(In order from left to right)

+ Variable
+ Constant
+ Array Operations
+ Logic Operations
+ Math
+ Round
+ Compare
+ Range
+ Text
+ Random

ADVANCED BLOCKS

(In order from left to right)

+ File Access
+ Data Logging
+ Messaging
+ Bluetooth Connection
+ Keep Awake
+ Raw Sensor Value
+ Unregulated Motor
+ Invert Motor
+ Stop Program

MINDSTORM Programming Software Overview

MY BLOCKS

When you are repeatedly using the same segment of a program in many programs, that is a good time to create a My Block. Once your My Block is created, you can simply insert that single block into future programs within the same project.
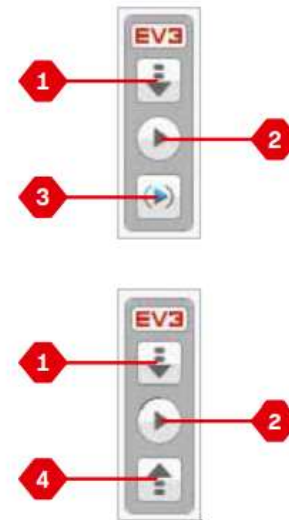
MINDSTORM Programming Software Overview

Hardware Page

The Hardware Page provides a range of information about your EV3 Brick. It is always located in the lower right-hand corner when working with both Programs and Experiments and can be collapsed when needed using the Expand/Collapse tab. Even when collapsed, the Hardware Page Controller will be visible, allowing you to download your program or experiment.

The different Hardware Page Controller buttons have the following functionality:

1. **Download**—Downloads the Program or Experiment to the EV3 Brick

2. **Download and Run**—Downloads the Program or Experiment to the EV3 Brick and runs it immediately

3. **Download and Run Selected**—Downloads only the highlighted blocks to the EV3 Brick and runs them immediately

4. **Upload**—Uploads your collected datasets from the EV3 Brick to your Experiment

The EV3 text in the small window at the top will turn red when an EV3 Brick is connected to your computer.
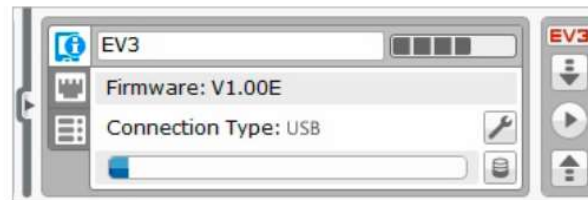
Hardware Page Controllers

MINDSTORM Programming Software Overview

BRICK INFORMATION

The Brick Information tab displays important information about the EV3 Brick that is currently connected, such as EV3 Brick name, battery level, firmware version, connection type, and memory bar. It also gives you access to the Memory Browser and Wireless Setup tools.

Brick Information tab

PORT VIEW

The Port View tab displays information about the sensors and motors connected to the EV3 Brick. When your EV3 Brick is connected to the computer, this information is automatically identified and you will be able to see the live values. If your EV3 Brick is not connected, you can still set up the Port View tab manually. Select a port, then select the appropriate sensor or motor from the list.
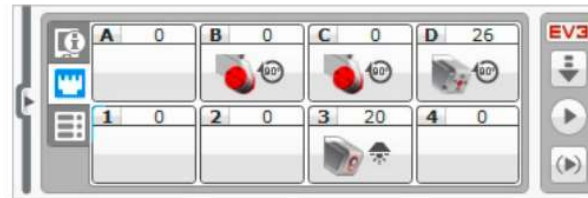
Port View tab

AVAILABLE BRICKS

The Available Bricks tab shows the EV3 Bricks that are currently available for connection. You are able to choose which EV3 Brick you want to connect to and the type of communication. Also, you can disconnect an existing EV3 Brick connection.

You can find more information about how to use the Hardware Page in the **EV3 Software Help**.
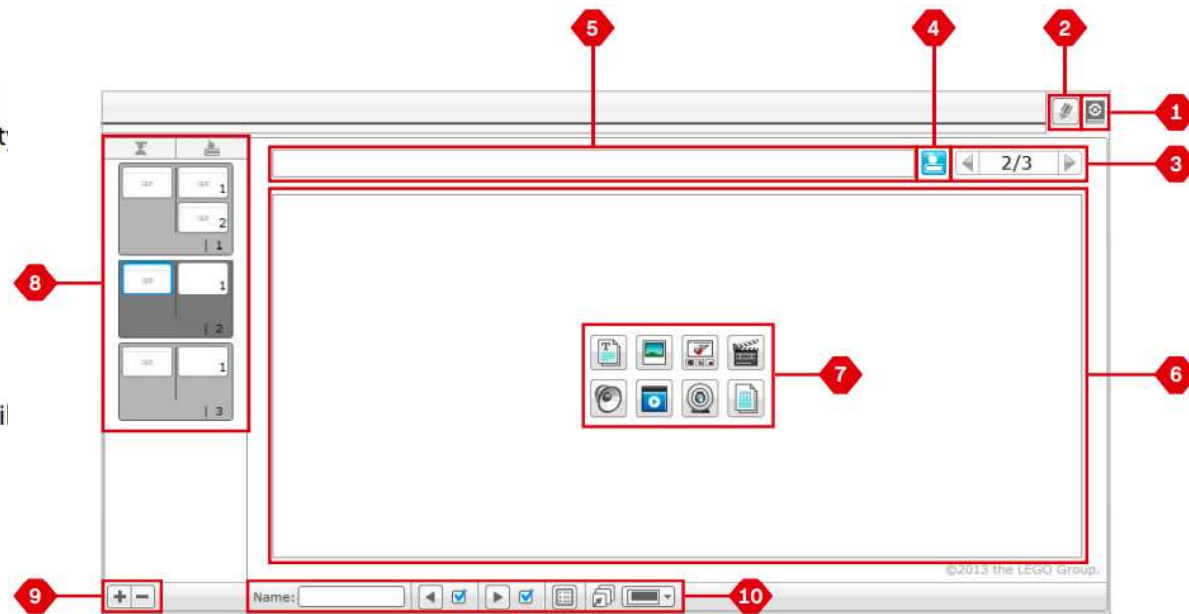

Available Bricks tab

MINDSTORM Programming Software Overview

The Content Editor consists of the following main areas and features:

1. **Open/Close Content Editor**—Here you open and close the Content Editor.
2. **Edit/View Mode**—Allows you to view or edit your pages.
3. **Page Navigation**—Go to the next or previous page.
4. **Teacher/Student Toggle**—Switch between the Student Page and Teacher Notes while viewing the content. This functionality is only available in the Teacher version of the EV3 Software.
5. **Page Title**—Add a title to your page.
6. **Page Area**—This is where the main content is shown and edited.
7. **Media Icons**—Select what content type you wish to add to the page area.
8. **Page Thumbnails**—Go to a specific page using the thumbnail images. In the Teacher version of the EV3 Software, Teacher Notes will also be available.
9. **Add/Delete Page**—When adding a page, you get to choose from fourteen different templates.
10. **Page Setup**—Make special settings for each page, such as format, page action, and navigation to the next page.

Content Editor

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