EV3 TECHNOLOGY

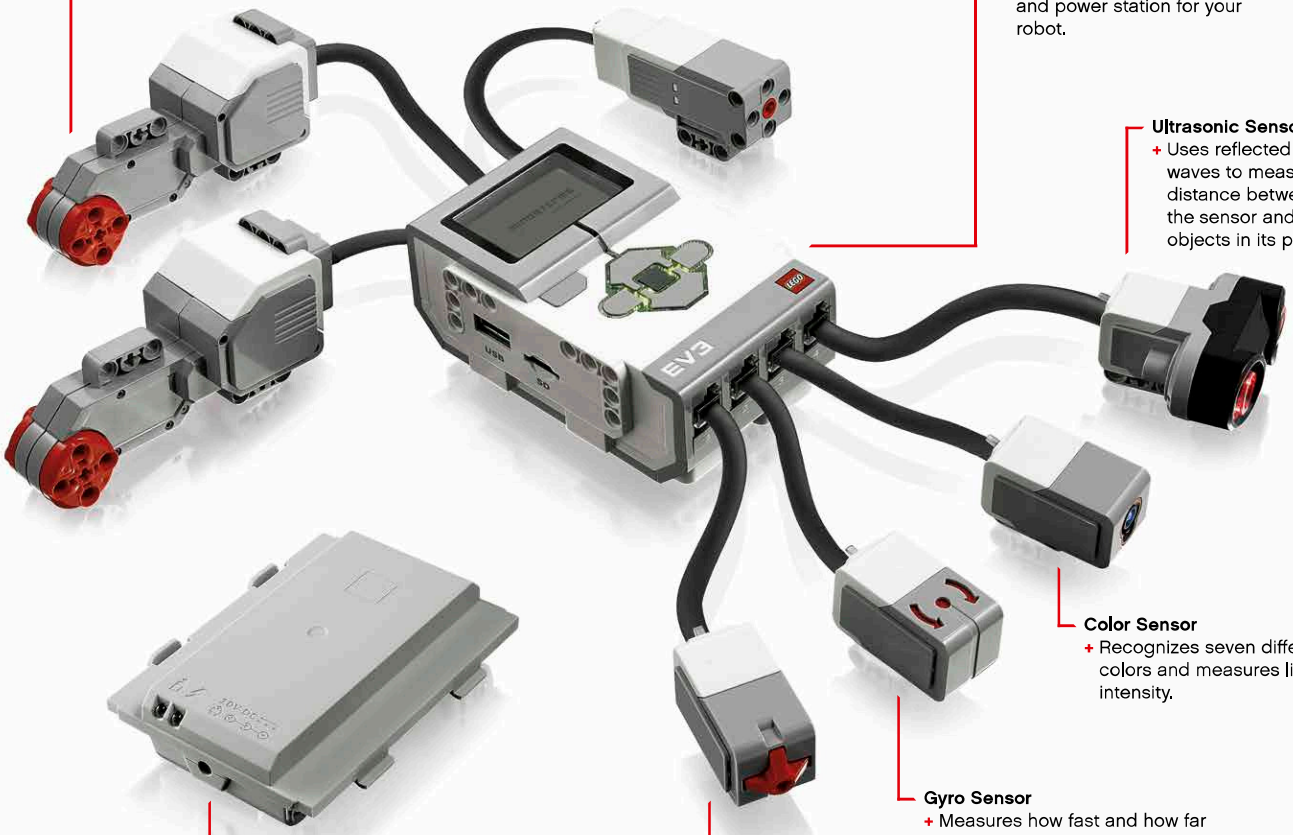
Overview

Large Motor
+ Lets you program precise and powerful robotic action.

Medium Motor
+ Maintains precision, while trading some power for compact size and faster response.

EV3 Brick
+ Serves as the control center and power station for your robot.

Ultrasonic Sensor
+ Uses reflected sound waves to measure distance between the sensor and any objects in its path.



Color Sensor
+ Recognizes seven different colors and measures light intensity.

Gyro Sensor
+ Measures how fast and how far your robot is turning.

Rechargeable Battery
+ Economical, environmentally friendly, and convenient power source for your robot.

Touch Sensor
+ Recognizes three conditions—touched, bumped, and released.

EV3 Brick

Overview

The **Display** shows you what is going on inside the EV3 Brick and enables you to use the Brick Interface. It also allows you to add text and numerical or graphic responses into your programming or experiments. For example, you might want to program the Display to show a happy face (or a sad face) for a comparison response or to display a number that is the result of a mathematical calculation (learn more about using the **Display Block** in the EV3 Software Help).

The **Brick Buttons** allow you to navigate inside the EV3 Brick Interface. They can also be used as programmable activators. For example, you might program a robot to raise its arms if the Up button is pressed or to lower them if the Down button is pressed (for more information, see **Using the Brick Buttons** in the EV3 Software Help).

Wireless Connection Status icons
(from the left)

Bluetooth enabled but not connected or visible to other Bluetooth devices

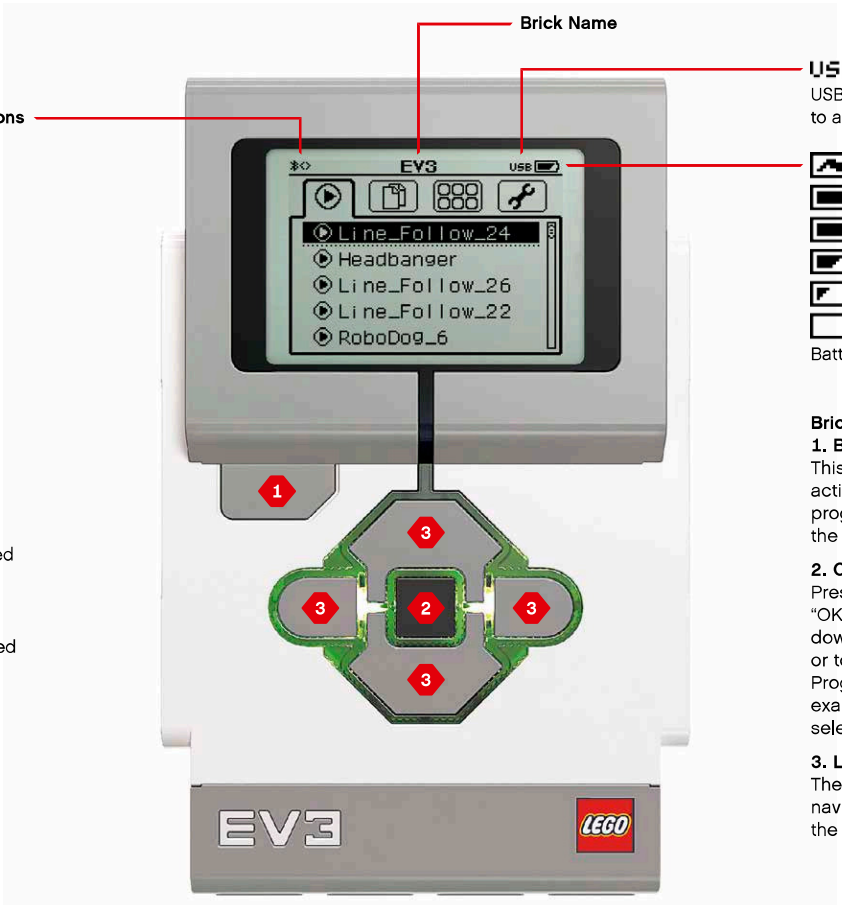
Bluetooth enabled and visible to other Bluetooth devices

Bluetooth enabled and your EV3 Brick is connected to another Bluetooth device

Bluetooth enabled and visible and your EV3 Brick is connected to another Bluetooth device

Wi-Fi enabled but not connected to a network

Wi-Fi enabled and connected to a network



Brick Buttons

1. Back
This button is used to reverse actions, to abort a running program, and to shut down the EV3 Brick.

2. Center
Pressing the Center button says "OK" to various questions—to shut down, to select desired settings, or to select blocks in the Brick Program App. You would, for example, press this button to select a checkbox.

3. Left, Right, Up, Down
These four buttons are used to navigate through the contents of the EV3 Brick.

EV3 TECHNOLOGY

TECHNICAL SPECIFICATIONS FOR THE EV3 BRICK

+ Operating System—LINUX
+ 300 MHz ARM9 controller
+ Flash Memory—16 MB
+ RAM—64 MB
+ Brick Screen Resolution—178x128/Black & White
+ USB 2.0 Communication to Host PC—Up to 480 Mbit/sec
+ USB 1.1 Host communication—Up to 12 Mbit/sec
+ Micro SD card—Supports SDHC, Version 2.0, Max 32 GB
+ Motor and Sensor Ports
+ Connectors—RJ12
+ Support Auto ID
+ Power—6 AA batteries/ rechargeable

EV3 Brick

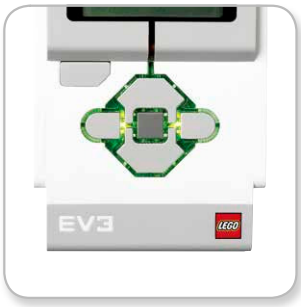
The **Brick Status Light** that surrounds the Brick Buttons tells you the current status of the EV3 Brick. It can be green, orange, or red and can pulse. Brick Status Light codes are the following:

+ Red = Startup, Updating, Shutdown
+ Red pulsing = Busy
+ Orange = Alert, Ready
+ Orange pulsing = Alert, Running
+ Green = Ready
+ Green pulsing = Running Program

You can also program the Brick Status Light to show different colors and to pulse when different conditions are met (learn more about using the **Brick Status Light Block** in the EV3 Software Help).

Brick Status Light – Red

Brick Status Light – Orange



Brick Status Light – Green

EV3 TECHNOLOGY

EV3 Brick

PC Port
The Mini-USB PC Port, located next to the D port, is used to connect the EV3 Brick to a computer.

Input Ports
Input Ports 1, 2, 3, and 4 are used to connect sensors to the EV3 Brick.

Output Ports
Output Ports A, B, C, and D are used to connect motors to the EV3 Brick.

Speaker
All sounds from the EV3 Brick come through this speaker—including any sound effects used in programming your robots. When the quality of the sound is important to you, try to leave the speaker uncovered while designing your robot. Check out the cool sound files that can be programmed within the EV3 Software (learn more about using the **Sound Block** in the EV3 Software Help).

USB Host Port
The USB Host Port can be used to add a USB Wi-Fi dongle for connecting to a wireless network, or to connect up to four EV3 Bricks together (daisy chain).

SD Card Port
The SD Card Port increases the available memory for your EV3 Brick with an SD card (maximum 32 GB—not included).

EV3 Brick

Turning On the EV3 Brick

To turn on the EV3 Brick, press the Center button. After you press the button, the Brick Status Light will turn red and the Starting screen will be displayed.

When the light changes to green, your EV3 Brick is ready.

To turn the EV3 Brick off, press the Back button until you see the Shut Down screen.

The Abort X will already be selected. Use the Right button to select the Accept check mark, then press the Center button for OK. Your EV3 Brick is now turned off. If you press OK while the X is selected, you will return to the Run Recent screen.

Starting screen

Shut Down screen