Lego Mindstorm EV3 robots

Educational robotics

Educational robotics involves a series of educational activities in which children strengthen their knowledge and skills by designing, creating, assembling and programming robots.

It is a learning environment in which the people involved are motivated to design and build their own robots. These creations are designed in the first instance in a mental form and later in physical form, being controlled by a computer system (microchips).

For children, robots are toys they enjoy experimenting with and learning to play with.

Today, robotics and programming are very easy to follow, as children see the results of their work immediately. Thus, through experiments and interactive lessons, they discover how the wheels of the car spin, how a robot moves, avoids an obstacle and much more, all for the child's development.

Robotics lessons are very useful for children, because they help them gain a certain skill and an understanding of devices, equipment, (even machinery at a lower level.)

Robotics and programming for children mean more than the development of technical skills, because in addition to the technical and mechanical parts, robotics teaches children how to experiment, how to think logically, how to answer certain questions on their own.

LEGO MINDSTORMS EV3

Lego Mindstorms EV3 is a "smart toy", a programmable robot for kids ages 10 to 16. Lego Mindstorms says the robots' modular designs can enable a youngster to build and program a robot in as little as 20 minutes.

That would just be the start, of course — hobbyists can hack away from there. There are many enthusiasts, with Lego leagues and robotics competitions.

EV3 components

The EV3 system is powered by an "Intelligent Brick" that has an ARM processor, embedded 16 megabytes of Flash memory, 64 MB of RAM, plus an SD expansion slot. The Linux operating system is at its core, and the brick has USB 2.0, Wi-Fi, Bluetooth and ports that would let you connect up to four other bricks. Out of the box, the EV3 is compatible with iOS and Android, letting you control robots with your phones or tablets.

To help kids get started, EV3 includes building instructions for 17 robots. These include "Everstorm" a Mohawk-sporting humanoid that shoots mini-spheres as it walks, "Spiker" a scorpion-like robot and "Reptar" a robotic snake that slithers, shakes.
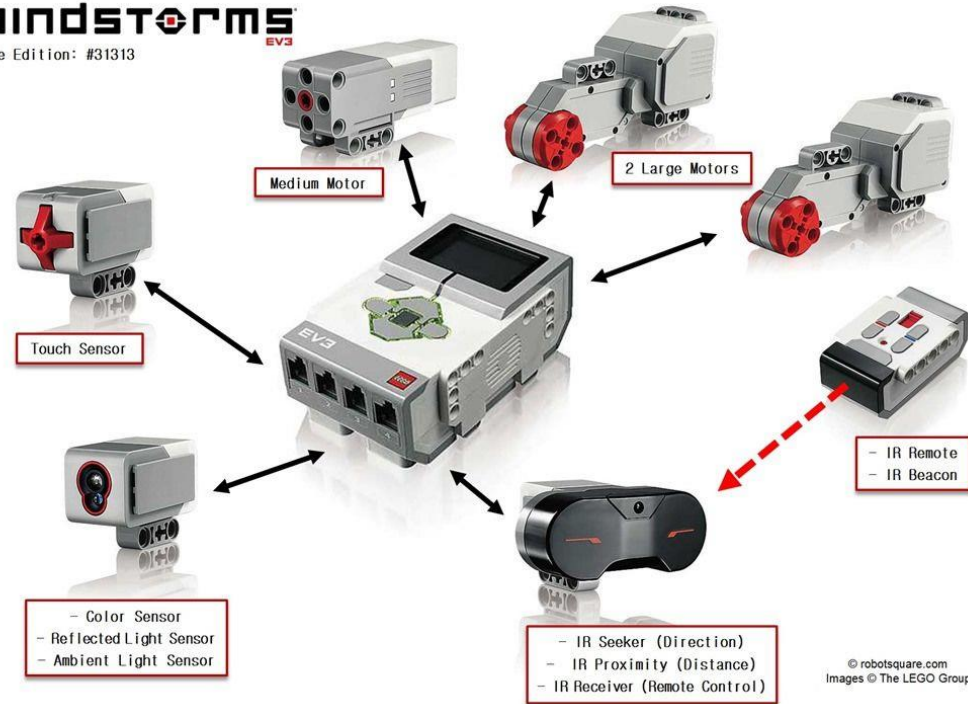
EV3 - Home Edition

EV3 - Home edition

EV3 Brick with 2 large motors

1 mediu motor - connected on port A

sensors:

- Touch Sensor
- Color Sensor
- Infrared Sensor

EV3 for Education

TRACK3R

We especially use this model with different accessories: claw

https://youtu.be/K0yVrFNnn68

Programming the EV3

For programming the robot we can use the dedicated application:

Connect the robot

File   Edit   Tools   Help

Lobby | Driving Base | New Program* | + | ?

LabVIEW

Program

C

B + C

50   1

0   50   1

A

No Brick Connected

USB

TRACK3R with hammer and Infrared Sensor

https://vimeo.com/561039899

EV3 SPIK3R

This model uses the same 2 large motors, 1 medium motor and 1 infrared sensor, but they are arranged differently and the programming of this model is different.

https://www.youtube.com/watch?v=KiPleETDrnU