

Laboratory kit "Mechatronics Fundamentals"



DESCRIPTION

This kit gives children the ability to work on robotics and mechatronics hands-on experiments as a part of a supplementary education program.

This kit is designed as a modular platform for studying the mechatronics principles and application (combining elements of mechanical and electronic engineering).

Simple layout of an electric circuit built on interchangeable modules is easy to understand both for students and teachers.

Each topic included in the curriculum has a theoretical part and detailed instructions for the experiment.

FUNCTIONAL FEATURES

- ✓ Laboratory kit modular design
- ✓ Reliably protected electric circuit, modules, and kit elements
- ✓ Theoretical materials to each topic
- ✓ Hands-on experiments step-by-step guide

SOFTWARE

- ✓ The software is developed in NI LabVIEW graphical programming environment.
- ✓ The software is intuitive and has user-friendly interface is designed for easy adoption.
- ✓ Graphical and digital representation of results

SPECIFICATIONS

Main modules

- ✓ Main Board (modules platform) - 1 pc.
- ✓ Mechanical Platform – 1 pc
- ✓ DC micro-motor module - 1 pc.
- ✓ Bipolar Stepper motor module- 1 pc.
- ✓ Servo motor module - 1 pc.
- ✓ Motor Driver module - 1 pc.
- ✓ Air valve module - 1 pc.
- ✓ Air Pump (mini-compressor) module - 1 pc.
- ✓ Color sensor module - 1 pc.
- ✓ Motion detector module - 1 pc.
- ✓ IR sensor module - 1 pc.
- ✓ Joystick module - 1 pc.

Auxiliary elements

- ✓ Set of assembly and auxiliary elements - 1 pc.
- ✓ Set of safe connecting wires - 1 pc.
- ✓ Power supply - 1 pc.

HANDS-ON EXPERIMENTS

- ✓ DC motor control
- ✓ Stepper motor control
- ✓ Servo motor control
- ✓ Study of pneumatic control components operation (air cylinder, air valve, mini-compressor)
- ✓ Color sensor operation principle study
- ✓ Motion detector operation principle study
- ✓ IR sensor operation principle study
- ✓ Joystick operation principle study
- ✓ Servo motor control by color sensor, motion sensor, IR distance sensor, joystick
- ✓ Stepper motor control by joystick