Laboratory kit "Microprocessor systems"

DESCRIPTION

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

This kit is designed as a modular platform for microcontroller programming, studying the principles of data I\O devices, sensors and actuators.

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

- ✓ Microcontroller module (based on ATmega328P). - 1 pc.
  - Operating Voltage – 5V
  - Digital I/O Lines - 8
  - PWM Digital I/O Lines - 6
  - Analog Input Lines - 6
  - Flash Memory 32 KB
  - SRAM 2 KB
  - EEPROM 1 KB
  - USB interface
  - Ground output (GND)
- ✓ Main Board (modules platform) - 1 pc.
- ✓ Bipolar Stepper Motor module - 1 pc.
- ✓ LED Display module - 1 pc.
- ✓ Touch Sensor module - 1 pc.
- ✓ Seven segment indicator module - 1 pc.
- ✓ Microphone sensor module - 1 pc.
- ✓ Loudspeaker module- 1 pc.
- ✓ Pulse Generator module - 1 pc.
- ✓ Temperature sensor module - 1 pc.
- ✓ Ultrasonic sensor module - 1 pc.
- ✓ Joystick module - 1 pc.

Auxiliary elements

- ✓ Set of safe connecting wires - 1 pc.
- ✓ Power supplay - 1 pc.

HANDS-ON EXPERIMENTS

- ✓ Microcontroller programming
- ✓ I/O port study
- ✓ Computer control of different devices
- ✓ LED indicator control study
- ✓ Touch array operation principle study
- ✓ Arithmetic and logic operations study
- ✓ Data display on seven-segment indicator
- ✓ Joystick operation principle study
- ✓ Stepper motor control
- ✓ Comparator study
- ✓ Switch On/Off by sound level
- ✓ Audio indication display
- ✓ Temperature sensor operation principle study
- ✓ US proximity sensor operation principle study

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