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TECHNOLOGY USING ROBOTRACK IDE SOFTWARE

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Abstract: *This article provides information on how Robotrack IDE works, digital technologies in robotics, neurotechnology, and how Robotrack IDE is fully compatible with all Arduino boards and libraries.*

Keywords: *Robotrack IDE and elements, Ardublock, system requirements, TRIK Studio.*

Robotics is gradually becoming a part of our lives. It includes mathematics, physics, computer science. Using the knowledge gained in regular classes, you can learn to design and program automatic devices that are very similar to real robots. For this you need a special robot designer and programming environment. This environment is the Robotrack IDE environment.

The most popular robotics kits are LEGO® Mindstorms® and TRIK. Designers help young enthusiasts learn the basics of programming and understand how mechanisms work. Simple software and detailed instructions help you design and program the many robot models presented in the kit. The set consists of various structural elements (beams, blocks, angles, gears, wheels, etc.) and electronic and electromechanical parts (sensors, controllers, electric motors). All structural elements are manufactured according to the My Robot Time technology and correspond to the standard dimensions of this line of constructors. Designer elements are made of durable material, their strong body can be used in any robot project. The main sensors

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of the robot constructor are real technologies used in simulation of the production process, development of prototypes of automated production lines and sections, conducting research, moving assembled models along complex trajectories, technical equipment and production processes.

Even if you don't have a constructor, TRIK Studio has a built-in 2D model of the world, in which a small two-wheeled robot performs many different algorithms: it travels along lines, goes around objects, and finds a way out of it. labyrinth, draws patterns.

Robotrack IDE is a development environment based on the Arduino IDE, complete with a visual programming environment for creating programs from blocks without the need to write and edit code.

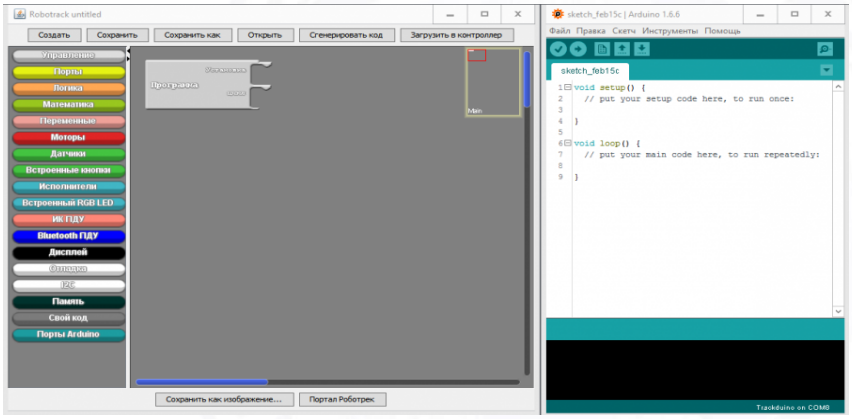

Figure 1. A view of the Robotrack IDE

Robotrack IDE is fully compatible with all Arduino boards and libraries, if you work with Robotrack and Arduino kits at the same time, you don't need to install more than one IDE.

The visual environment is based on the Ardublock project and provides a plugin for the Arduino IDE that generates C programming language code from a visual program. At the same time, the structure of a visual program almost always corresponds to the structure of a textual program, which allows you to switch from visual programming to textual programming with minimal effort.

System requirements

Windows 7, 8, 10, 32 or 64 bit;

300 MB free hard disk space;

Keyboard, mouse.

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Startup and interface

Immediately after launch, the Arduino IDE windows and visual environment are placed side by side and occupy the entire screen. You can freely move and resize each window.

After the first launch, check that the correct board and the correct port are selected in the Arduino IDE (Tools - Board and Tools - Port).

The visual environment window has the following interface:

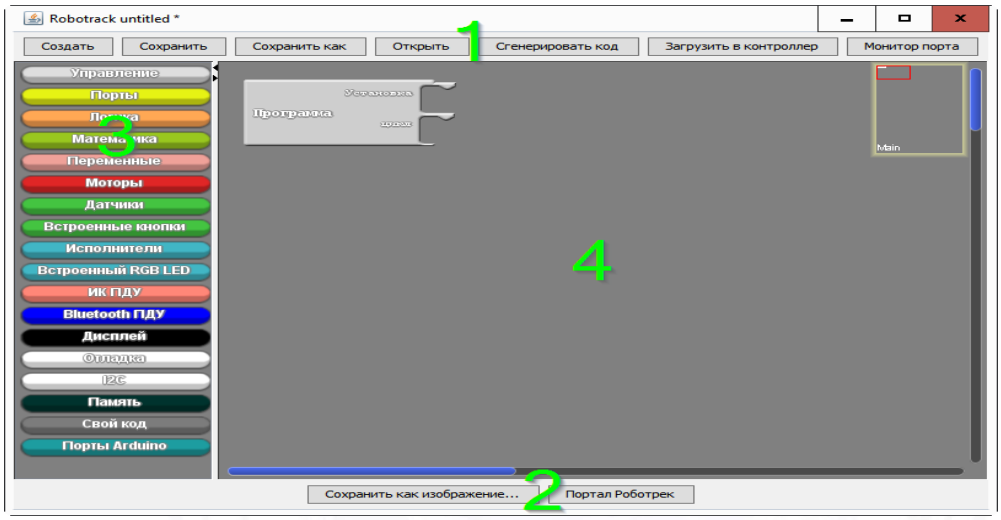

Figure 2. Using the Robotrack IDE Toolbar

Top toolbar:

Create - create a new empty visual application

Save - save the current visual program

Save as - save the current visual program with additional settings

Open - open a visual program file

Code generation - converting the current visual program into code for the Arduino IDE. It's handy if you want to change the code manually.

Upload to Controller - Convert the current visual program into code for the Arduino IDE and then upload this code to the controller.

Port Monitor - Opens the serial port monitor window.

2. Bottom toolbar:

Save as image - export the current program to a .png image.

Portal Roborek - has additional information about software and constructor.

3. Block factory. All possible blocks of the program are stored here.

4. Work area. This is where the program is created.

A robot can be a reliable assistant and an obedient executor of human will. For this purpose, you will be able to learn to program it using special control algorithms.

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