

## SCRATCH SOFTWARE AND ITS OPPORTUNITIES

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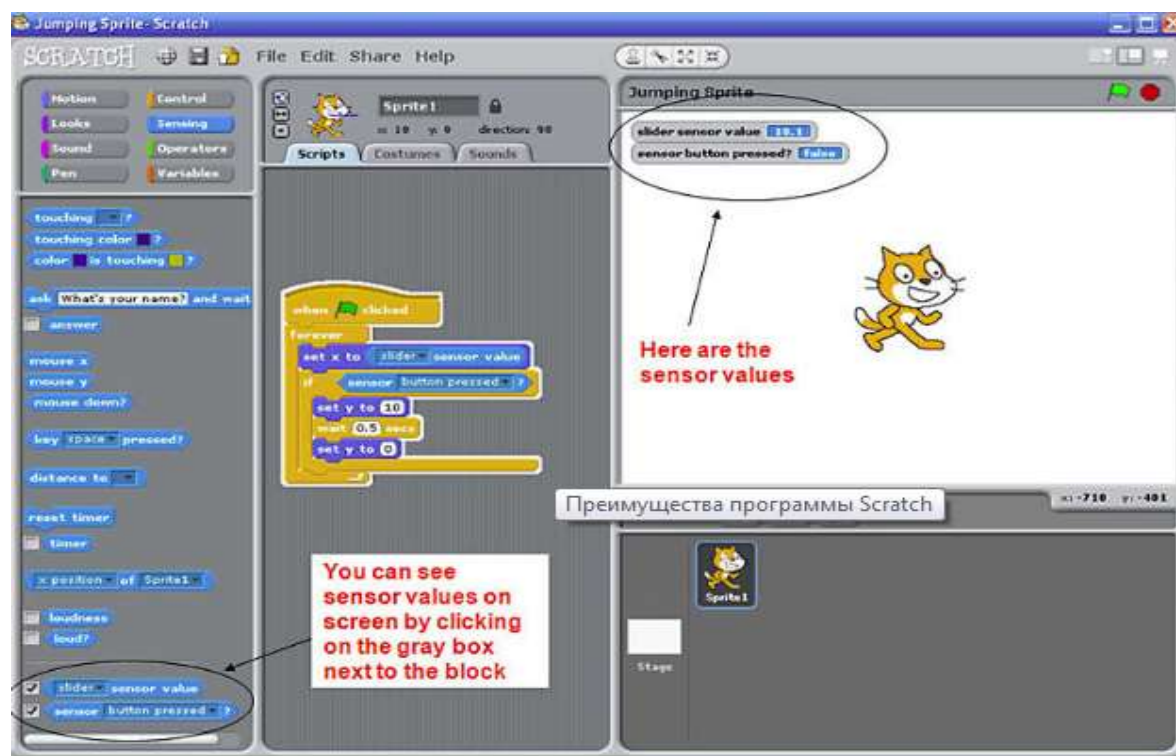
**Abstract:** Scratch is a block visual programming language and website designed primarily for children ages 8-16 to help them learn code. Site users can create projects on the Internet using a block-like interface. Scratch is taught and used in after-school centers, schools and colleges, as well as other public education institutions.

**Keywords:** Scratch, Logo Language, Restrictions, Lego Robots, Arduino, Python, Visual Programming, 3D Games

The basics of programming are very important for everyone today - computerization leaves no chance for uneducated users. Every year, understanding of all the processes occurring in modern technologies is increasingly required. This forces the younger generation to learn programming. This is the key to successful reading and working. But often adolescents find such a task boring and uninteresting.

To facilitate the process of cognition and learning, you can use a special program, which is called "Scratch", and which will help you to master programming in a convenient way.

Scratch features It should be noted that the creators of



Scratch have developed a special application environment based on the Logo language. This program has many positive qualities:

- specifically created for children and adolescents (8-16 years);

- simple interface that makes it easy to navigate the environment;

- color design helps to attract attention and keep it;

- due to its elementary nature, it can serve not only for teaching children, but also for adults who are not familiar with the basics of programming.

One of the advantages of Scratch software is that it not only contributes to computer education. It also helps develop creative, imaginative and logical thinking.

### Opportunities

It has already been noted that Scratch is free for non-commercial use. You do not need to pay, you do not need to search for broken versions, you do not need to see ads. Without advertising, without money - everything

for a person. You can download the free version of Scratch in Russian from the Official Site or work online even without registration!

In the programming environment there are already built-in libraries, with a huge number of ready-made photos, backgrounds, sound parts added to them, from which you can immediately create interesting programs. All this is free and can be used in your program immediately after you start working.

If you use the online version, then after registration you can quickly publish your game in the general catalog of programs. You can also get acquainted with other programs for FREE, see how they are written and pay attention to it. Today, a very large team of fans is formed around Scratch - you can very easily become a part of it.

### Restrictions

There is no perfect programming environment. Of course, Scratch is baibai to its limitations and shortcomings. They are all, to a certain extent, a continuation of the advantages of this technology.

First, you cannot run a program written in this environment outside of that environment. If you want to share your game, you need to publish it on uk site or create a package with coding environment. In any case, you will need Scratch. Exceptions are writing software for external devices (e.g. Lego robots, Arduino). In this case, the program lights up inside the appropriate controller after compilation.

Second, Scratch does not expand easily. Yes, there are many “additions” and the environment itself has been the basis for dozens of other visual languages. But writing a library for Scratch is much harder than writing it in C or Python. It’s not too scary.

The programming environment is subject to a number of explicit limitations. For example, in screen size, format of data used, accuracy of calculations, file size. You can’t create full-fledged 3D games, you have to use completely different tools.

And finally, Scratch’s most important flaw. Visual programming forms a slightly different idea of the logical structure of a program than traditional programming. Therefore, if you want to learn professional programming, then you should not sit for long with irritation. Scratch is a great starting tool, but you can’t be a real programmer in this environment.

Where is Scratch used?

The scope of the program is very wide because it has so many features. Children explore the world of information technology in a playful way, and also develop by creating their own projects: videos, animations, cartoons, presentations, interactive stories, and even elementary games.

Due to its ability to create educational videos of various types, including Scratch, it can be used in a number of disciplines and subjects: foreign and native languages, computer science, fine arts, logic, mathematics.

This simplifies the learning process and significantly increases the number of skills. These include not only the transition from technology to efficient and rapid use, but also structural analysis, design, spatial imagination, subject matter, and creative non-standard thinking. All this is combined with the child's sincere interest in the learning process. So the program is very useful.

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