

ARDUINO



Updated User Guide to
Learn Arduino
Programming Step by Step

2021



Arduino:

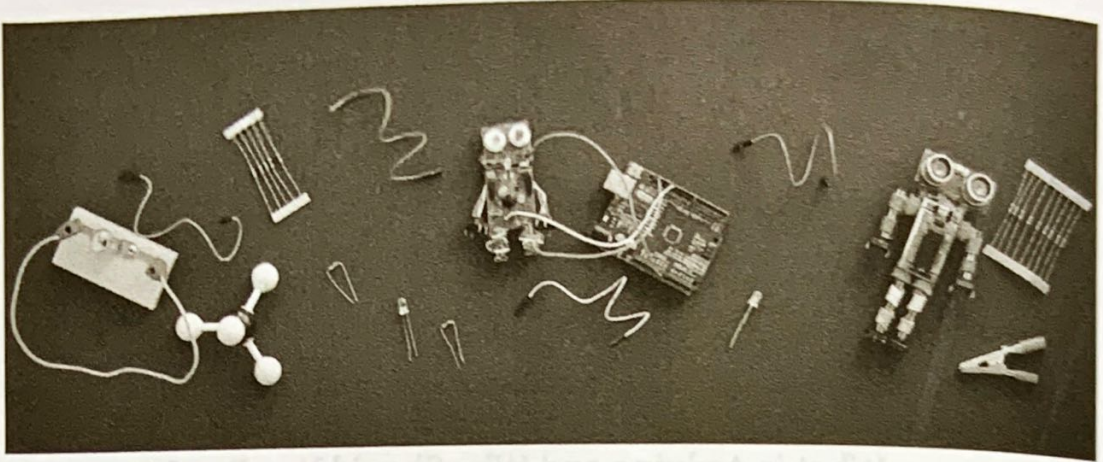
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Introduction



Joseph Marie Jacquard invented a punched card for the weaving machine in 1808, the French weaver. Although it was not a computer, it was an analog to contemporary automatic lines, for the first time the programming principle, in which modern robotics stands, was applied in the industry.

Over time, control methods, in particular wired and radio waves, have been improved. In 1898, Nicola Tesla first demonstrated a self-propelled, radio-controlled boat. At the same time, other devices have begun to acquire simple and more powerful miniature electric motors instead of complex

mechanical drives.

All the factors leading to the formation of the first robots were already established by the beginning of the 20th century. Electric current has not only become a source of energy, but also a way of receiving, transmitting and processing information. It is impossible to tell when the first robot appeared, in the current context of the term. Many companies and individual developers of that time worked on these machines. More than 30 mechanisms were developed in the 20s-30s of the last century that still fulfill the demands of high-quality robotics.

And yet it is claimed to be an American inventor, Roy Wensley from Westinghouse Electric Company, who developed the first working robot. The mechanism, which he had created in 1928 dubbed "Herbert Televox," was a humanoid computer that could unlock doors and windows, shut down the oven, electric motors, etc. The biggest change of this innovation from automatons being the capacity to react and operate on telephone instructions. However, the robot was not specifically linked to the phoneline - like a man, it heard commands using its integrated microphone. As the technology at the period incomplete, these instructions were not in standard language, they were a certain series of

beeps, squeaks, squeaks and other sounds of various tones.

Roy Wesley's championship is challenged by the Japanese biologist Makoto Nishimura who created the first active robot in Japan (1929). This anthropomorphic wire-controlled system was able to carry out different manipulations, especially in prose. Another nominee for the robot pioneer's position was Eric. It was also established in 1928 by William Richards, the British military. The mechanism not only shifted its limbs, but also addressed some queries "intelligently," also making jokes.

However, this and many other robots were designed rather than for specific practical activities to demonstrate scientific achievements. Later on, robotics emerged in manufacturing or agriculture as such work required a qualitatively new level of technology. Although the first prototype of an industrial robot was founded in 1898, the manipulator created by American engineer Babbitt pulled the blanks out of a red-hot furnace.

Only after the end of the Second World War did robotics grow entirely in the industry.

General Electric created the first industrial robot to operate in a nuclear reactor in the United States in 1948. Its feature was that the operator was able to see its movement in the workspace but also to feel the strength that had been developed by the manipulator's gripper which enabled the mechanism to be controlled more accurately.

In the middle of the fifties, American George Devol established Unimation, which released the first series of industrial robots, which were programmed with punched cards. In the mid-60s, several dozen companies had started manufacturing such machines in developed countries. In particular, Japan succeeded in this – having purchased the first "Unimation" robots in 1968. Ten years back, this nation became the global pioneer in the manufacture and machinery of its own analogs of production plants.

Today, nearly all fields of operations have been invaded by robots. Industry, scientific research, energy, medicine, entertainment, military operations and space – modern mechanisms are used extensively, either automatically or remotely controlled, and human work is even increasingly

overwhelmed. Robots have been developed in several directions – improving mechanisms and drives, improving algorithms, establishing control systems of self learning (weak artificial intelligence) and developing new interfaces between humans and computers. Biotechnology and cybernetics are closely related to roboticism which leads to the development of cybernetic organisms, functional bionic prostheses, fully autonomous cars, vessels, spacecraft and aircraft (including military). So Karl Capek described our society imperceptibly in the future only one century ago.

Now even a robot can be installed at home. Arduino is perfect for this mission.