DEVICE FOR AUTOMATING TECHNOLOGICAL PROCESSES

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ABSTRACT

Today, the Arduino platform is used in many projects. Students, Automators and professional programmers use Arduino's open source platform. The Arduino was developed at the Ivrea Interaction Design Institute to enhance the knowledge of students who have no knowledge of electronics or programming. Therefore, it is convenient for users to use. In training, the Arduino is used for robotics and programming classes. Designers and architects use it to create interactive prototypes. This will help investors show what a ready-made project can look like.

KEYWORDS: *Motherboard, processor, relay module, Wi-fi, Bluetooth, Internet automation, USB, interactive, prototype, SRAM, EEPRAM.*

INTRODUCTION

An Arduino is a small board with its own processor (microcontroller) and memory. There are dozens of contacts on this board, through which it is possible to connect various electrical components. For example: LED lights, sensors, relay modules, networks (Wi-fi, Bluetooth, Internet), sensors, motors, magnetic door locks and everything that works with electricity.

The Arduino is great for young people interested in robotics and electronics. This device is used to create small programs, algorithms, create robots and perform other operations. An Arduino is a device that combines software and hardware. The Arduino was developed at the Ivrea

Interaction Design Institute to enhance the knowledge of students who have no knowledge of electronics or programming. Therefore, it is convenient for users to use.

Nowadays, the Arduino platform is used in many projects. Students, Automators and professional programmers use Arduino's open source platform. In training, the Arduino is used for robotics and programming classes. Designers and architects use it to create interactive prototypes. This will help investors show what a ready-made project can look like. Musicians use it to test new instruments. [1]

Beginners of Arduino will start using the Uno or Nano type of Arduino. The difference between the Arduino Uno and other types is the processor, microcontrollers, more or less digital and analog outputs. The Arduino Uno Rev3 has everything you need to support a microcontroller.

To get started, connect it to a computer with a USB cable or plug it into an uninterruptible power supply.

"Uno" means "one" in Italian.

Arduino IDE - a program for users of the Windows operating system,Allows you to write your own programs for the Arduino platform.

This platform is a program aimed at creating simple automation and robotics systems.

Arduino is not used in the implementation of large-scale industrial projects or in the management of important high-tech projects. The program is designed for teaching.

The Arduino IDE consists of a very simple text code editor, a project manager, a compiler, and a firmware download module for the microcontroller. This program is written in Java and is based on other open source programs. Unlike the online version of the code editor (Arduino Web Editor), the desktop version is available without the Internet.

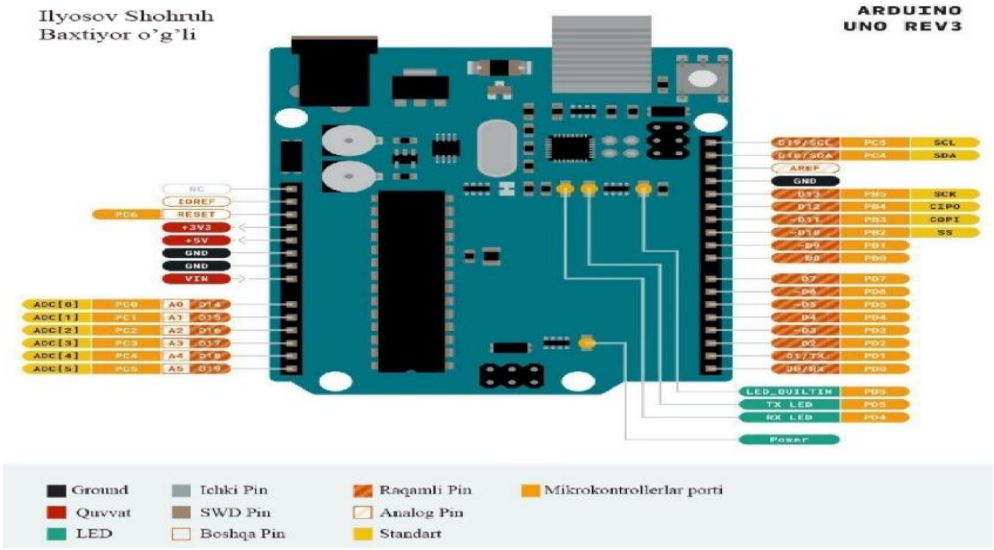
The Arduino programming language is standard C ++ (using the AVR-GCC compiler), making it easy to write programs for beginners.

Advantages of Arduino IDE: easy to use and clear interface, the program is compatible with all versions of Windows operating systems, the availability of the necessary tools for work, several options of programming languages, built-in sample software package, save thumbnails, export, check, search , switching functions.

Disadvantages of Arduino IDE: the program is not designed to work with complex systems, in the opinion of users, the performance of individual versions is characterized by instability.

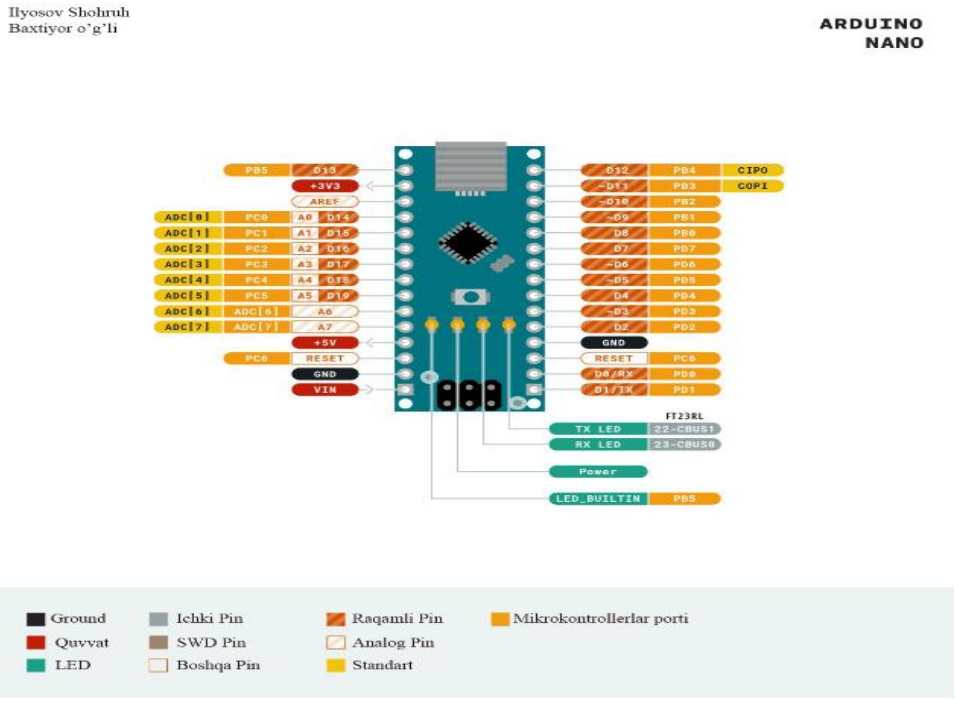
Installing the Arduino IDE for Windows: Installing the software does not require complex manipulations. Download the Arduino IDE, open the downloaded file, and follow the special instructions given in the installation window.

Arduino Uno Rev3



MICROCONTROLLER	ATmega328P
PRODUCTION STRENGTHENING	5V
INTRODUCTION IS STRONG NISHI (RECOMMENDED)	7-12V
INTRODUCTION INCREASE (LIMIT)	6-20V
DIGITAL I/U PINS	It has 14 digital input / output pins (6 of which can be used as PWM output)
PVM DIGITAL I / U PINLARA	6
ANALOGIC INPUT PINS	6
CONSTANT FLOW FOR ONE I / O PIN CODE	20 mA
DC CURRENT FOR 3.3V PIN MINE	50 mA
FLASH MEMORY	32 KB (ATmega328P), of which 0.5 KB is used by the loader
SRAM	2 KB (ATmega328P)
EEPROM	1 KB (ATmega328P)
CLOCK SPEED	16 MHz
LED_BUILTIN	13
LENGTH	68.6 mm
WIDTH	53.4 mm
WEIGHT	25 g

Arduino Nano



MIKRONATROLLER	ATmega328
ARCHITECTURE	APR
PRODUCTION STRENGTHENING	5 V
FLASH MEMORY	32 KB, of which 2 KB is used by the loader
SRAM	2 KB
CLOCK SPEED	16 MGts
ANALOG IN PINS	8
EEPRAM	1 KB
DCJ FLOW OF ONE INTRODUCTION / FLIGHT PINS	40 mA (I/O pins)
INTRODUCTION STRENGTHENING	7-12 V
DIGITAL I / O PINS	22 (6 ofthem PWM)
PWM EXIT	6
POWER CONSUMPTION	19 mA
DIMENSIONS	18 x 45 mm
WEIGHT	7 g
PRODUCT CODE	A000005

The Arduino Nano is a small, full, and board-friendly board based on the ATmega328 (Arduino Nano 3.x). It just doesn't have a DC power connector and works with a Mini-B USB cable instead of a standard cable.

Arduino IDE: you can download it from this link "https://biblprog.org.ua/ru/arduino_ide/download/".

REFERENCES:

1. Kakhkharov AA, Avazov Y, Ruziyev UA. Computer systems and networks. "Science and Technology" 2019