

Arduino

1. Introduction:

Arduino is an open-source hardware and software platform designed for rapid prototyping of electronic projects. It consists of both a physical programmable circuit board (often referred to as a microcontroller) and a software development environment. The architecture of Arduino is designed to be simple and user-friendly, making it accessible to beginners while also offering flexibility and versatility for more advanced users.



The components:

1-microcontroller: is the main part and the brain of the Arduino the most common microcontroller used in Arduino boards is the ATmega328P.

2- Input/Output (I/O) Pins: Arduino boards feature a set of digital and analog input/output pins that allow users to interface with external components such as sensors, actuators, and displays, it can be controlled programmatically using Arduino software.

3- Power Supply: Arduino boards can be powered via USB connection, battery, or external power supply. They typically include voltage regulators to provide

stable power to the microcontroller and other components.

4- USB Interface: Most Arduino boards feature a USB interface for connecting to a computer, allowing users to upload code.

5- Reset Button: Arduino boards include a reset button that allows users to restart the microcontroller and upload code from the beginning.

6- Clock: The microcontroller on Arduino boards requires a clock signal to operate. This clock signal is generated either internally by the microcontroller itself or provided externally as a crystal oscillator.