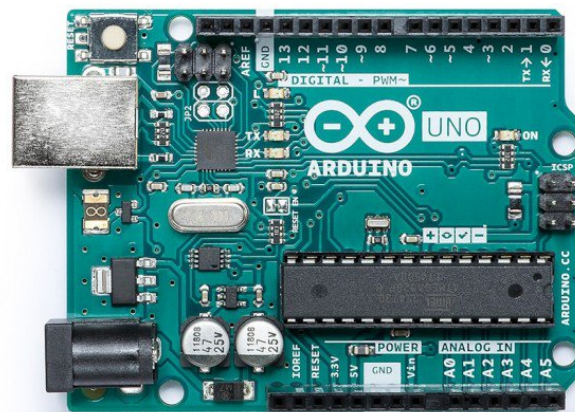




INTRODUCTION

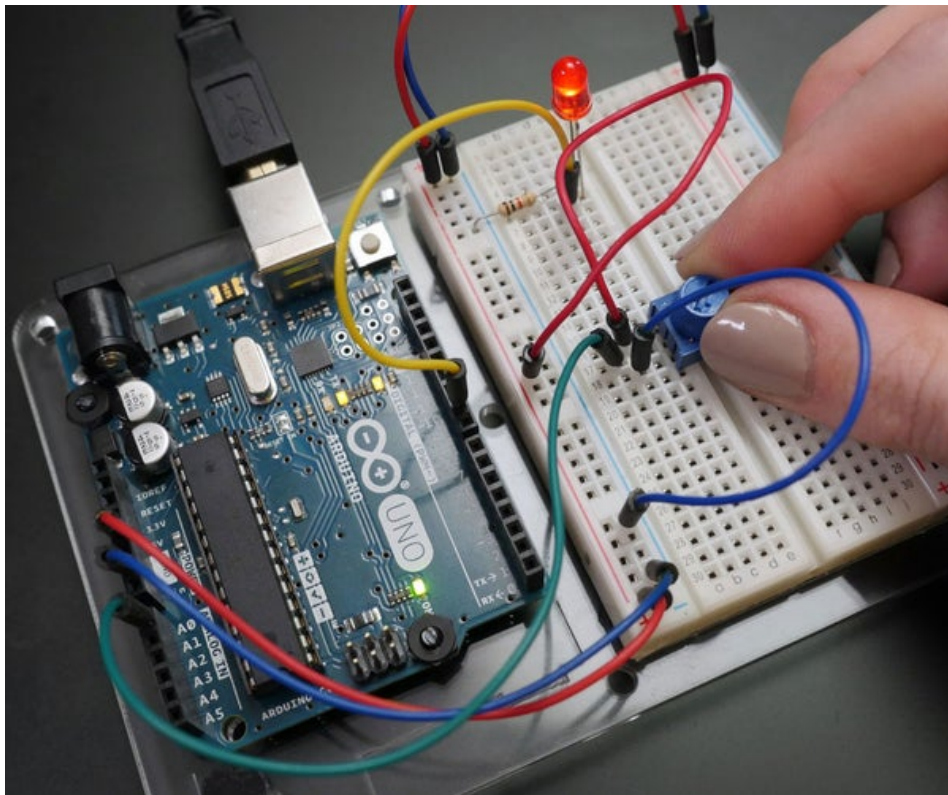
INTRODUCTION

- Open-Source Electronic Platform
- Easy use of Hardware & Software
- Arduino Board reads inputs (light on a sensor, finger on a button, Twitter message and much more)
- We can tell to the board what to do, by sending a set of Instructions to the micro-controller
- We send the instructions by using **Arduino Programming Language**(based on **Wiring**) and **the Arduino Software (IDE)**, based on **Processing**
- All boards are Open-Source, empowering users to built them Independently & Eventually adapt them to their needs
- The Software is Open-Source too



HISTORY

- Was born at the Ivrea Interaction Design Institute in Italy.
- As soon as it reached a wider community(students, professionals, programmers, hobbyists and others), it started changing to adapt to new needs and challenges
- Over the years has been the brain of thousands of Projects, like:
 - simple 8-bit boards to products for IoT apps
 - wearable
 - 3D printing
 - Embedded Environments



WHY ARDUINO?

- They are many other micro-controllers & micro-controller platforms available for physical computing
 - Parallax Basic Stamp
 - Netmedia's BX-24
 - Phidgets
 - MIT's Handyboard, and many others
- Arduino does the same thing like the others, but it offers some advantage for teachers, students and interested amateurs over the systems:
 - **Inexpensive:** Arduino boards are relatively inexpensive compared to other micro controller platforms. The least expensive version of the Arduino module can be assembled by hand, and even the pre-assembled Arduino modules cost less than 50€.
 - **Cross - Platform:** The Arduino Software (IDE) runs on Windows, Macintosh OSX and Linux OS.
 - **Simple, Clear Programming Environment:** The Arduino Software (IDE) is easy-to-use for beginners, yet flexible enough for advanced users to take advantage if as well. For Teachers, it's conveniently based on the processing programming environment, so students learning to program in that environment will be familiar with how Arduino IDE works.
 - **Open-Source & Extensible Software:** The Software is published as open-source tools, available for extension by experienced programmers. The language can be expanded through C++ libraries, and people wanting to understand the technical details can make the leap from Arduino to the AVR C Programming language on which it's based. Similarly, you can add AVR-C code directly into your Arduino programs if you want to.

— **Open-Source & Extensible Hardware:** The plans for Arduino boards are published under Creative Commons license, so experienced circuit designers can make their own version of the module, extending it and improving it. Even relatively inexperienced users can build the breadboard version of the module in order to understand how it works and save money.

ARDUINO BOARDS

- Various kinds of Arduino Boards are available
- The difference are based on the number of inputs & outputs(sensors, LED's, buttons, etc.)
- We will work on **Arduino UNO** board
- Some other boards:
 - ~ Arduino UNO R3 SMD
 - ~ Arduino Pro 3.3v/8MHz
 - ~ Arduino Pro mini 5v/16MHz
 - ~ Arduino fio
 - ~ Red Board
 - ~ Arduino mini 05
 - ~ Arduino Ethernet
 - ~ LilyPad Arduino 328 mini board
- You can find more about these boards and other boards [here](#).