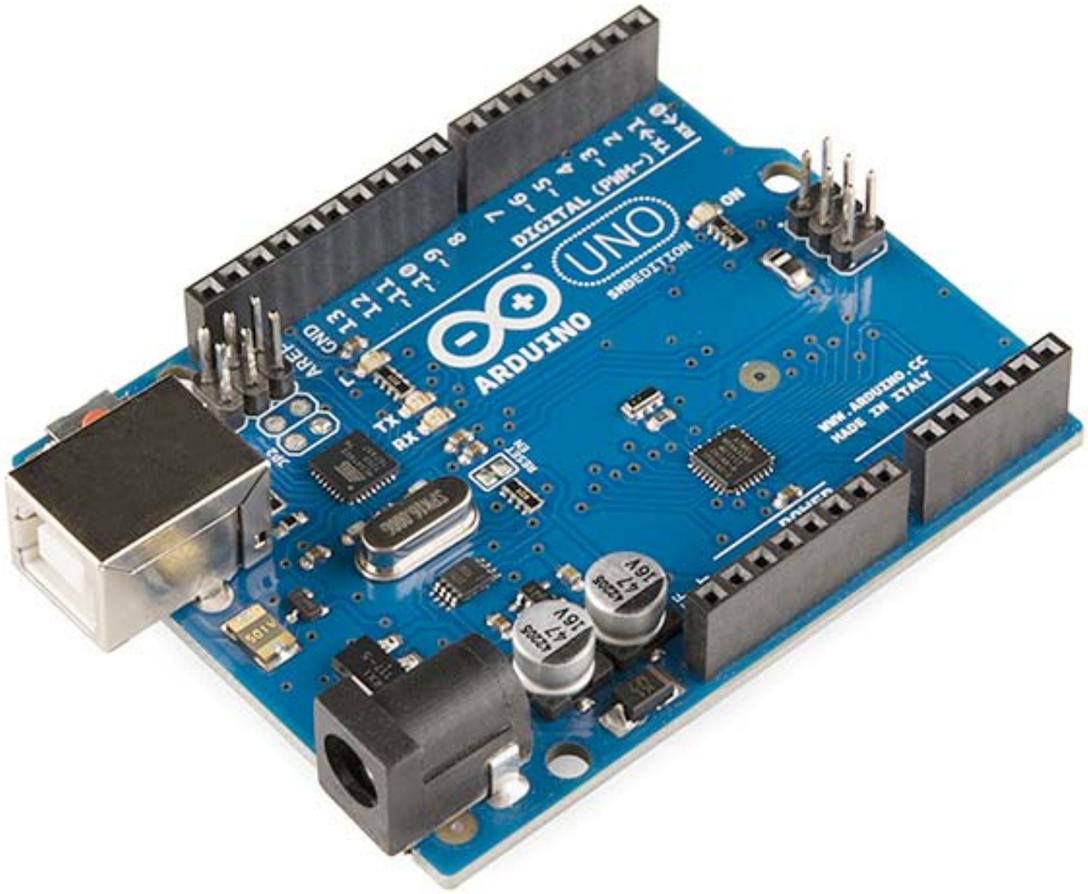
ARDUINO INTRODUCTION

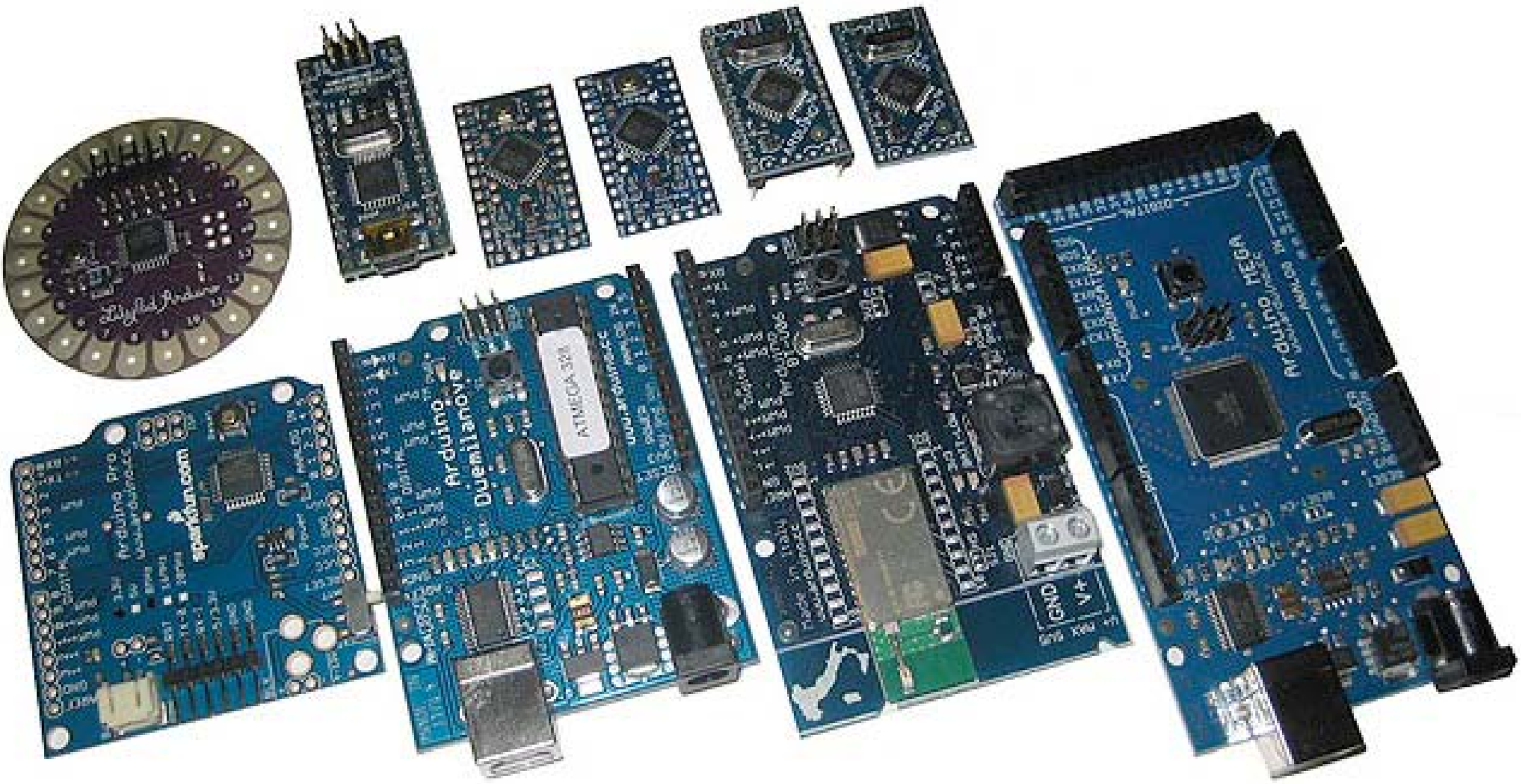


ARDUINO INTRODUCTION

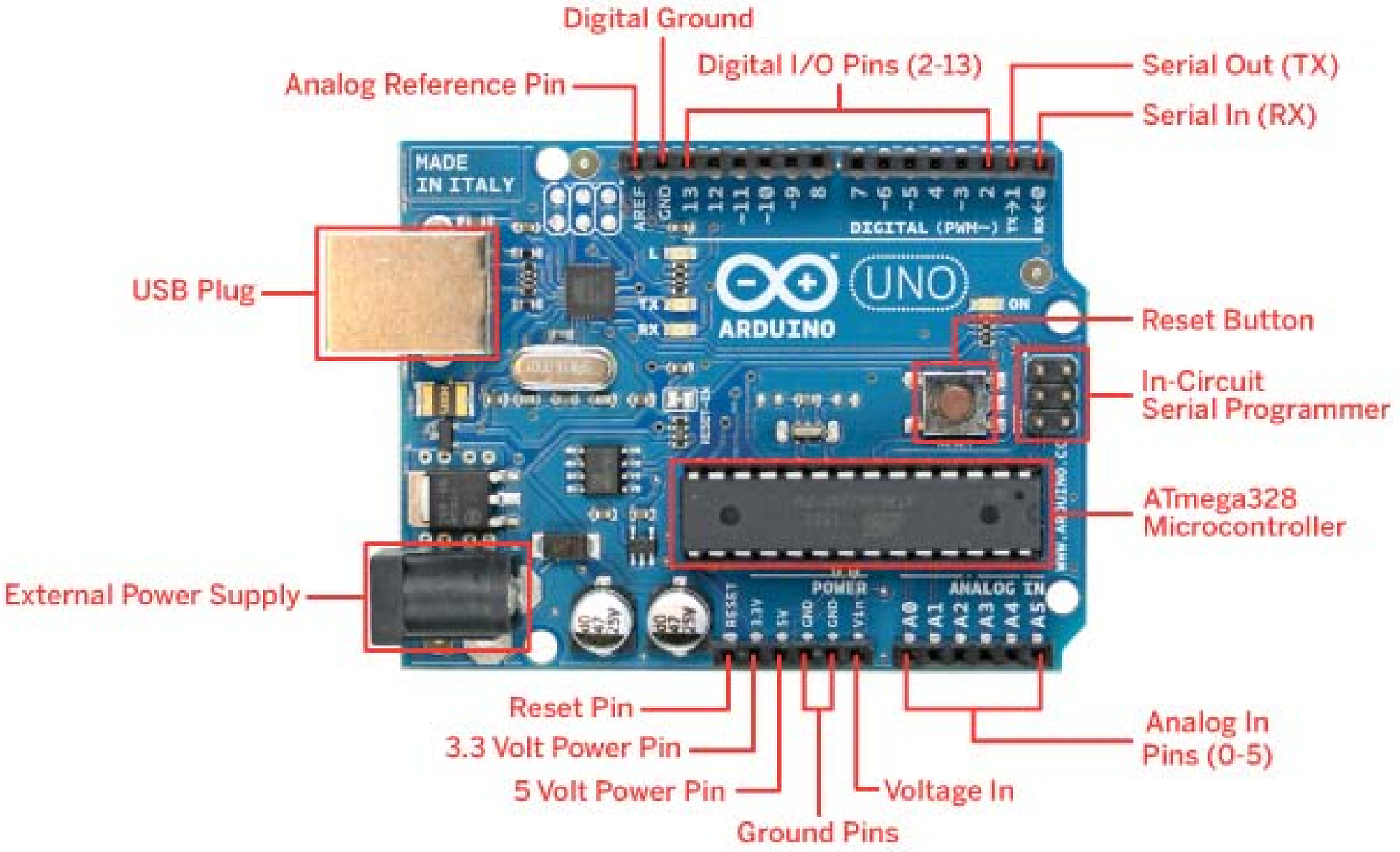
An Arduino is an open-source microcontroller development board.

You can use Arduino to read sensors and control things like motors and lights. This allows you to upload programs to this board which can then interact with things in the real world.

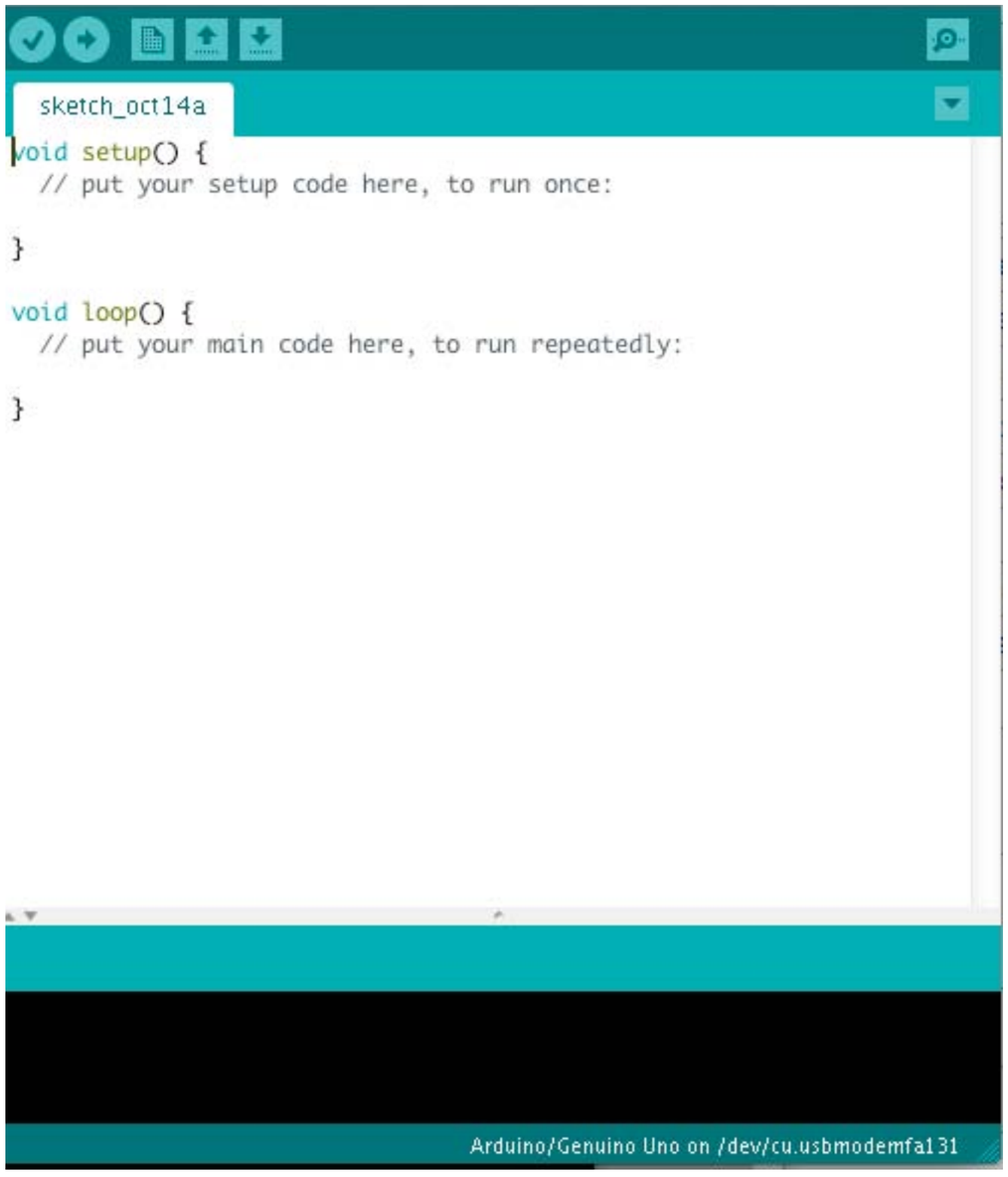
DIFFERENT TYPES OF ARDUINOS



ARDUINO ANATOMY



ARDUINO IDE
(Integrated Development Environment)

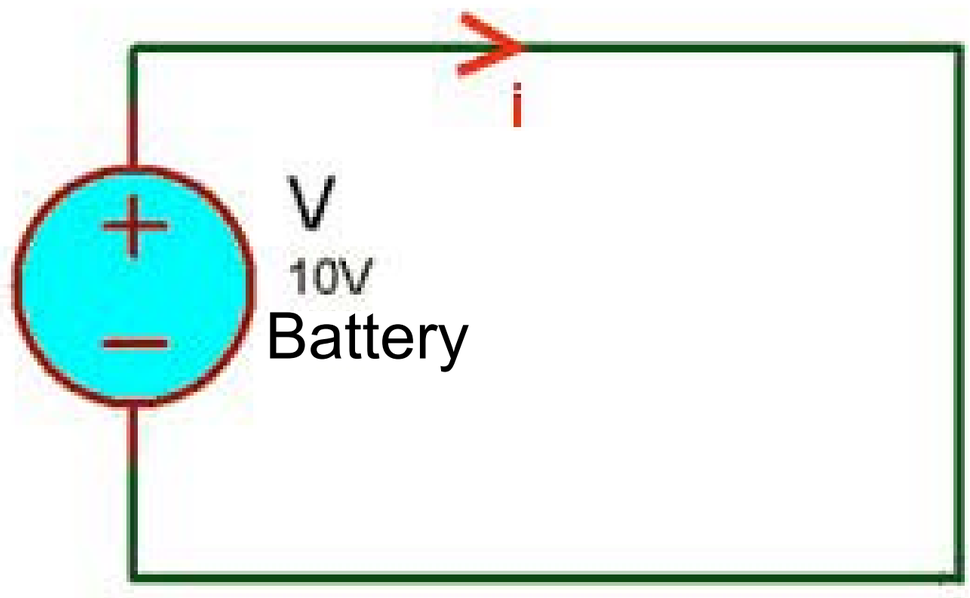


ELECTRONIC INTRODUCTION

CURRENT

Continuous movement of free electrons through the conductors of a circuit.

The current has a flow direction. From the positive pole to the negative pole. Only if these two poles are linked. This is the conventional principle for current flow.



ELECTRONIC INTRODUCTION

INTENSITY

The intensity of the current is the speed at which the current circulates.

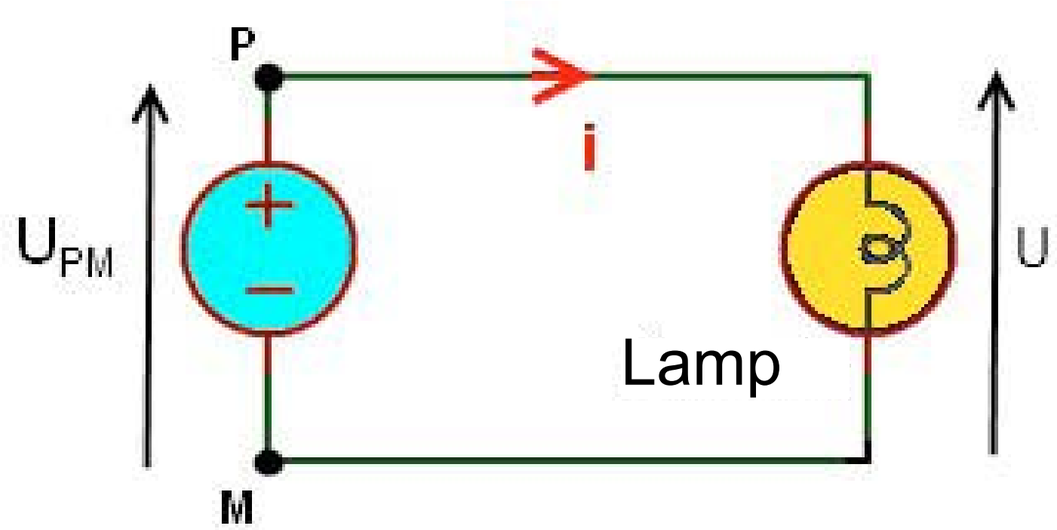
We measure the intensity in Amps (A) with an ammeter.

ELECTRONIC INTRODUCTION

VOLTAGE

Force motivating electrons to «flow» in a circuit

Voltage is measured in Volts.
We use the letter U to
represent the voltage.



ELECTRONIC INTRODUCTION

GROUND

The mass is a reference point. In electronics, we can see the mass as the zero volt (0V). This is the point to measure many of the tensions present in a montage.

On your Arduino, the ground is marked as GND.

RESISTORS

This is the component the most used in electronic. Its main function is to reduce the intensity of the current. The color bands on the resistors indicate the value of the resistance.

OHM'S LAW

I : Intensity (Amps)
U : Voltage (Volts)
R : Resistance (Ohms - Ω)

U = I * R

I = U / R

R = U / I

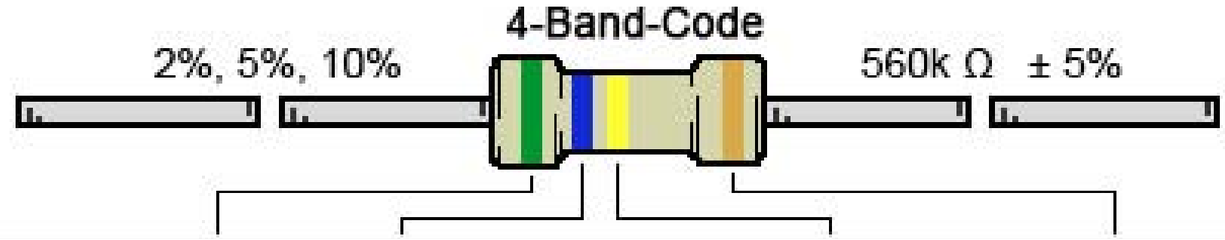
RESISTORS COLOR CODE

First Band
first digit

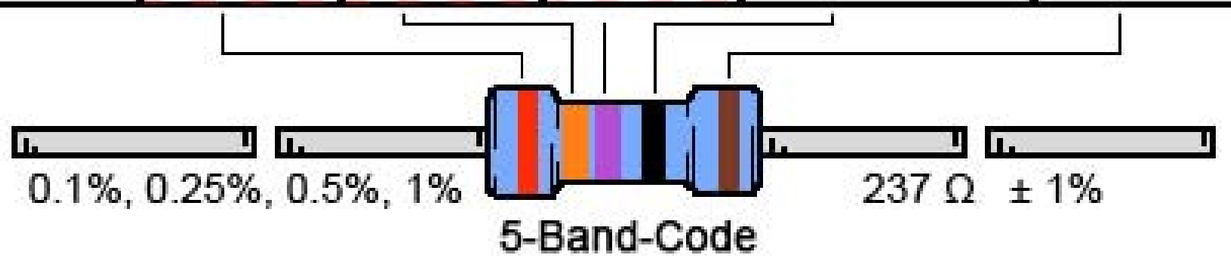
Second Band
second digit

Third Band
third digit

Fourth Band
multiplier



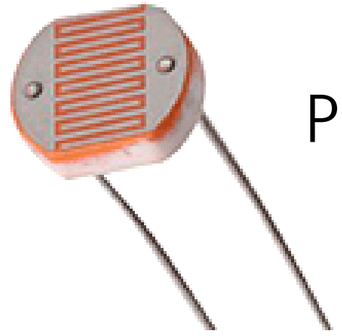
COLOR	1ST BAND	2ND BAND	3RD BAND	MULTIPLIER	TOLERANCE
Black	0	0	0	1Ω	
Brown	1	1	1	10Ω	± 1% (F)
Red	2	2	2	100Ω	± 2% (G)
Orange	3	3	3	1KΩ	
Yellow	4	4	4	10KΩ	
Green	5	5	5	100KΩ	± 0.5% (D)
Blue	6	6	6	1MΩ	± 0.25% (C)
Violet	7	7	7	10MΩ	± 0.10% (B)
Grey	8	8	8		± 0.05%
White	9	9	9		
Gold				0.1Ω	± 5% (J)
Silver				0.01Ω	± 10% (K)



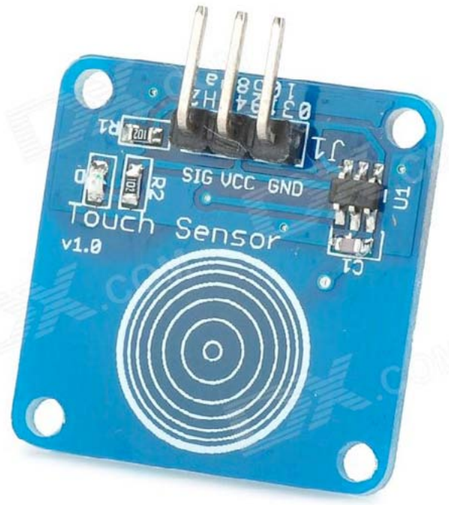
BUTTONS AND SWITCH

SENSORS

Gas sensor



Photoresistor

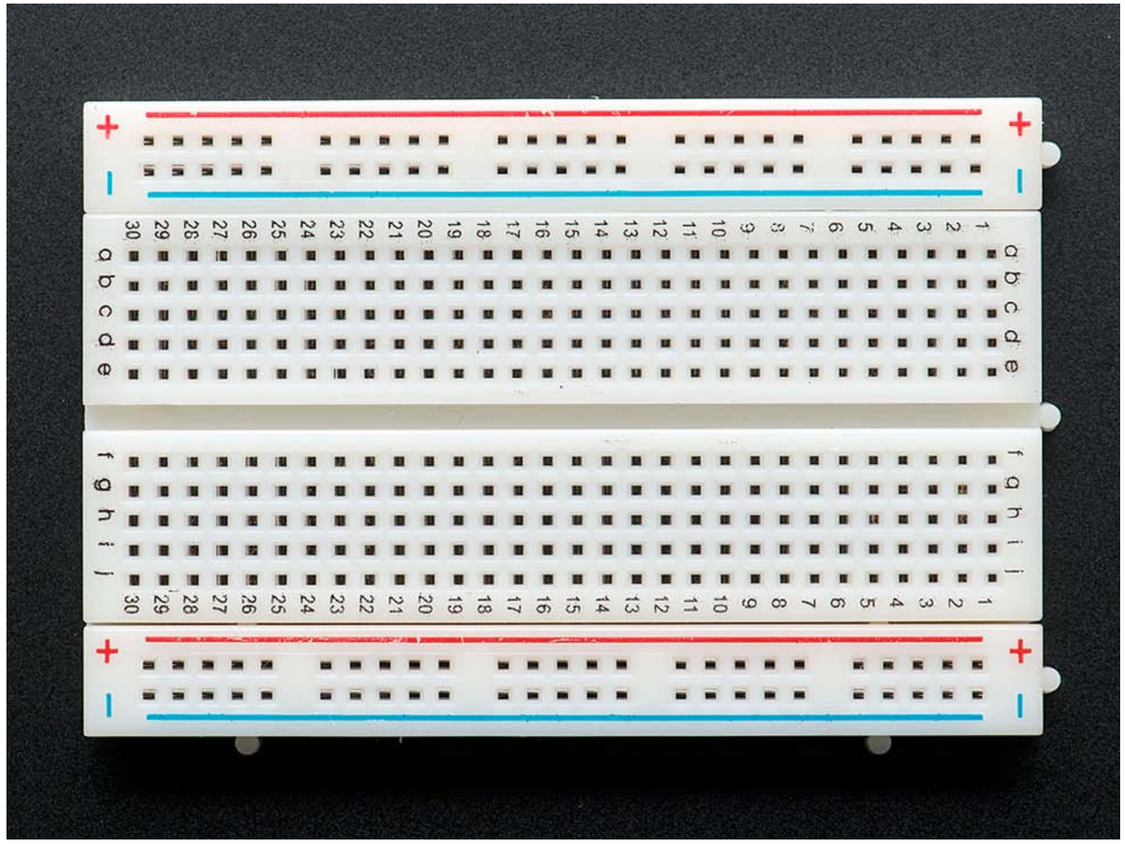


Touch sensor

Pulse sensor

Pressure sensor


HOLD
BACKLIGHT
10ADC
COM
VΩmA



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Useless but fun
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https://www.youtube.com/watch?v=iOLFP90DneY