

[dcc]

# INTRODUCTION TO ARDUINO

# References

- Arduino site and wikis, examples, tutorial

# What's Arduino

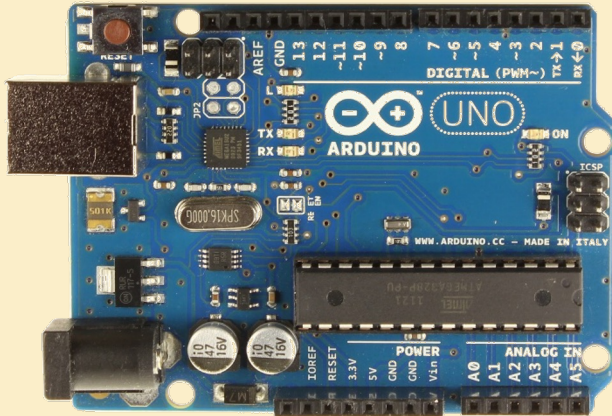
- From the company's site:

*"Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobbyists and anyone interested in creating interactive objects or environments."*

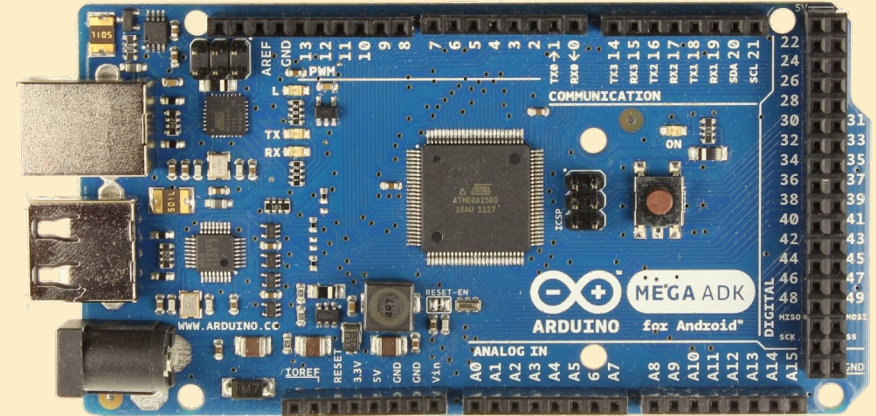
- You can build the boards or buy them preassembled.
- Software and hardware are open source
- More on What is Arduino?

# These are our Arduinos

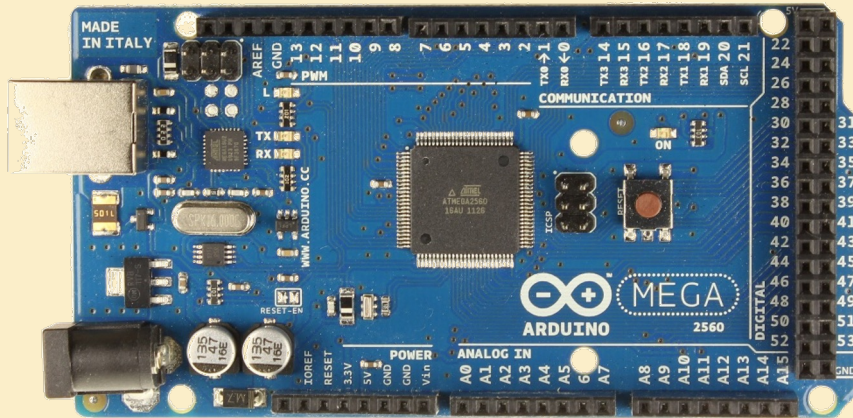
Arduino UNO



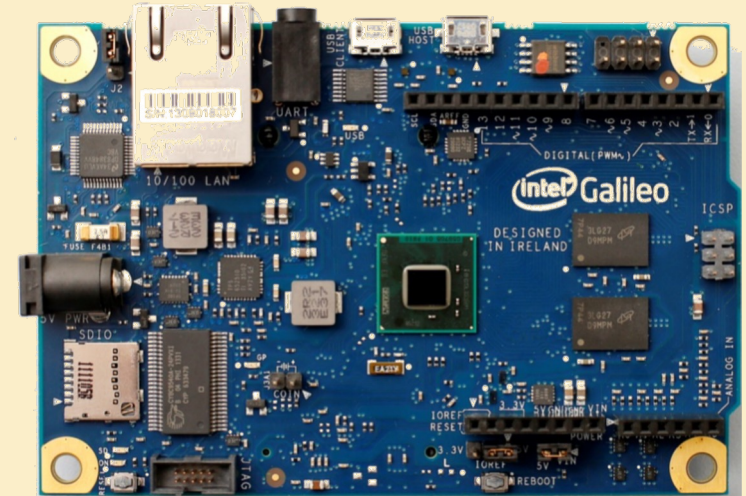
Arduino Mega ADK



Arduino Mega 2560



Arduino Galileo



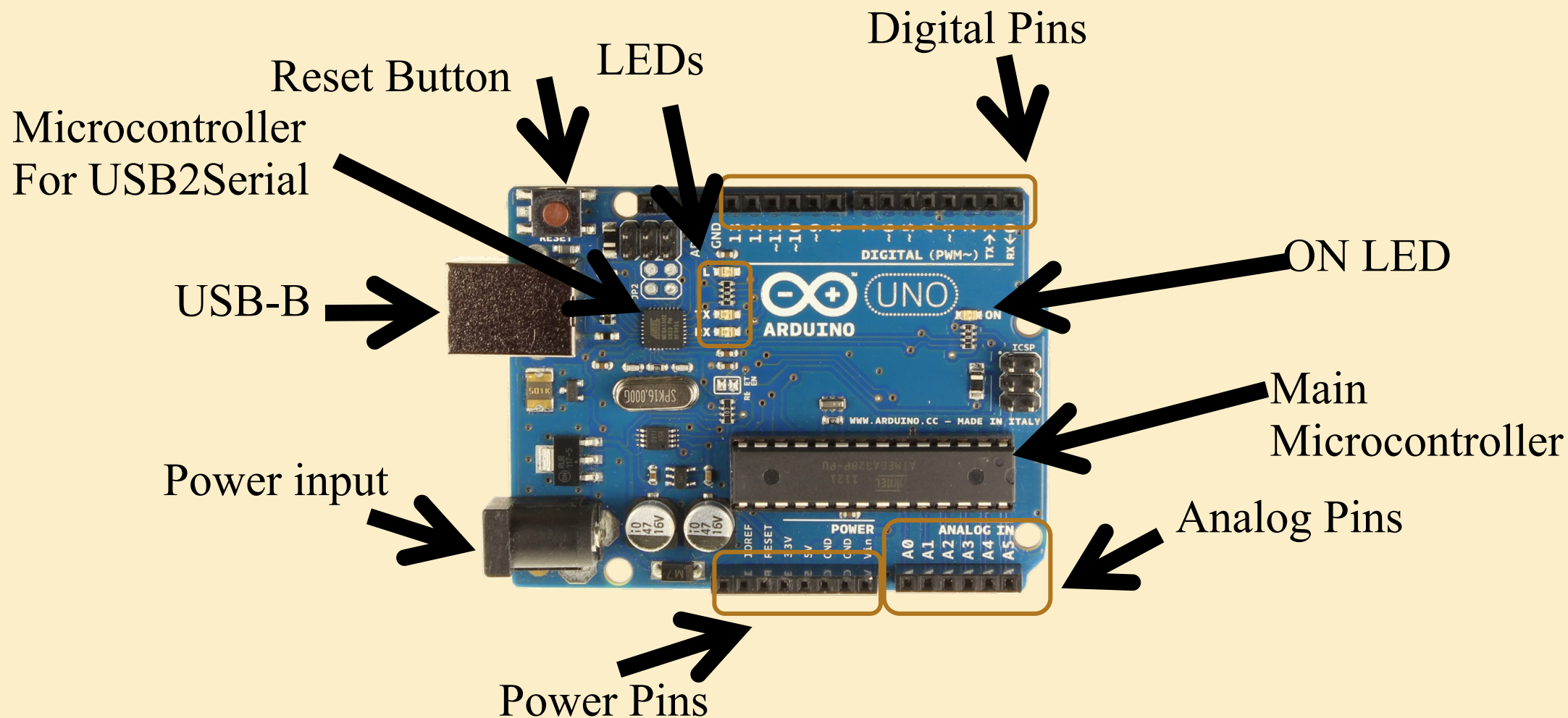
# Arduinos' Specs

## ■ ADK has a USB host

- It is intended to work with Android and its Accessory Development Kit (ADK)

Name	Processor	Operating Voltage/Input Voltage	CPU	Analog In/Out	Digital IO/PWM	EEPROM [KB]	SRAM [KB]	Flash [KB]	USB	UART
<u>Uno</u>	ATmega328	5 V/7-12 V	16 Mhz	6/0	14/6	1	2	32	Regular	1
<u>Mega 2560</u>	ATmega2560	5 V/7-12 V	16 Mhz	16/0	54/15	4	8	256	Regular	4
<u>Mega ADK</u>	ATmega2560	5 V/7-12 V	16 Mhz	16/0	54/15	4	8	256	Regular/Host	4
<u>Galileo V1</u>	Quark SoC X1000	3.3 V/5 V	400 Mhz	6/0	14/5	11	512	8192	Regular/Host	2
									DRAM 256 MB Mini-PCI 10/100 Ethernet	

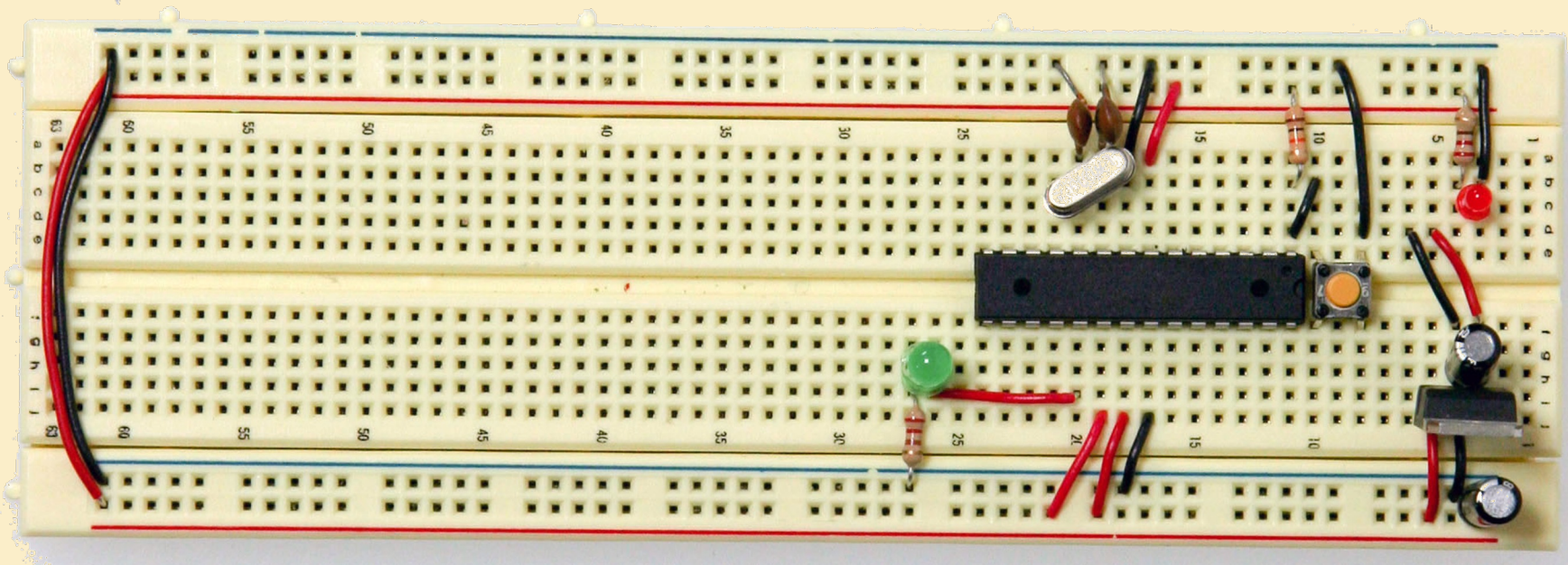
# Arduino UNO







# Breadboard and components



From [Arduino.cc](https://arduino.cc)

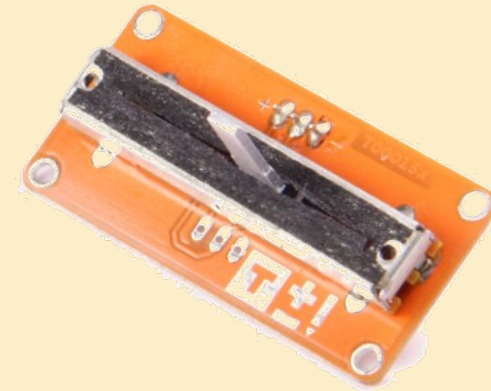
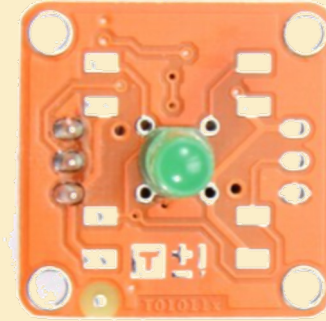
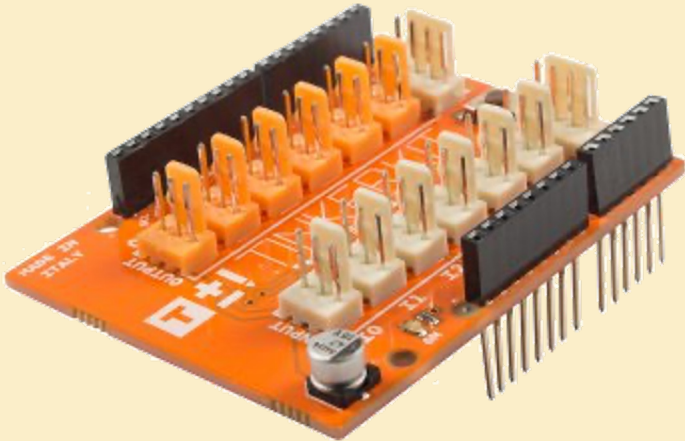


# Memories

- 3 pools in the microcontroller:
  - *Flash memory (program space), is where the Arduino sketch is stored.*
  - *SRAM (static random access memory) is where the sketch creates and manipulates variables when it runs.*
  - *EEPROM is memory space that programmers can use to store long-term information. (use EEPROM library)*
- As seen, SRAM in UNO is 2k → use it sparingly
  - *can store (immutable) variables in Flash (PROGMEM)*
    - Examples are strings for LCD display
  - *See the link for more*

From [Arduino.cc Memory](#)

# Electronics Quickie - Tinkerkit



# Electronics quickie - Breadboards

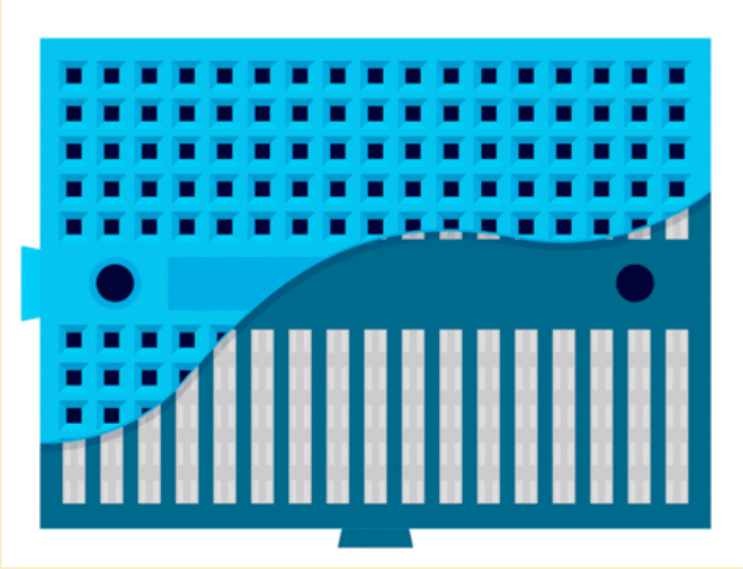


Image from [Pimoroni](#)

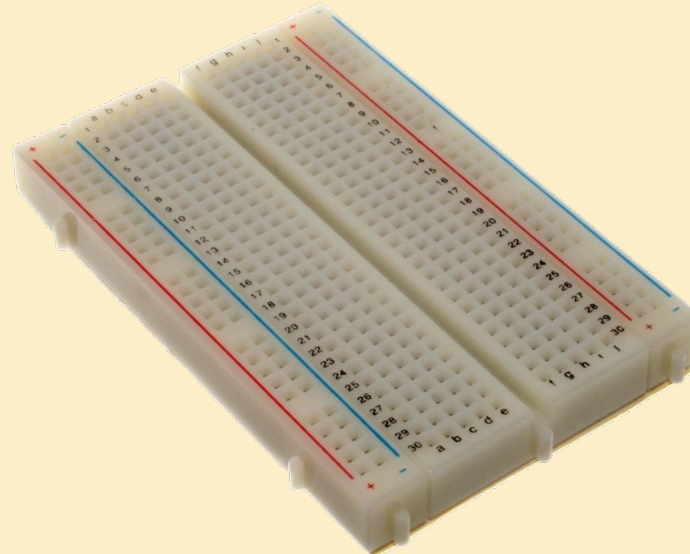


Image from [Wikipedia](#)

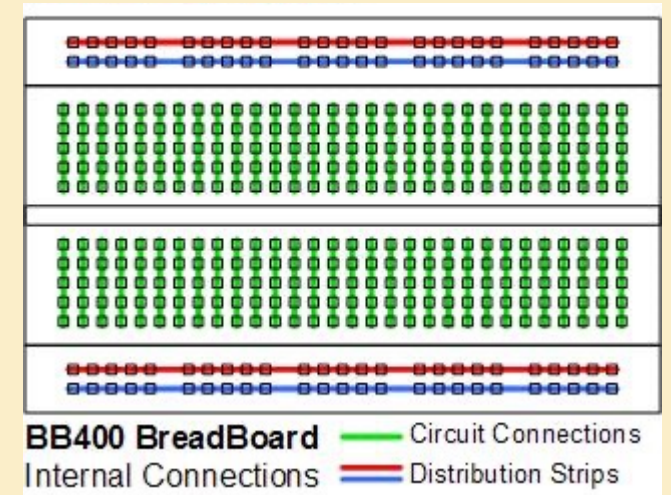
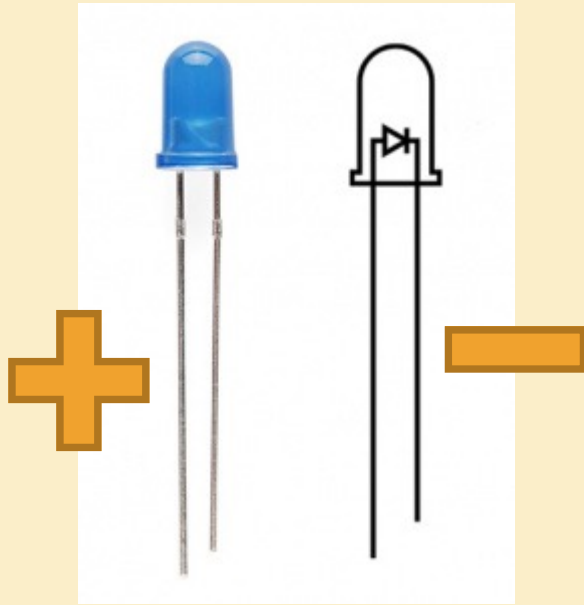


Image from [KornakProto Blog](#)

# LEDs and resistors



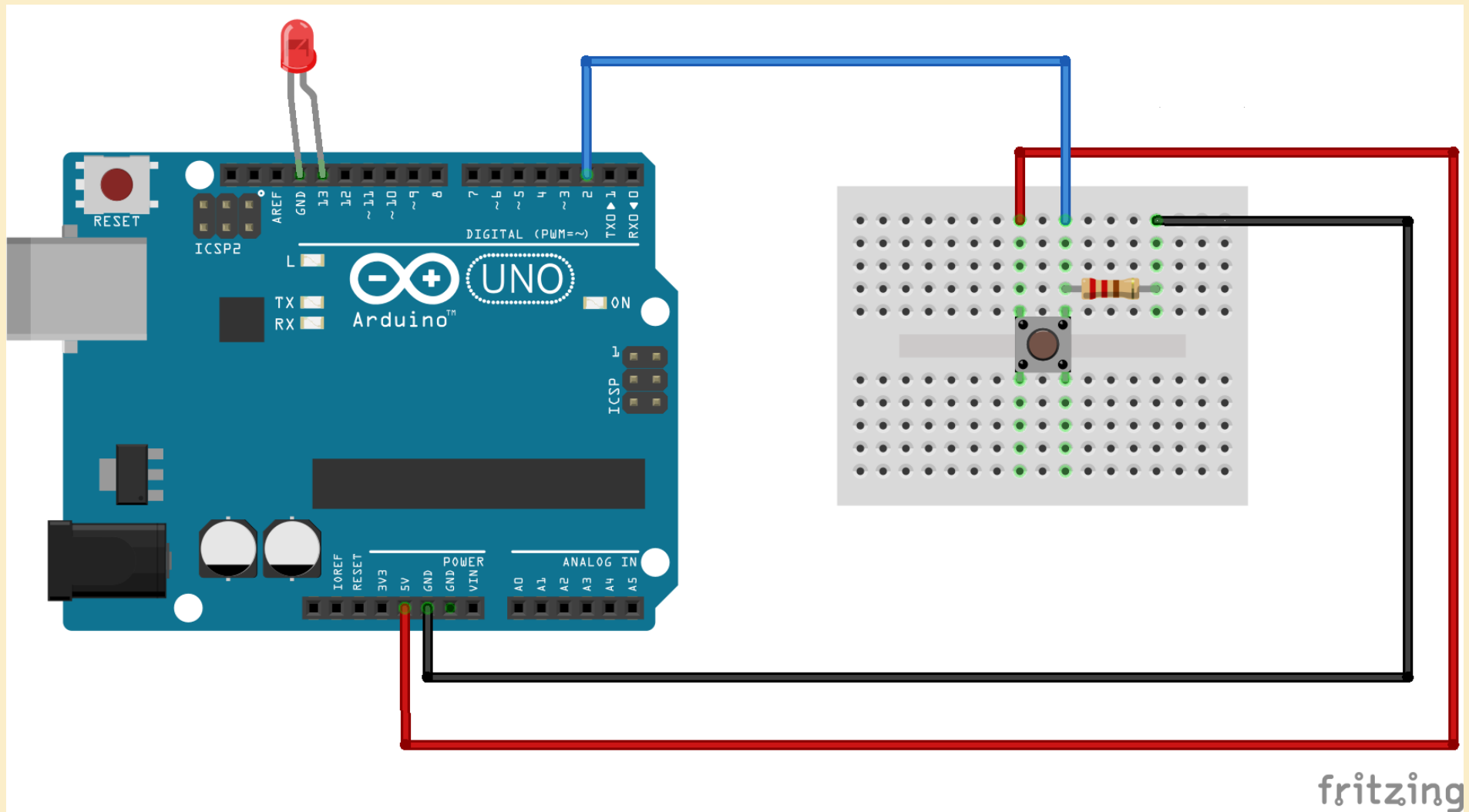
Images from [SparkFun](#)



Resistor calculator from [DigiKey](#)



# Connection example



fritzing

fritzing

# EXAMPLE

<https://www.arduino.cc/en/Tutorial/Blink>