Electronics

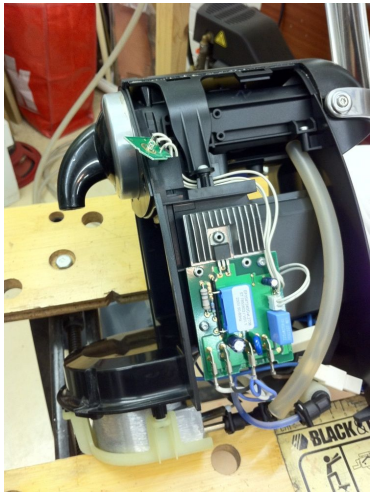
Arduino

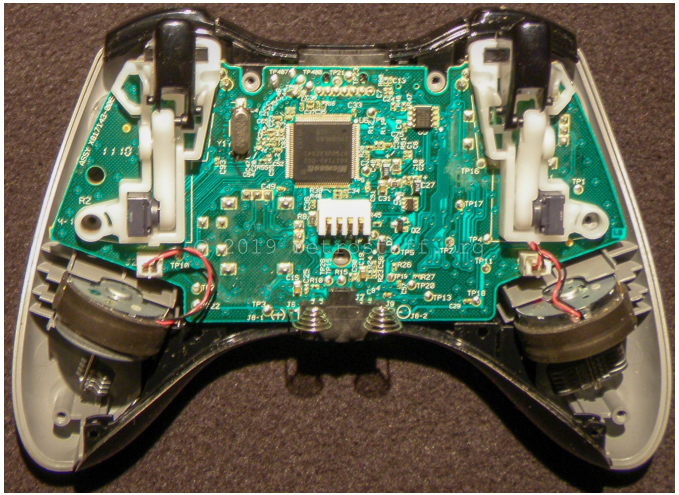
Arduino>> Electric boards

Every electrical appliance has an electric board, which is the mini-computer that controls how it works.

It does this by opening, closing and measuring electric circuits.

The board is built specifically for the one use, and has only one type of programme on it!





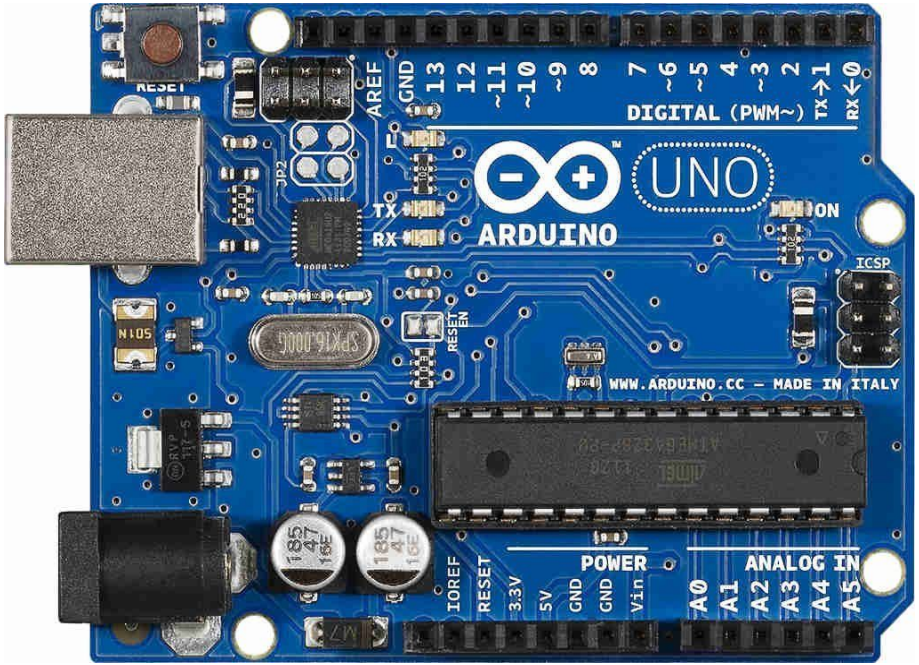
Arduino>> Electric boards

Arduino is a company that makes boards, off all different sizes, that allow for us to connect different parts and programme it differently each time.

The boards differ in sizes, how many things we can connect and which micro-chip it has.

Arduino>> Arduino Uno

The Arduino Uno is the board we'll use. It has lots of uses and it is easy to programme to fit our needs.



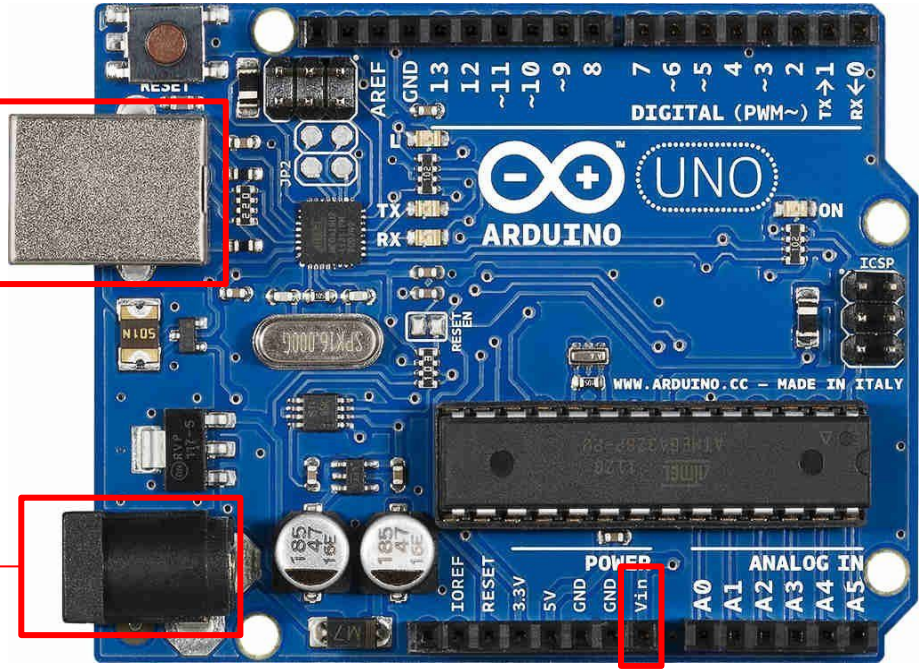
Arduino>> Arduino Uno

The USB is used to load a programme into the board, and also to supply it with electricity.

Once the programme is loaded, we can use either the USB cable or the battery plug to supply it with power.
There is also an option to supply power through a pin.

USB Power supply

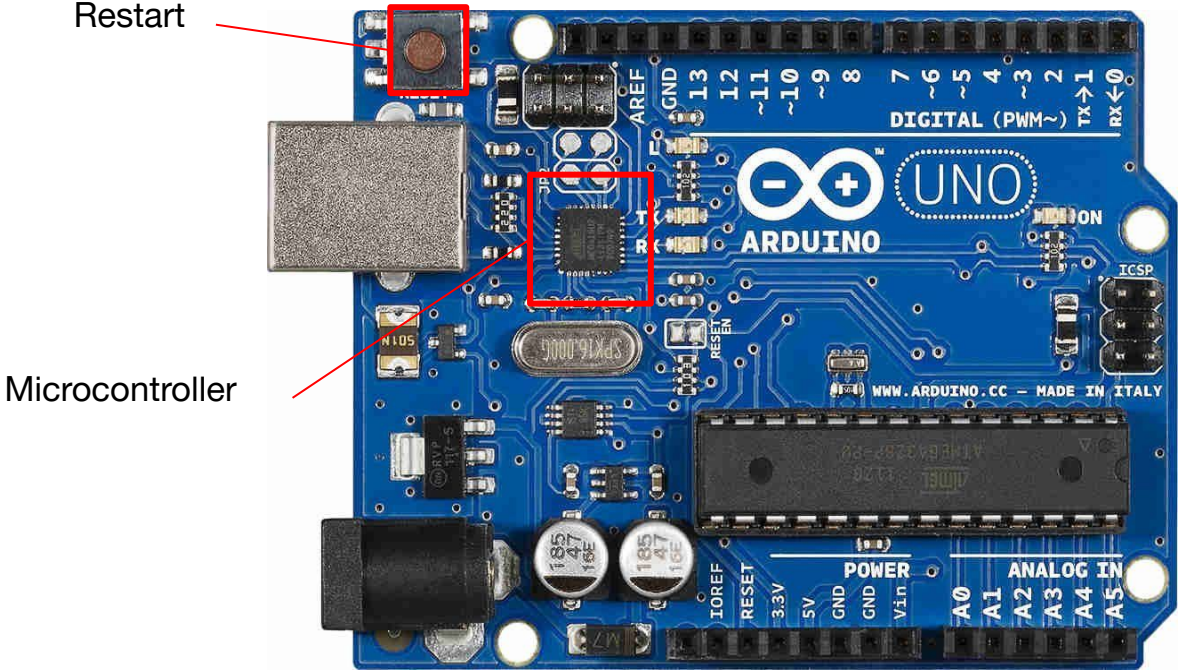
Battery Power supply



Arduino>> Arduino Uno

This chip is the “smart” part of the arduino. It is the computer which remembers and executes the programme we loaded into it.

If the programme has run and we want to restart it, we can press the restart button.

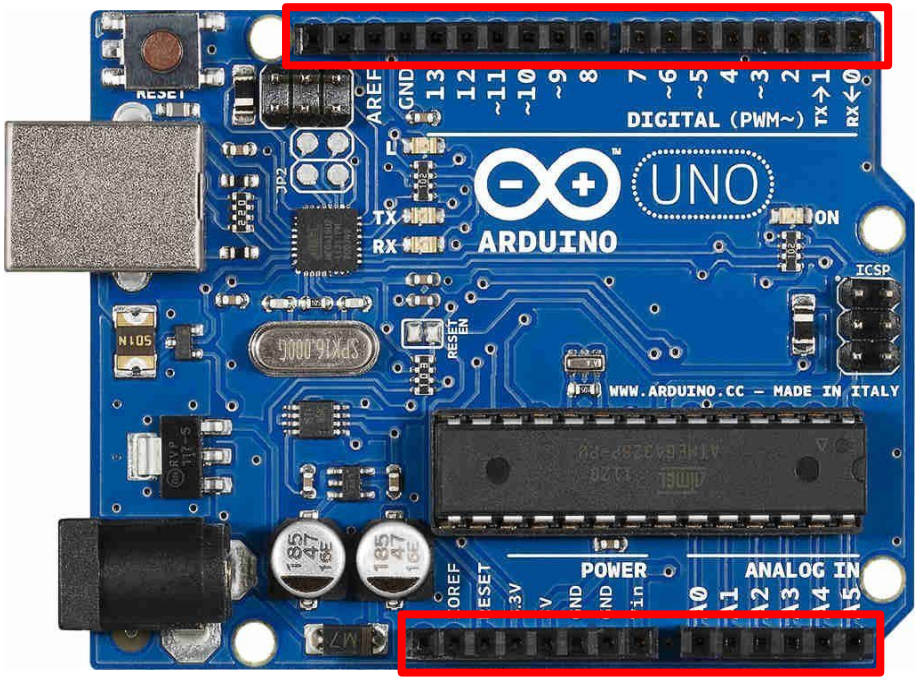


Arduino>> Arduino Uno

The ports are where we connect our components to complete electric circuits.

The pins are numbered so we can control each one separately.

Digital Ports



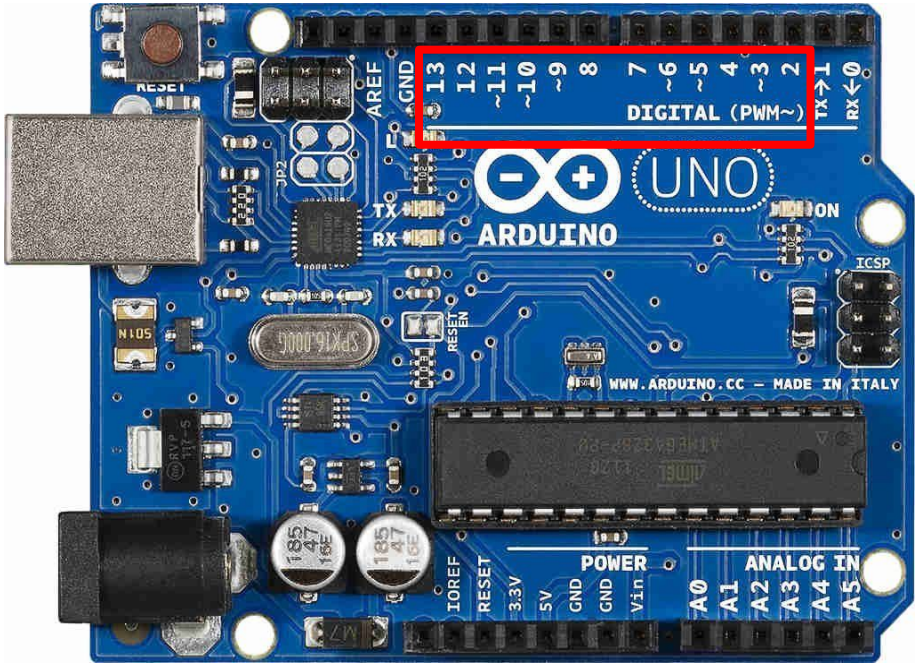
Analog/ Power Ports

Arduino>> Arduino Uno

Digital pins are used to output a signal. They can be HIGH or LOW, which means supplying 5V, or not supplying any V.

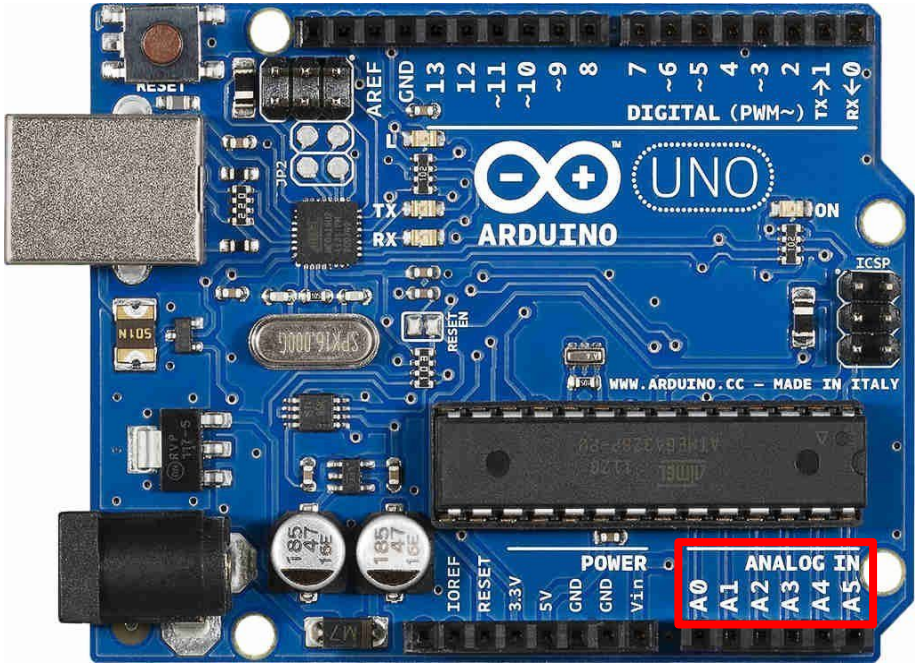
They can also be used to read the V coming in- with HIGH being any V, and LOW being no V.

Digital Ports



Arduino>> Arduino Uno

Analog pins can measure the voltage coming in, which should range from 0V to 5V. Unlike the digital pins, these pins can read a range of values.



Analog Ports

Arduino>> Arduino Uno

The 5V and 3.3V ports are used to supply a steady stream of power, with the respective voltage.

The GND ports are used to close the circuits. (The GND is the ‘-’ of the circuit).

Anything connected to the Arduino must connect back to one of these ports, either directly or using the breadboard. If it doesn’t, the circuit isn’t complete and no current will flow.