

## List of abbreviations, special terms and acronyms

### ***A/D and D/A***

Analogue to digital and digital to analogue conversions; for A/D a physical quantity that reaches physically the  $\mu\text{C}$  is first transformed into an electric signal and then into a number that can be processed, while for D/A the opposite process takes place.

### ***GND***

GrouND signal (0 Volt signal level)

### ***HMI, MMI***

Human machine interface, man machine interface. The strategies and signals used by the machine to communicate to the human part the action(s) needed, or the required input to the machine.

### ***I/O***

Input/Output, i.e. what the microcontroller reads from/writes towards the external “world”.

### ***$\mu\text{C}$***

Microcontroller, a device able to execute instructions, store and read data to and from memory, read physical signals from outside transforming them into digits, and write digits towards the external world, transforming them into physical quantities.

### ***PWM***

Pulse Width Modulation, a technique that allows modulating a digital signal in order to get analogue effects; in detail, you pulse a 0-1 signal, keeping the 1 level active a longer percentage of the total cycle time if you want a stronger signal (i.e. in LEDs), while you keep it shorter if you want to decrease its intensity. On Arduino it is normally used for light or sound signals.

### ***Signal***

Physical quantity that is sampled/produced (resp. for I/O) by a transducer, converted in an electric quantity and interpreted as number by the microprocessor.

### ***Transducer***

A sensor (input device) or an actuator (output device), as they convert a signal (a detected physical quantity) with a physical form (like light) to another signal having another physical form (e.g. electric).