

# Control systems and robotics

An **automated process** continuously repeats the action that it is designed to carry out. A set of interconnected elements which allow the automation of a process is called a **control system**.

Some automated systems only carry out the same action. Other can modify this action by changing their programs. They are **intelligent control systems**.

Intelligent control systems work in a similar way to a human being. That means, we receive information from the outside world thanks to our senses (sight, hearing, smell, taste and touch) our brain processes this information and through our muscles or our voice we perform different actions. Intelligent control systems: they receive information from the environment thanks to different **sensors**, they process this information in **controller boards** (like Arduino) and give a response using different **actuators**.

A **robot** is an **intelligent automated system** capable of:

- **sensing** its environment,
- carrying out **operations** to make decisions
- performing **actions** in the real world.

So the main elements in every robot, as we learned in programming, will be:

- **Input:** information received by **sensors**
- **Process:** to perform operations/ make decisions with this input. This is made by the **controller** board.
- **Output:** response produced by **actuators** that can be mechanical, electric, pneumatic....

The task of a robot can be modified by changing its program.

Information extracted from:

- <https://robotsguide.com/learn/what-is-a-robot>

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