

HOW A ROBOT WORKS

HUMAN BEINGS ARE MADE UP OF FIVE MAJOR COMPONENTS:

- 1) A BODY STRUCTURE
- 2) A MUSCLE SYSTEM
- 3) A POWER SOURCE (HEARTH) TO ACTIVATE MUSCLES
- 4) A SENSORY SYSTEM (NERVOUS SYSTEM)
- 5) A BRAIN

**A ROBOT CONSISTS OF THE SAME COMPONENTS ,
THEY'RE ESSENTIALLY MACHINES THAT
REPLICATE HUMAN BEHAVIOUR.**

The ROBOT has a moveable physical structure and an artificial muscle system (made by hydraulic or pneumatic system) .

The power source is mostly electric, powered by a battery or directly connected to the plug.

HOW DOES A ROBOT MOVE/WORK ?

The electric circuit powers the motor and and activate the hydraulic or pneumatic system, then the pressurized liquid or gas passes through the machine. Doing this for example if the robot has to move a leg, the controller opens a valve and so the fluid activate the piston to make the leg move.

IN THE END A ROBOT IS AN ELECTRICAL, HYDRAULIC , PNEUMATIC AND AUTOMATED MACHINE. IT'S A VERY COMPLEX MACHINE!

AS WE SAID BEFORE, A ROBOT IS VERY SIMILAR TO A HUMAN BEING, BUT
CAN A ROBOT BE AWARE OF THE SURROUNDING ENVIRONMENT?

Few robots can see or hear, as it is very difficult to create a sensory system that can let the robot interact with the surrounding area;
Sometimes robots have a camera to see, but then a sophisticated computer should interpret visual information. It is quite difficult.
The most common ability of a robot is to **monitor movements**:

Using a sensor similar to that of a PC mouse, so based on light sensors.
The robot brain is a computer that controls all the elements and the work of sensors . The computer controls all the valves and the motors, switching them on or off.

WHERE ARE ROBOTS EMPLOYED?

Industry, science, medicine, transportation, space exploration and military applications. It is easier to say: everywhere, anytime.

How many kind of robots do exist?

- 1) **HUMANOID**S: They physically replicate human beings, so they are very complex as they can replicate human behaviour. Apart from entertaining (they can dance, talk, sing...) they have no application today. In the future they will probably be employed in healthcare.
- 2) **INDUSTRIAL ROBOTS**: They represent the most common and widespread use of robots. They can easily do repetitive tasks, and compared to humans they provide accuracy, reliability, speed and endurance. Today they are commonly used in agriculture too.
- 3) **AUTONOMOUS MOBILE ROBOTS**: commonly used in transportation of heavy materials, they move in self-guided path controlled by a computer.
- 4) **APPLIANCE ROBOTS**: For domestic use, as for example wireless vacuum cleaners, they are used to do specific tasks without human help. They have sensors to avoid obstacles.

REMOTE CONTROL ROBOTS: They are not strictly robots, as they work by distance. They are controlled by a computer and with the help of cameras; commonly use in the military field as to deal with unexploded bombs, but also in the space exploration (whereas it is impossible to work for humans) and in surgery too.