

Assignment 2

AUTOMATE YOUR LIFE

Devices – from ancient windmills to modern computers – are basically networks (systems) of 'transducers'. A transducer is an energy-converter: it inputs one kind of energy, and converts and outputs it as another kind of energy.

Transducers whose main function is to detect the state of something in the world – like a weathercock (segnavento) – are called 'sensors'. Transducers whose main function is to change the state of something in the world – like a windmill (mulino a vento) – are called 'actuators'.

Electrical technology facilitated 'automation': systems of sensors and actuators, working together – with no or little human intervention – to detect the state of the world and change it accordingly. Computing allowed these systems to have more complex behaviour. And telecommunication technology, especially wireless, now allow sensors and actuators, interacting as automatic systems, to be multiplied and distributed all around us.

- 1 My bedroom window sees that I am starting to wake up. It is a sunny day, so the window opens its shutters and tells my bed to begin its quiet journey. When the bed enters my bathroom, it gently lowers one end and raises the other end until I am vertical. The WC detects that I am facing it; so, correctly assuming that I am male, it says 'Good morning, sir', slowly raises its seat, and starts to sing my current favourite songs. A perfect day begins. (You need not follow this. It's just an example)
- 2 Imagine your perfect automated day (or part of it) and the devices or systems which support it
- 3 On a display of one or more A3 sheets, make a storyboard or strip cartoon (*fumetto*) of the day
- 4 On another poster of one or more A3 sheets, draw an abstract diagram of the systems to show: Which elements are sensors? Which elements are actuators? What are their inputs? What are their outputs? (A possible diagram, for instance, has icons for each sensor/actuator, joined by input/output arrows)
- 5 Write your full name (*nome e cognome*) on your display
- 6 When you arrive at the next lesson, immediately fix the display to the wall and be prepared to explain it to everyone.