

Technology driven Interactions

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Interaction design

Interaction designers strive to create useful and usable products and services. Following the fundamental tenets of user-centered design, the practice of interaction design is grounded in an understanding of real users—their goals, tasks, experiences, needs, and wants. Approaching design from a user-centered perspective, while endeavoring to balance users' needs with business goals and technological capabilities, interaction designers provide solutions to complex design challenges, and define new and evolving interactive products and services.

Interaction Design Association (IXDA)

Wearable Technologies

Wearable technology, fashionable technology, wearable devices, tech togs, or fashion electronics are clothing and accessories incorporating computer and advanced electronic technologies. The designs often incorporate practical functions and features

Wearable Technologies

E-textiles

E-textiles, also known as electronic textiles, smart textiles, or smart fabrics, are fabrics that enable digital components (including small computers), and electronics to be embedded in them.

Many intelligent clothing, smart clothing, wearable technology, and wearable computing projects involve the use of e-textiles.

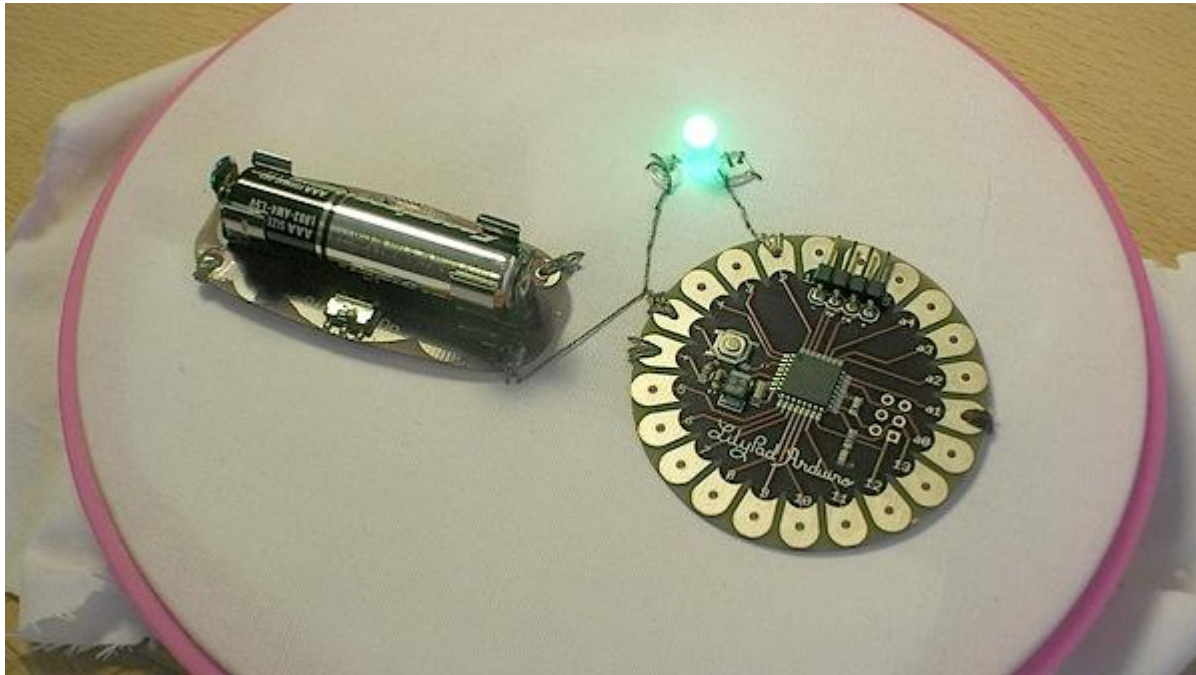
Wearable Technologies

E-textiles



Wearable Technologies

E-textiles



Wearable Technologies

Activity trackers

An activity tracker is a device or application for monitoring and tracking fitness-related metrics such as distance walked or run, calorie consumption, and in some cases heartbeat and quality of sleep. The term is now primarily used for dedicated electronic monitoring devices that are synced, in many cases wirelessly, to a computer or smartphone for long-term data tracking

Wearable Technologies

Activity trackers



Wearable Technologies

Smartwatch



Wearable Technologies

Smartwatch



Wearable Technologies

SmartGlasses



Wearable Technologies

SmartGlasses



Wearable Technologies

Smart Tag



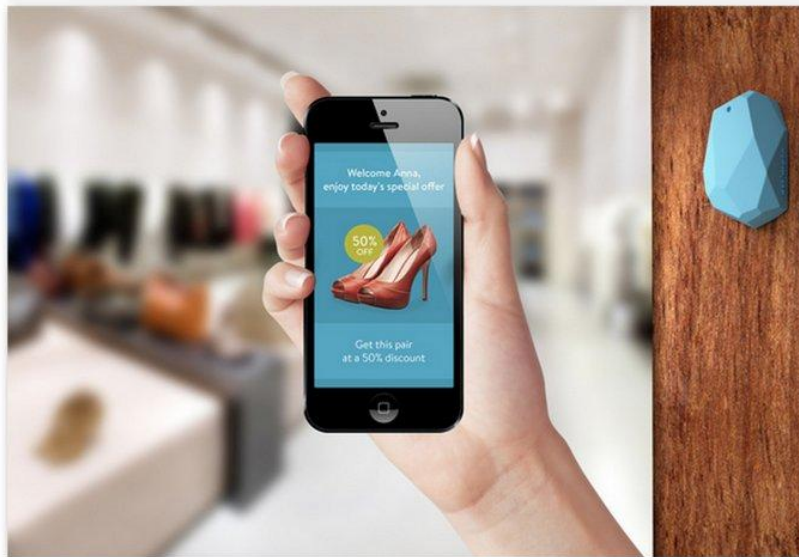
Technological Tools

- Environments, frameworks
- Proprietary
- Evaluation on Technological penetration of the tool
- Data Gathering
- Outcome evaluation

Augmented Reality



iBeacon



iBeacon

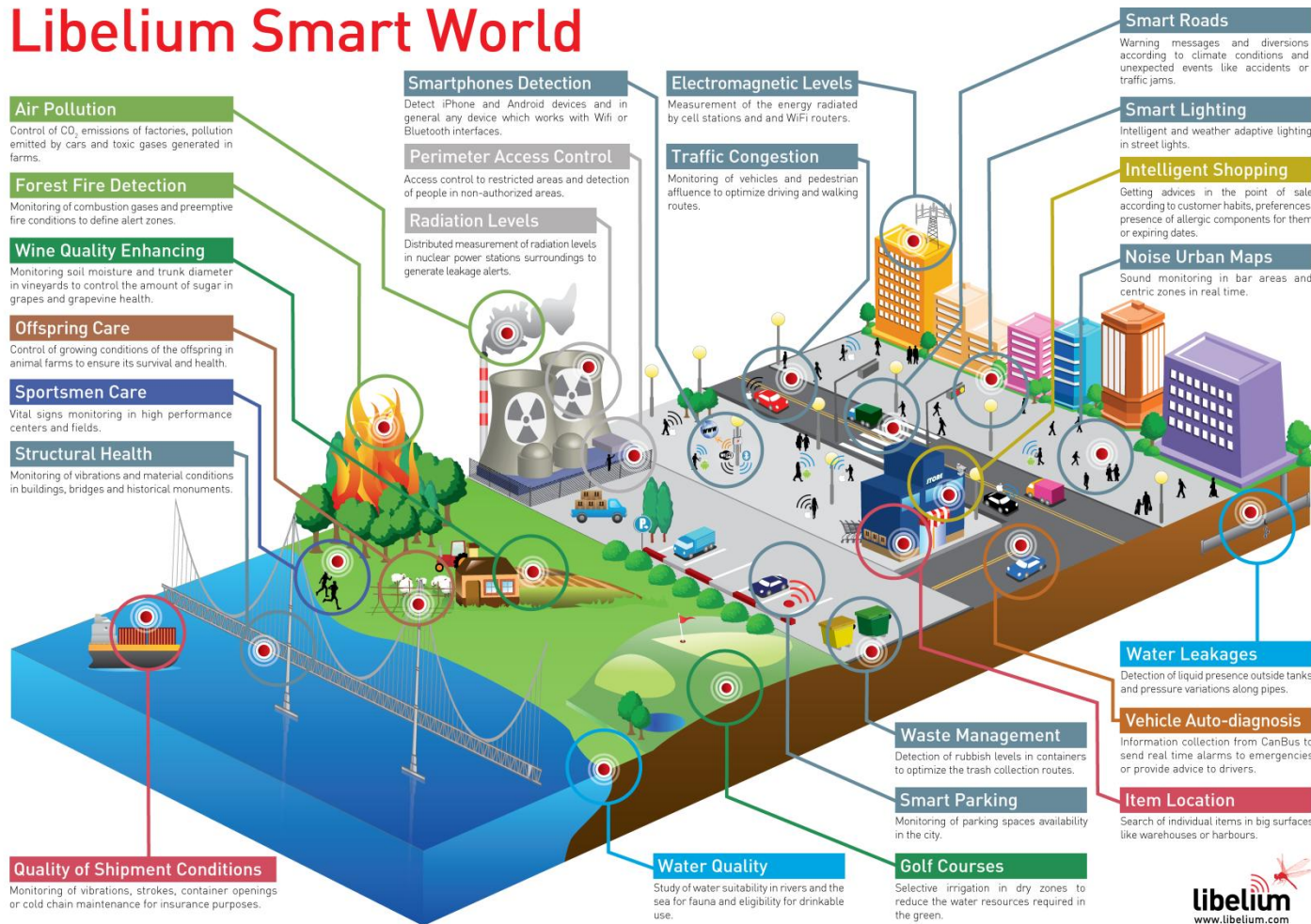


IoT

The Internet of Things (IoT) is the interconnection of uniquely identifiable embedded computing devices within the existing Internet infrastructure. Typically, IoT is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communications (M2M) and covers a variety of protocols, domains, and applications. The interconnection of these embedded devices (including smart objects), is expected to usher in automation in nearly all fields, while also enabling advanced applications like a Smart Grid.

IoT

Libelium Smart World



SMART

- Collecting DATAs
- Analyzing DATAs
- Interconnection
- Experience Delivery

Interaction Design: simple facts

- It's all about creating experiences
- Designer is the first user
- Goal Driven

Interaction Design and Technology

- The goal is designing a meaningful experience
- Technology is a tool in a context
- Abandon the general Design Principles

Interaction Design: principles

- Simplicity:

The design should make simple, common tasks easy, communicating clearly and simply in the user's own language

Interaction Design: principles



Interaction Design: principles

- Visibility:

The design should make all needed options and materials for a given task visible without distracting the user with extraneous or redundant information

Interaction Design: principles



Interaction Design: principles

- Feedback

The design should keep users informed of actions or interpretations, changes of state or condition, and errors or exceptions that are relevant and of interest to the user through clear, concise, and unambiguous language familiar to users.

Interaction Design: principles

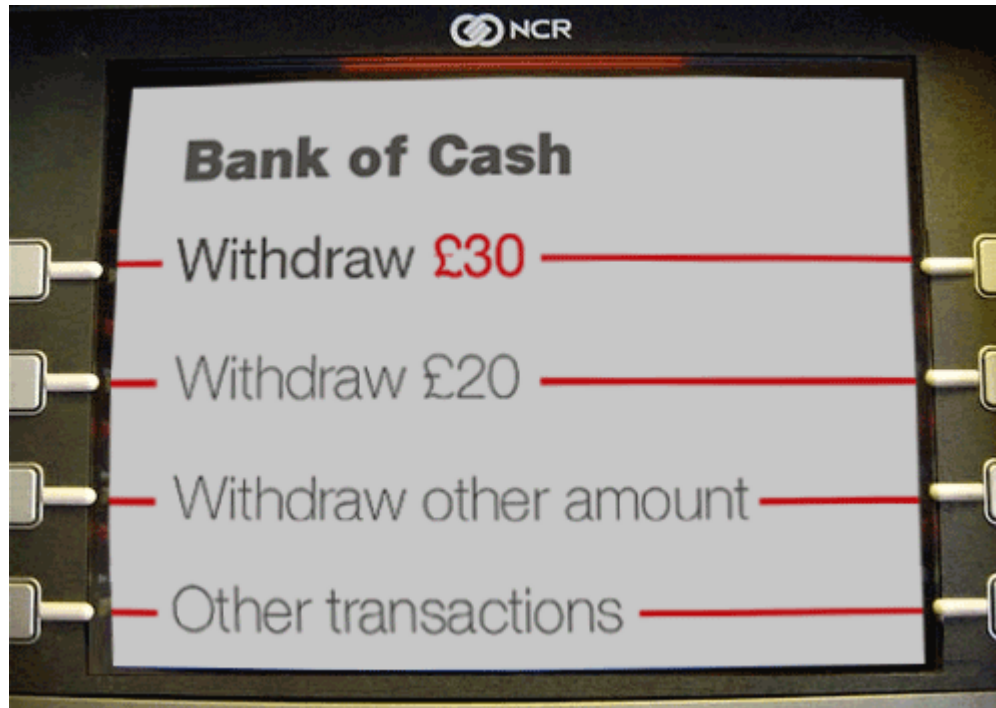


Interaction Design: principles

- Tolerance

The design should be flexible and tolerant, reducing the cost of mistakes and misuse by allowing undoing and redoing, while also preventing errors wherever possible by tolerating varied inputs and sequences and by interpreting all reasonable actions.

Interaction Design: principles

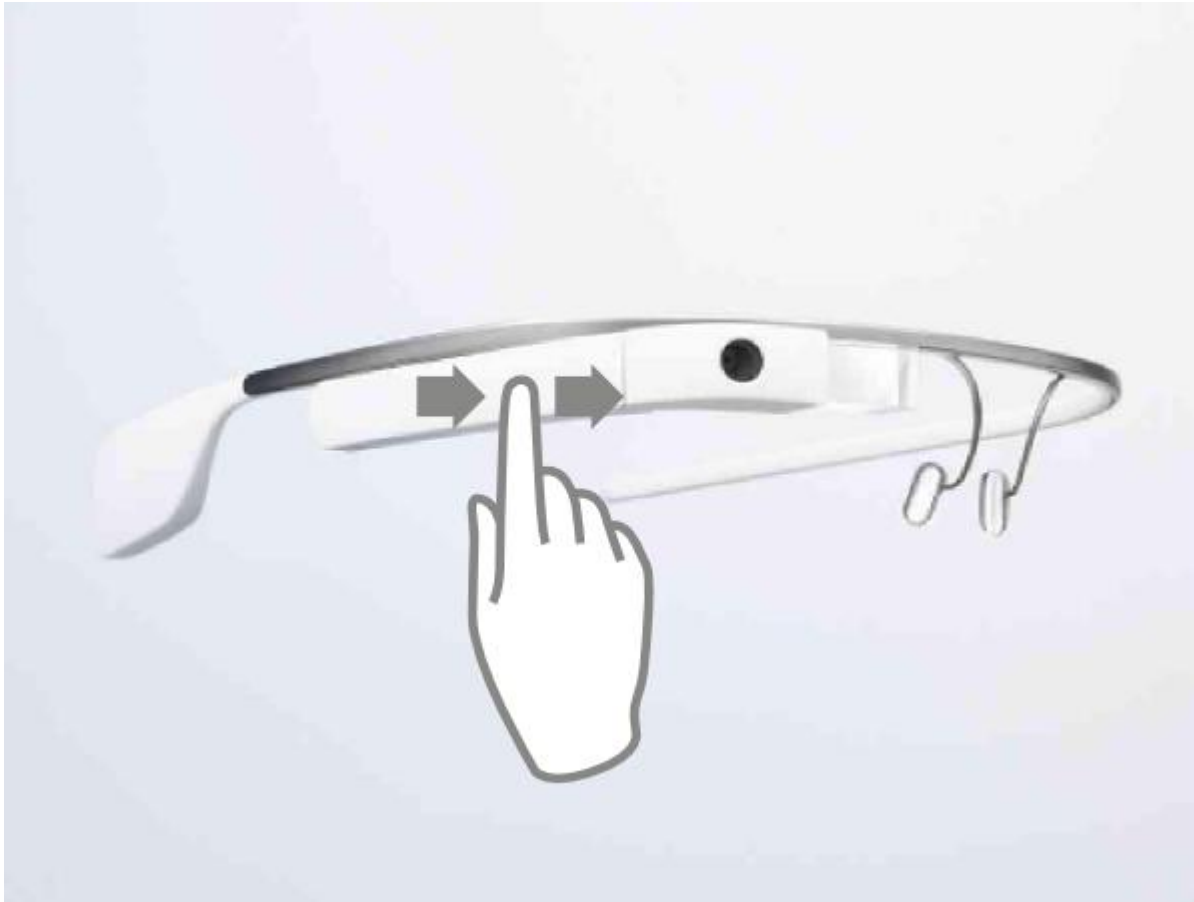


Interaction Design: principles

- Reuse

The design should reuse internal and external components and behaviors, maintaining consistency with purpose rather than merely arbitrary consistency, thus reducing the need for users to rethink and remember.

Interaction Design: principles



Physical Computing

Physical computing uses electronics to prototype new materials for designers and artists

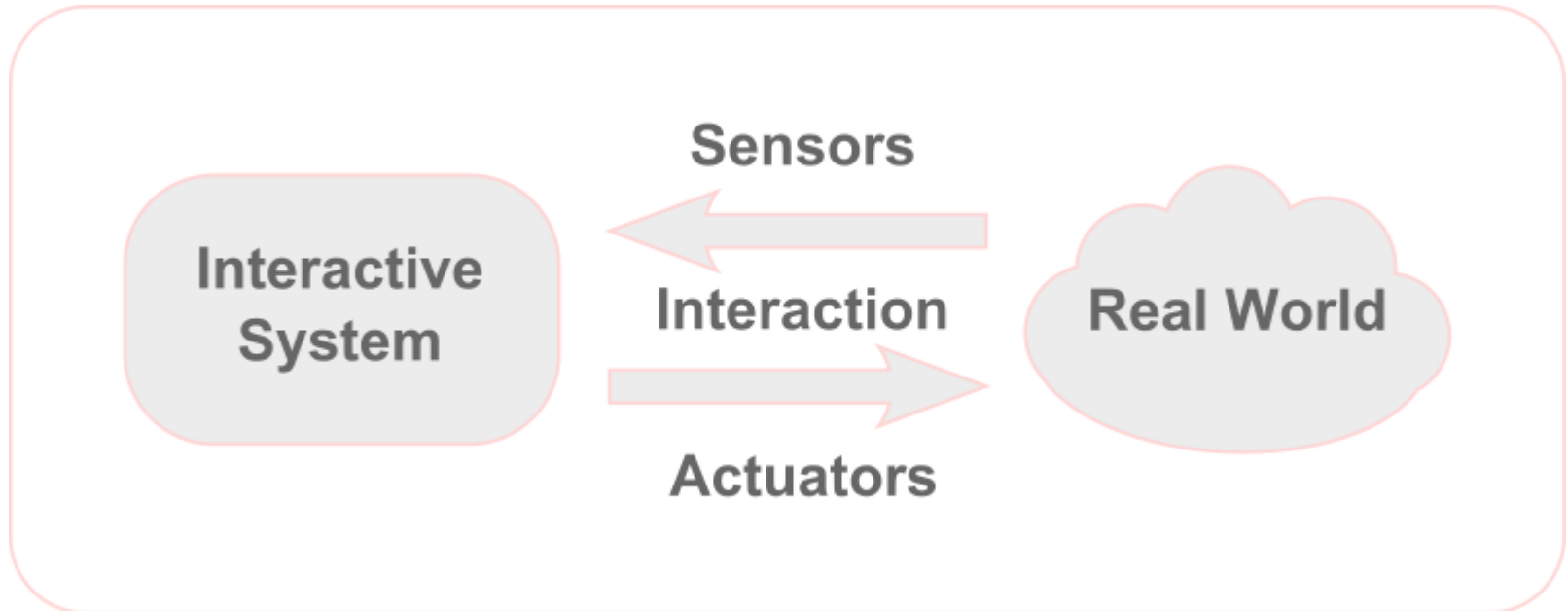
It involves the design of interactive objects that can communicate with humans using sensors and actuators controlled by a behaviour implemented as software running inside a microcontroller.

Massimo Banzi

Physical Computing

- Interactions in physical computing are made possible mainly by sensors
- They translate human natural body movements and environmental changes into machine readable values
- Using appropriate libraries, softwares and tools they can be translated into feedbacks and interaction triggers
- Feedbacks can also be delivered through actuators
- In the physical computing domain interactions are meant to be analog

Physical Computing



Sensors



- Light Dependant Resistor
- Detects Lightning conditions
- Analog

Sensors



- Button
- Detects pressure
- Digital

Sensors



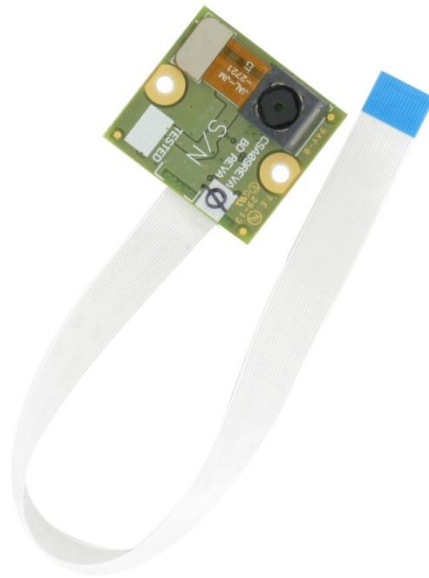
- Ultrasonic PING
- Detects distance of obstacles and objects
- Analog

Sensors



- Potentiometer
- Used to Trim
- Analog

Sensors



- Camera
- Can Record Video and still images
- Analog - Digital

Sensors

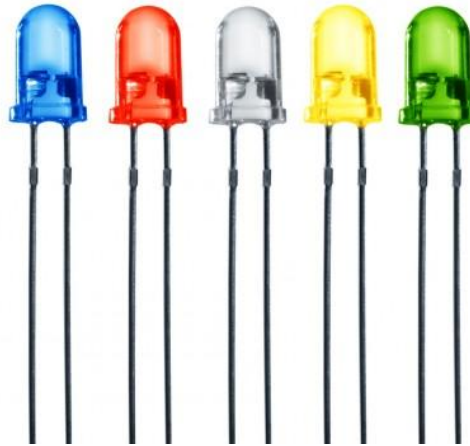


- Air Quality Sensor
- Detects air pollution and balance
- Analog - Digital

Actuators \ Feedback Devices

- Actuators and Feedback Devices in physical design are the actual medium in which the effect of the interaction consists
- They directly modify the physical and tangible reality
- They are directly responsible on the Interaction quality

Actuators \ Feedback Devices



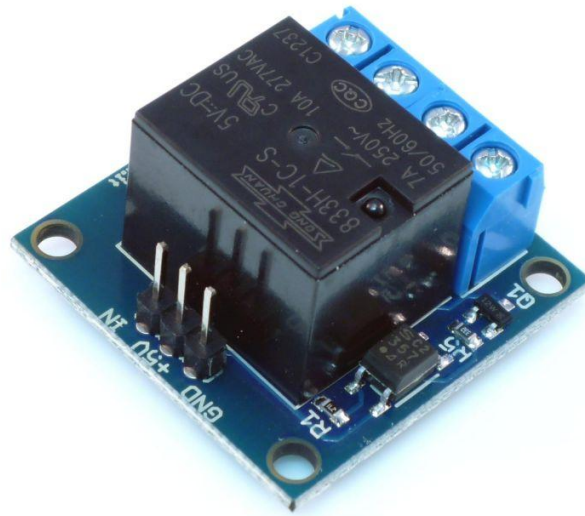
- LEDs
- Turn on \ Off – Change color if RGBY
- Analog - Digital

Actuators \ Feedback Devices



- Servo-motor
- Change Physical Position
- Analog

Actuators \ Feedback Devices



- Relais
- Open \ Closes a circuit
- Digital

Actuators \ Feedback Devices



- Loudspeakers
- Emits Sounds
- Analog