E_RTLs
Exact Real Time Location system

Real time location and tracing of people, objects and vehicles

E_RTL Exact - Real Time Location System

It's finally available: The first system able to give precise locations of goods and people, with 100% coverage over large distances at high speed. The applications of the future start now!

Applications

Real Time Location technology (E-RTL) technology enables you to tackle previously complex problems, such as:

- **Security:** Locating people / vehicles / goods at high-risk industrial plants (refineries, tunnels, access control, construction sites, etc.).
- **Logistics:** Direct location of goods over wide areas, such as loading areas or open-air depots.
- **Logistics:** Indirect identification of goods in a depot using tracing of forklifts.
- **Production:** Certification of the quality of line operations for complex industrial production lines, for example cars, motorcycles, engines.

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Some existing applications:
***E_RTL** in extreme environments, on car and motorcycle production lines.*

The E_RTL Platform

The **E_RTL** platform consists of a **project methodology**, a **software** application and a **hardware** component for real time location.
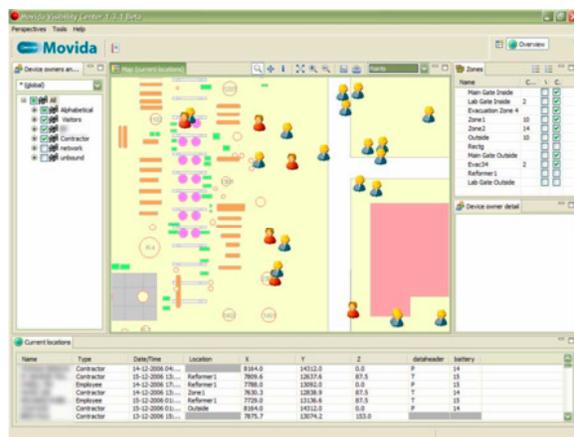
The main characteristics of the **E_RTL** platform software include:

- Ability to manage real-time events generated by thousands of tags in 3D environments with a high level of precision.
- Dynamic visualisation of one or more tags in 2D or 3D mode on predesigned maps. For example, employees can be shown in a different form to visitors, temporary contractors etc, by means of variations in icons or colours.
- Grouping and clustering of tags by type or classification, according to schemes which can be freely selected, with the aim of using them to analyse behaviour and generate analytical reports.
- Visualisation of figures for predefined zones, for example the number of level "A" people in the operational area of a plant, or more crucially the number of workers who have reached an evacuation zone, or the number of people in a maintenance area or accident zone. The figures are updated in real time based on actual presence registered. It is possible to link alarms to particular values or thresholds within the figures.
- Creation of alarms for individuals or tag groups. The alarms may vary in complexity, beginning
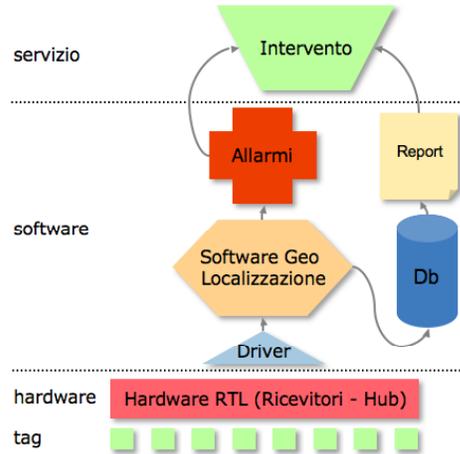
with simple georeferencing rules.


Diagram showing the E_RTL system

- Message reaction linked to alarms and multichannel dissemination. Alarm messages can be sent to a computer screen or to a group of recipients via SMS, telephone or e-mail. The alarms may be used to set off other software applications or external controls, such as light or sound signals.
- Definition of specific views connected to normal or alarm situations.
- Visualisation of the history of an individual tag or group of tags. This permits the reconstruction of the tags' "behaviour" and movements, in order to create an analysis of "safe" and "unsafe" behaviour, for example.
- Reports of a different nature, including a collection of pre-packaged templates.
- Integration with SAP and management legacy applications via JNI, DB, File exchange, RPC.

Technical Specifications

E_RTL is based on the transmission and reception of UWB (Ultra Wide Band) radio impulses that are extremely quick - they typically vary between a few hundred picoseconds (= 1 trillionth of a second) up to a few nanoseconds (= 1 billionth of a second), with extremely low transmission power, resulting in a considerable saving of battery power. Since these very quick impulses instantly use a collection of very wide frequencies, the energy ends up with a very low density, close to the electromagnetic background noise.

Low energy means a low probability of interference and no danger to human health - important factors for military and commercial applications. For the RFID and RTL applications this also translates into optimum performance as regards the "multipath". Multipath or the "elimination of the multipath" is what enables the system to operate in the presence of reflective material – walls, shelving, vehicles, buildings etc – which generate partly or entirely

confused signals compared to the direct signal, causing interference.
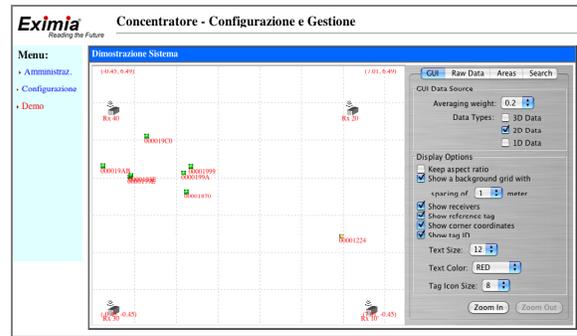
The configuration software shows the receivers and the tags.

Through the use of very short impulses on a very wide frequency, the direct signal arrives before the reflected signals and can be identified, avoiding collisions and the resulting loss of data. However, conventional radio signals, such as WiFi 802.11, present significant distortions in wave form and loss of the signal's power.

The diagram shows the typical configuration in HA of an E_RTL system, usable through various client applications

E_RTL is the best there is in the active RFID and RTL sector.

E_RTL – main characteristics:
- Receivers can read tags at more than 100 metres in open spaces and at more than 50 metres through multiple obstacles. Distances can be multiplied with more receivers.
- A maximum of 64 receivers per Base Unit.
- Battery lasts more than 4.5 years, with tags functioning on one "ping" per second (1Hz)!
- Precise real time location to less than 30 cm, which can be reduced to 10 cm using algorithms for error minimisation.
- Optimum performance in multipath environments.
- Micro tag dimensions: 1,2 x 2,5 x 0.6 cm
- Tag and receivers UL1604 / Atex / CE certified for use in "extreme" environments (e.g. oil refineries).
- Approved: USA, Europe