



**PORTABLE ASSISTANT FOR INTERACTING OPERATORS NETWORKS**



**PASSION**

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<b>Coordinator:</b> ALCATEL - CIT, Corporate research Centre (F)
<b>Partners:</b> CRS4 (IT) Matla Terminals (ES) RINA, Registro Italiano Navale (IT) Robotiker (ES) HFRG University College Cork (IRL) SISTEPLANT (ES) SOFTECO SISMAT SIESA (ES)
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**Contact Person**

**Dr. Enrico Morten**  
Softeco Sismat SpA  
Phone: +39 10 6026 1  
Fax: +39 10 6026 350  
email: [enrico.morten@softeco.it](mailto:enrico.morten@softeco.it)

Software system to support the maintenance and the diagnostic of large geographically distributed industrial plants and utilities network.

The system partly financed by the European Commission within an Esprit project has been developed by Softeco Sismat together with a consortium of European companies.

Based on a Personal Digital Assistant connected via GSM to the central system, where the maintenance and diagnostic services are available.

**THE SYSTEM**

The system is composed of a set of services for the maintenance of industrial plants. The services are located on one ore more central systems and are accessible directly from the central system or through a group of PDA (Personal Digital Assistant), hand held PCs available to the operator during they on site activities.

The following services are available on the central system

- Management of the general maintenance plan
- Management of the maintenance schedules of the individual operators
- Management of the checklists with the activities scheduled
- Field operator localization
- Maintenance report production

The following services are available from the PDA

- Maintenance plan and checklist transfer from and to the central system
- Support to the activities defined in the checklists
- Support to the data and measurements acquisition
- Report production and multimedia note attachment
- Remote documentation browsing and information retrieval about specific complex maintenance activities

Through the services available the field operator can be supported into all the maintenance activities included.

Moreover the operator can to perform all the data acquisition required directly on the PDA and to produce easily every kind of report.

He can also contact the central system and browse manuals or books of rules or prescriptions, performing queries and searches on the documentation available on the central system, and cope with critical events or emergency situations.

A small printer and a bar code reader can be plugged into the PDA

## APPLICATIONS

The system has been designed to be applied to large, geographically distributed industrial plants, where the maintenance activities are performed by teams of on the field operators, such as:

- Utilities network: power, gas, water
- Maintenance of bus fleets, railways maintenance, naval maintenance
- Large industrial plants: chemical, steel production...
- Critical installation activities, where the operator need on line info and support

The system can be applied to all the situations where one or more operators need to perform complex activities in remote locations and can be supported by the services directly available with the PDA connected to the central system.

Two pilot applications have been implemented:

- Maintenance of a gas distribution network near Bilbao (Gas de Euskadi)
- Ship survey, performed by the Italian ship register company (RINA)

## TECHNOLOGY

The system has been developed using Java based components, its modular and open approach allows an easy configuration for different industrial applications. The adoption of new, stable and faster wireless technology such as GPRS or UMTS, together with the use of the more advanced Personal Digital Assistant available on the market, allows the services to be reliable and easily accessible in the most critical situations.

The architecture is based on a three-layer approach

- A server which exposes all the services
- A database for the data archiving
- The clients, which can be located in one or more PC in the company facilities, or in the PDAs

