

ENVHYDRO

DATA PRESENTATION, ALARM AND COMMAND SOFTWARE

SYSTEM OVERVIEW

CLIENT/SERVER SOFTWARE FOR SCADA APPLICATIONS

EnvHydro is a general purpose software designed for SCADA applications involving remote data gathering, alarms and commands. It has been developed and used in many Envirtech solutions and is built using a Client/Server architecture working on a scalable RDBMS (like Microsoft SQL Server or Oracle) and an embedded GIS engine. EnvHydro is composed of many modules to assure error-proof procedures. It can be used to compute and present data in many different ways comprising industrial facility layout and TVCC/Satellite image overlapping, to give alarms and to send commands to in-field concentrators everywhere locate in the world. A tailor made sub-system, together specific math models, can be used as Early Warning System to manage large geographically distributed remote concentrators, like meteorological stations, data buoys, current meters, tsunameters, seismometers, hydrophones and so on, to give an immediate response in case of storms, tsunamis, cyclones, floods, earthquakes, oil spill etc. - Data collected in-field are transmitted to the Control Centre where the envHydro front/end module, analyses them and stores in the DBMS. Then, all other procedures work on stored data to elaborate alarms, to show data in tabular and charts, to transmit warnings bulletins and to broadcast them via internet and other media.



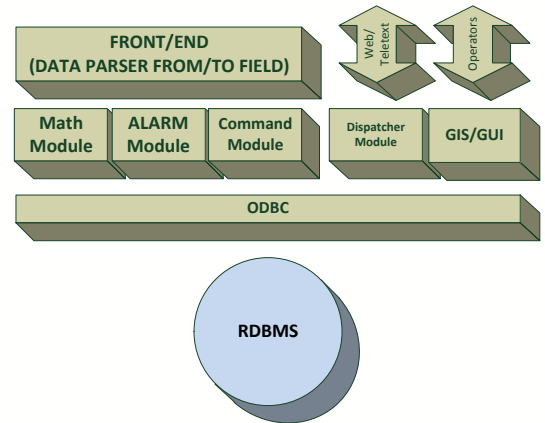
TECHNICAL DESCRIPTION

The software functionality is obtained by integrated procedures exchanging data toward and from the Database.

The main procedures are included in following modules:

- The Front/end data gathering and forwarding module
- The Mathematical module
- The Data Presentation, embedded GIS and GUI (Graphical User Interface) module
- The Alarm module
- The Command module
- The Dispatcher and broadcaster module

Data collected in field and transmitted using the selected media (fiber optic, satellites, VHF/UHF/ Packet Radio, GPRS, Edge etc.), arrives to the Front/end module that extract the information and stores it in the Data Base. Once stored each parameter is available for further mathematical operations like comparison respect a set points window, statistical analysis and so on. Once collected, stored and processed, parameters can be showed using the presentation module. It consists of many synoptic and charts that show the acquired variables respect the time and respect other variables. Each parameter has its specific representation in engineering format. If one or more variables are out of the normal operation windows the Alarm Module can raise alarms that are presented to the operators. All commands that must be transmitted to the field are stored before into the database and after transmitted by the command module. A specific procedure within the Dispatcher and Broadcaster Module, transmits data to remote users using different media like Web, Teletext, emails, SMS, Fax, audio messages and so on.



WHAT IS SCADA

SCADA (supervisory control and data acquisition) generally refers to industrial control systems (ICS): computer systems that monitor and control industrial, infrastructure, or facility-based processes.

WHAT IS A RDBMS

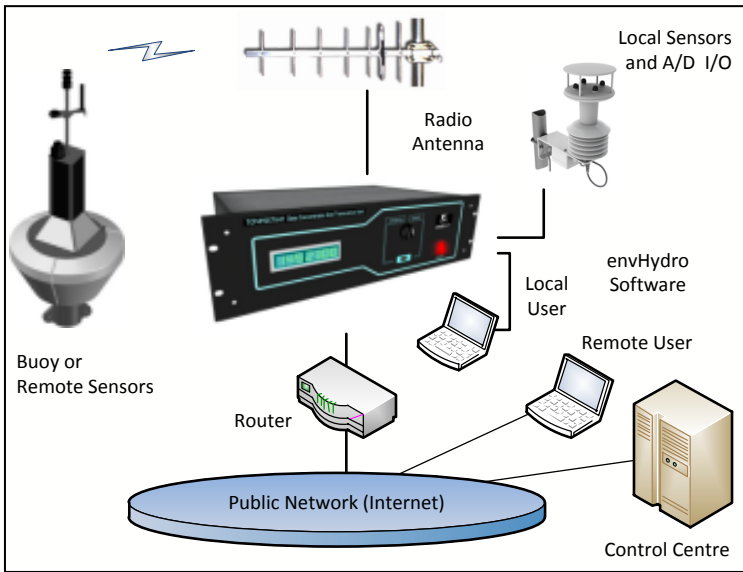
A relational database is a database that conforms to relational model theory. The software used in a relational database is called a relational database management system (RDBMS). A database is an integrated collection of data records, files, and other objects

WHAT IS ODBC

ODBC (Open Database Connectivity) is an interface for accessing database management systems (DBMS). The designers of ODBC aimed to make it independent of database systems and operating systems. An application can use ODBC to query data from a DBMS, regardless of the operating system or DBMS it uses.



Envirtech is a private Italian company that is completely owned by its management. It invests more than 30% of annual revenue in research. Envirtech manufactures according to strict standards of quality control and is ISO9001- 2000 certified.



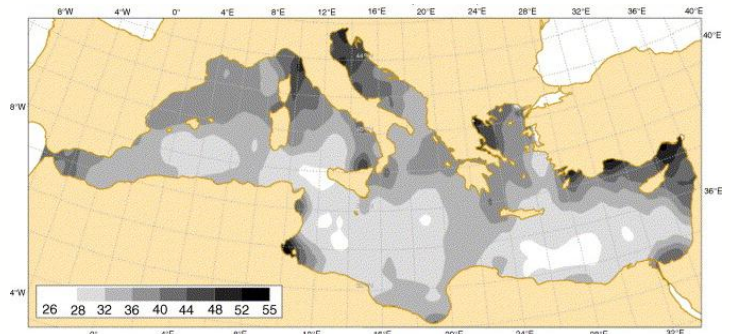
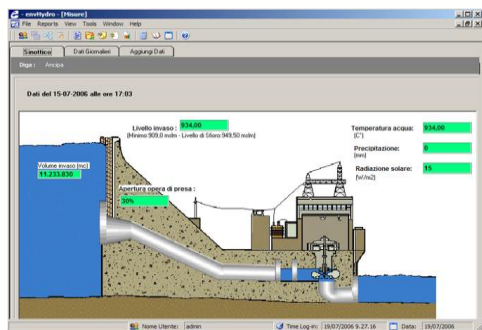
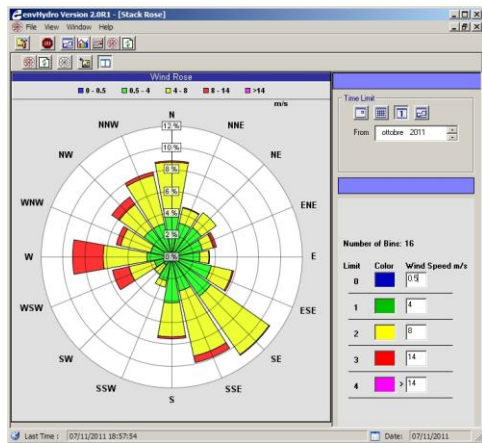
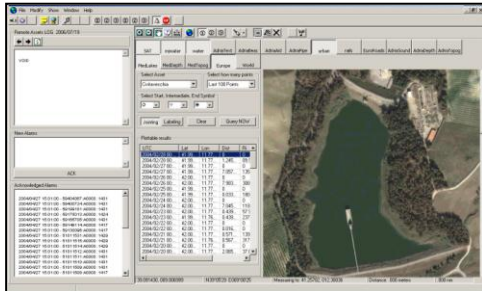
The picture above, shows a typical application involving local and remote sensors, collected by one Envirtech DCTU concentrator and managed by the software envHydro.

The user can manage, by a local or remote centralized location, many sensors and actuators everywhere located in the world.

On the right the screenshots show a typical application of envHydro and many control units deployed in field for dams remote control.

When used to receive data from Envirtech Buoys, current profilers and weather stations the unit can be programmed to process collected data and to show them on the local display.

The software envHydro, running on a local PC, can also be used to show collected meteorological and oceanographic data, as well as sea waves spectra and 3D currents.



envHydro allows data presentation also by its embedded GIS module, organizing geo-referenced data as themed maps.

The overlapping capability allows to show data on a vectorial or raster images. Images can be pre-stored or received on-fly by the front/end module.

Thanks to the open architecture of ODBC, envHydro also allows integration of high structured data coming from Radar, Acoustic Doppler Current Profilers (ADCP), Sonar, Sodar, Lidar, towed-arrays, and so on.

