LOGISTIC: automation and energy efficiency

Inlon Engineering' solution for the supervision of a large storage warehouse

An Italian company leader in the movement of goods needed to carry out control and supervision of utilities and electrical systems in a warehouse within a large area in which goods of leading international brands are stored and, at the same time, people and equipment are moving to manage real-time loading and unloading goods.

In particular, the request was intended to install a system that would guarantee, at the same time, continuous and real-time control of consumption, to achieve energy savings

Customer requests

The need of the customer, in fact, has developed in two phases: first, lighting control and, then, the need for monitoring of consumption. Particularly, it was asked for the energy trend.

Supervision policy

Supervision uses the signal provided by light sensors and the command received by laser guns for bar-code inventory of products for managing switching of lights. There are provided, at the level of supervision, manual straining like the possibility to handle special events and scenarios of use (for example, surveillance patrols).

For EMS management, 9 Energy Meter were installed in the most important switchboards such as those of generating set and thermal power, that record power values with samples taken every 30 min.
Then, it was necessary also to integrate the Honeywell system for HVAC. The climate is maintained by 19 AHU. The set point of temperature and power management are controlled by logic level of supervision.

System architecture

The solution, developed by Inlon Engineering srl, adopts Niagara ™ framework, that, with its architecture fully Web Server, ensure IP management on a framework well-estabilished (JAVA) and, in the meantime, it remains open to field buses and protocols more used in automation, allowing, in that way, a real integration.
See in more details the system.
Specifically, were used 4 JACEs 2 series and 6 series for a total of 850 variables that handle two main branches of buses (LONWORKS ® technology) and small neutral point along the route.
JACE (Java Application Control Engine) is a device for the control in real time, the supervision and the management for control systems through Ethernet.

JACE works like a gateway between one or more field buses (BACnet, LONWORKS®, KNX, MODBUS, Mbus, DALI, Z-Wave, ZigBee etc) and Ethernet; the Web Server integrated inside can serve, through IP, graphical pages with the status in real time of the devices connected.
These pages are displayed using a normal browser like Netscape Navigator or Internet Explorer, avoiding the need of other SCADA.
JACE can also communicate each other in point-to point- mode, or through a LAN or WAN network, making a devices network that share all the informations coming from the buses on NIAGARA framework.

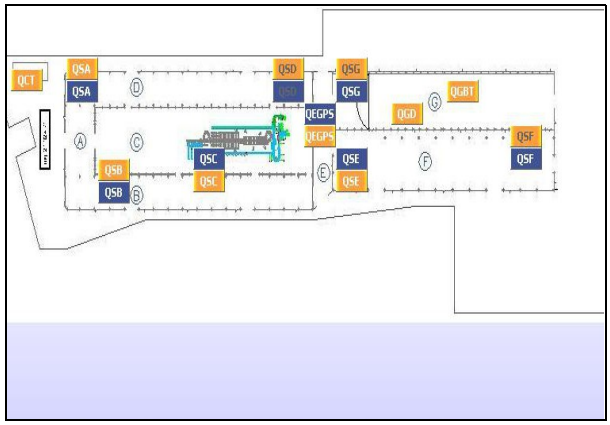
The graphical pages that the supervision software needs are really simple and intuitive; for this reason, non-computer expert persons can easily use them also.

Graphical project

This the video sequence that appears on the display:

1- Login Page;
2- Home Page with these hyperlink:
   a) General Supervision Page;
   b) Power consumption Page;
   c) AHU control page.

Animation for what concerns the control of lights was made with yellow light in the case of a single light on, transparent in the case of a single light off.



Report of forcing made by the user are reported with an orange label and the word “man”, that identifies the type of operation in manual mode.
Failure to receive commands are marked on the main page with a red label.
In this way, it was possible to control, in real time and through the Web, the power consumption and make an integrated and fully management and supervision, susceptible, by the way, of other changes and expansions, later too, without the need to upset completely the system architecture.