A Central Docking control and surveillance System

Portsystem 2000 has developed an embedded micro-controller system with TCP/IP network communication facilities. The new system provides the integration of all functions such as door control, leveller and inflatable seal, surveillance camera, RFID-identification, intercom, burglar alarm, remote locking, identification control etc, into one single system. Additionally the system enables a more efficient service and maintence procedures.

Portsystem 2000 AB designs, manufactures and markets industrial doors and docking systems for commercial and industrial building installations. A complete docking system includes an industrial door, dock-leveller and inflatable seal around the vehicle. The company is also involved in the installation and maintenance of these products, and in consultancy services related to planning of distribution terminals and warehouses.

Portsystem 2000 AB	
Employees	38
Turnover	7,3 M€
Industrial sector	Industrial door and docking systems
Technologies Introduced	Embedded Internet, Linux and TCP/IP



Profit existing system Profit new system

ECONOMIC BENEFITS

The new improved system will enable the company to capitalise on the highly innovative technology and to grow its sales on a international basis. Yearly sales increase are estimated to rise from 10 to 20%.

- 1 m€ increase in gross profit over the 2,5 year period
- 12 months payback period
- Return of investment of approx 600%

PRODUCT IMPROVEMENTS

The old control system was improved by introducing:

- Increased number of functions in one single system
- Graphical user interface for monitoring the status of each docking site of the building
- Obtain and record details of the use each day for improved service and maintenance efficiency
- Increased flexibility due to modular application software design
- Status and system information remotely accessible





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How to go about it

TECHNICAL CHOICE OPTIONS

The company's current Docking System operate entirely in a stand-alone manner, and have no communications facilities for interfacing to each other or any central monitoring/control systems. To provide a communication facility of the system the choice of TCP/IP and Internet technology was made as they are becoming the world wide standard for communication.

As new functions will be implemented to the new system, a modular software design was required. Each function require has its own application software module. The use of Linux ensured a well supported OS independent of microprocessor choice and an easy implementation of TCP/IP communication.

Main decission factors was

- TCP/IP for standard solution
- Open sorce OS for free licenses
- Linux for easy TCP/IP implementation
- · Modular design for easy add-on functionality

TECHNICAL IMPLEMENTATION

Hardware is implemented with a stand alone micro controller based on a risc processor optimised for Linux implementation. Thee distributed I/O is equipped with:

40 digital inputs, 20 digital outputs, 4 analog inputs 4-20 mA. 0-10V, 4 analog outputs 4-20 mA. 0-10V, RS 485, RS 232, USB, TCP/IP.

Software is implemented in three different parts *Application Software modules*, based on C and Linux. This enables new software modules to be added due to customer requirements.

PLC program, for steering purposes

Communication software using TCP/IP for communications between the distributed embedded systems and server (PC). Communication between the server and customer computers is enabled via OPCstandard.

BENEFITING FROM BEST PRACTICE

EC IST Programmes aim to improve the competitiveness of European enterprises by promoting the adoption of under deployed or emerging technologies. This will enable these enterprises to increase their competitiveness and enhance their economic growth. The demonstrator described here is one example of the many Best Practice projects undertaken. Further details of projects covering a wide span of applications, industry sectors and technologies can be found on **www.euroines.com**

For information on the involved User Company:



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