

Industrial visual control system

Introduction of embedded Internet using Open Source OS in the company visual control system allows a 25% cost price decrease while answering customers' expectations.

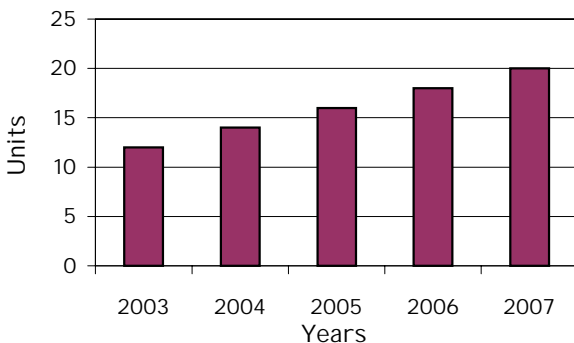
ADES – Advanced Developments in Electronics and Software – is a Belgian SME whose main activities are the design & implementation of automation components and systems for manufacturing companies. The company also produces software for production lines and test benches, non-contact measurement and quality inspection systems. ADES thus integrates external products and software with the customer machinery, adding purpose built software and electronics where needed.

Its typical customer is the production unit where the process is specific enough to justify custom developments, retrofits, feasibility studies and prototyping work, or where the customer has built its line from components and cannot turn to the “turn key” contractor for enhancements or integration work.

ADES s.a.	
Employees	4
Turnover	300K€ (2003)
Industrial sector	Industrial automation & control
Technology introduced	Embedded Internet & OSS

ECONOMIC BENEFITS

Sales evolution of the improved ADES system



This project has widened ADES market possibilities as the company is technologically more competitive, offering an integrated cheaper solution with increased gross margin.

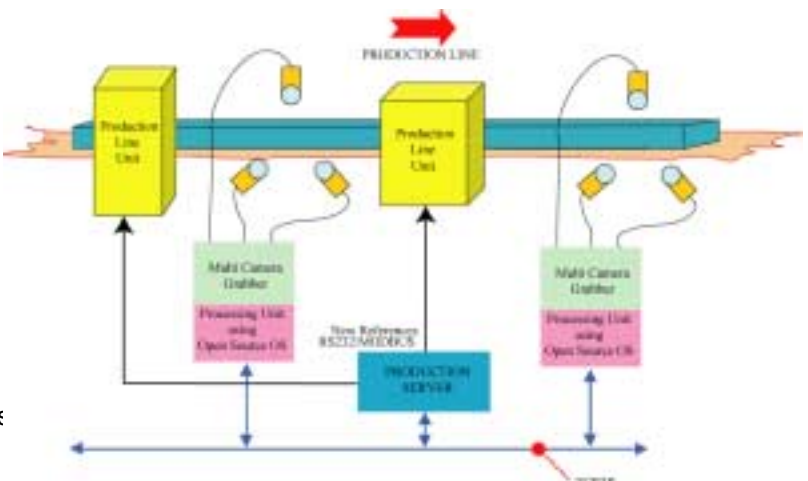
- 25% cost price reduction (use of 1 grabber instead of 3, smaller box, free license software)
- Market share increase due to the high improvement of the ratio between functionality and cost
- Expected return on investment of about 200% over five years
- New market opportunities due to the new modular functionality allowing to propose a standard minimal configuration dedicated to medium cost application

PRODUCT IMPROVEMENTS

Main improvements of the enhanced product are:

- The replacement of a “standard” proprietary operating system by an “open” public and robust operating system
- The miniaturisation of the hardware by using industrial enclosures with small form factor processor board including TCP-IP communication and frame grabber boards
- The implementation of high-speed communication internally and externally through standard TCP-IP connections

The use of a multi-tasking operating system also ensures encapsulation of the software building blocks allowing modular functionality.



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How to go about it

TECHNICAL CHOICE OPTIONS

Several technology choices had to be done regarding the improvements to be implemented on the observation station:

1. Choice of **off-the-shelf components** for the processor/communication board and grabber boards as the number of installations is limited and as the development costs of such boards would be prohibitive.
2. Choice of **Ethernet / TCP-IP**. Implementing standard protocols for data transfer made the system compatible with common Internet tools.
3. Choice of an **open source operating system** which as several advantages such as reliability, efficient development and Software development time decrease, modularity, tailoring, durability, no license fees, independence from a single vendor.

TECHNICAL IMPLEMENTATION

The improved product development has been realised in 13 months with the technical and administrative assistance of ARAMIS.

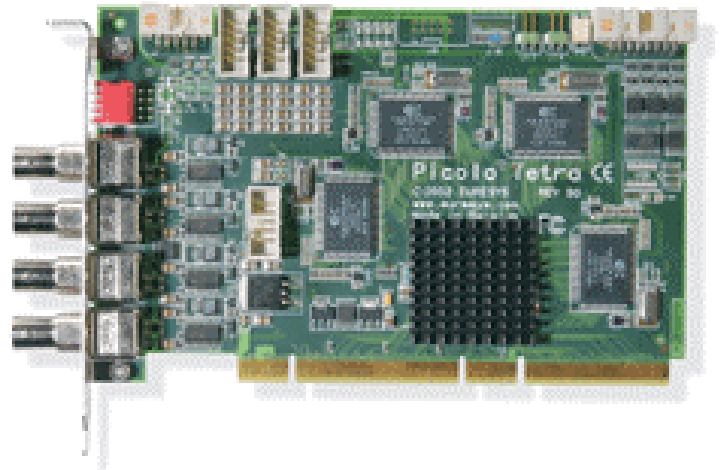
From a software point of view, ADES

- Implemented a new application architecture broken down in several tasks running under Linux
- Replaced the local operator interface with a client-server implementation using TCP/IP
- Programmed and tested a Linux driver for the frame grabber board

Intermediate development steps were defined, including (a) converting a sample application to Linux and making comparison tests (b) prototyping and testing the driver with different hardware combinations

As for the hardware platform, it consisted of

- An "industry standard" processor, to ensure compatibility with widely available Linux distributions and allow the same code to run on desktop computers for development and testing
- The line of frame grabber boards from the selected subcontractor



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

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