

Networked Weighing System

The new controller with standard network facilities, based on uC Linux, enabled Bilatron to offer new after-sales services and to reduce implementation-time of custom industrial weighing system with a wide range of complexity.

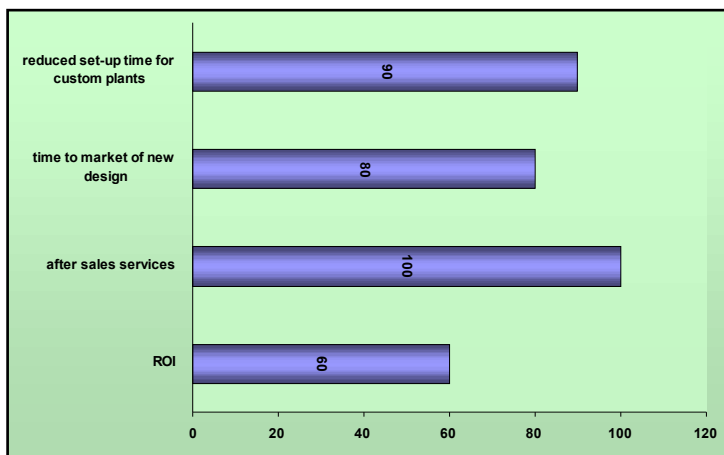
Bilatron is a company with 13 employees, founded in 1984 and located in central Italy, that designs, manufactures and sells weighing systems for industrial applications.

Bilatron (certified ISO9001, EN45001) is also involved in the installation and maintenance of its products, and in the calibration and certification process of weighing systems.

Main products are: (1) Special weighing plants (dynamic, batching, belt-weighers, check-weighers, crane-scales), 60% of production, (2) standard weighing systems (weigh/railroad bridges, platforms, tanks, silos), 35% of production, (3) private-use scales (disabled people, medical and sporting applications) 5% of production.

Bilatron s.n.c.	
Employees	13
Turnover	1500K€ (yr2002)
Industrial sector	weighing systems for industrial applications
Technology introduced	uC Linux, TCP/IP

ECONOMIC BENEFITS



During the last 3 years the post sales service has been constantly increased. In this scenario the new device WISE will further improve Bilatron turnover, thanks to the remotable activities in calibration monitoring

- An expected return of investment of 204% in three years;
- capability to offer remote after-sales calibration services;
- reduced implementation-time of custom weighing system;
- reduced time to market of new designs.

PRODUCT IMPROVEMENTS

Main improvements of the enhanced controller are:

- Standard Network connection.
- An embedded dynamic web server allowing both remote configuration and monitoring.
- reduced time to set up custom industrial weighing system
- remote after-sales calibration services.
- a scripted engine to process the incoming raw data by means of a simple, C-like language that can be instantly loaded and evaluated. In this way, the heuristic algorithm for weight determination can be modified without the need to work on a full tool-chain and to touch the main application running on the system
- Graphic LCD management.



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How to go about it

TECHNICAL CHOICE OPTIONS

The **TCP/IP communications** was chosen mainly because it allows the company:

- To develop its business world wide providing maintenance services from its Italian base.
- To offer a wide range of after sales services. The most important one is the capability to monitor from a remote location the calibration status of weighing system.
- To integrate its weighing plants in larger industrial control systems using standard interfaces and protocols.
- To design and delivery in a short time a custom distributed weighing system.

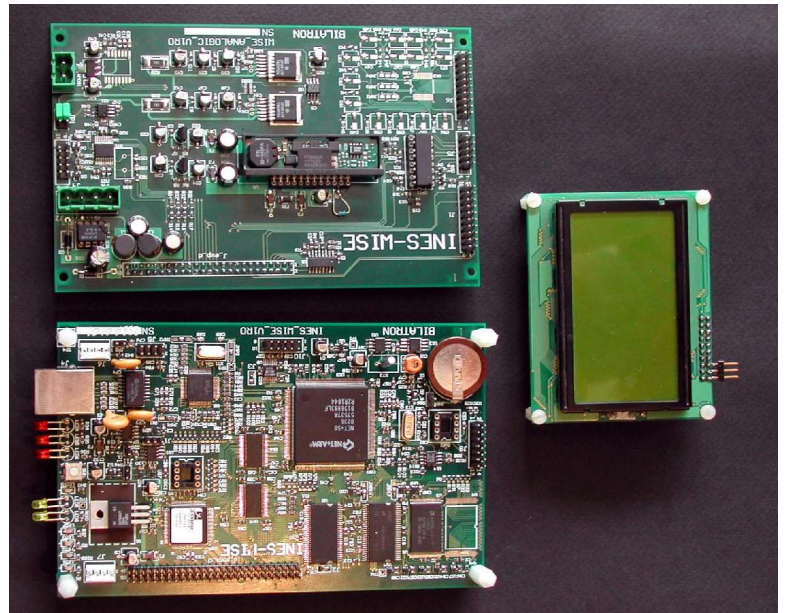
The adoption of an **embedded open source operating system** (derived from Linux) was selected because it allows:

- To integrate in a short time the TCP/IP/IP communications (the network connection is native in Linux).
- To reduce the new design time to market and risk.
- To reduce unit cost. This reduction is due to Linux free availability and scalability in low cost controllers without MMU.
- To reduce the design effort required to integrate a new device in the unit.
- To reduce the design effort required to develop a new SW application.

TECHNICAL IMPLEMENTATION

The improved product development was realised in 10 months with the technical assistance of Consorzio Roma Ricerche.

The unit handles the conversion of bridge unbalances and converts them into weight measurements. The improved controller (based on an ARM7 Netsilicon NET+50 processor and uC-Linux OS) implements a scripted engine to process the incoming raw data and handles the following peripherals: a graphic LCD and a set of pushbuttons dedicated to the User Interface; a high-resolution bridge A/D converter dedicated to measuring the instantaneous weight; a counter to evaluate the speed of the measured material; a D/A to provide an analog version (4-20mA) of the final measurement. Open Source SW used during design were: Operating System: uC Linux 2.4.1, local Scripting: LUA, HTTP Server: THTTPD.



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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