Customer story

Industrial Shields PLCs
Robust industrial computers are powered by Raspberry Pi and popular with customers

By licensing their products under the *Powered by Raspberry* Pi programme, Industrial Shields successfully increased their client base and expanded their business, with close to half of total products sold containing Raspberry Pi devices.

Raspberry Pi solution	Raspberry Pi 4
Size of business	SME
Industry	Industrial automation

> "We came to Raspberry Pi because there is Linux inside. It really is a great fit"



Catalan company Industrial Shields specialises in PLCs (programmable logic computers), robust computers suitable for use in environments such as factories, where extreme temperatures, humidity, and quantities of dust are the norm. The company was set up in 2012 by founder and CEO Albert Prieto, who brought experience from his background in design engineering. Seeing first-hand the value of PLCs and their ability to withstand the rigours of factory settings, Prieto was keen to offer a cheaper but bespoke "black box solution that was flexible and open", marketing manager Joan Aubets explains. Having seen the possibilities of open source in the DIY computing market, the company decided to take a similar approach to its industrial solutions.

The fledgling company began developing industrial controllers using Arduino and Arduino Mega, with its website and first products seeing the light of day in 2015.

The challenge

Having identified a gap in the market for PLCs, Industrial Shields wanted to put the business on a stable economic footing, both by attracting investors and by growing its product line and customer base. In order to fulfil its ambition of becoming a market leader in industrial PLCs based on open-source principles, the Catalan company needed to diversify its offerings in order to attract new business.

Having secured investment from a number of sources — including €1m from the European Investment Fund and H21, and a further €250K from FFF crowdfunding — Industrial Shields finally found itself able to operate as a fully realised business and salaried staff.

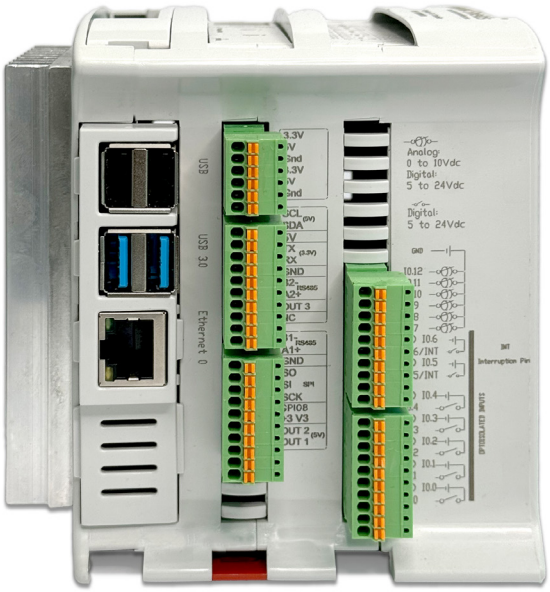
The solution

Raspberry Pi had by this stage become the most significant new computer launch in a generation. While not fully open, Raspberry Pi hardware supports an open software environment, and its use of Linux made it an ideal platform for Industrial Shields. "We came to Raspberry Pi [because] there is Linux inside. It really is a great fit in our core business."

Industrial Shields now sells PLCs based around 2GB, 4GB, and 8GB models of Raspberry Pi 4, as well as a touchscreen panel known as the TouchBerry. As soon as they began developing Raspberry Pi PLCs, Industrial Shields realised the potential for accelerating the company's growth, driven largely by the SBC's formidable brand recognition. Industrial Shields' business is largely focused on direct sales to volume customers: verticals in the petrochemical, metal, manufacturing, and power industries have joined their original markets in pharmaceutical and food and drink.

Trade shows and exhibitions are critically important for gaining new business. Potential customers are noticeably attracted by the *Powered by Raspberry Pi* accreditation and make a beeline for Industrial Shields' stand as a direct result.





> Industrial Shields saw the potential to accelerate its growth driven by Raspberry Pi's formidable brand recognition

Why Raspberry Pi?

Powered by Raspberry Pi is "compelling", as is the ability for Industrial Shields to purchase directly from Raspberry Pi.

These days, Joan says, Raspberry Pi is "probably close to the heart of the business because… the market for the PLCs [has become] so mature that meeting the needs of that paradigm of people who are buying these devices is really difficult."

While other product lines also perform well for Industrial Shields, and are chosen by customers for different uses, Raspberry Pi is far better known in the market. Raspberry Pi's excellent reputation precedes it, and customers looking to work with Industrial Shields commit to purchases far more quickly than they do with non-Raspberry Pi-based products. Joan says the overarching perception is that it's the best device, and it doesn't take people long between enquiring about the appropriate Industrial Shields *Powered by Raspberry Pi* solution and deciding to buy the products. "This gap of time is really shorter."

The results

Raspberry Pi-based products now account for "close to half" of Industrial Shields' sales, with brand recognition and the *Powered by Raspberry Pi* accreditation being a very strong pull for potential customers at trade shows and in distribution channels. Key vendors include Farnell, Mouser, and DigiKey — all internationally recognised and trusted component vendors. As well as Raspberry Pi 4 PLCs, Industrial Shields now sells touchscreen Raspberry Pi panels. In fact, most of its Raspberry Pi customers are looking for a means of monitoring and management, rather than directly controlling devices. This also includes machine learning capabilities, such as the ability to work out the best angle at which a wind turbine blade should face the wind. Such scenarios make Raspberry Pi-based solutions particularly effective, as the PLCs can make use of the boards' dual-core processing capabilities and wireless connectivity (ahead of otherwise-comparable Arduino or ESP32 controllers).

Industrial Shields prides itself on developing all of its products in-house, offering a broad and ever-expanding range of PLCs and industrial panel PCs, with distribution partners and sales in more than 30 countries. Customers include hobbyists and academic institutions, but, as the company's name suggests, there's a significant client base of industrial users who have also chosen Industrial Shields because they value its product line based on the established Raspberry Pi brand. Satisfied customers include companies such as Andorra's Si-Wine by SIRA.

The HVAC air conditioning market, which requires SCADA (supervisory control and data acquisition) for SCADA-based monitoring, is another great fit for Raspberry Pi-based PLCs. One customer, Gañar Group, builds "huge, ten metre" air-conditioning units and has recently fitted out a shopping mall in Pretoria, South Africa, integrating an Industrial Shields Raspberry Pi PLC in order to automate, control, and remotely monitor a 5000 m^2 site.

From a standing start twelve years ago, Industrial Shields has grown into a company with a staff of 45 and a new 1000 m^2 production site. The key markets for Industrial Shields are the US, France, Italy, UK, and Canada, but there are significant volume customers in parts of Africa too. As sales figures attest, Raspberry Pi technology continues to be an integral part of the company's success.



At trade shows, potential customers see Industrial Shields' *Powered by Raspberry Pi* accreditation and make a beeline for the stand

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