



Finding the suitable industrial PC for web inspection through conducting a product test

With its 100 employees the Italian specialist in the production of cycle measurement, control and automation systems Electronic Systems has made itself a name in the world of automation. Based in Momo in the province of Novara the company equips about 90 percent of the rubber plants existing in the world with its measurement systems and can even compete in the hard quality-driven German market. The Electronic Systems' core business is automation and thickness measure systems. In addition, the inspection systems division serves a technological niche and has specialized in customized applications, since the technological evolution of production processes and increasing quality requirements in the market have raised the needs for inline control of continuous products.

By answering these demands Electronic Systems has built up a competence in vision-based in-line inspection systems of such products. Already more than 20 years ago with 'Flexin' a user-friendly inspection system has been developed to identify holes in plastic foil. The materials their customers want to inspect typically are continuous sheet materials such as paper, rubber or any kinds of plastic foil for food or other packaging purposes or nonwoven materials e.g. for production of diapers. Each application is customized, providing a solution specifically shaped to customer demand to enable individual equipment of the entire production line including automation, measurement and inspection. The current generation of inspection systems from Electronic Systems works with line-scan cameras at a maximum speed of 24 kHz on the line when four cameras are

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installed and is able to control 100 percent of the produced material detecting and showing any defects.

Customization and a change of interface standards

Customization has become a key success factor in the last years in the business. Following these specific needs of the individual customers consequently also means for Electronic Systems in their selection of suppliers that the components they procure can be customized to a certain degree. Another reaction to the increasing customization demands was the step to change the interface standard: While the company used to equip their inspection systems with CameraLink for a long time, a few years ago it completely switched to GigE Vision. Carlo Rizzo, Inspection Systems Manager at Electronic Systems explains why: “A typical web inspection system is 2-3 meters wide which is doable with CameraLink. However, we also equip systems that are up to 6 meters wide and that is too long for CameraLink cables as we don’t want to place the control unit cabinet so close to the production line to avoid heat and dust contamination. Therefore we entirely switched to GigE Vision and are now able to place the control cabinet wherever the customer wants it.” This argument is very important as more flexibility in positioning can mean a longer life for the control unit cabinet. “By using GigE Vision we follow our history and the factory tradition: to be flexible and customer oriented” says Rizzo.

A continuous effort to increase quality and performance, together with the switch in interfaces led to the search for a new industrial GigE Vision PC that would be best suitable for their web inspection system. One given requirement was an installed I/O system since the inspection system needs to interface with the production line in order to follow the speed of the line. Inspection usually takes place in the middle of the production line and then needs to trace defects until the end of the line.

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Test run with choice of industrial PCs

The company felt the best way to find the most suitable industrial PC was to test a choice of products available on the market and apply the Electronic Systems' algorithms on the various 'test objects'. During the testing Electronic Systems realized that the Tattile Multi-Camera Vision Controller M100 GigE was close to top in power in the benchmark for vision control. The simulation result showed that the M100 had no problem in data processing even when more cameras are connected. Also from the mechanical point of view the Tattile M100 proved to be extremely compact and solid. "The Tattile PC is complete and powerful at the same time, providing an encoder and a full set of I/O. In addition, it comes with six GigE ports. This is what we need since we already block one port to connect with the production line and another one to link with our in-house developed LED lighting system", explains the engineer. Even some additional features are possible with the Tattile M100 since the I/O system is very fast. In some cases the inspection system needs an accumulator on very long machines in order to follow the movement of the web and the inspection position which is why in that application two encoders are needed. The first encoder is connected to the encoder port of the M100; the second one is connected to a normal input phase. "Even such special cases can be handled with the Tattile Vision Controller. Since we use it our control cabinet is now practically empty as everything takes place inside the M100."

Close cooperation between customer and supplier made it possible to configure the M100 according to specific Electronic Systems' needs. So was the Windows 7 Embedded version on the Vision Controller in the beginning not able to install the printer which Electric Systems needed to print reports. This however was solved rather quickly. Overall Carlo Rizzo is satisfied with their choice: "Putting together the performance and simplicity of the system the Tattile Vision Controller came out best choice for our needs. Our electrical diagram now practically looks the same with every new application."

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Written by Hector Almea, EMEA Sales Manager at Lakesight Technologies.

Picture: Inspection machine at Electric Systems.



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Picture: Tattile M100 Vision Controller at Electronic Systems



picture source: Electronic Systems

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