EmbedTek

Opening Doors to Machine Vision Technologies

Machines that identify defects, predict failures, and ensure the accuracy of any process in real time is indeed a visionary notion. Machine vision is thus a much sought after technology that requires a considerable amount of investment. However, consumer-driven advancement in sensor technology has completely changed the way vision systems are developed and utilized in the original equipment manufacturer (OEM) space. Today, commercial-off-the-shelf (COTS) camera sensors, combined with open source software are being adapted to achieve the level of performance most would expect from an industrial vision system but at a much lower cost. By leveraging this trend, EmbedTek strives to broaden application areas of machine vision in healthcare, simulation programs in civil aviation training, and video analytics in security to name a few.

"We have the expertise to apply relatively inexpensive sensors and cameras to our vision software engine. This allows us to quickly develop analytics and innovative solutions that are application specific," asserts Dan Aicher, the CEO of EmbedTek.

EmbedTek designs, creates, and integrates computers, sensors, cameras, software, and displays for OEMs. The company ensures reliability and consistency in the delivery of their products to their customers by assisting in ongoing supply chain management. "We've been able to change a year-long research and development process into a six to eight-week rapid prototyping processthat not only solves our customer's design challenges but also assures longevity in the market," says Aicher.

Dan Aicher, CEO

A successful use case best substantiates Aicher's comment. An OEM relied on the traditional laser beam interruption counter to tally the number of objects that were fed to it manually. The EmbedTek team, on the other hand, used COTS camera sensors and components to design and optimize an entirely new machine vision mechanism that replaced the traditional and rather expensive laser tech. In addition to the motion-activated camera, the new stack came with a lighting system powered by polarization filters and strobe lighting to ensure brightness and clarity of the objects being captured and counted. The transition to a camera sensor not only enabled effective counting of the objects but also helped to identify and store visual evidence of the dispensed materials in question. With EmbedTek's stack, all that the operator has to do is load the objects for counting and a feed mechanism manages the speed at which the objects are dropped through. Also, once the image is captured, the software's algorithms interpret the image and simultaneously eliminate inaccuracies.

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Moreover, EmbedTek's low-cost camera powered by advanced optical sensors can capture footage in 240 frames per second. The company's configurable software provides a base to obtain visual data and perform analytics on it. With enhanced mechanical intelligence on equipment, the OEM manages to reduce the chances of object collision.

Laying out the foundation of the roadmap, EmbedTek is planning to try innovative methods by integrating additional sensors and technologies into their solution to deliver accurate tracking and mapping capabilities. As Aicher puts it, the 'sky is the limit'; the company is expanding their business substantially and continually looking forward to partnering themselves with other technology players.