



MACHINE VISION SPECIAL

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Phillip Smith,
Owner and GM

CINCINNATI AUTOMATION

DRIVING MANUFACTURING PRODUCTION EFFICIENCY

\$15



LMI Technologies Sensor-based 3D Image Inspection

“**T**he future is FactorySmart®,” begins Terry Arden, CEO of LMI Technologies. An avid entrepreneur, Arden stepped into the role of CEO in 2009 with a vision to enable smart factories using 3D technologies. Despite the world taking a leap toward industry 4.0, many manufacturing companies still follow a traditional approach of manual or offline methods to verify for product quality. In order to process, analyze, and measure various characteristics of a product for quality assembly, machine vision systems need 3D sensors—the next step past traditional 2D or manual approaches.

“Although most of the hardware providers in the machine vision space are well equipped to inspect for 2D, they often fail to assess product quality based on shape, which leads to poor assembly results and difficult-to-maintain inspection systems due to variation in lighting,” explains Arden. LMI’s complete inspection solution, Gocator®, overcomes these limitations and provides all-in-one user-friendly sensor capability. “Our Gocator firmware is a powerful inspection platform that combines built-in scan, measurement, and control capability to help customers achieve improved quality control. We take great pride in its flexibility and ease of use,” states Arden.

A pioneer of 3D solutions with on-sensor capability, LMI’s flagship 3D product performs 100 percent inspection and enables customers to maximize production volume with minimal waste, automate manual tasks, and improve quality control. According to Arden, in order to provide full inspection functionality, machine vision suppliers need to combine both 2D and 3D to detect contrast and shape variation. Contrast reveals surface markings such as a barcode or printed feature, while shape allows verification of geometric dimensioning and tolerancing. That’s precisely where LMI’s Gocator firmware has the competitive edge, as it offers a unique all-in-one approach where scan data is processed, measurements applied, and control decisions made from onboard the sensor itself. With this customer-centric approach, LMI is providing the real value of a 3D “smart” sensor that is factory connected, detects quality issues, and is easily configured. Users are now not only able to digitize an object by leveraging embedded processing but can also transform raw point clouds into meaningful insights.



Terry Arden

To elaborate more on their unique value proposition, Arden cites a scenario where LMI worked with Bluewrist, a system integrator that develops and markets innovative industrial automation solutions to overcome the challenges involved in manual insertion of glass into car bodies. Typically this is a labor-intensive and intricate process that leads to significant safety risks for assembly operators. Robotic insertion is the safer alternative, however this approach is not only complicated, but also requires vision guidance to transform robot end effectors to compensate for body location variation and optimize the position of the glass. To meet this challenge, Bluewrist mounted multiple Gocator® 2300 series 3D smart sensors onto the robot end effector of their insertion system to monitor the 3D location of critical points on the windshield aperture. The Bluewrist Windshield Insertion System is an example of how LMI partners with innovative manufacturers to create leading-edge robotic machine vision systems.

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” Arden’s pivotal role within the organization has propelled LMI to greater and greater success. This year the company expects to continue to expand its market presence in the Asia Pacific region, primarily through growth in consumer electronics. As the demand for 3D inline metrology and collaborative robot support increases, LMI is at the forefront of deploying more sophisticated 3D measurement and aspires to partner with several robotics companies. “We’re very excited to build a 3D measurement platform that will allow customers to expand their inspection capabilities and bring 3D vision to the robotics world,” concludes Arden. 