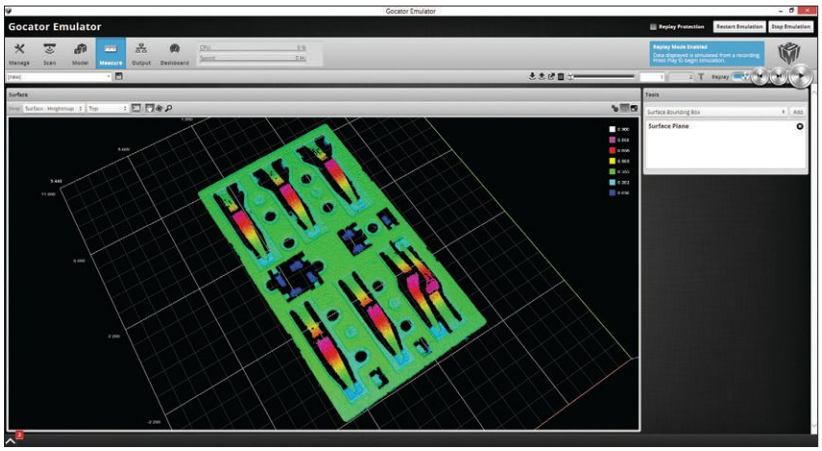

Using Gocator 2420 3D Smart Sensor in Nano-SIM Connector Inspection

The Application
In this application, the Gocator 2420 is used to take measurements on nano-SIM connectors in an inline inspection process. There are 14 locations to be inspected on the SIM connector: seven small pins and seven large pins.

The Implementation
A Gocator 2420 is set-up to scan one SIM connector at a time, using a simple height threshold to trigger the start and stop of each part. With this simple approach, Gocator Surface scan mode automatically combines profiles and outputs a complete surface visualization for every scanned SIM connector. The height of the pins is then measured as either median or average height values using 1940 data points per generated profile.

Because Gocator has a large measurement range, it is possible and required to "window down" the range appropriate to measure part height. Gocator 2420 can achieve scan speeds up to 5 kHz for parts that only need ¼ of the overall measurement range. This means a single nano-SIM connector surface can be fully inspected to meet process cycle time.

The Gocator Advantage –– Anchoring and Rotation Compensation
Part position variation caused by mechanical movement can be fully compensated by using Gocator's anchoring and part matching features. Part anchoring updates one or more measurement regions automatically based on the measurement of another feature thereby tracking part movement and maintaining reliable measurement results. Similarly, if a part rotates position, then the built-in part matching feature corrects for angle variation to ensure measurements are repeatable.

LMI TECHNOLOGIES

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Manufacturer eliminates PLC via vision system with discrete IOs

A major device manufacturer needing to inspect about 100 high-value parts in a day looked for a well-integrated solution for image capture, processing, motion control, UI and IO. Ease of support through off-the-shelf components, cost-effectiveness and stress-free maintenance were other primary requirements.

The most complex aspect of the project was that the part, a rod-like device, needed to be precisely rotated in small increments, up to 180 degrees, for a complete inspection. Entailing multiple measurements at known intervals, the system needed to generate a pulse with a specific interval to guide these movements. About 60 images had to be collected per cycle to find the correct references for measurement.

A vision system was devised by making extensive use of a Matrox 4Sight GPm vision controller with hardware-assisted discrete IOs and Matrox Design Assistant flowchart-based vision software. The rotations were done using a specialized stepper motor, which was driven by pulses of specific duration from the vision controller, eliminating the need for a PLC. Using the Matrox 4Sight GPm's IOs, the length of the pulse could be precisely specified. The vision system prototype, built on a custom anodized aluminum chassis, employing 12MPixel monochrome cameras, lights and optics was successfully deployed and will be followed by fourteen additional systems in 2016.

By using a Matrox 4Sight GPm vision controller and Design Assistant flowchart-based vision software to manage motion control, the company eliminated the need and complexity of adding a PLC to the system, thereby saving thousands of dollars, space and power consumption.

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