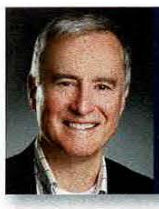
Component Vision Check



Bill Mongon
President
Accurex Measurement, Inc.

Automated industrial vision systems have become a key component of quality conformance inspection for many industrial processes. They are used to detect defects at high rates far exceeding the capability of the human eye in industries ranging from food processing to electronics and automobile manufacturing.

More recently, vision systems are combined with robotic systems to enable pick-and-place capability with non-uniform or randomly oriented parts.

These systems greatly reduce defect rates and provide objective analysis which increases product uniformity.

Airframe subassemblies contain thousands of attachment points, brackets, clips and fasteners. Each of these has to be correctly located, properly oriented, and may contain components with only slight differences in appearance.

In some cases, the color of certain components must be checked to determine that the correct part has been installed.

The large size of airframe subassemblies and commercial jet engines has made traditional vision systems impractical because they would require a large number of cameras and mounting structures. And those would interfere with the typical assembly production process.

However, recent advances now make it possible to utilize automated industrial vision to ensure the integrity of airframe components, as well as large complex assemblies that were previously impractical.

Producers of major airframe subassemblies, such as Spirit, Airbus, Rolls-Royce, Safran and Stelia, are adopting the Lynx adaptable industrial vision system.

The unique ability of the Lynx vision system to inspect small features up to 35ft in any direction from the unit makes it possible to quickly inspect these large structures.

And because location, orientation and other features to be inspected are controlled by software, the system can be quickly reprogrammed to accommodate production processes which have frequent design changes. This would be completely impractical with a traditional vision system with dozens of hard mounted cameras.

For complex structures, multiple Lynx systems are networked so that all the necessary views are collected simultaneously and combined into one inspection report.

The Lynx system compares close-up images of pre-identified components to a reference image. Any nonconformities are flagged so that corrections can be made before the component is shipped to the next stage in the production process.

Airbus, Rolls-Royce, Safran, Spirit and Stelia are among the producers of major airframe subassemblies that are adopting the Lynx adaptable industrial vision system.

The types of nonconformities identified are often hard to inspect manually and relieve inspection personnel from a very tedious process.

These vision systems prevent nonconformities that cause delays and bottlenecks in downstream processes. Users report significant improvements resulting from the implementation of the systems.

The photographic record produced by Lynx can also be used for traceability purposes and to prove that components and assemblies met specifications before shipment to a customer.

Time savings achieved by these systems are significant, checking and reporting up to 1,500 features per hour. In practice, Lynx has reduced manual processes that took 3 to 5 hours plus additional time for report preparation, to a full inspection in less than 25 minutes including automatic reporting.

But even more important have been the cost savings achieved from identifying nonconformities more quickly and effectively, which reduces rework costs and customer concessions.