Case Study 2: High Speed Color and 2D Size Analysis for Tortillas

MONTROSE Technologies Inc.

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Montrose Technologies was asked to design a complete tortilla measurement system for product analysis and defect detection. The food producer was hoping to improve quality and consistency, improve visibility of product and plant performance, isolate and eliminate sources of waste as well as create better stacks.

Production Line Speed and Volume

The specification was for a tortillas vision inspection system for the following:

- Up to 20 tortillas per second
- Conveyer speeds of 180 feet per minute

Measurements

Product analysis and defect detection included the following:

- Overhead imaging to generate color and 2D data on
    Diameters
    Toast Mark Area
    Roundness

- Faults included folds, doubles, burn't holes, out-of-round, bites, doubles and ragged edges

- All data (including reject rates) should be analyzed by lane.

Automated vision inspection systems generate and distribute accurate production, quality and rejection reports allowing operators to pinpoint problems and identify opportunities for cost reductions and process improvements.

Figure 1: MT60 Tortilla Vision Inspection System

System Benefits

Once installed operators found they were able to analyze the precise, repeatable data that was produced by the system to improve quality and consistancy. By removing control of rejection from the operators and moving to 100% inspection, rejection rates were lowered and more repeatable. With alterations to the production process a noticeable improvement of visibility of products occured and plant performance was more efficient. Specific inputs were used to reject by lane during counter-stacker and packaging maintenance.

Payback Opportunities

System payback was estimated at 12 months with 1-2 manual inspectors replaced per shift by automating the inspection. Results were more repeatable and better process and product data was available to operators and managers. The reduction in wastage and the elimination of jam-ups at the counter/stacker resulted in a major cost reduction in both labor and goods costs.

The overall customer experience moving to a vision inspection system from a manual system was that better process control occured at every stage of the process and enabled cost reductions and greater control over efficiency.

About Montrose Technologies

Built on the legacy Dipix brand, the innovative new Montrose systems provide customers with solutions that reduce operating costs, improve product quality, and generate critical production data. At the core of our expertise is a unique 2D/3D/color imaging engine that provides accurate size, shape and color information for randomly-oriented, fast-moving objects. This core technology is used in all of our inspection systems and ensures that every product is identified, analyzed and, if necessary, individually removed or diverted from the product stream.