

Color/Gloss Inspection and Sorting System



Challenge

A consumer electronics manufacturer needed a system to inspect components for color and gloss characteristics, and then sort the inspected components based on a pass/fail criterion.

Solution

Components are loaded into rigid plastic trays, which can be preloaded and stacked ready to load into the partitioned drawers. Status lights on the drawers indicate when a tray is empty and ready to be replaced. The empty tray is replaced while full trays are being processed.

A robot with custom designed, non-marring end-effectors lifts components from the tray and moves them to a precise position in front of separate color and gloss inspection sensors.

Mounted to the robot's Z-axis quill, the custom end-effector can be positioned along, and rotated about, the robot's Z-axis, as well as rotated 90° to present the part to the gloss and color sensors from any angle required by the controlling recipe.

First, the laser sensor verifies and records the positional offset of the area to be measured for gloss and color. Next, the the glossmeter records gloss data. If the gloss inspection fails, the part moves directly to the failed lane of the conveyor to eliminate wasted data captures at the color sensor. Parts that have passed for gloss are presented to the color sensor to record the color data.



Result

The automated system performs a full cycle of inspection and sorting components for distance, gloss, and color in less than four seconds per component.

About DWFritz Automation

Established in 1973, DWFritz Automation designs, builds, and supports engineer-to-order automation systems and high-speed, non-contact metrology products, in addition to providing world-class build-to-print manufacturing capabilities to clients.

