ELECTRIC & ELECTRONICS

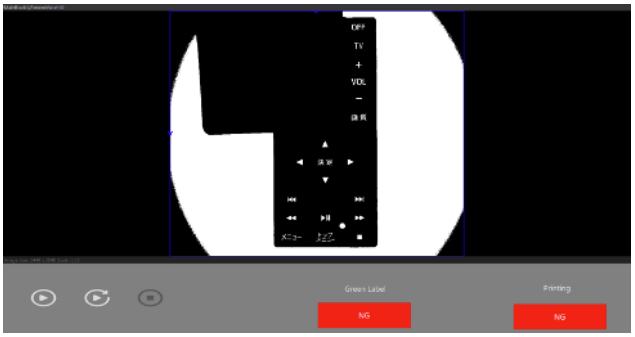
Precision Radius Measurement for Improved Quality Control in Plastic Container Manufacturing

Problem Identified

In keypad manufacturing, ensuring the correctness of printed labels and the presence of color-coded buttons is critical for both functionality and customer satisfaction. Manual inspection often leads to inconsistencies, human error, and slower production output. The absence or misplacement of color buttons and unclear printed labels can result in product rejections, warranty claims, and increased costs. These issues ultimately impact brand reliability and slow down production efficiency.

Solution Provided

An automated vision inspection system was introduced to replace manual checking. Using a 5MP color camera, 16mm focal length lens, and ring light setup, the system accurately inspects keypad labels and detects the presence or absence of colored buttons. This solution ensures real-time OK / NG (pass/fail) detection, significantly reducing reliance on human operators. Unlike traditional manual inspection, this approach provides consistent results, faster processing, and minimizes the chances of defective units reaching customers.



Results & Summary

The implementation of the automated inspection system successfully identified printed label defects and missing buttons with high accuracy. Production lines experienced reduced inspection time while maintaining consistent quality output. The system minimized human error and allowed operators to focus on higher-value tasks, resulting in improved efficiency. Rejection rates were lowered, ensuring higher product reliability and cost savings in the overall process.

This success case highlights how automated visual inspection addresses critical quality challenges in keypad manufacturing.