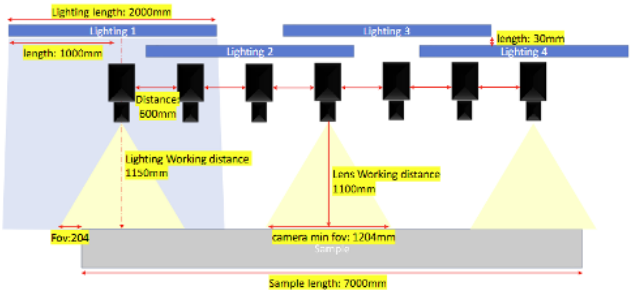
FOOD & BEVERAGES

Enhancing Film Quality Assurance through Advanced Vision Inspection Upgrade

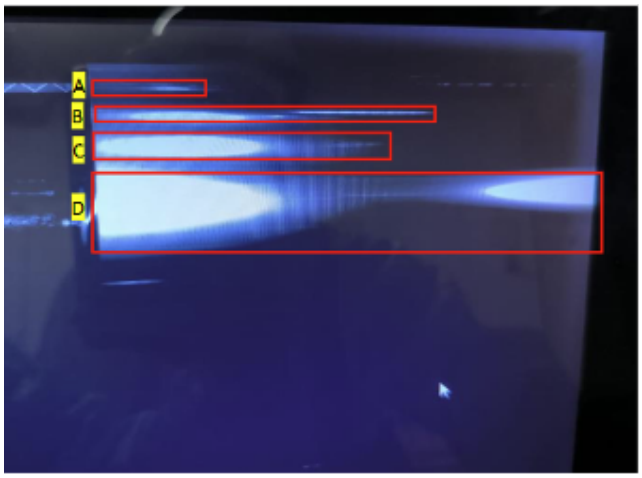
Problem Identified

The production line faced recurring issues with film overlapping and lighting interference during inspection. Uneven overlapping of films often went undetected, resulting in non-compliance and rejections. At the same time, ambient lighting sources interfered with the dedicated vision system lighting, reducing image clarity and inspection reliability. These issues led to inaccurate detection of wrinkles and defects, creating delays and lowering overall product quality. Without stable inspection system, the production faced higher defect rates and reduced efficiency.



Solution Provided

To address these challenges, a vision system upgrade was proposed, integrating higher-resolution cameras, precision lenses, and optimized bar lighting. Light blocking covers and filters were introduced to minimize ambient interference while allowing only specific wavelengths to pass through for clearer imaging. A red filter combined with red bar lighting was implemented, which successfully eliminated the impact of stray ambient light. This ensured that wrinkles and overlaps in the film could be accurately detected in real time. The new setup provided a robust inspection environment compared to the previous configuration.



Results & Summary

The upgraded vision inspection system achieved a significant improvement in defect detection accuracy. By eliminating ambient light interference, the clarity of inspection images was enhanced, allowing for consistent identification of film overlaps and wrinkles. The solution reduced the number of rejected batches and increased overall production efficiency. With reliable defect detection, downtime was minimized, and inspection throughput was improved. This resulted in measurable quality improvements and cost savings for the production line.

This case highlights a critical challenge in the film production industry and demonstrates how advanced vision system upgrades can effectively resolve quality inspection issues.