

FASTEC IMAGING™

Technical Bulletin

Machine Vision

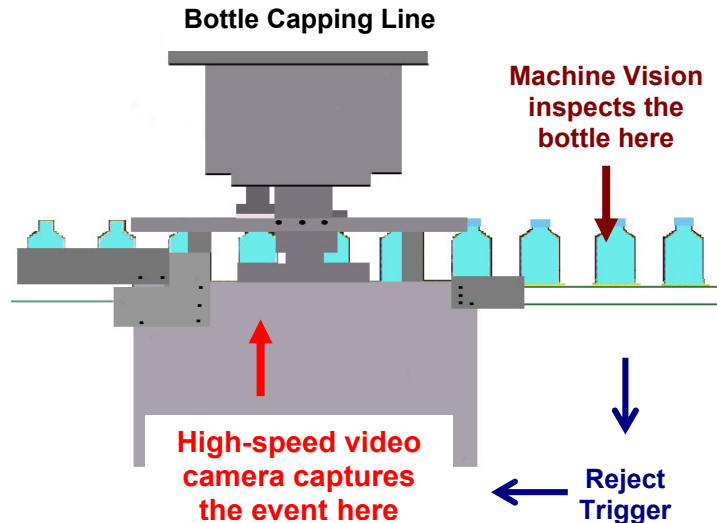
High-speed equipment occasionally produces flawed products. Manufacturers have found that 100% inspection has become a requirement to prevent poor quality products from reaching the consumer. In an effort to overcome product quality problems machine vision technology has become an important part of the manufacturing process. Today, most companies use machine vision to inspect product for manufacturing defects, label position errors, misapplied closures, missing safety seals and other quality points. Unfortunately, one limitation of machine vision is that it cannot help to improve product quality caused by high-speed manufacturing problems.

Problem

Machine vision inspects the product to determine if it is bad (to be rejected). Machine vision does not tell you what caused the product to become bad. Machinery and most mechanical motion move too fast for the engineer to see. The typical response is to reduce the machine run speed to slow down the event to “see” what is going wrong. This of course changes the dynamics of the mechanical event (timing, bounce, vibration, oscillation, material interaction, etc.) and the problem goes away. Go back to normal run speed and the problem returns.

Solution

Use high-speed video imaging to record the fast mechanical problems for instant slow-motion playback, allowing the engineer to *see*, *measure* and *understand* motions too fast for the eye to perceive.



By using the “inspection reject” output signal from the vision system as a trigger signal, slow-motion cameras are excellent for recording intermittent high-speed mechanical events that cause manufacturing defects.

Now, engineers can improve product quality prior to vision inspection by “seeing” high-speed mechanical events and adjusting machinery to optimize performance.

By tying the camera into the “inspection reject” output signal from the machine vision system, high-speed cameras are an excellent tool for capturing intermittent high-speed events that result in manufacturing defects and rejected products.

With the high-speed camera in record mode, the trigger signal generated by the rejection automatically stops the recording process. Images of the event are ready for immediate playback and analysis, providing vital slow-motion feedback about what went wrong. When you can see what caused the problem, you know what has to be done to fix it.