

Multi-Session Eyebot Application

Inspecting Glass Bottles for Label Placement/Content, Cap Orientation, Fluid Fill Level, and Fluid Color

Customer Problem

A leading manufacturer of consumer beverages needed a system to inspect for proper label placement, accuracy of label, cap orientation, fluid fill level, and proper fluid color on glass bottles. Fully automating this inspection would guarantee that the product was ready for shipment.

The line speed was running at approximately 10 parts per second (600 parts per minute). The manufacturer didn't want to spend time training its employees on how to set up a complex vision system. They wanted a solution that was as easy to set up as a photo-electric sensor.



Label Placement/Content



Fluid Color

SIGHTech Solution

Eyebot is the only self-learning vision system. There is no software or PC or frame grabber necessary to make it work.

The main advantage of the MS Eyebot is that it can store up to 8 sessions and you can switch between session in as little as a 1/30th of a second. For example, using just three sessions they were able to have one session look at the label, one to look at the tap, and one more to look at the fill level. All three can be inspecting in a 1/10th of a second.

Furthermore, manufacturers use MS Eyebots when they have multiple products coming down the same assembly line. For example, if you have 45 products going through the same line, then the MS Eyebot can upload and download these saved sessions via its RS-232 port, which is connected to a PC. Each session takes only half a megabyte. Train it on a new product, save it, and then recall it in the future.

In the applications described here, proper lighting was required to achieve success. The operator placed a Stocker & Yale backlight below the processing area, providing the optimum lighting environment for viewing the fill level. For label and color inspection, front lighting was most effective.

The operator connected MS Eyebot to a standard video camera with a vari-focal lens approximately 11" from the area of inspection. Next, he adjusted MS Eyebot's Field of View window to accommodate the area of inspection. Then, he turned MS Eyebot's knob to VIEW and set the optimal the video threshold by pressing the UP and DOWN buttons.

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Unlike all the other vision systems that they had tested, MS Eyebot required no trigger or strobe.

MS Eyebot started learning the process once the operator switched the knob to the LEARN position and pressed the YES button.

The key for MS Eyebot to learn effectively is to present it only good parts.

MS Eyebot begins to form an understanding of what is acceptable by seeing various good parts. It is important to train it on several good parts to learn the acceptable variations from part to part.



Cap Integrity Inspection



Fluid Fill Level

The more tightly controlled the process, the fewer parts one needs to show MS Eyebot.

MS Eyebot displayed a maximum Score of 99 after only 30 seconds of training, indicating that it was no longer detecting new features and that the part had been learned.

The Neuro-RAM Score indicates how many new (unlearned) features MS Eyebot sees. The Score range is 0-99.

The operator was delighted because in just 30 seconds MS Eyebot learned the part. Had he chosen a different system, he would have had to spend days in a class and hours programming the system. Instead, with the MS Eyebot, all he had to do was show it acceptable parts.

After training it, he switched MS Eyebot to RUN, which activates the optically isolated outputs (3 amps @ 60 volts).

The Multi-Session Eyebot provided the manufacturer with an extremely accurate and affordable solution. The total cost for the MS Eyebot system (including monitor, camera, and lens) was well under \$9,000.

MS Eyebot was the perfect solution for the manufacturer, providing them with an affordable and reliable solution. MS Eyebot was capable of handling their line speeds of 600 parts per minute and produced 99.9% accuracy. By choosing MS Eyebot's self-learning technology, their investment in Eyebot paid for itself in two months.

SIGHTech's MS Eyebot is a revolutionary inspection device. It is a trainable machine vision system that enables manufacturer's to inspect their products and processes for visual defects in order to improve their quality control.

MS Eyebot relies on SIGHTech's breakthrough Neuro-RAM™ technology. Neuro-RAM is the self-learning, highly memory efficient algorithm that allows MS Eyebot to learn moving objects just by looking at them, without any programming whatsoever.

MS Eyebot requires no PC, no frame-grabber, and no software. MS Eyebot is inexpensive to install and maintain, and can easily be incorporated in quality control inspection processes throughout a wide array of industries.

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