Sightech Vision Systems, Inc.

PC-Eyebot

Machine Vision Tutorial – New Approach to Vision Applications

We are the global leaders in self-learning vision. This revolutionary technology delivers the power of learning and offers new solutions to vision problems that were previously unsolvable. PC-Eyebot™ unlocks a new frontier in machine vision.

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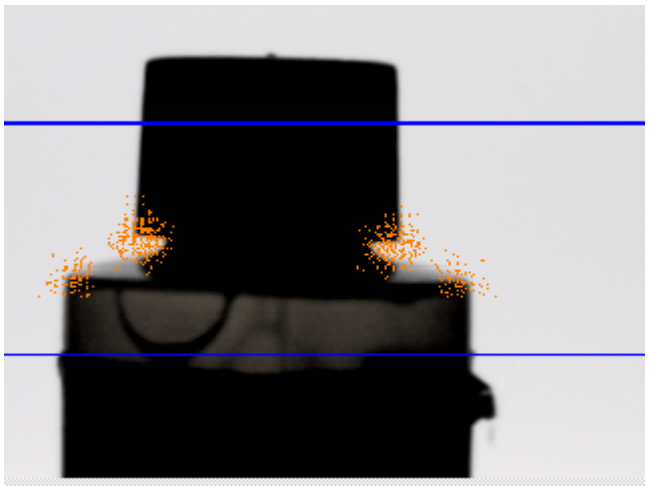
The Self Learning Vision of PC-Eyebot does a lot of work for you – replacing programming and tool setup that you would normally have to do.

PC-Eyebot performs self-learning by executing a massive feature-based extraction and recognition process. In a matter of seconds, millions of important details are learned. After training, PC-Eyebot is operated by placing in Inspection or Recognize mode. It these modes, it puts to work the millions of things it previously learned.

Because PC-Eyebot quickly learns millions of things, it can learn extreme complexity.



Many Real-World vision applications are far to complex to be implemented with traditional machine vision. When products are very uniform in presentation and repetitive, traditional machine vision, though more laborious, can compete with self-learning machine vision. Many applications, however, are very difficult to solve with traditional machine vision – because they have an enormous number of small (but important) variations that normally occur in the product itself and in its presentation.

PC-Eyebot can inspect processes as well as objects. Instead of "taking a picture", PC-Eyebot learns objects in terms of Features.

If a process is repetitive in nature, it can be represented by a large collection of associated feature data. PC-Eyebot learns a process (or object) as such a collection. By learning a process, the PC-Eyebot establishes familiarity with all the information derived from the process. If the process changes in some material manner, then new, unfamiliar data will be detected. The PC-Eyebot reports this result as a Score, which corresponds to the level unfamiliarity.

This new method of image processing offers new, previously unavailable, capabilities. Process monitoring is just one example of extended uses.

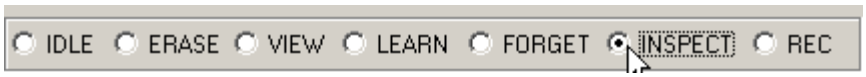
Learning is cumulative – no need to reprogram the PC-Eyebot vision system from scratch if there is a process shift or change in product being inspected.

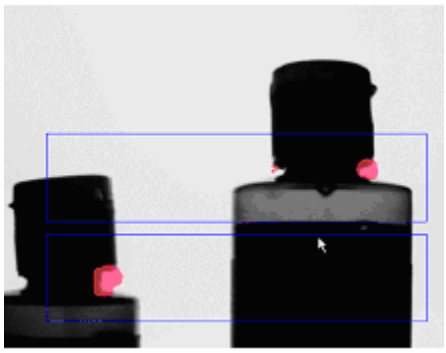
Often there are shifts in production that happen in normal course of operation. Examples are slight lighting changes, changes in product from lot to lot, and changes in the way the products are presented. Because of the self-learning ability of PC-Eyebot, it can be easily trained on the new changes. This training can be cumulative and automatically added to all the previous training, thereby eliminating the need to reprogram the application from scratch.

Use of PC-Eyebot is more easily learned and intuitive in nature.

Most users find that, compared to traditional vision techniques, the self-training approach is much more intuitive. The three step system, (1) ERASE, (2) LEARN, and (3) INSPECT, can be grasped quickly. Some allow the line operators to perform simple cumulative training to adapt to normal product or process shifts.

When trained, PC-Eyebot is ready to Inspect.





To put PC-Eyebot into operation, just set the mode to INSPECT or RECOGNIZE. In these modes, no training takes place – just execution of what you have trained PC-Eyebot to do. If Inspection Mode is used, the Score is continuously calculated and represents the level of unfamiliarity. Defects are unfamiliar and, therefore, cause a higher Score. If Recognize Mode is used, the Score represents the degree of presence of the trained object trained. In other words, if the target object is present, then the Score is high. If it is absent, then the Score is low.