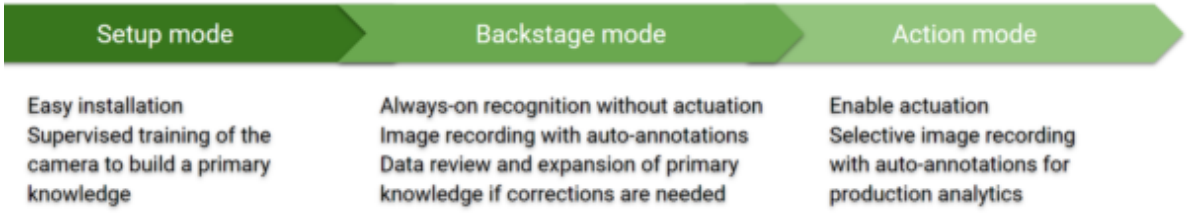
Democratizing neural networks to inspect fuzzy, foamy and fatty products

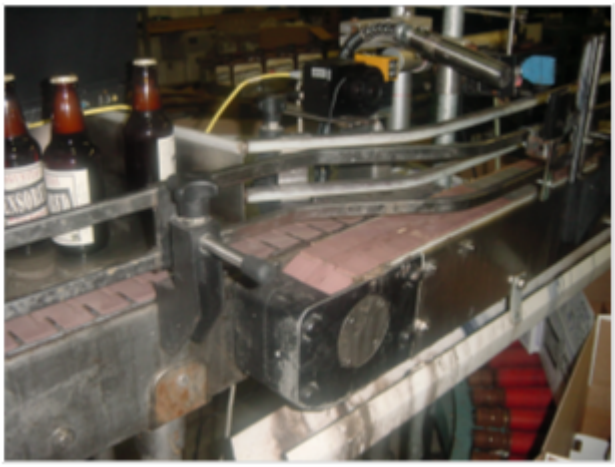
by Anne Menendez | Feb 12, 2019 | Application Notes | 0 comments

Production and Quality Control managers are always interested in Machine Vision systems that can improve manufacturing processes, control the quality of products, and predict machinery maintenance before failure. They will have more faith in a system tested on their production line rather than in a laboratory setting. Still, their goodwill will shrink if the test must disrupt on-going manufacturing.

A General Vision smart camera powered by a NeuroMem neural network can be deployed in 3 easy non-intrusive steps and its training performed by the factory operators.



In the picture to the right, the camera is mounted on a rail along the conveyor belt and connected temporarily to a touch-screen to adjust the sensor settings and teach relevant examples of bottles passing by. The recognition starts immediately but solely at first to monitor and record the classification of the bottles. The annotations generated by the network can be corrected and used as new examples to teach the neurons. Once the classification is satisfactory over a reasonable production batch, the camera's output lines can set enabled and actuate ejector, diverter, warning light, etc. The category recognized by the neurons becomes the action command.



Now that the non-disruption has been established, it is time to demonstrate to the complaisant manager that his operators can train the camera on their own and continuously fine-tune how the NeuroMem neural network must recognize or discriminate objects.

In the brewery, an operator with enough practice can predict if a bottle just filled with beer will end up with the proper amount of liquid once the foam has settled. Similarly, in a meat processing plant, a human inspector can grade the fat quality in the blink of an eye. The good news is that **this field expert can transfer his "visual" knowledge by simply annotating images** of products as they pass in front of the camera. There is no need to describe "why" an image is tagged with a certain category.

Read the complete application note @

Industrial Inspection

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