

Inspecting Packaging of Vials

Inspection Challenge:

A pharmaceutical packaging manufacturer needed to inspect the step-by-step process of packaging vials. The process included checking for presence and position of the label on the vials, verifying the bar code on literature, and verifying the lot number and expiration date on the carton.

Machine Vision Solution:

DT Vision Foundry's Histogram Tool was used in the first part of the packaging process to identify if the vial was on the proper side for labeling. There were five vials per card. One card was inspected every 360 milliseconds. DT Vision Foundry was used to recognize the reflected light from the embossed side of the card. If the embossed side was detected, the system would be instructed to flip the card over via Digital I/O control.

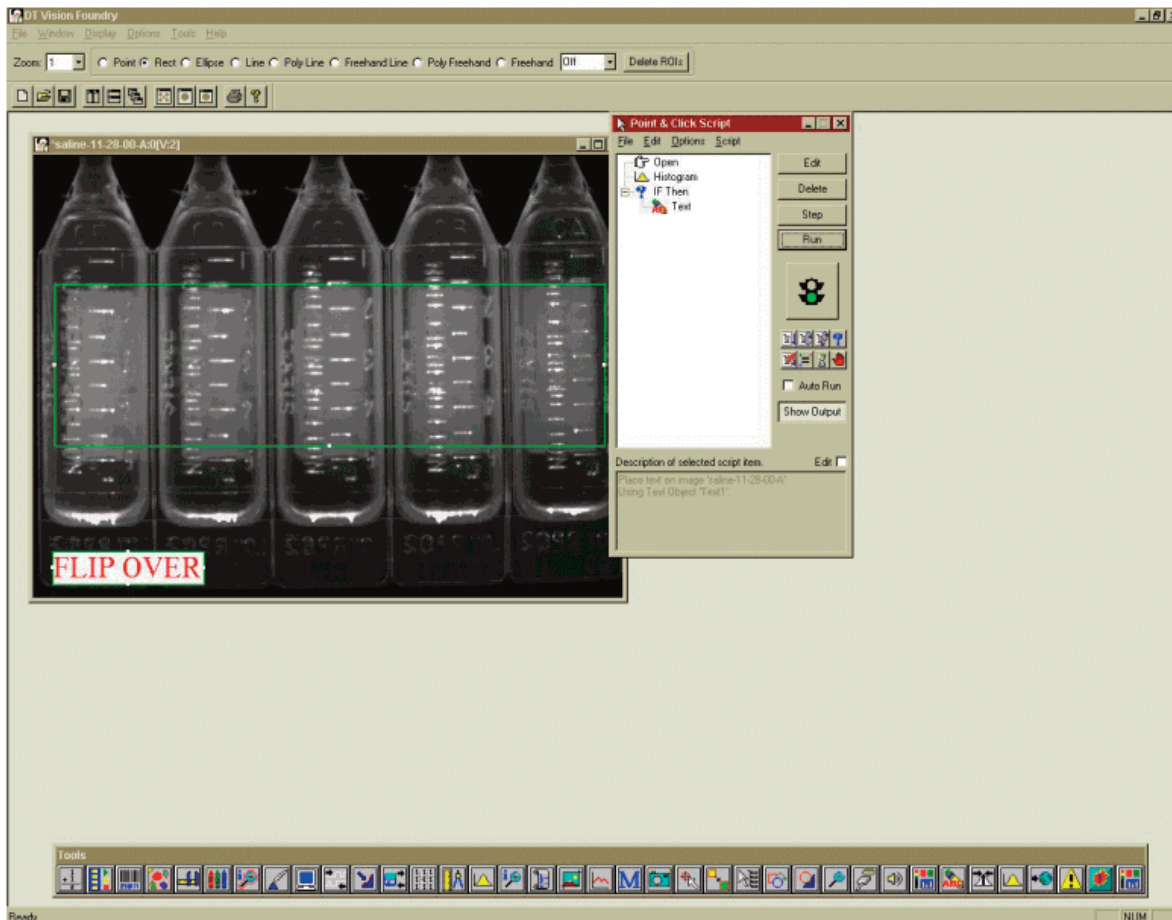


Image 1 - The Histogram Tool detects the embossed side of the card and the system is instructed to flip the card over.

In the second part of the packaging process, DT Vision Foundry's Edge Finder, Shape Fitter and Gauge Tools were used to find the label and verify its position to insure that the labels were on each vial and positioned properly.

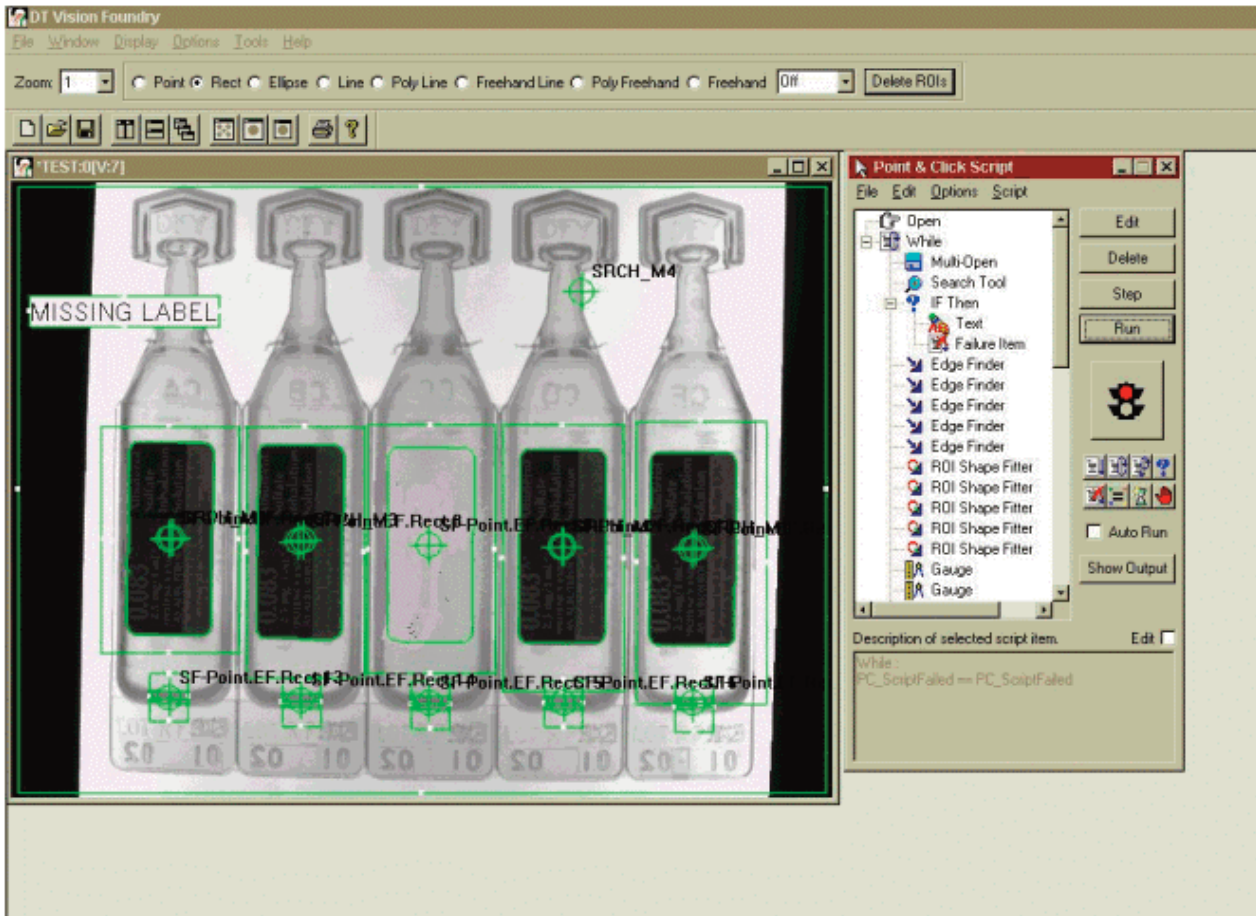


Image 2 - This image shows detection of a missing label on one of the vials.

The third part of the packaging process used DT Vision Foundry's Search Tool to locate the barcode and DT Vision Foundry's Barcode Tool to read and verify the insert barcode with the package barcode to insure the correct instructions were placed in the box. The barcode is an UPC Version A code.

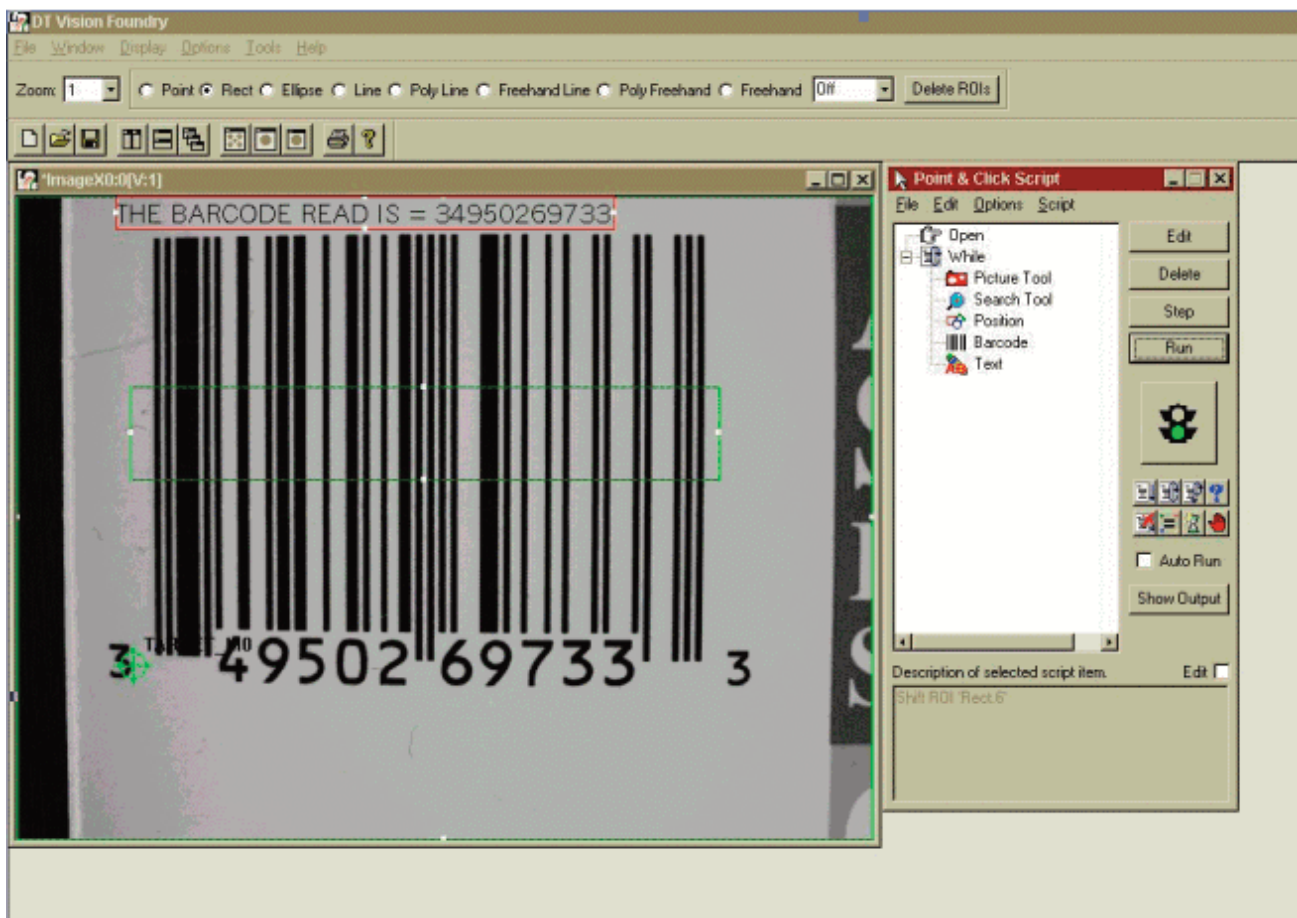


Image 3 - This image shows the Barcode Tool reading the barcode.

In the fourth part of the packaging process, the Lot Numbers and Date Codes needed to be read and verified. DT Vision Foundry's Search Tool was used to find the word LOT in the image, then the OCR Tool was used to read the Lot number and date.

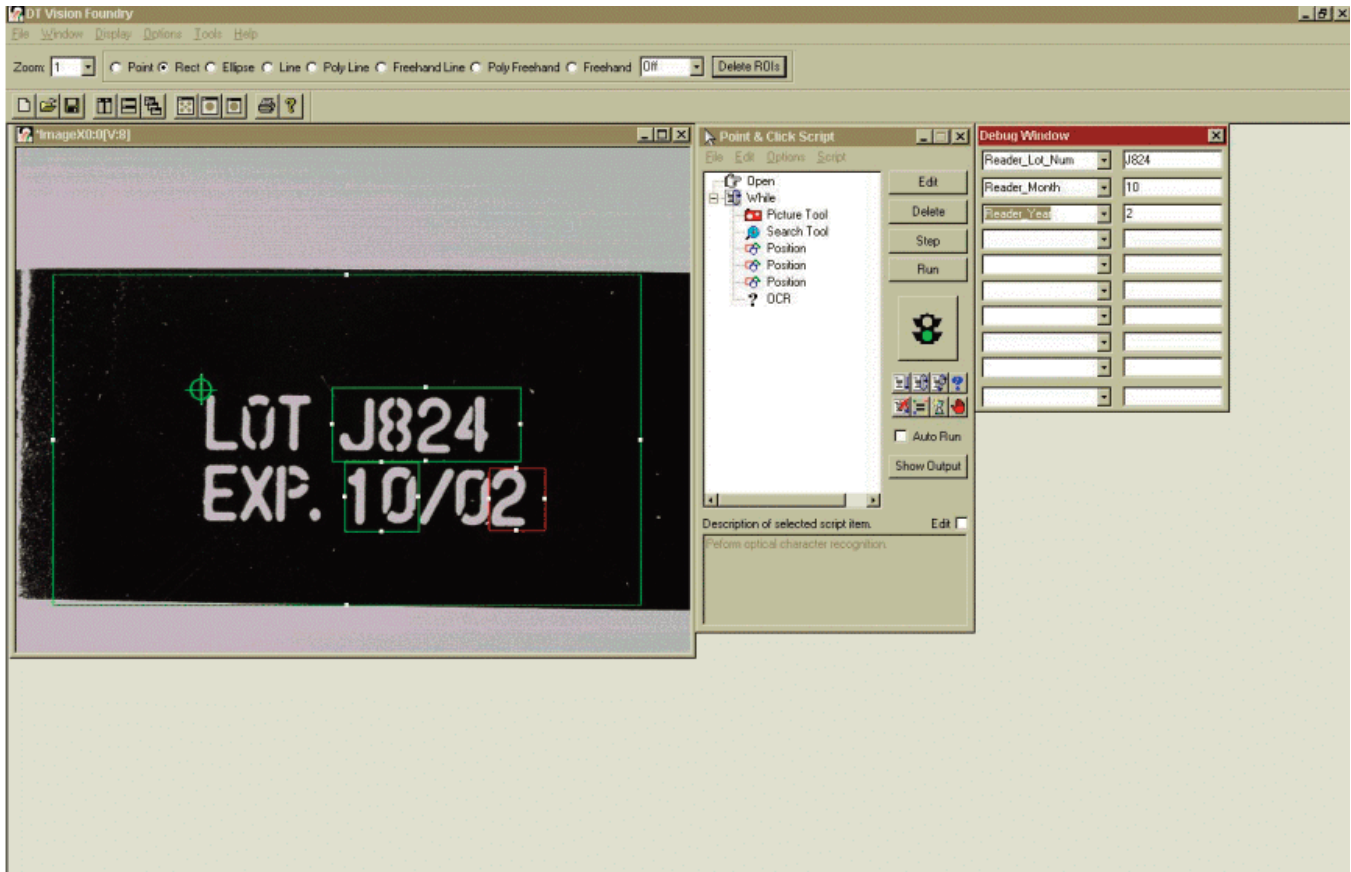
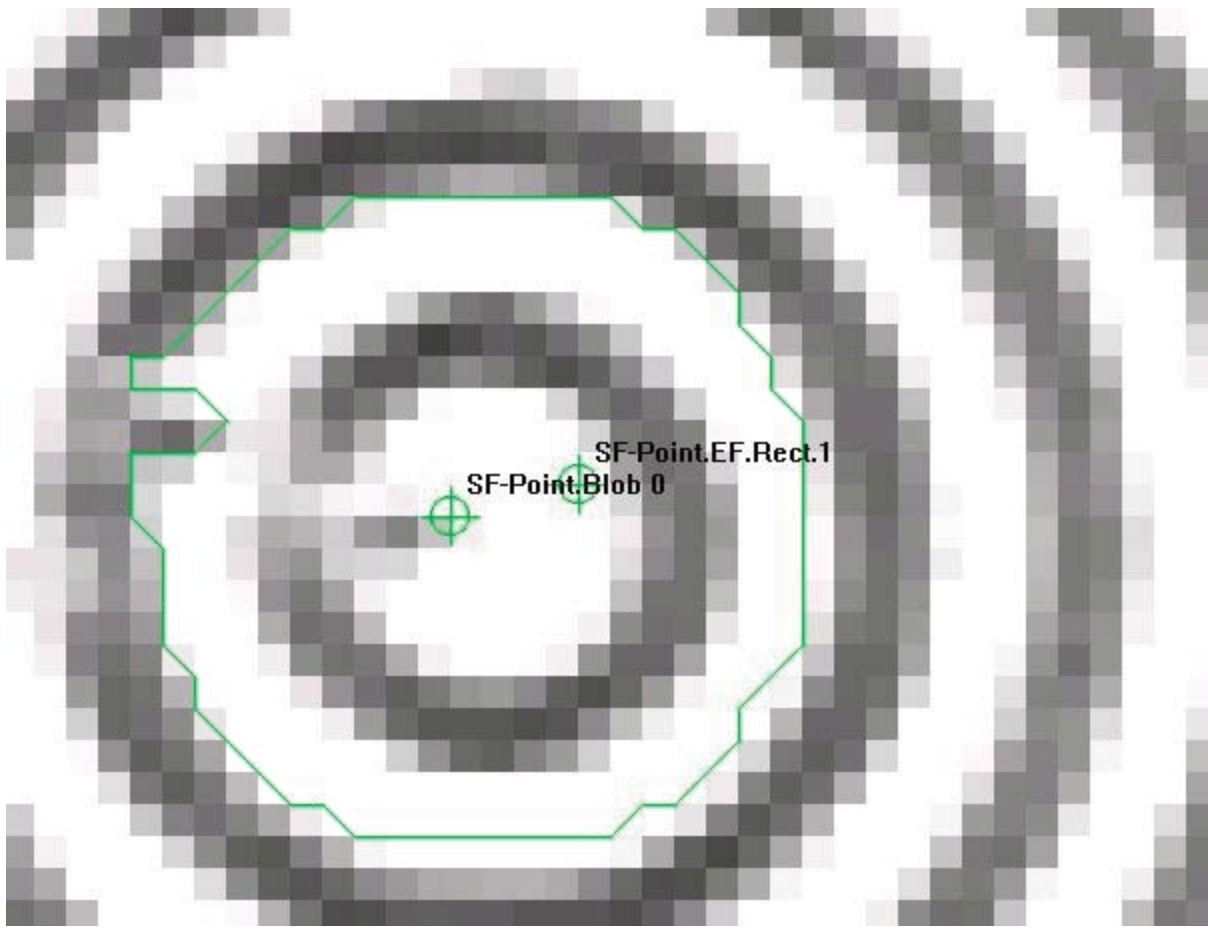


Image 4 - The Search Tool locates the word LOT and the OCR Tool reads the Lot number and date.

A progressive-scan camera was used in this application, along with Data Translation's DT3152 frame grabber board and DT Vision Foundry machine vision software. All failed products are removed from the process via Digital I/O control.

Result:

The Data Translation machine vision solution resulted in an automated inspection process that improved the efficiency and quality in the manufacturer's packaging process.



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