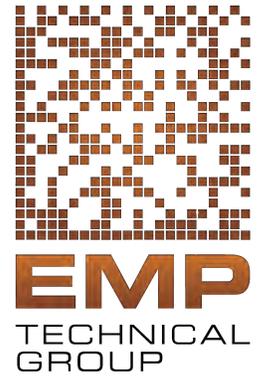# Solutions

Line Scan Application

Challenge: Automate the process of scanning barcodes on a panel of circuit boards to eliminate the need for labor-intensive hand scanning.

Solution: Custom scanning station consisting of conveyor, line scan camera, custom software, and tower lighting for signaling.


Story: A circuit board manufacturer was using a handheld barcode scanner to read the individual barcodes on a panel of circuit boards. This process took quite a long time and was riddled with human error. The customer reached out to the engineers at EMP Technical Group to take on the challenge of automating the process.

The process was difficult to automate as the size of the panel could be as large at 16" x 10", have as many as 96 barcodes and contain barcodes as small as ¼" x ¼". The panel configurations also change frequently throughout the day. The EMP engineers knew they wouldn't be able to use a fixed mount barcode reader. Instead, they designed a solution utilizing a line scan camera integrated with a conveyor.

The camera captures an image slice as the panel passes underneath on the conveyor. Then a custom software program stitches the individual image slices into a high-resolution image of the entire panel. Machine vision software analyzes the image to locate and decode each of the barcodes before checking for duplicates and saving the data. Finally, the tower light signals if the panel has been scanned successfully.

The custom software program also allows a new array of boards to be configured graphically in only minutes. This enables the operator to change panel configuration as needed. The new solution from EMP can scan a panel in approximately 5 seconds compared to 1-2 minutes per panel when scanning manually. The time savings and reduction in errors will generate a significant ROI for the customer.
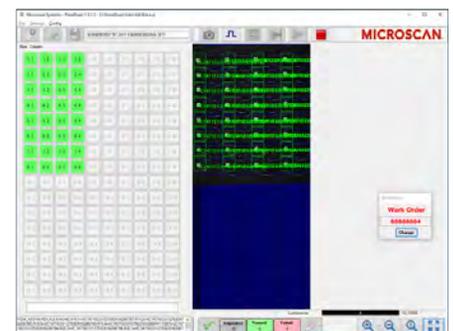
Do you have a manual inspection that is clogging your manufacturing process? Contact EMP today to evaluate your application!