

Dimensional Measurement of Ferrite Core



Client

Our client is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. They develop, manufacture and market electronic components and systems, focusing on technology markets that include automotive, industrial, and consumer electronics, as well as information and communications technology. Today, In India, they are a healthy 800+ Crore company with close to 2250 employees in three factories and five sales offices throughout the country, as well as a strong network of dealers.

Problem Faced


Automation of the dimensional measurement process of the transformer core which moves on a conveyor. Also, if the dimensions are crossing the tolerance limit, it has to be rejected. The process was previously done manually, and was reducing overall efficiency.

Technology introduced by Qualitas Technologies

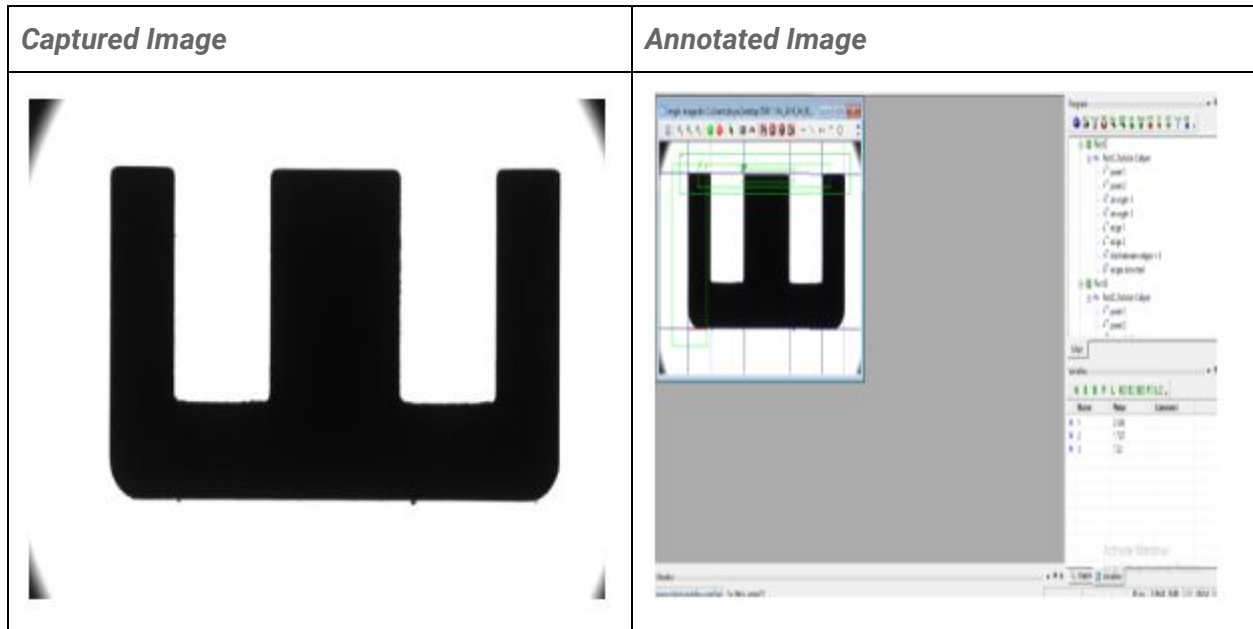
Machine vision technology helps in automating the process of dimensional analysis of ferrite core with the help of an area scan camera, illumination aiding device and rule-based image processing software. The camera captures the image and processes in a separate industrial PC. The output is displayed on the screen and if any component crosses the tolerance limit, a FAIL signal will be sent to PLC to reject the component. Hence using Machine Vision Technology the complete process can be automated with better efficiency and reduction in cycle time.

Solution

The setup consisted of an area scan camera and an illumination aiding device. The illumination preferably had to be a back-light to get a better contrast at the edges. Once the images were captured, the complete Field Of View was divided into several - ROI (Region of interest) because multiple parameters had to be measured. Once all the ROIs were fixed, a Calliper algorithm was used to detect edges and get its values in pixels. Further, the same had to be calibrated to the real world dimension using manual calibration. And, we obtained the results. The same result could be extracted and used in a conditional statement to give a PASS/FAIL signal to the PLC.



Images




Results

The inspection was done successfully.

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