

An Auto-detecting System for Surface Defects on Connectors

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Abstract

Exploiting computer vision techniques, an autodetecting system is developed for surface defects on connectors. The system hardware consists of a CCD (charge-coupled device) camera, a loop-shaped lightsource, and an image capture board. Since the surface of connectors is made of stainless steel with high reflectance, it is difficult to locate the defects specifically. This problem is usually solved by applying extra light on the dark area. However, the reflection of the extra light might induce some detection errors. We classify the surface regions as some regions of interest (ROI) and ones that are not of interest (non-ROI) so as to accomplish real-time on-line diagnosis by image positioning and template recognition. Applied image processing techniques include edge detection, image segmentation, binary images, and template recognition. According to the examination results, the system effectively detects the surface defects. The Examination time is 32ms per sample.

Key words : Computer vision; Surface defect; Connector