Abstract

An automated testing system for Printed Circuit Board (PCB) is preferred to get the technological advances in PCBs design and manufacturing, eliminates particular aspects and then provides fast, quantitative, and dimensional impositions. It reduces the testing time and manufacturing cost as human inspectors decisions are ineffective, slow and costly. Thus in this area, digital image processing can be used mainly for the detection of faulty parts or missing components.

This system mainly deals with analysis to detect faulty PCB. Digital camera is used in automated visual inspection system that captures image of each sample PCB product. The captured image is then provided to computer for further processing which includes conversion in various forms such as Gray scale image and binarized image. XOR operation is performed on these converted images to obtain the required results. Contour Analysis is performed on these results for classification. Missing components, polarities, circuit breaks, missing tracks these
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types of faults are detected and classified accordingly. This concept increases the speed and accuracy, eliminates human errors which are frequent in quality testing and also overcomes the weakness in the existing system. Hence the productivity can be increased by replacing manual testing with the proposed concept.

References


Index Terms

Computer Science          Image Processing
Keywords

Image Processing, Printed Circuit Board, Defect Detection, RGB, Gray Scale, Binarization, Edge Detection, Classification system.