

THE DEVELOPMENT OF BINOCULAR DISPARITY TECHNIQUE FOR PRINTED CIRCUIT BOARD DEFECT INSPECTION

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ABSTRACT

In the printed circuit board (PCB) industry, surface-mount technology is heavily utilized for the mounting of electronic components. Currently, most PCB inspection methods consider solder joint defects only, without checking the position error for components. A practical inspection method that also considers the existing PCB components themselves would be highly beneficial. In this work, an algorithm is developed to check the existence of surface-mount devices by the binocular disparity method. Binocular disparity is generally used to extract depth information from the two-dimensional retinal images in stereopsis. However, this 3D stereo disparity technique could be used to quickly detect the components on a PCB-extra components as well as missing components. This work includes an application demonstration of the algorithm for PCB defect inspection.

KEYWORDS: PCB, SMT, Defect, Binocular, Disparity