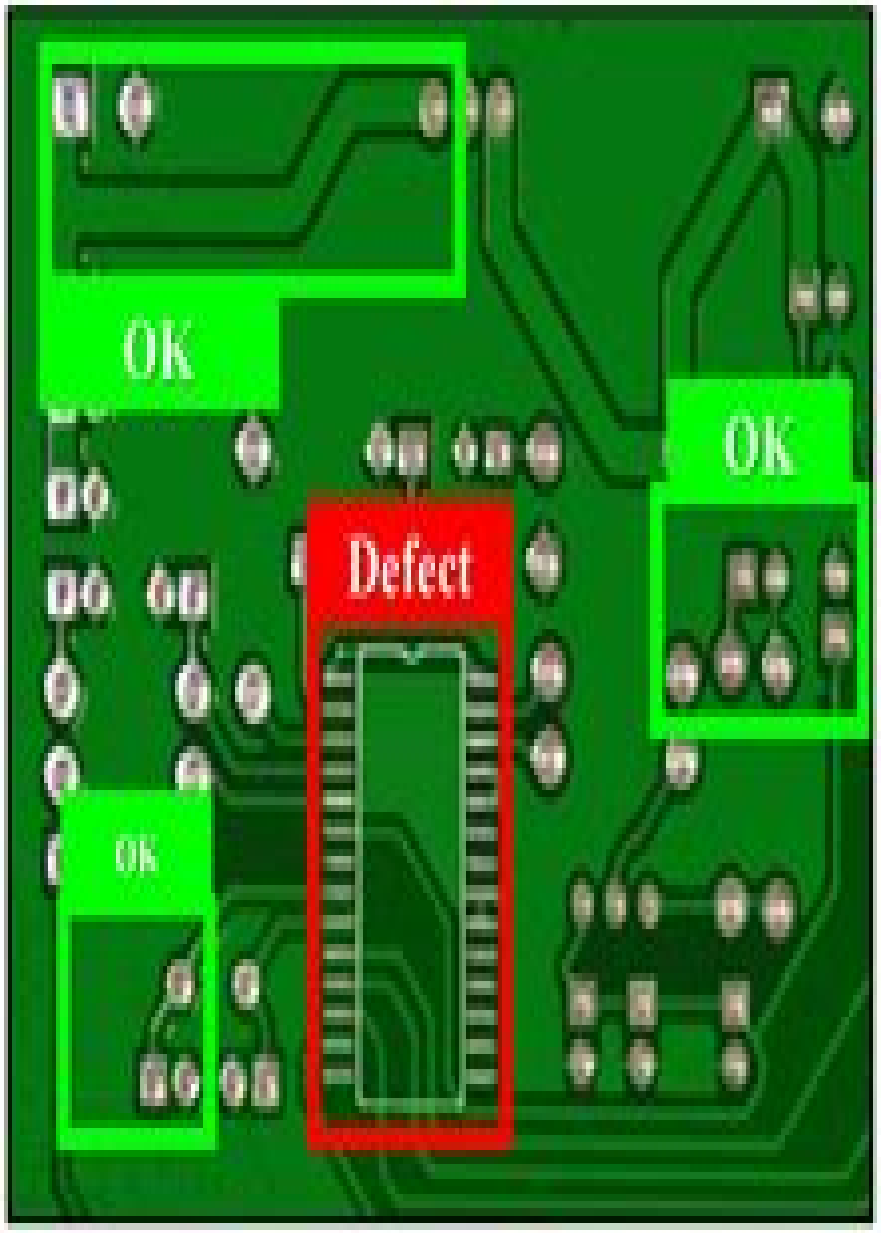
OK
OK
Defect
OK

(a)

Maintenance
- Contamination
Model training
- Inappropriate model
Manufacturer
Data collection
- Lack of data
- Unbalanced data

(b)

Automatic Pcb Defect Detection Using Image Smtnet

Siti Hazurah Indera Putera

Automatic Pcb Defect Detection Using Image Smtnet:

AUTOMATIC OPTICAL INSPECTION-BASED PCB FAULT DETECTION USING IMAGE PROCESSING ,2023 Abstract Increased Printed Circuit Board PCB route complexity and density combined with the growing demand for low scale rapid prototyping has increased the desire for Automated Optical Inspection AOI that reduces prototyping time and production costs by detecting defects early in the production process Traditional defect detection method of human visual inspection is not only error prone but is also time consuming given the growing complex and dense circuitry of modern day electronics Electric contact based testing either in the form of a bed of nails testing fixture or a flying probe system is costly for low rate rapid prototyping An AOI is a non contact test method using an image processing algorithm that quickly detects and reports failures within the PCB layer based on the captured image A low cost AOI system has been created using commercial off the shelf components specifically for low rate production prototyping testing allowing testing of varying layers or various electronic designs without additional setup cost Once the AOI system is physically configured the image processing defect detection algorithm compares the test image with a defect free reference image or by a set of pre defined rules generated through Electronic Design and Analysis software Detected defects are then classified into two main categories fatal and potential Fatal defects lead to the board s rejection while potential defects alert the operator to determine if the board should be rejected or will still satisfy pre defined prototyping criteria The specifications of an imaging system camera sensor imaging lens and illumination set up used in the creation of the AOI were designed considering a test PCB article already in production The algorithm utilized is based on a non reference defect detection method utilizing mathematical morphology based image processing techniques to detect defects in the PCB under test **Automatic Defect Detection and Classification System on Printed Circuit Board Inner Layer** ,2013 **Adaptive Thresholding Method for PCB Defect Detection** Boon Hong Lim,2009 **Morphological Image Segmentation for Detection and Classification of PCB Defects** Siti Hazurah Indera Putera,2007

Whispering the Secrets of Language: An Psychological Journey through **Automatic Pcb Defect Detection Using Image Smtnet**

In a digitally-driven world where screens reign great and instant conversation drowns out the subtleties of language, the profound techniques and emotional subtleties concealed within phrases frequently move unheard. However, nestled within the pages of **Automatic Pcb Defect Detection Using Image Smtnet** a captivating literary prize pulsing with organic emotions, lies an extraordinary journey waiting to be undertaken. Composed by a talented wordsmith, this charming opus invites visitors on an introspective trip, gently unraveling the veiled truths and profound impact resonating within the cloth of each and every word. Within the mental depths of the emotional review, we can embark upon a heartfelt exploration of the book is core styles, dissect its fascinating writing style, and fail to the powerful resonance it evokes serious within the recesses of readers hearts.

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