Abstract

Visual inspection constitutes an important part of quality control in manufacturing industry. The detection of defects on mechanical part surfaces is an important quality control step in the manufacturing of machine products. In this paper, we have introduced a new approach to detect surface defects with varied size, shape in mechanical parts through the use of image processing techniques. First, we apply image edge detection techniques for extracting the edges in an image by identifying pixels where intensity variation is high. Then, for extracting actual defects we reduce gray scale edge information to binary defect information using thresholding. A threshold process will generate a certain amount of noise. So, this noise will removed by a noise filtering technique using the connected component's eccentricity property. Then, based on the highlighted edges, the defect itself should become identifiable by filling the gap between two corresponding edges by comparing gray scale values. The Experimental results show that the proposed method is suitable for extracting the various defects of varying shapes and size in images.

References


Index Terms

Computer Science

Information Sciences
Keywords

Defect Detection  Crack Extraction  Edge Detection  Thresholding  Connected Component Property

Gray Scale values