Fault Detection of Mobile Bracket with MATLAB

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 161
Number 10

Year of Publication: 2017

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10.5120/ijca2017913351

Abstract

An internal mobile bracket, also known as its metal body, is the main supporting structure of a mobile phone to which all other components are attached, comparable to the skeleton of an organism. The goal of fault detection system is to handle occurring faults in the body as in the dimensions, the slots of the small bolts, the camera placement slots, the sensors of the receiver and transmitter, the battery connecting slots etc. as all these slots are very small in some may be visibly detected but some may not.

Quality control, cost reduction and above all, human and environmental safety are great reasons that stimulate the investments in technologies like automatic inspection. The automatic inspection of connecting lines in the mobile metal body is of special interest, due to the fact that such connecting lines are not visible by the human eye. Visual inspection is one highest cost in metal frame.
The main motive of the fault detection is that it may reduce human efforts mainly, secondly the error will be more precisely detected which would have being missed out by the human or the machine due misplacements. The machine used for this detection may be time consuming, or if in any case the detection is not done after its making, requires large overhead costs and results in high wastage. After manufacturing product; to make decision of rejecting or accepting is taken by measuring quality parameters. To measure quality parameters such as dimensions and features of manufactured product inspection is many a times not done.

To overcome these problems quality control and quality management for sensitive product is feasible by use of image processing techniques. This technique will detect all the fault in the frame, like the connecting lines, the dimensions, bends, cracks, change in positions of parts like minute nuts and bolts, the missed slots etc. This activity completely captures any metal body of any brand then compares it with the ideal frame then checks each and every fault from all the parts. If the body matches with the ideal body using the image processing technique then the product is forwarded for further process. And if the chassis does not match the ideal one then it is rejected.

References


Index Terms

Computer Science Image Processing

Keywords
MATLAB, controller, LED'S, Cameras, TxRx (Wireless)