Fault Detection of Mechanical Components using Machine Vision

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In this paper, an automated system isolates defective bolts from conveyor belts to increase the efficiency and accuracy of detection compared to manual labor. This system consists of a conveyor system, a Raspberry pi development kit, and a high-quality pi camera. The image analysis is carried out using Convolutional Neural Network (CNN) to detect faulty bolts. Bolts that have dimensions outside the standard measurements are labeled as faulty in the proposed system. The prototype fault detection system implemented identifies bolts of various sizes from standards, with an accuracy of nearly 80%, which is a significant achievement.

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