عنوان مقاله:

Detection and Classification of Foreign Substances in Medical Vials Using MLP Neural Network and SVM

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خلاصه مقاله:

Presence of foreign substances in medical liquids can make serious problems for both patients and companies. To avoid these problems, there is a vast need of an automatic process to identify the bottles with foreign substances. In this paper, a new method is proposed to detect and classify the foreign substances in medicine bottles and vials based on machine vision. Several cameras are located in production line, to get images from medicine bottles. The captured images are thresholded to gather a collection of connected components. For each one a set of novel features are computed, the feature vectors are fed into a classifier, to distinguish the foreign substances from bubbles and also classify them in four groups, so the operator can find the source of the problem and fixes the failure in machine which causes it.. An original method is also described to find out the scratches and spots on the bottle surface and distinguish them from foreign substances. The proposed method achieves detection rates over 97% and classification rates over 93%.

کلمات کلیدی:

foreign substance detection, Medicine vial,feature extraction, SVM, MLP

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