

Anol Paisal 2012: Separation the Mingling Varieties of the Mungbean Seeds by Image Analysis. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Assistant Professor Teerasit Kasetkasem, Ph.D. 77 pages.

The amount of seed of different species is likely to occur in all stages of productions, namely harvesting, storage, processing and distribution while the separation of mingling seeds is difficult. In general, the specialized tools at the high-tech laboratory or specialists are needed. The laboratory work is often time-consuming and expensive and the number of specialists is very limited. As a result, the quick and easy method to separate mungbean seed is in high demand.

The Separation of mungbeen seeds by using image processing techniques is one of the answers. In this work, the HU absolute orthogonal moment and the support vector machine are selected as the feature selection and classification tools, respectively. The Hu moment is known to be invariant to the size and orientation of the mungbean seed. We examined our proposed techniques with 4 different strains of mungbean, namely, Chainat-72 (CN72), Kamphangsan-2 (KPS2), Authong-1 (AUT1), and SUT-1 (MST1). Our experiment has shown that our proposed technique is very accurate since 92.88 percentages was successfully separated with the producer accuracies of 92.04%, 94.16%, 93.42% and 91.9%, and the user accuracies of 90.46%, 96.89%, 91.31% and 93.03% for CN72, KPS2, AUT1, MST1, respectively.

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Thesis Advisor's signature