

Abstract

Corn yield improvement program to attain the continuous national self-sufficiency must be supported by the availability of high-quality corn seeds. In the process of corn seed production, grading is one of the factors that affect the quality of corn seeds. Generally, the grading process is done manually by visual observations of workers which tend to be subjective and ineffective. Some corn seed factory use sieve machines to do grading by seed size. In this paper, an imaging-based classification system is proposed to do corn seeds (Bima-20) grading of two classes, which are "good" and "bad" based on shape, color, and size features. Images data is taken in group of five corn kernel. Region-of-interest (ROI) detection is done to select each of single seed from the group image. Then, each of features is extracted from single seed image and used as classification parameter. Support Vector Machine (SVM) is used as classification model. SVM is a machine learning algorithm typically used for classification problems because of its good performance. The obtained F1 score of the proposed classification system is more than 90%.

Keywords: grading, ROI detection, features extraction, SVM