GREEN COFFEE BEAN CLASSIFICATION USING IMAGE PROCESSING METHOD AND FUZZY LOGIC

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ABSTRACT

Quality standards of coffee beans in Indonesia is organized by the National Standardization Agency (BSN) as listed in SNI 01-2907-2008. On the technical implementation, the accuracy of qualification depends on the officer’s skills and experiences, moreover the time required to obtain the quality rate is about few minutes long. Therefore we need a system which has ability to perform quality classifications more rapidly with sufficient accuracy. The purpose of this research is to build a digital qualification system using a camera connected to the computer. Color features such as average red, green, blue, hue, intensity, saturation and texture features such as entropy, energy, contrast and homogeneity are used as input to the classifier that is an artificial intelligent network program using Fuzzy Learning Vector Quantization (FLVQ) dan Backpropagation Neural Network (BPNN) algorithm. Off-line testing results showed that FLVQ and BPNN algorithm deliver 85.71% and 100% accuracy respectively. At the time of On-line testing, FLVQ algorithm only reached 65.71% accuracy and 71.43% for BPNN. Generally, it seems that a BPNN classifier performance has better accuracy than the FLVQ.

Keyword: quality classification, textures, fuzzy learning vector quantization