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Identification System for Grading Banana in Food Processing Industry

Authors : Ebenezer O. Olaniyi, Oyebade K. Oyedotun, Khashman Adnan

Abstract : In the food industry high quality production is required within a limited time to meet up with the demand in the society. In this research work, we have developed a model which can be used to replace the human operator due to their low output in production and slow in making decisions as a result of an individual differences in deciding the defective and healthy banana. This model can perform the vision attributes of human operators in deciding if the banana is defective or healthy for food production based. This research work is divided into two phase, the first phase is the image processing where several image processing techniques such as colour conversion, edge detection, thresholding and morphological operation were employed to extract features for training and testing the network in the second phase. These features extracted in the first phase were used in the second phase; the classification system phase where the multilayer perceptron using backpropagation neural network was employed to train the network. After the network has learned and converges, the network was tested with feedforward neural network to determine the performance of the network. From this experiment, a recognition rate of 97% was obtained and the time taken for this experiment was limited which makes the system accurate for use in the food industry.

Keywords : banana, food processing, identification system, neural network
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