# *ABSTRACT*

## CLASSIFICATION OF QUALITY AND RIPENESS OF CAVENDISH BANANAS BASED ON TEXTURE AND COLOR CHARACTERISTICS USING CNN

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*Based on data from the Central Statistics Agency (BPS), banana production in Indonesia will reach 9.24 million tons in 2022. Bananas have various varieties that grow in various regions, with Cavendish bananas being one of the varieties that is in high demand. However, determining the level of ripeness of bananas is still often done manually, causing potential losses for farmers if an error occurs. Therefore, this research aims to develop a classification model using Convolutional Neural Network (CNN) to determine the ripeness and quality of Cavendish bananas. The model consists of four categories: good quality raw (MHBS), poor quality raw (MHBK), good quality raw (MGBS), and poor quality raw (MGBK), for a total of 1000 images. This research built 36 models with various parameters such as number of epochs, and batch size. The analysis results show that the number of epochs has a significant effect on model accuracy, with an increase in the number of epochs leads to an increase in accuracy. However, scenario of batch size do not have a significant influence on the overall model accuracy. Model evaluation shows that the highest accuracy of 95% was obtained by the model with a batch size 16, and number of epochs 20.*

***Keywords: Deep Learning, CNN, Classification, Cavendish Banana***