



An Artificial Intelligence–Based Application for the Analysis and Evaluation of Banana Ripeness Levels to Enhance Agricultural Logistics Management

Panus Ngamchawee ¹, Supanat Ma-in ¹, Wachirawit Eiamwilai ^{1*} and Sunantha Sirimongkol ²

¹ Princess Chulabhorn Science High School Lopburi No. 216, Village No.1, Khok Samrong, Lopburi, 15120 Thailand

*E-mail: pcshscenter@pccl.ac.th

Abstract

Currently, Thailand has approximately 9.3 million agricultural households, accounting for 37.5% of all households. Bananas are an important economic crop and are widely consumed; however, one of the major problems encountered is banana spoilage during transportation and product handling. Therefore, this project aims to develop an artificial intelligence–based application for analyzing and evaluating the ripeness levels of bananas in order to support agricultural logistics management. Roboflow was used for dataset preparation, and the model was trained using the YOLOv26 algorithm. The application was then developed using Visual Studio Code. The application operates by allowing farmers to capture images of bananas, which are processed by the system to display the ripeness level in the form of descriptive text, enabling accurate quality assessment. The experimental results showed that the application achieved an accuracy of 94% in classifying banana ripeness levels. In conclusion, the developed application can effectively assist farmers in classifying banana ripeness and improving the management of banana quality.

Keywords: Application, Artificial Intelligence, Banana, Farmer