West Visayas State University
COLLEGE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
La Paz, Iloilo City

INSECT PEST IDENTIFICATION APP WITH PRESCRIBED PESTICIDE IN RICE FIELDS USING SSD MOBILENET MODEL ON DEEP LEARNING

An Undergraduate Thesis

Presented to the Faculty of the

College of Information and Communications Technology

West Visayas State University

La Paz, Iloilo City

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Information Technology

by

Khrysma Dei C. Caldina

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June 2023

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Approval Sheet

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Abstract

Rice holds paramount importance as the predominant staple crop in Asia, specifically in the Philippines. Crop insect identification poses a challenge for farmers because insect pest attacks cause crop damage and quality degradation. It was necessary to accurately identify insect pests from beneficial insects in order to target pesticides only at insect pests and in avoiding long-term economic damage. This study aimed to give farmers information about the insect pest's name and recommended pesticides through the use of Inspestor: Insect Pest Identification App with Prescribed Pesticide in Rice Fields Using SSD MobileNet Model on Deep Learning. The researchers manually collected the 24,000 image datasets from in-field traps on rice fields. The dataset was then manually labeled using Python, and the model was trained in Google Colab. Results show that the mean average precision of the system is 71.6 and an average recall

of 76.9, with a high-level result of confidence of 99% and the lowest result of 81% of the insect pests. Furthermore, the mobile app was evaluated based on ISO 25010 in collaboration with an IT expert, the Department of Agriculture, and farmers were randomly selected. The application was tested by 18 farmers and seven technical staff from the Department of Agriculture - Region VI. The overall performance of the app based on the respondents (farmers and DA technical staff) is 4.58 with an "Outstanding" rating. On the other hand, the performance evaluation of the app based on ISO 25010 along with an IT expert is 4.75 with an "Outstanding" rating.

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