

*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  
Khryisma Dei C. Caldina  
Clarence T. Gealon  
Alyza Marie Tarrazona  
Clarnick B. Yap  
Paola Bianca S. Zarriz

June 2023

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Approval Sheet

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Caldina, Khryisma Dei C.; Gealon, Clarence T.; Tarrazona, Alyza Marie; Yap, Clarnick B.; Zarriz, Paola Bianca S.; "Insect Pest Identification App with Prescribed Pesticide in Rice Fields Using SSD MobileNet Model on Deep Learning". Unpublished Undergraduate Thesis, Bachelor of Science in Information Technology, West Visayas State University, Iloilo City, Philippines, June, 2023.

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

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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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