DEVELOPMENT OF A MOBILE-BASED LETTUCE (Lactuca *sativa)* DISEASE IDENTIFICATION

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BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS ENGINEERING
(AB Land and Water Resources Engineering)

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ACCEPTANCE SHEET

This undergraduate thesis entitled **"DEVELOPMENT OF A MOBILE-BASED LETTUCE (Lactuca *sativa)* DISEASE IDENTIFICATION"** prepared and submitted by **KRISTAL T. IBUYAT** and **ELLEN MICHELLE MENDOZA**, in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS ENGINEERING (AB LAND AND WATER RESOURCES ENGINEERING)**, is hereby accepted:

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BIOGRAPHICAL SKETCH

Kristal T. Ibuyat, third child of Mr. Mario C. Ibuyat Sr and Mrs. Mary T. Ibuyat was born on September 04, 2000, and resides at Sta. Clara, Cuyapo, Nueva Ecija having a younger brother and older sister and brother. She was raised by her parents to put God always first in her life and live a simple life.

She completed her primary education at Sta. Clara, Elementary School in 2012. After graduation she continued his Junior and Senior High School education at Dr. Ramon De Santos National High School in 2019. Kristal is very active in their school in participating in school activities, a member of their choral group and consistent SSG officer in their school as well. Moreover, Kristal is also an officer in their church. She is a part of choir group in church and actively participates in different church activities such as unity games where in, she played volleyball, clean up drive, tree planting and more. Also, Kristal really loves cats.

Also in 2019, she was admitted to Central Luzon State University with a Bachelor of Science in Agricultural and Biosystems Engineering, Major in AB Land and Water Resources Engineering. She considers that her college life is the most challenging part of her school journey but because of her teachers and friends everything becomes bearable. Lastly, the author is very thankful to CLSU because it helps her to mold and push herself beyond her limits and bravely face challenges as she continues to pursue her dreams.

BIOGRAPHICAL SKETCH

Ellen Michelle A. Mendoza was born on October 8, 2000, and is the first child of Mr. Rudy P. Mendoza and Mrs. Lorna A. Mendoza. She currently resides in Maycaban, Cuyapo, Nueva Ecija, and has a younger sister and brother. Her parents instilled in her the values of putting God first in all things, living her best life, and accepting challenges head-on.

In 2012, she finished her primary education in District 6 of Cuyapo, Nueva Ecija. In 2019, she attended Dr. Ramon De Santos National High School for Junior and Senior High School after graduating. Ellen is a member of "Ang Siruhano" and is actively involved in school events. She also contributes news to the editorial page. Additionally, Ellen competes and represents her school in a press conference where she works as a broadcaster.

She earned a Bachelor of Science in Agricultural and Biosystems Engineering in 2019 and got accepted to Central Luzon State University with a major in AB Land and Water. She views her time at college as the most difficult phase of her academic career, but thanks to her tutors and friends, everything is bearable. Last but not least, the author is grateful to CLSU for helping her shape, push herself past her comfort zone, and fearlessly face challenges as she pursues her objectives.

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ELLEN MICHELLE A. MENDOZA

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4. Investigate Ensemble Models: Ensemble learning techniques, such as combining multiple classifiers or models, can potentially improve the overall performance and robustness of the system. Experimenting with ensemble models, such as boosting or bagging algorithms, could lead to enhanced accuracy in lettuce disease identification.

5. Develop a User-Friendly Interface: Consider developing a user-friendly interface or application that allows farmers or agricultural experts to easily access and utilize the lettuce disease identification system. The interface should provide clear instructions, visualizations of disease identification results, and actionable recommendations for disease management.

6. Validate the System in Real-World Conditions: To ensure the practical applicability of the developed system, it is crucial to validate its performance in real-world conditions. Conduct field trials and collaborations with agricultural stakeholders to evaluate the system's accuracy, usability, and effectiveness in real lettuce farming environments.

7. Continuous Model Monitoring and Updating: Keep the model up to date by continuously monitoring its performance and updating it with new data. Regular retraining and fine-tuning can help the model adapt to evolving disease patterns and maintain its accuracy over time.

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