

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

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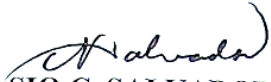
An Undergraduate Thesis Submitted to the Faculty of the Department of Agricultural and  
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Requirements for the Degree of

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

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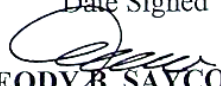
  
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## **BIOGRAPHICAL SKETCH**

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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## TABLE OF CONTENTS

	PAGE
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF APPENDICES	xv
LIST OF APPENDIX FIGURES	xvi
ABSTRACT	xvii
INTRODUCTION	1
Background of the Study	1
Statement of the Problem	2
Objectives of the Study	3
Significance of the Study	3
Scope and Limitation of the Study	4
Time and Place of the Study	4
REVIEW RELATED LITERATURE	5
Common Lettuce Diseases	5
Damping Off	6
Lettuce Mosaic Virus	7
Lettuce Downy Mildew	7
Leaf Spot	9
Gray Mold	10
Powdery Mildew	11
Drop	11
Bottom Rot	12
Tomato Spotted Wilt Virus	13
Septoria Blight	15
Image Processing-Aided Disease Identification	16

Sensors	18
Python Machine Learning	21
Internet of Things (IoT)	22
METHODOLOGY	24
Conceptualization of the Study	24
Design Considerations	26
Convolutional Neural Networks (CNN) Model	27
Computer Vision Flowchart	28
Data Gathering Method	29
Calibration	31
Statistical Data Analysis	32
Confusion Matrix	32
RESULTS AND DISCUSSION	34
Experimental Set-Up	34
Image Dataset Preparation	34
Data Retribution	37
Collected Images	37
Segment Image	40
Data extraction	42
Color Histogram	45
Local Binary Patterns (LBP)	45
Shape Features	46
Result of the Model	46
Confusion Matrix	49
True Positive (TP)	49
True Negative (TN)	49
False Positive (FP)	49
False Negative (FN)	50
Precision	50
Recall (Sensitivity or True Positive Rate)	50
F1- Score	50

Simple Cost Estimate for the System	57
Agriculturist Intervention	58
SUMMARY, CONCLUSION, AND RECOMMENDATION	64
Summary and Conclusions	64
Recommendation	66
LITERATURE CITED	69
APPENDICES	71
Appendix I	72
Code Used in Programming System	72
Appendix II	77
Appendix Figures	77

## LIST OF TABLES

TABLE		PAGE
1.	Visual Images Included in Data Set	30
2.	Cost Estimation of the system	57
3.	Septoria's Blight of Lettuce	58
4.	Viral Disease of Lettuce	59
5.	Bacterial Disease of Lettuce	60
6.	Powdery Mildew Disease of Lettuce	61
7.	Leaf and Wilt Blight Disease of Lettuce	62
8.	Downy Mildew Disease of Lettuce	63

## LIST OF FIGURES

FIGURE		PAGE
1.	Damping Off	6
2.	Lettuce Mosaic Virus	7
3.	Lettuce Downy Mildew	8
4.	Leaf Spot	9
5.	Gray Mold	10
6.	Powdery Mildew	11
7.	Drop	12
8.	Bottom Rot	13
9.	Tomato Spotted Wilt Virus	14
10.	Septoria Blight	15
11.	Conceptual Framework of the Study	25
12.	Web UI Interface	27
13.	Visualization of CNN Layer	28
14.	Computer Vision Flowchart	28
15.	The Detailed Model of Data Training for Computer Vision	29
16.	Confusion Matrix Model for Machine Learning	32
17.	Experimental Set-Up	34
18.	Sample Images of Testing Data Set	35
19.	Resizing of Images	36
20.	Data Distribution for Training Data	37
21.	Healthy Lettuce Data Set	38

22.	Lettuce Diseases Data Set	39
23.	Model Loss	47
24.	Model Accuracy	48
25.	Test Set Confusion Matrix	51
26.	Test Set Analysis	53
27.	Actual Set Confusion Matirx	54
28.	Actual Set Analysis	56

## LIST OF APPENDICES

APPENDIX		PAGE
I	Code Used in Programming System	72
II	Appendix Figures	77

## LIST OF APPENDIX FIGURES

APPENDIX FIGURE		PAGE
1	Gathering of Images of Lettuce	77
2	Gathered Lettuce Images	77
3	Researchers Testing the System	78
4	Result of the System	78
5	IEC Materials	79
6	Agriculturist's Certification	80

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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