

UNIVERSITI TEKNOLOGI MARA

**CLASSIFICATION OF NUTRIENT
DEFICIENCY IN LETTUCE
USING CONVOLUTIONAL NEURAL
NETWORK (CNN)**

MAHIRAH BINTI MAZLAN

BACHELOR OF COMPUTER SCIENCE (Hons.)

FEBRUARY 2024

ACKNOWLEDEMENT

Praise and gratitude be to Allah for His Almighty guidance and blessings, as I have successfully completed this research within the allocated timeframe. I am profoundly thankful to Dr. Gloria Jennis Tan for her invaluable guidance, support, and mentorship, which have been instrumental in shaping this project. Special appreciation goes to Madam Ummu Fatimah Binti Mohd Bahrin, our esteemed lecturer for CSP600 & CSP650, whose insightful teachings and encouragement have greatly enriched my learning experience.

I am indebted to my loving parents, Encik Mazlan and Puan Zaharah, for their unwavering love, encouragement, and sacrifices that have fuelled my academic pursuits. Lastly, I express my heartfelt appreciation to all my friends for their encouragement, support, and camaraderie throughout this journey. This project would not have been possible without the contributions and support of these individuals, for which I am deeply grateful.

ABSTRACT

This project presents a study titled "Classification of Nutrient Deficiency in Lettuce using CNN." The research addresses challenges in diagnosing and categorizing nutrient deficiencies in lettuce, proposing a CNN-based solution to distinguish between nitrogen deficiency, phosphorus deficiency, potassium deficiency, and fully nutritional. The objectives involve investigating the requirements of CNN, developing a prototype system, and evaluating its accuracy. The system achieved a 92.68% accuracy in distinguishing between nitrogen deficiency, phosphorus deficiency, potassium deficiency, and fully nutritional. Chapter Two's literature review covers plant detection techniques and the advantages of CNN. Chapter Three outlines the methodology for CNN implementation, and Chapter Four presents the system's results and findings. Limitations include the absence of real-time detection and the inability to identify unknown images. Future recommendations aim to improve real-time detection, expand the range of nutrient deficient detection, and enhance accuracy through advanced algorithms.

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