UNIVERSITY TEKNOLOGI MARA

DurianCare: OPTIMISING TRUNK DISEASE DETECTION AND PRECISION FARMING IN A MOBILE APPLICATION

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July 2025

ACKNOWLEDGEMENT

Above all, I would like to express my deepest appreciation to Allah S.W.T. who has given me the strength, determination and guidance until this project is completed successfully. None of this was possible without His blessings.

Thanks to my supervisor, Zawawi Ismail @ Abdul Wahab, whose guidance, constructive critique and continued encouragement has been invaluable to the completion of this project. It has helped me to overcome challenges and better my work with the assistance of a fantastic network of people.

Thank you to my lecturers and the faculty members of Universiti Teknologi MARA (UiTM), especially from the Faculty of Computer Science and Mathematics for the guidance with the basic knowledge and the resources to successfully accomplished this project.

Lastly, but definitely not least, to my family - especially my parents - for their unyielding support, and their sacrifices and prayers that inspired and motivated me to keep going, and pursuing success. My greatest motivation has come from the people who believed in my potential..

ABSTRACT

Durian tree trunk diseases are threatening to reduce the productivity of farmers and therefore have economic consequences, such as lower yield and increased cost. Currently, diagnosis and treatment of diseases is a very mobile and subjective process, hence slow and not effective. In this project we do propose a construction of "DurianCare", a mobile application that able to utilize techniques of Convolutional Neural Networks (CNN), Precision Agriculture, and Content Based Filtering for enhancing the farming practices of sustaining crops by advanced disease detection and the guided recommendation. The project will implement automated detection and disease management recommendation algorithms while evaluating the functionality and usability of the designed application. This could include for instance a systematic literature review on theories available to understand the current problem and its possible solution, analysis of the users need gathered from interviews, and of course the application development using Flutter within Visual Studio Code. The application includes advanced features such as automatic disease detection using a CNN model trained on a publicly available dataset, integration into precision farming (where environmental signals are monitored in real time), and content-based filtering for custom-tailored therapy proposals. During the application's development, a wide literature review was conducted, users were interviewed and surveyed, and the developed application was iteratively built and redesigned. Extensive functional and user testing was performed to ensure the application not only accomplishes its goal but increases efficacy as well. The mobile app will do early and accurate diagnosis of the diseases and suggestion of management practices which, in turn, can help to reduce the loss of farmers and ensure increased crop production using a limited resource with minimum loss to the farmers. To improve the welfare of farmers and the productivity of durian farming, this project focuses on development and promotion of proper and sustainable disease control methods.

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