

**UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG**

**STARFRUIT RIPENESS CLASSIFICATION
SYSTEM BASED ON IMAGE PROCESSING
TECHNIQUE**

WAN MUHAMMAD AKRAM BIN WAN HASAN

Faculty of Electrical Engineering

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA Pulau Pinang. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA Pulau Pinang, regulating the conduct of my study and research.

Name of Student : Wan Muhammad Akram Bin Wan Hasan
Student ID No : 2014381749
Programme : Bachelor of Engineering (Hons) Electric & Electronic
Faculty : Faculty of Electrical Engineering
Thesis : Starfruit Ripeness Classification System Based on
Image Processing
Signature of Student :
Date : January 2018

ABSTRACT

Starfruit ripeness classification system based on image processing is a system to identify the ripeness of starfruit whether the starfruit is unripe, ripe or overripe condition. This is the automation system of identifying the ripeness of starfruit replacing the conventional starfruit inspection. Currently the inspection of conventional system used by farmer to inspect the ripeness is time consuming and the accuracy of this operation cannot be guaranteed. This system is suitable used in agriculture to inspect the ripeness of fruit. The main objective of this project is to classify the ripeness of starfruit by using Artificial Neural Network based on image processing technique which for this project RGB counter value component will be used. For this project the samples of different level of ripeness were collected, image processing technique and image classification by using neural network were used. Starfruit images were captured using Canon EOS 7D with 18 megapixel. 180 samples were used as training samples for neural network. After training samples another 75 samples is used for testing in order to identify the ripeness of starfruit and to calculate the accuracy of the process. At the end result of the project about 73 samples of starfruit can classified correctly and the accuracy achieve for this project is 97.33%. This shows that the classification of starfruit based on image processing technique using artificial neural network can be used to classified ripeness.

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TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	AUTHOR'S DECLARATION	i
	ABSTRACT	ii
	ACKNOWLEDGEMENT	iii
	TABLE OF CONTENT	iv
	LIST OF TABLES	vii
	LIST OF FIGURES	viii
	LIST OF ABBREVIATIONS	x
1	INTRODUCTION	1
	1.1 OVERVIEW OF STUDY	1
	1.1.1 Image Processing	2
	1.1.2 Matlab Simulink	2
	1.1.3 Neural Network	3
	1.1.4 Type Of Starfruit Ripeness	3
	1.2 PROBLEM STATEMENT	5
	1.3 OBJECTIVE	6
	1.4 SCOPE OF THE STUDY	6
	1.5 THE RELEVANCY OF THE PROJECT	6
2	LITERATURE REVIEW	7
	2.1 PREVIOUS RESEARCH	7
	2.2 IMAGE PROCESSING TECHNIQUE	13
	2.2.1 Image Pre-Processing	13
	2.2.1.1 Image resizing	13

	2.2.1.2 Normalization	14
	2.2.1.3 Otsu method	15
	2.2.2 Image Segmentation	16
	2.2.2.1 Morphological operation	16
	2.2.2.2 Region of interest (ROI)	17
	2.2.2.3 K-mean clustering	18
	2.2.3 Feature Extraction	19
	2.2.3.1 CIELab colour space	19
2.3	ARTIFICIAL NEURAL NETWORK	21
	2.3.1 How The Human Brain Learns	21
	2.3.2 A Neuron Model	22
	2.3.3 A Simple Neuron	22
	2.3.4 Pattern Recognition	23
	2.3.5 A Complicated Perceptron	24
	2.3.6 Different Types Of Neural Networks	24
	2.3.7 Weights	25
	2.3.8 Training Basics	25
	2.3.9 Training: Backpropagation Algorithm	26
	2.3.10 Learning Process	26
3	METHODOLOGY	27
	3.1 OVERVIEW	27
	3.2 BLOCK DIAGRAM	28
	3.2.1 Image Acquisition	28
	3.2.2 Image Pre-Processing	29
	3.2.3 Image Segmentation	29
	3.2.4 Feature Extraction	29
	3.2.5 Classification	29
	3.2.6 Result	30
	3.3 FLOWCHART OF THE PROJECT	31

3.4	FLOWCHART OF THE OPERATION	32
4	RESULT AND DISCUSSION	33
4.1	CAPTURING IMAGE	33
4.2	IMAGE RESIZING	35
4.3	IMAGE CLUSTERING	37
4.3.1	Extraction of RGB Image	39
4.4	RESULT AND ANALYSIS	41
4.4.1	Result for Testing Samples	43
5	CONCLUSION AND RECOMMENDATION	48
5.1	CONCLUSION	48
5.2	FUTURE RECOMMENDATION	49
	REFERENCES	50