# UNIVERSITI TEKNOLOGI MARA

# AUTOMATED INSPECTION SYSTEM FOR SHAPE OF STARFRUIT

**NORSYAM SURAYA BINTI ABIDIN**

Thesis submitted in fulfillment of the requirements for
**Bachelor of Science (Hons) Information Technology**
**Faculty of Information Technology And**
**Quantitative Science**

**NOVEMBER 2007**

## ACKNOWLEDGEMENT

First, Alhamdulillah the most Grateful thanks to Allah the Almighty for giving me strength to complete this assignment within the time period given. Apart from that, I also want to thanks to my supervisor, Encik Saharbudin Naim for understanding in giving me many valuable information and guidance, also constructive criticism from the beginning until the completion of this project.

Not forgotten to Puan Roziana as the coordinator for this project paper in giving me all the guidance and knowledge in preparing a good project. Without their help and patience, this project will not be a good success.

Next are my friends who have been through with me and for their help while preparing my project and not forgotten to my family for their support. In conclusion and also would like to thanks to those who helped us who're not mentioned in this column. Thank you very much.

May Allah bless you.

UiTM SHAH ALAM, November 3, 2007
Norsyam Suraya Binti Abidin

# TABLE CONTENTS

# ABSTRACT

Nowadays there are many inspection systems that can recognize tropical fruit in Malaysia. However, finally, they have to use shape analysis for identification and to obtain exact boundary positions and distinguish fruit areas in a natural background image by colour, this research aims to detect a new method or system of Starfruit which enables people to recognize, verify and without the constraints of human energy and time. The system will be introduce is starfruit inspection vision system (SIVS), and purposely create for MARDI. The objectives of this project are to define the requirement criteria in order to develop Automated Inspection System for shape of starfruit, to design Automated Inspection System model that covers the shape of starfruit 4, 5 and 6 based on the shape follow MARDI quality standards and its also to develop a prototype system for automated shape system of starfruit using lab view and IMAQ vision 6.0 software. The concept of this research system is based on Fourier-based shapes separations method was developed for shape detection, the use of classifier such as linear discrimination analysis. The objectives has been achieved and found the boundary shape of each starfruit and the results come out with the standard shape of starfruit. The prototype is capable to shows each shape of starfruit and 100% accuracy of each shape with the fastest process identify shape of starfruit.