UNIVERSITI TEKNOLOGI MARA

MALAYSIAN LICENSE PLATE RECOGNITION USING SOBEL ALGORITHM

MOHAMAD IZZUDDIN BIN SOFIAN

Thesis submitted in fulfillment of the requirements for Bachelor of Science (Hons) Computer Science Faculty of Computer and Mathematical Sciences

20 July 2013

DECLARATION

I certify that this report and the research entitles Malaysian License Plate Recognition using sobel algorithm are the product of my own research except as cited in the references and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

. MOHAMAD-ZZUDDIN BIN SOFIAN 2011245314

JULY, 2013

ABSTRACT

These different types of license plate being used, each country needs different requirement automatic license plate recognition. In this paper license plate recognition using sobel algorithm is proposed for Malaysian vehicle with standard format license plate based on image processing. It also focus on street line plate number not in double line plate number. After snapshot of car were run on the system, it will transform or invert the images into gray scale image. Typically sobel is used to find the approximate absolute gradient magnitude at each point in an input gray scale his image. The experiment had been done in order to measure the percentage of accuracy of this system. From this experiment, the prototype system produces 40% accuracy rate of identifying correct license plate.

TABLE OF CONTENT

CONTENTS

PAGE

SUPERVISOR'S APPROVAL		
DECLARATION	iii	
ACKNOWLEDGEMENT	iv	
ABSTRACT	v	
TABLE OF CONTENTS	vi	
LIST OF FIGURES	viii	
LIST OF TABLES	ix	
LIST OF ABBREVIATIONS	Х	

CHAPTER 1: INTRODUCTION

1.0	Introduction	1
1.1	Problem Statement	2
1.2	Objective	3
1.3	Scope of Research Project	3
1.4	Project Significance	4

CHAPTER 2: LITERATURE REVIEW

2.0	Introduction				
2.1	License Plate Number				
2.2	What is Image Preprocessing				
2.3	License Plate Recognition				
2.4	Edge		10		
	2.4.1	Edge detection	11		
	2.4.2	Sobel Detector	13		
2.5	Advantage and disadvantage of Sobel algorithm. 14				
2.6	Segmentation 15				
2.7	Recognition of character				
	2.7.1	Feed-forward or Hopfield neural network	17		
	2.7.2	SVM Based Multi-Class Classifier	18		
2.8	Conclu	ision	20		

CHAPTER 3: RESEARCH METHODOLOGY

Introduction				
Project Overview				
Project F	24			
3.2.1	Preliminary Investigation	25		
3.2.2	Data Collection	25		
3.2.3	Application Design	26		
3.2.4	Application Development	27		
.3.2.5	Testing and Analysis	29		
3.2.6	Documentation	29		
Research	30			
Conclusion				
	Project 0 Project F 3.2.1 3.2.2 3.2.3 3.2.4 .3.2.5 3.2.6 Research	Project OverviewProject Process3.2.1Preliminary Investigation3.2.2Data Collection3.2.3Application Design3.2.4Application Development.3.2.5Testing and Analysis3.2.6DocumentationResearch Planning		