



TABLE OF CONTENTS

INFORMED CONSENT PAGE	i
PLAGIARISM FREE STATEMENT LETTER	ii
FOREWORD	iii
TABLE OF CONTENTS	v
TABLE LIST	vii
LIST OF FIGURES	x
INTISARI.....	xii
ABSTRACT.....	xiii
CHAPTER I INTRODUCTION	1
1.1 Background	1
1.2 Research Problem.....	2
1.3 Problem Scope	2
1.4 Research Purpose	3
1.5 Research Benefits.....	3
1.6 Research Methodology.....	3
1.7 Writing System	4
CHAPTER II LITERATURE REVIEW.....	5
CHAPTER III RESEARCH METHODOLOGY.....	11
3.1 Research Steps	11
3.2 System Analysis.....	12
3.3 Tools and Materials.....	13
3.4 Tea Dataset.....	13
3.5 Tea Evaluation	14
3.6 System Design.....	16
3.6.1 Hardware Design.....	17
3.6.2 SVM Model Design	18
3.7 Data Collection.....	21
3.7.1 Sample Preparation	21
3.7.2 Data Acquisition.....	21
3.8 Model Evaluation Design.....	21
3.8.1 Confusion Matrix	22



3.8.2	Accuracy	22
3.8.3	Precision.....	22
3.8.4	Recall.....	22
3.8.5	Specificity	23
3.8.6	F1-Score	23
3.9	System Testing	23
CHAPTER IV IMPLEMENTATION		26
4.3.1	Raw Colour Data extraction.....	31
4.3.2	Feature Extraction	32
4.3.3	PCA Implementation.....	34
CHAPTER V DISCUSSION AND ANALYSIS.....		41
5.5	Principal Component Analysis Results.....	49
5.5.1	Component Loadings Analysis	59
5.6.1.	SVM Training Results	64
CHAPTER VI CONCLUSION		101
6.1	Conclusion	101
6.2	Suggestion.....	101
BIBLIOGRAPHY		103