

CONTENTS

Agreement Page	
Originality Statements	
ABSTRACT	iv
PREFACE	v
GRATITUDE WORD	vi
Contents	viii
List of Figures	x
List of Tables	xi
1 INTRODUCTION	1
1.1 Background	1
1.2 Problem Formulation	2
1.3 Objectives	2
1.4 Scope of Problem	2
1.5 Research Methods	3
1.6 Writing system	3
List of Appendixes	1
2 BASIC CONCEPT	5
2.1 Greenbox	5
2.2 Internet Of Things	6
2.3 ESP-32	6
2.4 Firebase	7
2.5 Website	7
2.5.1 HTML	7
2.5.2 NodeJS	7
2.5.3 Cascading Style Sheet	8
2.5.4 JavaScript	8

2.5.5	Bootstrap	8
2.6	Machine Learning	8
2.6.1	Classification Thresholds Method	8
2.6.2	Neural Network Method	9
2.7	Quality of Service	9
2.7.1	Delay	9
2.7.2	Throughput	9
2.7.3	Packet Loss	10
3	PROPOSED TECHNIQUE	11
3.1	System Design	11
3.2	Block Diagram	12
3.3	Firebase System Work Flow	13
3.4	Classification Threshold Work Flow	15
3.5	Website Setup	16
3.5.1	Website Design	17
3.5.2	Firebase Realtime Database Variable	19
3.6	Prediction Model Scheme	20
3.6.1	Dataset	20
3.6.2	Neural Network Method	21
3.7	Model Work Analysis	21
3.7.1	Confusion Matrix	21
3.7.2	Accuracy Score	21
3.8	QoS Website Analysis	21
4	PERFORMANCE EVALUATION	23
4.1	Website Functionality Test	23
4.2	Classification Test	24
4.3	Neural Network Method Test	26
4.4	The Quality of Service Measurements Result	27
4.4.1	Delay Test	27
4.4.2	Throughput Test	28
4.4.3	Packet Loss Test	29
5	CONCLUSIONS	30
5.1	Conclusion	30
5.2	Suggestion	30
	Bibliography	31