

CONTENTS

ENDORSEMENT LETTER

STATEMENT OF ORIGINALITY

ABSTRACT	iv
-----------------	-----------

GRATITUDE LETTER	v
-------------------------	----------

AUTHOR'S FOREWORD	vii
--------------------------	------------

Contents	viii
-----------------	-------------

List of Figures	x
------------------------	----------

List of Tables	xi
-----------------------	-----------

LIST OF ABBREVIATIONS	xii
------------------------------	------------

I INTRODUCTION	1
-----------------------	----------

1.1 Background	1
1.2 Problem Identification	3
1.3 Objective and Contribution	3
1.4 Scope of The Problem	3
1.5 Research Methods	4
1.6 Writing System	4

II BASIC CONCEPTS	6
--------------------------	----------

2.1 Object Detection	6
2.2 Convolutional Neural Network	6
2.2.1 Convolutional Layer	6
2.2.2 Pooling Layer	7
2.2.3 Fully-Connected Layer	8
2.2.4 Confusion Matrix	9
2.3 YOLO	10
2.4 YOLOv3	10
2.5 Batch and Epoch	12

2.6 Python	12
III SYSTEM DESIGN AND PROPOSED MODEL	14
3.1 System Design	14
3.1.1 Pre-Trained YOLOv3 Weights and Dataset	15
3.1.2 Configuration System	16
3.1.3 The Work of YOLO	16
3.1.4 Video Camera Input	16
3.1.5 Vehicle Body Type Detection	17
3.1.6 System Testing and Evaluation	17
3.2 Hardware and Software	18
3.3 Performance Parameter	18
IV RESULT AND ANALYSIS	21
4.1 Scenario Test	21
4.2 Scenario Test Result	22
4.2.1 Testing of Accuracy Parameters	22
4.2.2 Testing of IoU Parameters	24
4.2.3 Testing of Precision Parameters	25
4.2.4 Testing of mAP Parameters	26
4.3 Analysis of Test Results	27
4.3.1 Analysis of Parameter Testing Accuracy	27
4.3.2 Analysis of Parameter Testing IoU	28
4.3.3 Analysis of Parameter Testing Precision and mAP	28
V CONCLUSION AND SUGGESTION	30
5.1 Conclusion	30
5.2 Suggestion	30
Bibliography	31