

**DESIGN AND DEVELOP AUTOMATIC LIGHT VEHICLES (LV) UNIT
NUMBER IDENTIFICATION BY IMAGE RECOGNITION
USING COMPUTER VISION ARTIFICIAL INTELLIGENT**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



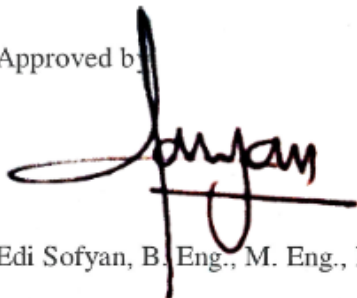
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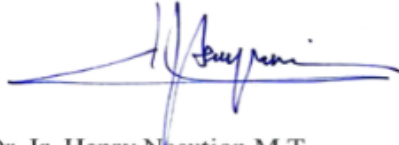
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ABSTRACT

DESIGN AND DEVELOP AUTOMATIC LIGHT VEHICLES (LV) UNIT NUMBER IDENTIFICATION BY IMAGE RECOGNITION USING COMPUTER VISION ARTIFICIAL INTELLIGENT

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This thesis presents the development of an AI-driven system to automate refueling data recording, improving accuracy, efficiency, and cost-effectiveness. The research aims to identify the LV unit and driver's name, verify custodianship cost centers, and record refueling volumes. A comprehensive and accessible refueling database is established for immediate data availability.

The study employs the V model for Mechatronics System Design, utilizing Raspberry Pi 4 model B 8 GB, a 5-inch HDMI screen, and a webcam for capturing LV unit numbers and ID badges. The EAST algorithm locates text, while OCR Tesseract extracts information. Data is stored in a SQLite database using Python. Error rate and OCR accuracy are analyzed, and system duration time is compared with the existing system.

Results show that computer vision and AI effectively identify LV unit numbers and driver's names at fuel stations. The proposed system offers cost-effective, accurate refueling data, including date, time, LV number, custodian cost center, and driver. Implementation streamlines operations and provides comprehensive data for decision-making

Keywords: EAST Algorithm, Tesseract OCR, Computer Vision, Artificial Intelligence, Automated Refueling

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DEDICATION

I dedicated this work for my wonderful wife, Herfianty Tanuhadikusumah, my incredible children, Alfian Putra Afandi (Alm) and Difa Ayu Afandi, and also my baby that we've been waiting for. Your love and support have been the shining light that has guided me through this journey. Your understanding and sacrifices mean the world to me! Thanks to your support, I can fully dedicate myself to this research and chase my academic dreams.

I also dedicated this work for my amazing parents, Afka Lamane and Mini Syamsiar. They have always been my biggest supporters and have never stopped believing in me. This work is dedicated to them with all my love and gratitude. Your love and the values you instilled in me shine through in this beautiful thesis.

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TABLE OF CONTENTS

	Page
STATEMENT BY THE AUTHOR	2
ABSTRACT	3
DEDICATION	5
ACKNOWLEDGEMENTS	6
TABLE OF CONTENTS	7
LIST OF FIGURES	11
LIST OF TABLES	14
LIST OF EQUATIONS	15
CHAPTER 1 - INTRODUCTION	16
1.1 Background.....	16
1.2 Research Problems	21
1.3 Research Objectives	21
1.4 Research Questions	21
1.5 Hypothesis	21
1.6 Research Scope and Limitation	21
1.7 Significance of Study	22
CHAPTER 2 - LITERATURE REVIEW	24
2.1 Computer Vision	24
2.1.1 Machine Learning.....	25
2.2 OpenCV (Open-Source Computer Vision).....	27
2.2.1 Object Detection.....	27
2.2.2 Text Detection	28
2.3 Tesseract-OCR	31
2.4 Python Programming Language	32

2.5	SQLite Database	33
2.6	Previous Studies	34
2.7	Brief of Literature Review structure.....	37
CHAPTER 3 - RESEARCH METHODS.....		38
3.1	Research Framework	38
3.2	Root Caused Analysis.....	39
3.2.1	Fishbone Diagram	39
3.2.2	Root Causes	41
3.3	Conceptual Design.....	42
3.4	Customer Needs.....	42
3.5	Function Specification.....	42
3.5.1	Main Function Design	43
3.5.2	Sub Function Design - Automatic Unit Number Identification	44
3.5.3	Sub Function Design - User ID Identification.....	45
3.6	System Design	45
3.7	Hardware Components	46
3.7.1	System Input and Output.....	48
3.7.2	Electronic Circuit	49
3.8	Prototype.....	51
3.9	Component Test.....	53
3.9.1	Raspberry Pi	53
3.9.2	USB Webcam	55
3.9.3	Flowmeter.....	56
3.9.4	Relay.....	58
3.10	OCR Page Segmentation Mode.....	59
3.11	Image Capture Method	59
3.12	Evaluating Metric of System Accuracy	60
3.13	Evaluating Metric of Duration time	62

3.14	Brief of Research Methodology Structure.....	62
CHAPTER 4 – RESULTS AND DISCUSSIONS		64
4.1	LV Number Identification Parameters	64
4.1.1	Bounding Box.....	64
4.1.2	Post-Processing with Regular Expression (Regex)	66
4.2	User Name Identification Parameters.....	67
4.2.1	OCR Pattern Matching	67
4.3	Pulse Of Flowmeter Totalizer Parameter	68
4.4	Pump Interlock	69
4.5	System Database.....	71
4.6	System Simulation.....	73
4.6.1	Capturing LV Number.....	73
4.6.2	Capturing ID Badge.....	74
4.6.3	Flow Totalizer	74
4.6.4	Recorded Data	76
4.7	System performance	76
4.7.1	System Accuracy of LV Number Identification.....	76
4.7.2	System Accuracy of Username Identification.....	80
4.7.3	Duration of Identification	83
4.7.4	Manual Confirmation for Identification Error reduction	85
4.7.5	Robustness Testing.....	86
4.8	Operational Advantages	87
4.9	Labour cost & Operational Saving	87
CHAPTER 5 – CONCLUSIONS AND RECOMENDATIONS		91
5.1	Conclusions	91
5.2	Recommendations	92
GLOSSARY.....		93
REFERENCES.....		94

CURRICULUM VITAE	98
APPENDIX	99

LIST OF FIGURES

Figures	Page
Figure 1.1 Fuel Station Minesite.....	16
Figure 1.2 Gasoline Manual Refuelling Form	17
Figure 1.3 Backcharge Rate Jan 2023.....	19
Figure 1.4 Banlaw Restrack Fuel Management Controller.....	20
Figure 1.5 BI Dashboard YTD 2022 Fuel Diesel Consumption Report.....	20
Figure 1.6 RFID Ring Tag	22
Figure 2.1 Machine Learning Model imitates human cognitive system.....	25
Figure 2.2 Computer Vision is Sub Field of Artificial Intelligent	26
Figure 2.3 Early approaches OCR Complex rules.....	27
Figure 2.4 OpenCV Object Detection Result	28
Figure 2.5 Thresholding Image with OpenCV.....	29
Figure 2.6 Text Segmentation Process.....	29
Figure 2.7 Structure of Text Detection FCN (Zhou et al., 2017).....	31
Figure 2.8 Typical Example of Fixed-Pitched Word.....	32
Figure 2.9 Python Programming Language	33
Figure 3.1 Research Framework	39
Figure 3.2 Fishbone Diagram.....	40
Figure 3.3 Research Conceptual design Model	42
Figure 3.4 Functional Specification Design.....	43
Figure 3.5 Sub Function LV Number Identification.....	44
Figure 3.6 Sub Function User Identification.....	45
Figure 3.7 Block Diagram.....	46
Figure 3.8 Electronic Circuit.....	50
Figure 3.9 Dot PCB for Valid Electrical Connection	51
Figure 3.10 The System Prototype.....	52
Figure 3.11 Graphical User Interface.....	52
Figure 3.12 Raspberry Pi Imager Welcome Screen.....	53
Figure 3.13 SSH Connection to Raspberry Pi	54
Figure 3.14 Raspberry Pi Desktop	54

Figure 3.15 Web Camera Python Code to Capture image	55
Figure 3.16 Image Result of Webcam Capture	55
Figure 3.17 Flowmeter Calibration Certificate	56
Figure 3.18 Python Code Flow Totalizer	57
Figure 3.19 Python Shell Output Flowmeter Totalizer	58
Figure 3.20 Python Code for Relay Functionality	59
Figure 3.21 Relay Functionality Test Result	59
Figure 3.22 Capturing LV Number	60
Figure 3.23 Capturing ID Badge	60
Figure 3.24 Type of Error	61
Figure 3.25 CCTV Monitor for Refueling duration calculation	62
Figure 4.1 EAST detecting text location with inaccurate bounding box	64
Figure 4.2 Regex to Blacklist Character from OCR Result	66
Figure 4.3 ID Badge	67
Figure 4.4 Pattern for Username Extraction	68
Figure 4.5 Regular Expression used in Username Extraction	68
Figure 4.6 Bouncetime vs Rising Edge of Pulse Flow meter	69
Figure 4.7 Code of Pump Interlock	70
Figure 4.8 Schematic Diagram Pump Interlock	70
Figure 4.9 Tbl_authorized Table Structure	71
Figure 4.10 Tbl_trans Table Structure	71
Figure 4.11 SQL Statement for tbl_authorized	72
Figure 4.12 SQL Statement for tbl_trans	73
Figure 4.13 Simulation as Self-Contained System	73
Figure 4.14 Simulation with LR701	74
Figure 4.15 Simulation to Capture ID badge	74
Figure 4.16 Reed Switch Flowmeter for Totalizer	75
Figure 4.17 Flow Totalizer	75
Figure 4.18 Refuelling Transaction Database	76
Figure 4.19 LV Identification Duration Time	84
Figure 4.20 Username Identification Duration Time	84
Figure 4.22 Pop-up Window to confirm identification result	86

Figure 4.23 Capital Cost Comparison.....	89
Figure 4.24 Operational Cost Comparison (Yearly Basis)	89

LIST OF TABLES

Table	Page
Table 1.1 Reconciliation 2022 (Supt. Fuel Management System, 2023)	18
Table 1.2 Reconciliation 2021 (Supt. Fuel Management System, 2023)	18
Table 1.3 Cost Estimation RFID System	19
Table 2.1 Previous Studies comparison	34
Table 3.1 List Hardware Used in Research.....	46
Table 3.2 Mechanical Components.....	48
Table 3.3 List of Input	48
Table 3.4 List of Output.....	49
Table 4.1 Offset Coordinate Combination	65
Table 4.2 Unwanted Character from OCR Result	66
Table 4.3 Clean OCR Result with Regex	67
Table 4.4 LV Identification result.....	77
Table 4.5 LV Identification Descriptive statistical Calculation.....	80
Table 4.6 Accuracy of LV Identification System	80
Table 4.7 Username Identification Result	81
Table 4.8 Username Identification Descriptive Statistical Calculation	82
Table 4.9 Accuracy of Username Identification System	82
Table 4.10 Correlation Map	83
Table 4.11 Duration time of Existing Method	85
Table 4.12 Robustness Testing Result	86
Table 4.13 Equipment Cost.....	87
Table 4.14 Installation and Fabrication Cost	88
Table 4.15 Capital Cost.....	88
Table 4.16 Operational Cost	89

LIST OF EQUATIONS

Equation	Page
<i>K – Factor Calculation</i>	<i>56</i>
<i>Error Rate Calculation</i>	<i>61</i>
<i>Accuracy Rate Calculation.....</i>	<i>61</i>