



PROJECT REPORT
Energy Aware Parking Lot Detection Using YOLO
on Jetson TX2

Yohan Marvel Anggawijaya
15.K1.0023

Faculty of Computer Science
Soegijapranata Catholic University
2019

APPROVAL AND RATIFICATION PAGE

Energy Aware Parking Lot Detection Using YOLO on TX2

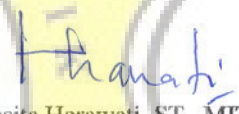
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Yohan Marvel Anggawijaya – 15.K1.0023

This project report has been approved and ratified
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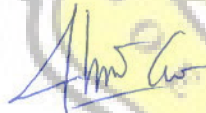
With approval,

Supervisor,



Rosita Herawati, ST., MIT
NPP: 058.1.2004.263


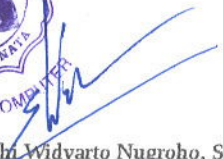
Examiners,

1.)


Shinta Estri Wahyuningrum, S.Si., M.Cs
NPP: 058.1.2007.272

2.)


R. Setiawan Aji Nugroho, ST., McompIT., Ph.D.
NPP: 058.1.2004.264


Dean of Faculty of Computer Science,

Erdhi Widyarto Nugroho, ST., MT
NPP: 058.1.2002.254

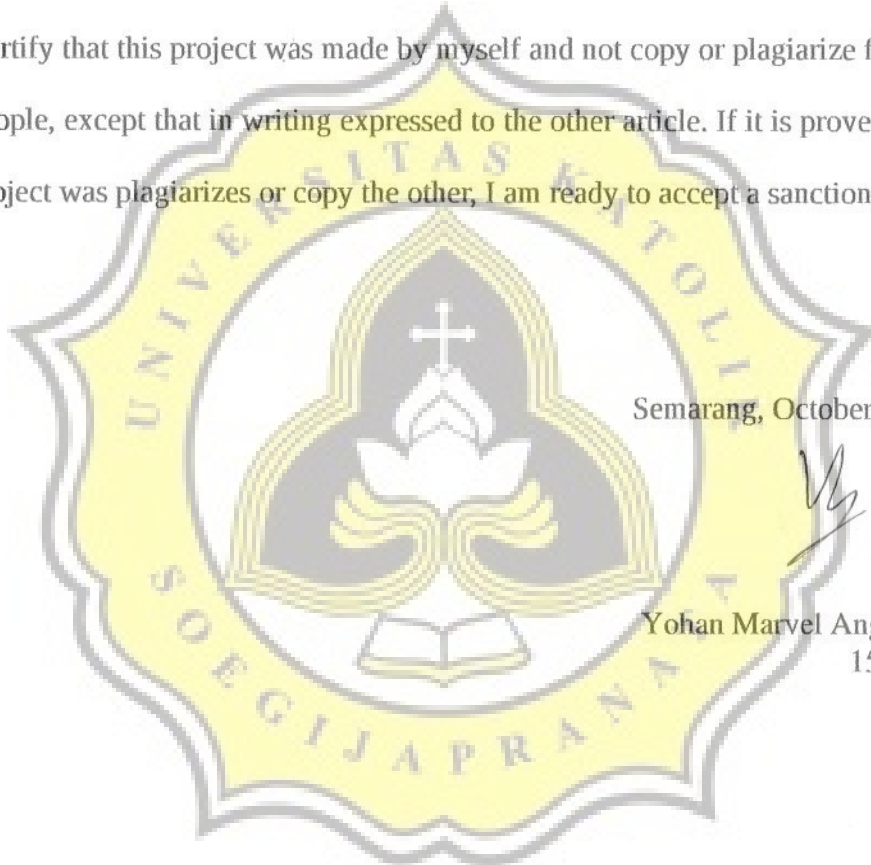
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I, the undersigned:

Name : Yohan Marvel Anggawijaya

ID : 15.K1.0023

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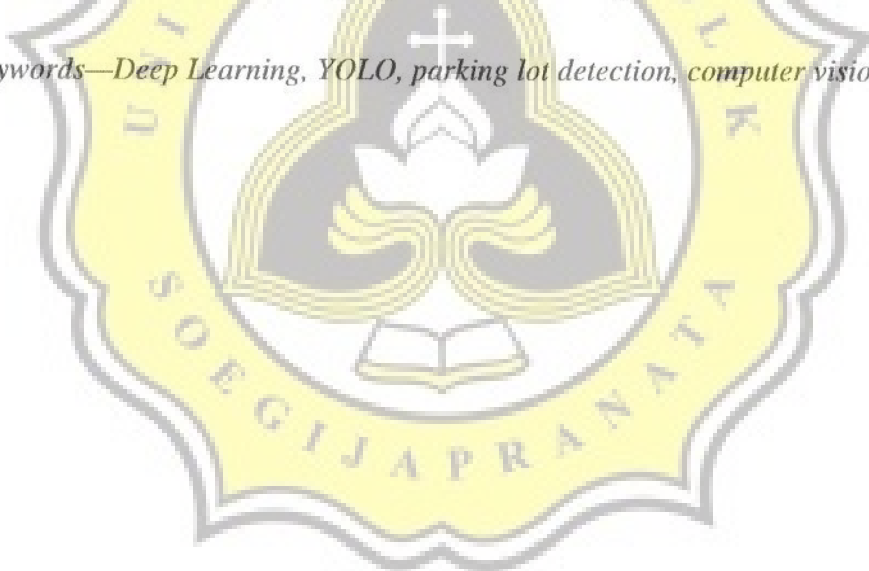
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Yohan Marvel Anggawijaya
15.K1.0023

ABSTRACT

Finding a parking space is a tedious and time-consuming task in a metropolitan city. Due to this problem, many researchers proposed an automatic parking lot occupancy detection system using a camera with a deep learning method to provide useful information in the smart city system. Since object detection for the parking lot is performed in real-time by utilizing CPU and GPUs while parking detection is working 24 hours a day and 365 days a year, therefore power saving is important to reduce the cost. However, the energy-aware is not considered in most related works. In this paper, we proposed an energy-saving algorithm for parking lot availability detection using YOLO running on the TX2 machine. We experiment using small parking lot prototype and remote control cars. In the experiment, we compare our algorithm with the direct application of original YOLO for parking lot detection. The results show that it reduces power by 97 percent when there is no moving object in the parking lot area and 71 percent when there are moving objects in the parking lot area.

Keywords—Deep Learning, YOLO, parking lot detection, computer vision



This report has been published at ICIOS 2019 international conference with the theme Accelerating Informatics and Computational Research for Smarter Society in The Era of Industry 4.0

PREFACE

First of all, thanks to Jesus God that guided and helped me to finish this final project on time. I also thank to 2 of my supervisor, Ma'am, Rosita Herawati and Mr. Weng Tien Hsiung from Providence University, Taiwan that gave me inspiration of this project.

I hope from this project, friends of SCU or readers can continue or improve this project to be the better one.



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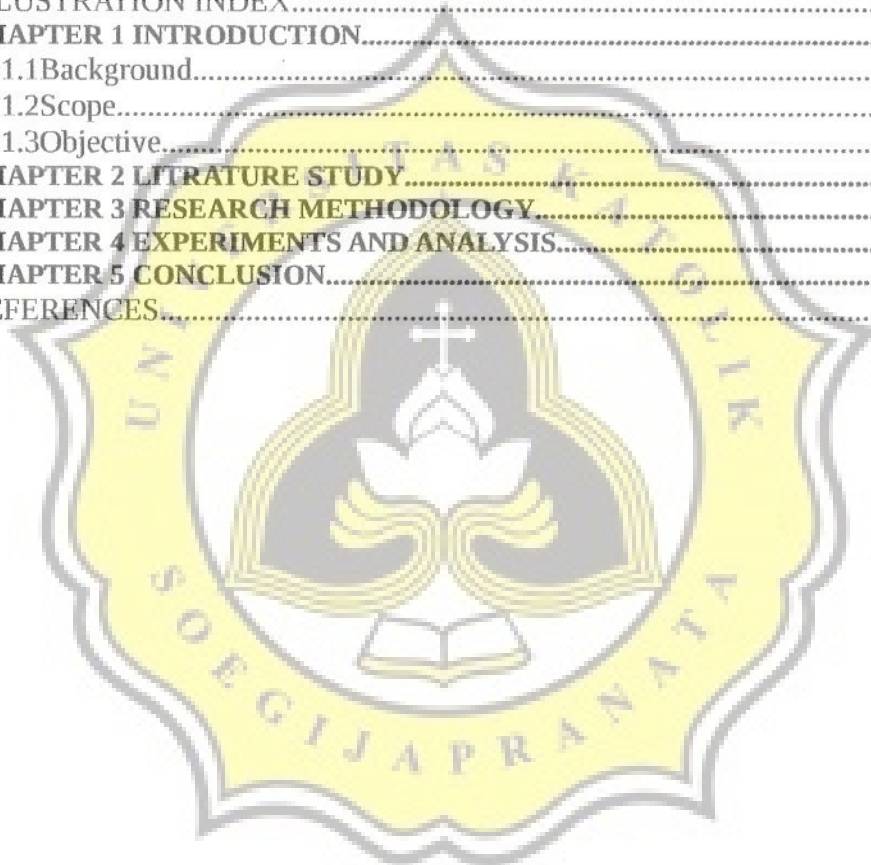


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