

Detecting Vehicle Number Plates and Identify Vehicle Registered Province and Vehicle Type

A PROPOSAL PRESENTED BY

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INTRODUCTION

Nowadays vehicle number plate detection is widely used in various important applications like law enforcement, theft monitoring, and emission centers. However, in Sri Lanka none of these applications are available. In foreign countries, there are applications available which reads only English letters, numbers, and letters from their native languages. Since there is an absence of such applications in Sri Lanka, some culprits take the opportunity to mislead the number plates by changing them for example: swapping motorbike number plates with three wheels, etc.

The recent implementation of giving out QR codes for every single vehicle for fuel distribution purposes only decodes and shows the vehicle number, however major drawback of these implementations are that by people who are having low computer literacy. Instead of that, we can use OCR methods to scan vehicle number plate directly.

The number plate is unique to the vehicle and modern number plates are very organized. For examples,

- Three-wheels have A __ numbers
- motorbikes have B __ numbers
- Cars, Jeeps like motorcars have C __ numbers
- Buses have N _ numbers
- Dual purpose vehicles have P _ numbers etc.

Simply from scanning the number plate we can interpret vehicle type and registered province. Furthermore, in early stages Sinhala letter ඉ used in number plates, and forces used their own letters to indicate their number plates like යුනි ඉවිනි නාන. And there is no method recognized them in Sri Lanka.

So, this proposed application mainly focused on emission centers to identify vehicle number plate, registered province, and vehicle type form the photograph.

OBJECTIVES

- Identification and isolating the number plate from the rest of the image once a still image is acquired.
- Avoiding the competitive regions and identifying the correct position of the number plate before pre-processing stage.
- Proposing an algorithm to obtain the number plate.
- Segmentation of characters.
- Detection of characters using template matching.

DATASET



APPROACH

- 1) Get photographs of vehicle with its vehicle number,
- 2) Pre-process the original images to get a clear image.
- 3) Using concept of thresholding, contrast, and arithmetic operations in OpenCV and Python, extract the vehicle number
- 4) Apply some form of Optical Character Recognition (OCR) to recognize the extracted characters.
- 5) Display the result as
 - A. Vehicle numbers with English and Sinhala letters like යුභ ගුවන් නාම ලී
 - B. Vehicle type using English letters and numbers
 - C. Vehicle registered province.

REFERENCES

1. <https://dmt.gov.lk/index.php?lang=en>
2. <https://securityvaultsystems.com/license-plate-recognition-system-lprs/>