# A Simplified Malaysian Vehicle Plate Number Recognition

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**Abstract.** This paper propose an automatic inspection system of alphabets and numbers to recognize Malaysian vehicles plate number based on digital image processing and Optical Character Recognition (OCR). An intelligent OCR Training Interface has been used as a library and the system has been developed using LabVIEW Software. This software then is used to test with different situation to ensure the proposed system can be applied for real implementation. Based on the results, the proposed system shows good performance for inspection and can recognize an alphabets and numbers of vehicle plate number. To sum up, the proposed system can recognize the alphabets and numbers of the Malaysian vehicles plate number for inspection.

**Keywords:** LabVIEW, OCR, Adobe Photoshop, Plate Number.

## 1 Introduction

The inspection and pattern recognition processes have been performed by human to verify the object or character based on the image by eye is not always correct. Hence, inspection using human visual is inefficient, increases the problem during processing the image and cannot be able to give 100% of accurate results for inspection process. Considering the competitive nature and high expectation from user, this inspection technique must be change to automated inspection system.

Digital image processing methods is one of the processes that developed with combination computer technology and camera [1]. Initially, image processing method required the pattern recognition process for one shapes of object or images. Objects or images recognition process is useful for human to analyze a character that have in color or gray- level character [2][3].

The objective of this project is to develop the Malaysian vehicles plate number recognition system using LabVIEW 2012, using OCR Training Interface and validate the system with different situation on plate number. To achieve the objectives, five (5) sample of vehicles plate number is trained. Adobe Photoshop software is used to make the 5 sample image is look like real and make it with 10 different of situation

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for each sample. The process begins by detecting the vehicle plate number with the perfect recognition process, status of inspection, the owner data of vehicles and the result of features for monitoring.

## 2 Literature Review

Image processing is used to describe operations which carried out on images, with the aim of accomplishing some functions. The process is to convert the image into a form where it can be more easily transmitted over a telecommunication link or stored in computer memory. It might also can reduce the noise or to extract information of particular interest to a human observer. Common image processing operations include pre-processing, character detection, character segmented and character recognition [4].

### 2.1 Optical Character Recognition

OCR is normally used to inspect the application of an identification or classification of the component, automatically. The proposed system should able to detect, identify and differentiate various types of text on various types of surface. Through this system, it can identify and detect series of Malaysian vehicle's plate number while the vehicle is moving. By using OCR, the system can be developed where it can help to identify each character quickly along with the appropriate process [5].

### 2.2 Vision Assistant

Vision Assistant through National Instrument (NI) is software package that focuses on making the prototype of vision applications. It also helps the user to understand machine vision and image processing functions better [6].

## 3 Research Methodology

The proposed system of this project consists of two main modules: (1) License plate locating Region of Interest (ROI). (2) Vehicle plate number identification module using Optical Character Recognition (OCR) to recognize individual character for each sample which consists of alphabets and numbers. The proposed flowchart of the system is mentioned in Fig. 1.

The proposed system reads an input image taken by the camera and passes it to the pre-processing unit. From there, the process continue by passing the image to vehicle plate detection unit then the image will be sent to OCR process [6][7]. If the vehicle number is recognize, it will be compared with the database and displayed through GUI of LabVIEW.