CHAPTER 1

INTRODUCTION

1.1   Background

There are 5 groups of traffic signs that spreading in Indonesia's road, such as warning signs, instruction signs, prohibition signs, command signs and temporary signs. For example, bend left and right are two example of a warning sign, no stop and no parking are two example of a prohibition signs and etc. Conventional signs consist of leaf signs and pole posts. Generally, leaf signs are made of aluminum plates of other materials that meet the standard where signs are posted. While the sign pole is made of metal bars. Effective signs must meet the following standards, such as, meet the needs, attract attention and get respect for road users, give a message that is easy to understand, provide enough time for road users to respond. With the diversity of traffic signs in Indonesia it does not decreasing traffic offense in Indonesia. For example, in Jakarta, traffic infringement actually increased around 24,13% from 2017 entering 2018(Muhammad Ikbal, 2019, p. 3-4) [1]. The majority of these type of infringement such as infringing traffic signs, against directions, not wearing helmets, running red lights and so on. Some traffic signs are also made not according to standards.

One common traffic offense is infringing traffic signs. In fact, too many traffic signs are unknown for many people. Therefore, the detection of traffic signs is needed to reduce violations that can cause traffic accidents. One of the methods that can be used in detecting traffic signs is the template matching method provided by OpenCV. OpenCV is a library that is used to process images and videos so that we are able to extract information from them (Anggri Yulio P., 2017, p. 2) [2]. Template Matching Algorithm is one algorithm that can be used to do image processing. The working system of template matching method is to compare input images with template images that were previously formed by the creator. The template image is placed in a database or separate file from the input image. Template images must contain the exact image and not be mixed with other objects, because if template image mixed with other objects, the detection results will be confused.

Due to the lack of methods or research that can detect various types of signs, this project can produce detection of various types of signs that indicate the meaning of these signs.

as far as research goes on also discusses whether TM_CCOEFF which is one part of template matching is quite effective in this case. Not only that, the study also discusses the analysis of the comparison of images with some noise.

1.2 Problem Formulation

Based on the background of research above, the problem of the study is:

1. Whether template matching method is effective enough to identify the datasets

2. How the template matching method in OpenCV works?

3. What happens if the datasets contain noises?

1.3 Scope

This study is primarily focused on detect traffic signs based on implementation of template matching method. This project aim to analyze the result of the experiment that using a variety of datasets. The datasets had diversity of image with noise of each dataset. The scope of the study is limited on Indonesia's traffic signs. The signs that used as datasets only circular form along with the template.

1.4 Objective

Based on the previous sub-chapter, this research aimed at finding out how to detect traffic signs perfectly, display the result of what the sign is and analyzing it, even though it is blocked by some noise.