

CHAPTER 4

ANALYSIS AND DESIGN

4.1 Analysis

This chapter discovers the research analysis as well as said on the chapter one. The main purpose on this project is the engine could detect various kind of traffic sign whether the image with or without noises. By having 500 datasets that combined by images with or without noises. After working with 500 datasets that having difference with or without noises and processed with 20 templates, here are the analysis.

First, this project wanted to see whether Template Matching Method could work on detecting various kind of traffic signs (square and circular form). By using what OpenCV provides which TM_CCOEFF and maxVal from minMaxLoc. Why we used maxVal although minMaxLoc having minVal, maxVal, minLoc, maxLoc parameters? Because TM_CCOEFF worked by processing only maxVal as marker that the pixels on the test image have similarity with the template.

Second, as for those that affect the detection process by using the Template Matching Method are as follows. The size of the image, the perfect size of the image that could detect traffic sign precisely are on the range 400 – 500. Images that are too large or too small greatly affect the detection process. Image clarity and tilt of the traffic sign also affect the process. Image that having lack of clarity would ruin the form of traffic sign, so the engine could not match the traffic sign on the image with the template, it is also caused on the tilt of the traffic signs. The tilt of the sign that can be tolerated by OpenCV is around 10-15 degrees.



Illustration 4.1: Example of some output dataset that have tilt on the image

Last but not least, analyzing Template Matching Method with datasets that had processed with some noises. The result is OpenCV misunderstanding occurred. it proves that OpenCV has a high level of sensitivity in the detection process.

4.2 Desain

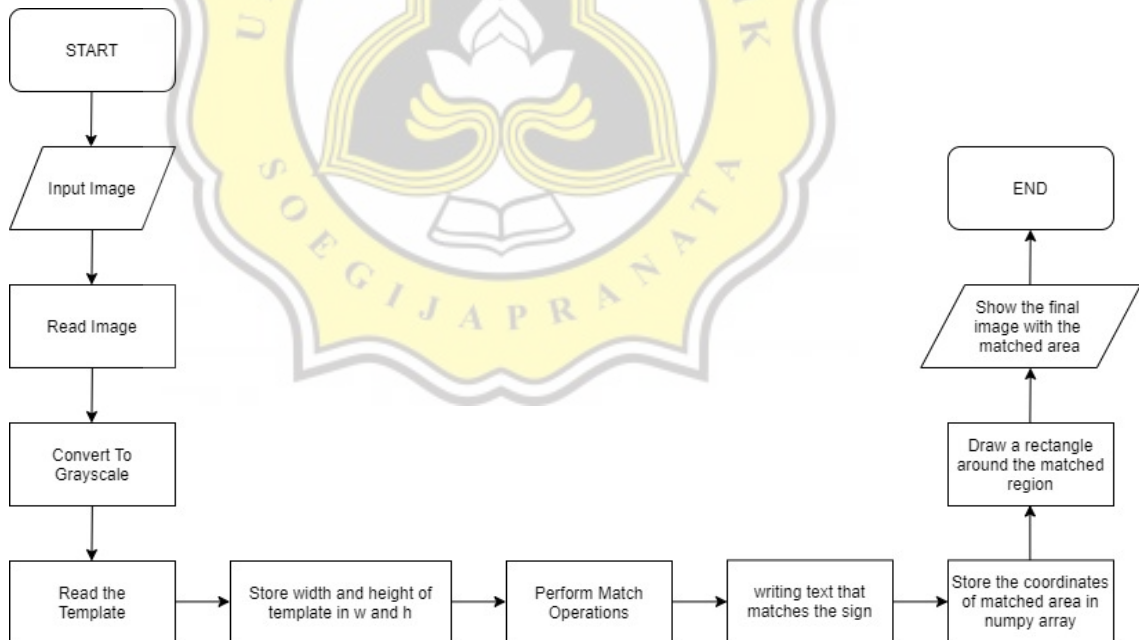


Illustration 4.2: Flowchart of testing application

by utilizing TM_CCOEFF in the process of performing match operations, we can recognize traffic signs according to the aim of this project. also the flowchart above is the application process flowchart of this project. By following the steps in the flowchart, the percentage of successful outputs will be higher, according to the objectives of this project.

