CHAPTER 4
ANALYSIS AND DESIGN

4.1 Analysis

This chapter want to answer the problem from chapter one. The main purpose of this project is the engine can detect various kind of face that detect by the camera and to find out whether they family member or stranger. By having 500 datasets that consist of family member photos and stranger that divided with different folder, so this project can detect the result of the CCTV recording and live detection from webcam.

First problem is how to train 500 datasets to continue with the next step that can detect the picture or video. This 500 pictures divide by 2 kind of folder that already named with family and stranger, by this file name we can get the result of the video or image that we want to detect. Before get the result of the file name, extract the image with various kind of size. First, use 20 pixels for the minimum size of face, with this minimum size the engine can detect about ¾ total of the datasets that already collect. Second trial change the size become 15 pixels but only got ½ of the total datasets. And the third trial use 17 pixel for the minimum size, still this size can't get over the 20 pixel for the result and this can be decided that 20 pixels are the best result for the minimum size of the face.

Second problem is how this engine can recognize that they are family member or stranger have the same solving method from the first problem, by using the minimum size of the image is 20 and they also get better result than the other size from 20.

From this chapter, we know that the best result to determine the best size of the image is 20 pixels. It can be proved because we can get minimum 75% from the total image than using 15 pixels and 17 pixel for the minimum size of the image.

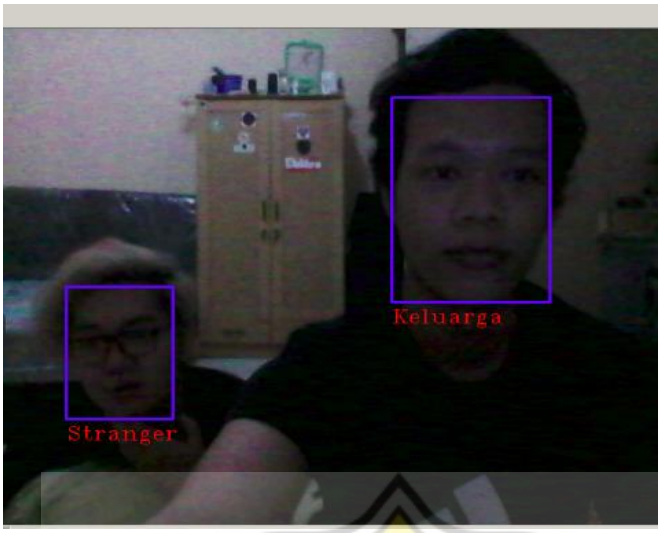

Illustration 4.1.1: Result from WebCam when using 20 as minimum size of face

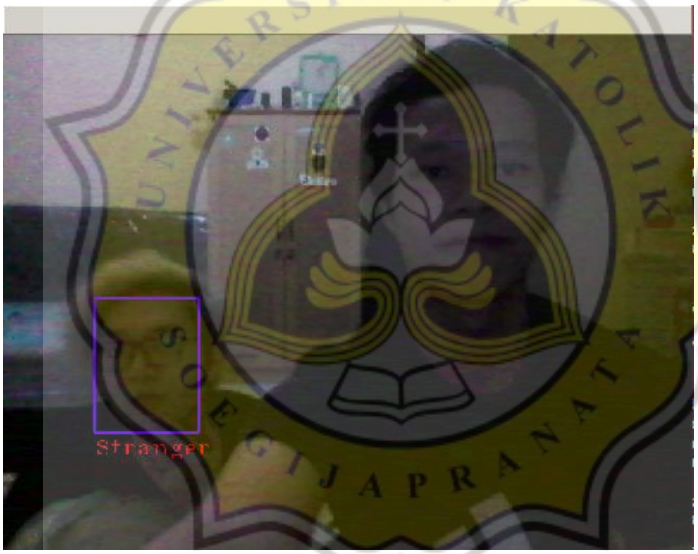

Illustration 4.1.2: Result from WebCam when using 15 as minimum size of face

4.2 Desain

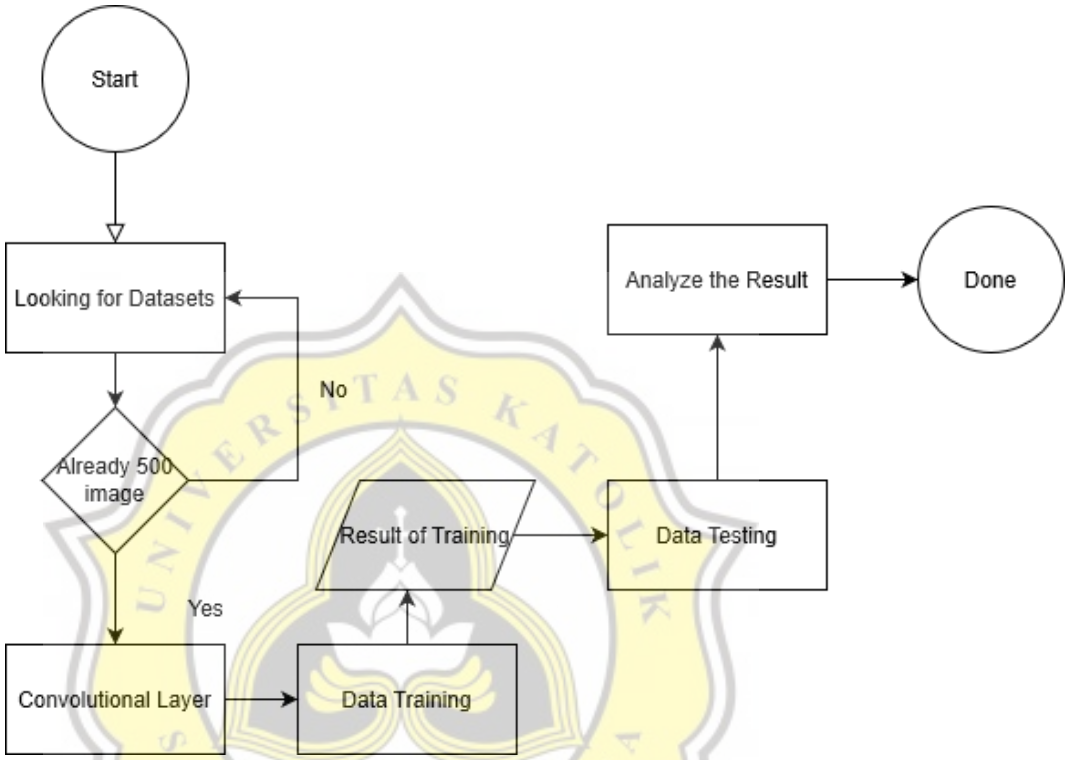

Illustration 4.2.1: Flow Chart of the research point

These is the design step that use for writing this research. First step, looking for datasets that consist of 500 images or more. This images very useful for this research because we need to make difference categories for detecting which are the family member or not.

If this step are dong by collecting 500 images, then continue to the next step which is Convolutional Layer. This step is used to detect the face from 500 images that we already collect.