

CHAPTER IV

ANALYSIS AND DESIGN

4.1 Analysis

4.1.1 Step the project process

1. Covert RGB to Grayscale Image

At this stage, first read the image from file Upload the the RGB image in sports be grayscale by taking the value of each channel's color that is red, green, and blue. After variable interger summation of results to accommodate the value of re, green, and blue are then devided by three. After that it can be the value of grayscale and displayed with the ise of setRGB(get for i, get for j , and get grayscale value.getRGB());.

Example :

`int grayscale = (int) (red + green + blue)/3;` Gets the value such as 253, 247, 251, 225, 240, then displayed with grayscale, `setRGB(i,j, grayscale.getRGB());`.

2. Make Grayscale Image to Two Bit

At this stage, the value of a certain range given his grayscale to grayscale values to determine which will be shown on the results of his output. Image 2 bits that uses 4 type color of black, dark gray, light gray, and white, made his grayscale values for restrictions if less than 64 then grayscale value his gray to black is set, and if the value of gray his less than 64 less than 128 grayscale value is 64. If the value of his less than 128 gray and more than 192 then set to 128, if its exceeds 255 gray value then set its value to 255. Value is 64 represents the dark gray, light gray, representing 128, 0 is black and 255 value for white.

3. Covert RGB to Binarization Image

At this point, read the RGB image and then in the process of with

the place value of the channel red, green, and blue. After that from the channel 3 in value total and divided into 3 so that it gets its grayscale value. After that limited his grayscale will the set to 0 or black. If the value is greater the his grayscale will be set to 255 or white. If you want to get value of foreground white and black background then the comparison results from behind if less than 128 is set to 255 while over 128 to 0. Value is the value here from 128 grayscale range of 0 – 255. If the color of approaching to 255 then color that occurs will become increasingly white, whereas if its value close to 0 then the color will be getting darker.

4. Make Binarization Image with 3 Channel (RGB)

At this stage, the image binarization by using 3 channel color that is red, green, and blue. For the color red the result of a thresholding restricted its red colour only, then his image results will emerge dominant in pixel red. While green is also the same play 1 channel color thresholding green image, the results obtained will be dominant to green color and the blue channel is also the same result will be obtained in more dominant to blue.

5. Save The Value Image in TXT File

The value of this image storage process at each method of the process. This data storage using method filewriter in order to be stored in the txt file, the shape of the image data should be stored into the matrix two-dimensional, so that the stored value more. Once the data is stored in the two-dimensional array and then the data is stored in the txt file into file directory using document write ImageIO.

4.2 Design

4.2.1 Use Case Diagram

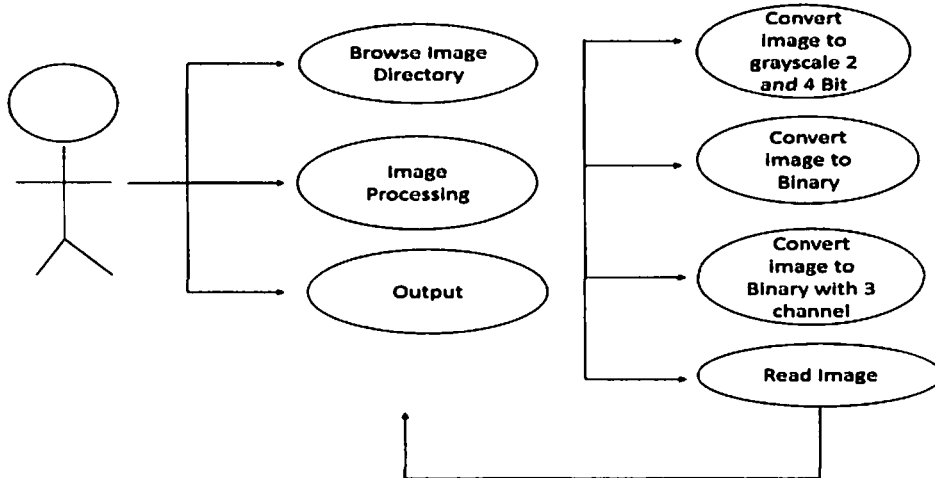


Figure 4.1 Use Case Diagram

The diagram above shows the users can use the application, users must first select the image that will be processed. Both the user selects the image process consists of grayscale and RGB, after selecting the user can see the results.

4.2.2 Flow Chart

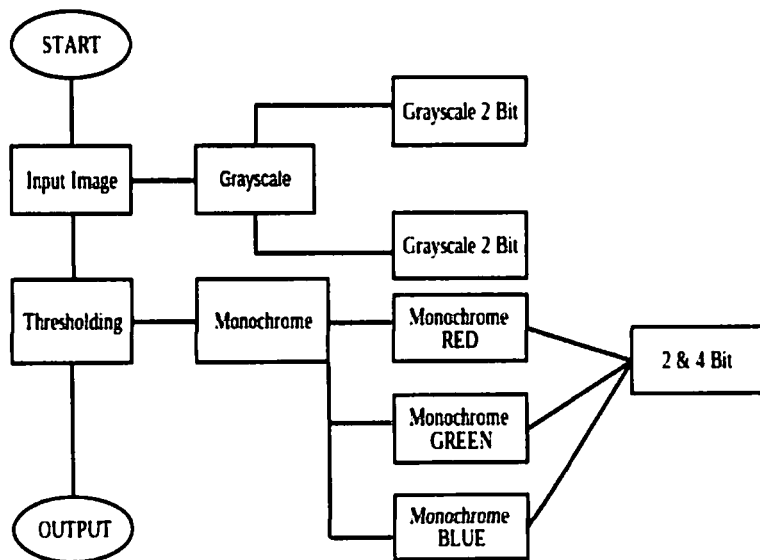


Figure 4.2 Flowchart Grayscale and Thresholding

The process of making this application starts from the input data that is by selecting the browse file directory of the image. Then the image can be processed into a grayscale image thresholding, or if processed into grayscale. Then it would seem the grayscale output image three, 2 bits and 4 bits. If the image is processed into an image monochrome or thresholding then its output will display the results of thresholding the red, green and blue each 2 bits and 4 bits.