CHAPTER III

RESEARCH METHODOLOGY

This projects are classified in several step :

1. Literature Study

   Before the writer begin this project, first of all the writer will analyses the current problem. After that is searching and studying the algorithms that can be used to solve the problem, which are luminosity grayscale, median filtering, prewitt edge detection, local processing edge linking, and chain code.

2. Design

   The first process is grayscale with luminosity algorithm. This algorithm will change the image into grayscale. After the image became grayscale, median filtering will be performed. Next is doing edge detection process using prewitt algorithm. This process will detect line / edge that are exist in the image and will produce an image with line / edge in white colour and the other in black / gray color. After the line / edge are detected, the process is continuing with edge linking with local processing algorithm. This process is an improvement from previous edge detection which is continue line / edge which are dotted due to noise or inconsistent lighting on the image.

   After that, the program will do thresholding process to get the annual rings object and remove the background. And the last step is calculation of the annual rings which are already detected with searching the first point and the last point in horizontal and vertically. Then start to detect from the first point until the last one

and start to find the detected line. The calculation is doing by using chain code algorithm to avoid other small object to not counted.

3. Implementation and Testing

After all of the process then the programs are ready to the next step. This programs will be implement with *Graphic User Interface (GUI)*. It will make easier for the user to operate it, for input and output based with the plan. And will try to make it free from error and ensure all of the process are going through well.