ABSTRACT

Dactyloscopy is the study of fingerprints which is useful for human identification by observing lines on the segment of the fingertips of both hands and feet. Dactyloscopy can be used for fingerprint formulation. Fingerprint formula is one way to identify someone. The fingerprint formula can also be used to identify someone in the police work. Until now, the police still use the manual by using ductyloscopy ink equipment, glass plates, rollers, fingerprint card clamps, and fingerprint cards way in fingerprint formulation. Therefore, a software that can automatically make fingerprint formulation is needed.

Previous studies conducted by Siti Lainatul Afifah [4] formulation of fingerprint type using the WDFs method with the primary dataset - get the results of the detection of 73.% core points, ridge counting 66.67% in the image without noise. The software created in this project calculates the whorl type fingerprint formula. The input data is in the .png format. Fingerprint calculation has important parameters: core point, delta point, ridge counting, and ridge tracing. There are several methods to determine each parameter. The core point and delta point are determined using the Poincare index method. If the Poincare index value is -0.5, the core point is detected. Meanwhile, if the Poincare index value is 0.5, the delta point is detected. Ridge counting uses the Euclidean distance method. The method is for calculating the distance from the delta point to the core point. Meanwhile, ridge tracing utilizes pixel values from the left delta to the right delta.

The results of this study resulted in a system accuracy of 85% in the focal point detection, 77.5% in the calculation of cartridge counting, 75% in the calculation of tracing, and 72% in the results of fingerprint formulation. As for judging from the research that has been done, it can be concluded that the method of poincare index can be implemented for the detection of focus points and the extended euclidean method can be implemented to calculate cartridge counting, and cartridge tracing with similar results.

Keywords: dactyloscopy, fingerprint formula, whorl, Poincare index, Euclidean distance