ABSTRACT

Fingerprints are one of the physiological characteristics of the human body that can be used for human identification. Fingerprints can be used as identifiers or identities because fingerprints have a different shape and path for each human being. The police use fingerprints as a method of identification using conventional methods until recently. Therefore we need a system that can be used for fingerprint formulation based on digital images.

This final project creates a simulation system that can perform fingerprint formulation using the Poincaré Index method. The system input is a grayscale digital image of fingerprints from a secondary data source in the form of a dataset. The processing stage includes pre-processing which includes gaussian filters, binaryization, and spot removal. After the pre-processing stage, the detection of core and delta points is carried out, calculating the distance between core and delta points and ending with the fingerprint formulation stage. The output issued by the system is a fingerprint formula which includes information on the type of fingerprint and the distance between the core and delta points.

The fingerprint formulation system is designed to use a loop-type grayscale fingerprint digital image input that can generate fingerprint formulas using the poincaré index method. The result of this research is a system simulation that can perform fingerprint formulation with a system success rate of 80.95%.

Keywords: fingerprint, biometric, poincaré index.