

## ABSTRACT

As a biometric, fingervein are more favored in security compared to fingerprints. Because the pattern of finger veins is inside the skin making it difficult to fake. In order for the blood vessels inside the skin to appear, special methods are needed. Infrared rays emitted on human fingers bounce back, except for blood vessels. Hemoglobin, which absorbs infrared waves, makes blood vessel pathways look dark on infrared cameras. Unique blood vessel pathway, used for authentication.

Blood vessel images include those that are difficult to extract. Thresholding with automatic methods and various types of edge detection results in poor segmentation. Maximum curvature point segmentation is proposed as a method that extracts blood vessels based on the maximum point of the curve.

The biometric system is then applied to the attendance application. Using a tool designed to capture images consists of an infrared LED emitted through a finger and an endoscope camera. Then the attendance system consists of registrations which include the names and patterns of blood vessels into the database, "absent entry" and "absent out" to recognize patterns by comparing them with databases which are then recorded when interacting with the "absent" or "absent" functions.

Processing extraction of maximum curvature point features and template matching classification results in a system performance of 81%. With such a large performance it is impossible to apply it to the system. Then the results of feature extraction are then given the maximum pooling method before being classified. By changing certain parameters of the method, the system performance is 90.89% with an introduction speed of 3,2 seconds from 600 registered templates.

Keywords: Biometrics Finger Vein, Template Matching, Maximum Curvature Segmentation