ABSTRACT

Android smartphone is a personal mobile device that contains a variety of information and personal data. In its development, application password on the screen unlock function has been done to protect the data security of mobile devices, however, this method is no longer effective beginning to be felt, due to the negligence of the use of passwords can be used by others without the knowledge and consent of the user. Of these issues, the authors would like to design the implementation of hand geometry verification system that will act as a screen unlock function on android phones. Hand geometry verification system itself is a system that can recognize, match, compare, and identify a person based on physiological characteristics of his hands in the form of a comparison pattern input image with the image of the pattern that has been stored in memory automatically.

In this thesis, the process of identifying the type or pattern of the image itself will be done by extracting characteristic geometry using Otsu's Texture Analysis Method. Once the image type identified by the characteristic extraction process, then the information will be studied and compared to the existing pattern of images in the database using the Euclidean Distance as the classification algorithm. The output of this system will determine the degree of similarity between the input image with the new image is saved in the database, will be responded to on the next screen android phone unlock function.

The results of the design and implementation of hand geometry verification system produces the best accuracy rate occurred in the test system at a distance of 35 cm with bright events. Where the value of accuracy reached 80.95%, and the average computation time is 1346.331 ms.

Keywords: android, hand geometry verification system, Otsu's Method, the unlock screen, Euclidian Distance.