

## ABSTRACT

The use of faces as images in biometric recognition systems has often been found but generally uses 2D (dimensional) imagery. In this study, 3D faces will be used as images. The selection of 3D images as images because 3D images contain more information and can provide more accurate results than 2D images. In this research, the *Gabor Wavelet* method is used as an extraction method so that the information in the 3D image obtained is optimal, and the *K-Nearest Neighbor* classification method is chosen in order to obtain optimal results..

The Gabor wavelet extraction method was chosen because the vektor in the gabor feature is larger with a greater number of components compared to the geometric method and several other methods. This method works by changing the image into a sinusoidal signal to get the equation to be reprocessed into an image. In the classification method chosen is *Support Vektor Machine* and *K-Nearest Neighbor*, KNN method works by finding the closest distance between test data and training data to get a match. There are several calculation formulas in the KNN method such as Euclidean distance, city block, and cosine similarity. While the SVM method works to find groups that have similarities in class to the linear lines that have been formed

In this study the parameters of success are measured from the value of accuracy and time of performance obtained by the system. The accuracy value generated from this research is above 73.33% of the total data tested and the performance time is 1185 seconds. This result is obtained by using a filter in a gabor wavelet in the form of a filter measuring  $5 \times 5$  and  $K = 1$  and using the KNN classification method with Euclidean Distance. While the process that uses the SVM classification method produces an accuracy rate of 43.22% with a computing time of 1410 seconds. So that in this study the classification method used is KNN with euclidean distance.

**Kata kunci :** *Gabor Wavelet, Pengenalan Wajah, K-Nearest Neighbor.*

*Filter, Euclidean Distane, Cosine Similarity, City Block,*

*Support Vektor Machine classification method.*

