

ABSTRACT

Conventional identification techniques to identify a person's identity using a password or a card previously. At present the use of conventional identification techniques increasingly replaced by biometric identification techniques. biometrics is a distinctive identity that is owned personally and has a unique or special characteristics. Biometric characteristic can be used as a pointer of one's identity, especially the face.

This final project combines conventional identification technique (password) and apply a method for recognizing an image so it can be properly identified by the computer by using the theory of Processing Image created as a system identification software and hardware that is safe to receive the output of an electronic identification system and translates as access to open and lock the safe door. Retrieval of data input in the form of image files captured by webcams, which will be done in the PC image processing pattern recognition to the face. Then after that the patterns are identified and then stored into the database as a reference.

The results of the implementation using the method of Principal Component Analysis as a method of face recognition for access control safes this final project was carried out testing of TestDatabase TrainDatabase from a face image, the best accuracy on face recognition system with PCA is on the face with a Webcam Database and 20W lamps with accuracy of 100%. While the accuracy is less good in the face with a Webcam Database with an accuracy of 70%. The fastest computing time in the face with a facial recognition database Webcam trained with 10 images faster is the average computation time is 4.3 seconds and the opposite face with a facial recognition database Webcam trained with 50 images with a slower average computational time is 7.2 seconds. This is because it is influenced by many facial training goals.

Keywords: *Face Recognition, Principal Component Analysis, Webcam, Grayscale. atmega 8535.*