ABSTRACT

Along with the development of an increasingly advanced and rapid era, humans are constantly developing security systems that are difficult for people to infiltrate certain. The need for security and comfort is very important,with the occurrence of crimes in the surrounding environment, namely theft of goods, electronics and house burglaries are common. With frequent occurrence crime in the surrounding environment, a security system is needed in a strong house, which can minimize cases of theft at home.

Face recognition is a biometric technology used for security systems to match human faces from images or videos using facial data sets. Fisher face method is a combination of pattern grouping using PCA (Principal Component Analysis) and LDA (Linear Discriminant Analysis), which is an example of a class-specific method. The fisher face method utilizes these two pattern grouping methods with the aim of maximizing the ratio of the distribution of patterns between classes from the distribution patterns within the class itself. This final project will discuss how to design and implement a face recognition system for security at home.

In this study, the system was designed using the Python programming language and OpenCV as the library. The system will detect faces using a webcam, and the system will perform the process of matching faces detected on the webcam with face images stored in the database using the fisherface method. From the test results, the system can recognize objects well in daylight conditions, can detect faces, and match faces in front of the webcam with the faces in the database properly and the system accuracy is 80% until 100%

Kata Kunci: *Face Recognition, Fisherface,OpenCV,Python.* .