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. .

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