

ABSTRACT

The face is a part of the human body that is the focus of attention in social interactions, because the face plays a vital role by showing identity and emotions. We can recognize thousands of faces because of the frequency of interactions that are very frequent or only briefly, even over a very long time. In fact, we are able to recognize someone even though there is a change in that person due to age. Therefore, the face is used as an organ of the human body which is used as an indication of someone's recognition or face recognition. Facial recognition technology is a method used for detection, image matching, and video tracking.

In this final project, real-time video-based face detection is designed. This system uses a programming application, namely Matlab to recognize faces in the video. In this system the SVD and PCA methods were also selected. SVD and PCA methods for feature extraction from training images and test images. Then the classification is done using Euclidean Distance, namely matching the test images taken from the CCTV camera with the training images from the database. At the time of testing, CCTV cameras captured video in the form of 10 frames to be processed and each frame became a test image to be matched with the training image. In image classification, it aims to recognize face names from CCTV cameras.

The result of the method used is that it can recognize faces from CCTV cameras properly. At the highest light intensity conditions produce the best accuracy of 92%.

Keywords: Face Recognition, Real-time Video, Singular Value Decomposition (SVD), Principal Component Analysis (PCA).