ABSTRACT

One of method that can use for employee disciplining is apply presence system that can record every attendance with realtime time prosses, and presence of employees that can not be represented. One of method that can use in this presence system is with face recognition.

In this final project has been designed and realized a Presence system based face detection using 2D-Discrete Cosine Transform (DCT-2D) and Principle Component Analysis (PCA). Before the feature extraction input image will be divided into small blocks with a size of 8x8 pixel. Then the blocks will be extracted by the DCT-2D. Each block will be retrieved the highest coefficient values and are incorporated in a matrix. This matrix will be input to the PCA process to calculate eigenface value. K-Nearest Neighbor (KNN) is used for Classification method.

Based on the result of performance testing system, it is known that the highest accuracy when offline is 96,70% and computation time of the system is 4,23 seconds (Euclidean Distance when K=3). When system in real time the highest accuracy obtained by 93.33% and computation time of the system is 4,51 seconds (Correlation Distance with K=1).

Keywords: *2D-Discrete Cosine Transform* (DCT-2D) , *Principle Component Analysis* (PCA), Presence , *K-Nearest Neighbor*.