**ABSTRACT** 

Face recognition is one of the biometric techniques developed in several studies.

Face recognition can verify someone's ID, both from images and videos. However,

face recognition has not reached a high level of accuracy due to illumination, pose

variations, under sample data, occlusion variations, and others.

Sparse Representation based Classification (SRC) is a method that robust in face

recognition and can overcome several problems in face recognition. However, SRC

has the disadvantage of a heavy computational load. Image dimension reduction is

used to overcome these shortcomings in this final project. Dimension reduction is

done by multiplying the feature matrix with a random projection matrix using seve-

ral techniques, including Random Gaussian, Random Uniform Binary, and Random

*Uniform Integer. Then compared with the classical linear method, downscale.* 

Dimension reduction using a reduction factor of 64 to 512. The simulation

results on the AT&T dataset show that the reduction factor with a ratio of 10.304:

128 has a maximum accuracy rate of 100% with a computation time of 0.15 seconds

on a Random Uniform Integer projection, and a maximum value is done by doing

iteratively. As for the downscale technique, the maximum level of accuracy with a

reduction factor value of 256 produces an accuracy of 94.5% and a computation

time of 0.14 seconds. SingleTest occlusion test, SRC can detect images with an

occlusion rate of up to 80%.

**Keywords**: Sparse Representation. Random Projection, Face Recognition

V