

## ABSTRACT

The increasing number of counterfeit money circulation nowadays, have driven to creation of detection system based on digital processing authentic or counterfeit money. Technology advanced often being misused. One of them is the improvement of the printer and ink quality so it can print money paper which is very similar with the authentic money. It makes people should be more careful about money ownership.

This final project examine money detection using Principal Component Analysis (PCA) and Support Vector Machine (SVM) method. Characteristic extraction using PCA method is a step to search important features which represent an image. While classification using SVM is searching for best hyperplane which can separate every money class one another.

The system simulation done with matlab R2009a software. Detected sample is authentic money with domination Rp. 100.000, Rp.50.000, and Rp.20.000 image and also counterfeit money with denomination RP.100.000, Rp.50.000, and Rp.20.000 image, which have been taken using webcam the processed by digital image processing to get information about the authentication of money. Output from this system is information wheather money processed is authentic or not.

This system use two kind of parameters, those are PC value variation on characteristic collection an C value variation on SVM multiclass. Best accuration level got by system when PC and C combination value 60 and 15 on OAA SVM multiclass, and PC and c combination value 20 and 20 0n OAO SVM multiclass, which is 100% with computation time 0.38 second for OAA multiclass and 0.39 second for OAO multiclass.

**Keyword:** *Detection authentic money and counterfeit money, PCA, SVM Multiclass, Information of Money Authenticity*