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Signature Detection using Image Processing and Matlab

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Abstract: Signature has been a special feature that helps in unique identification of an individual. Mostly the business and financial transactions are done using this unique feature i.e. signatures. Keeping this fact in mind we need to provide automatic signature methods that also provides authenticity. If we talk about documents such as bank cheques, there the manual verification of signatures are really tough to be maintained.
Keywords: Signature Recognition, MATLAB, Accuracy Recognition, Training Set.

I. INTRODUCTION

By biometrics we mean an individual's identification by their physical and biological features automatically. The answer to simplicity of access to these personal authentication system is biometrics.

Various applications of biometrics include banking, passports stealing mails etc.

An important aspect of biometrics is signatures. One method for distinguishing signatures is image processing .It uses unique structural feature extracted from the contour of signature.

This project helps in development of an efficient signature detection system. The structure of this signature detection system is the basis the pattern algorithm.

II. LITERATURE OVERVIEW

Earlier, other biometric methods have also come into existence but only a handful of them were accepted. While working on this project of ours we also studied various methods found earlier.

In 2001, BiBa signature scheme was introduced by Adrian Perrig. This scheme uses one way function that work without trapdoors. BiBa is one of the fastest methods. It uses small signatures and to verify these signatures it works at twice the speed.

BiBa stands for Bins and Balls signature.

III. SIGNATURE RECOGNITION

The signature in off line signature verification system is taken as an image which is a unique way of the handwriting of an individual. As compared to on-line signature verification systems, off-line systems are difficult to design as many desirable characteristics such as the order of strokes, the velocity and other dynamic information are not available in the off-line case. Although difficult to design, most financial transactions are done on paper so offline signature verification is indeed and important aspect. The basic construction for any signature verification system needs a solution for sub-problem:

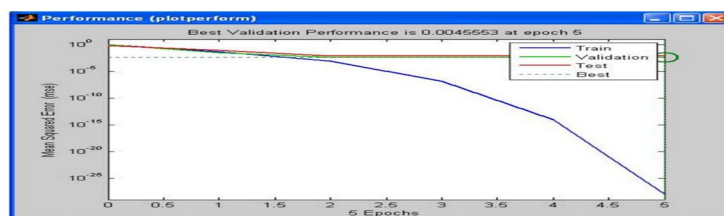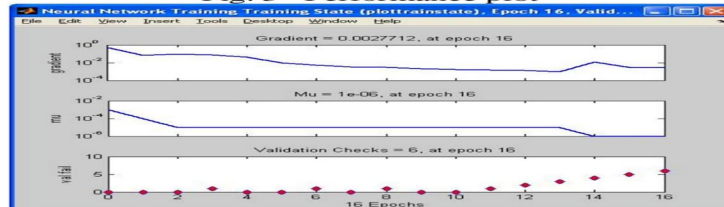A. Data Acquisition
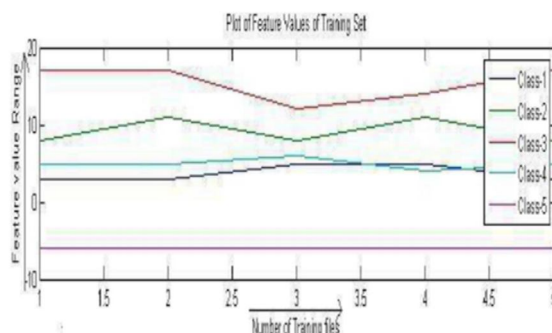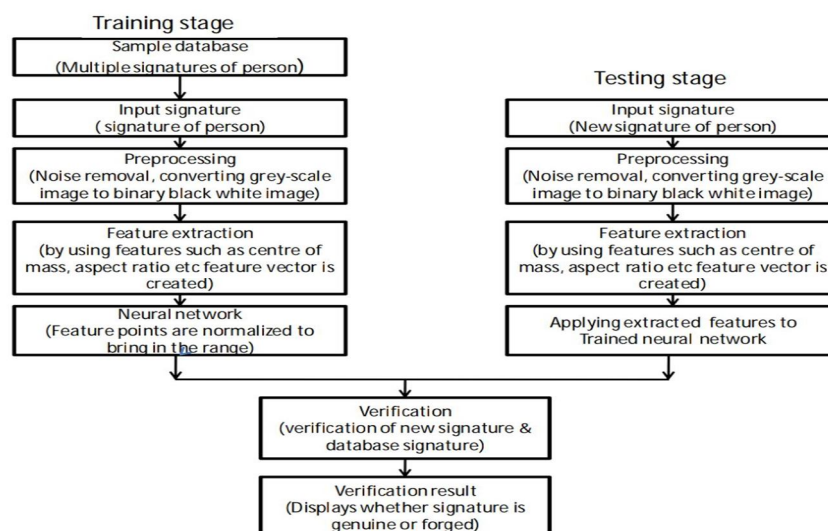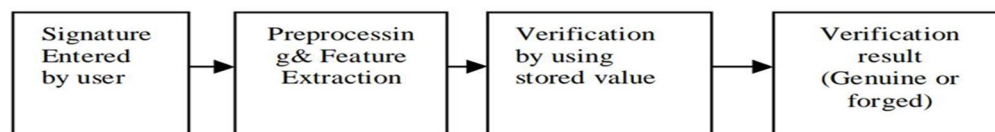B. Pre processing
C. Feature Extraction

Fig. 5   Performance plot

IV. FUTURE SCOPE

The authenticity and security of our transactions that we do daily can be improved by using Signature Verification and Detection technology.

In this paper we represent offline signature verification. Here the signature that is done on a paper is scanned and presented in the form of image.

This technique is useful and suitable for applications such as passports, bank transactions, etc.

V. CONCLUSION

Although the existence of an automatic signature verification tool is necessary, it is not yet applied in most of the institutions dealing with fianance. The reason is that most of the currently available tools work with a highest accuracy of ca. 80%, which makes them not reliable in the verification task. For many years, researchers are trying to develop more robust signature verification tools using the advances in image processing algorithms. The proposed model was successfully verified signatures of users with a lowest accuracy of 85%, indicating its promising implementation and making a room for more improvements that have to be investigated. The future work of this paper is to enhance the feature extraction step of the algorithm by adopting features related to cross correlation, and signature energy and skewness. Finally, an automatic feature extraction tool may be developed to predict the relevant features, which define each signature and reduce the verification effort.

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