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OFFlINE SIGNATURE FORGERY DETECTION USING HOUGH TRANSFORM

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Keywords:
The following terms are used to describe this process: - preprocessing - feature extraction - forgery detection

ABSTRACT

In behavioural biometrics, one common method of authentication is offline signature recognition with forgery detection. An innovative offline signature forgery detection method based on Hough transform characteristics is presented in this research. One method for extracting features is the hough transform, which may identify regular forms like lines, curves, ellipses, and so on. Following the preprocessing procedures for the signature samples, we use the Hough transform to extract the shape characteristics. We do this by extracting attributes from ten real signatures and five fake signatures belonging to twenty different individuals. After that, the correlation coefficient and the thresholding approach are used to identify forgeries. A 92% accuracy rate was achieved using the suggested approach.

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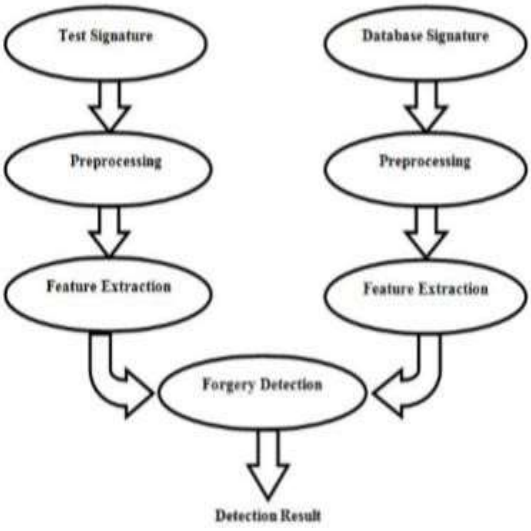
Introduction

Authentication and personal identity are made possible using biometrics technology. Behavioural and physical biometrics are the two main categories.Some examples of common physiological biometrics include fingerprints, iris or retina scans, hand or palm geometry, and facial features. Signature, typing rhythm, voice, and walking manner are examples of behavioural characteristics.A number of biometric technologies are shown graphically in Figure 1.The verification of handwritten signatures is an often used behavioural authentication system that uses biometric data. Differentiating between authentic and fake signatures is the goal of the signature verification system. In addition to their use in civil law contracts, acts of violation, and identity authentication, signatures are the most widely recognised method of transaction confirmation. Online signature verification and offline signature verification are the two main types. Online verification relies on the dynamic properties of the signer's digital signature, which may be retrieved via a pressure-sensitive tablet. input method, including writing velocity, pressure, and stroke count. The offline verification method relies on the invariant static signature properties. Images of handwritten signatures on paper are used for this verification. The overall dynamic qualities of online signature verification make it more difficult to forge or counterfeit an online signature, making it more dependable, resilient, and accurate than offline signature verification. Because it requires meticulous observation and recording of the user's signature procedure, this sort of information is not accessible in most frequent real-world circumstances. Because of this, offline signature analysis remains a topic of study.

1. RELATED WORK

A parameterized hough space derived from the hough transform for straight lines is offered as a means to identify offline signature forgeries. Using a combination of co rrelation-based forgery detection and feature extraction



based on the hough transform, this novel offline signature forgery detection method is very remarkable. Here we assume that each person's signature is a unique set of handwritten characters mad e up of a web of interconnected straight lines. Qualities that may be identified by the though transform. The main steps of our method using dataset containing 300 signatures both genuine and forge

Preprocessing.

- Feature Extraction
- Forgery Detection

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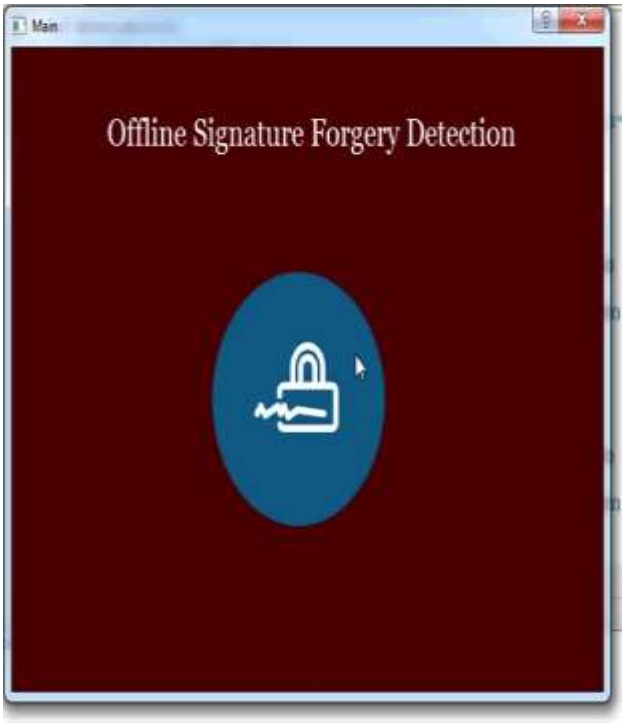
2. EXPERIMENTAL RESULTS



Home screen

Compression

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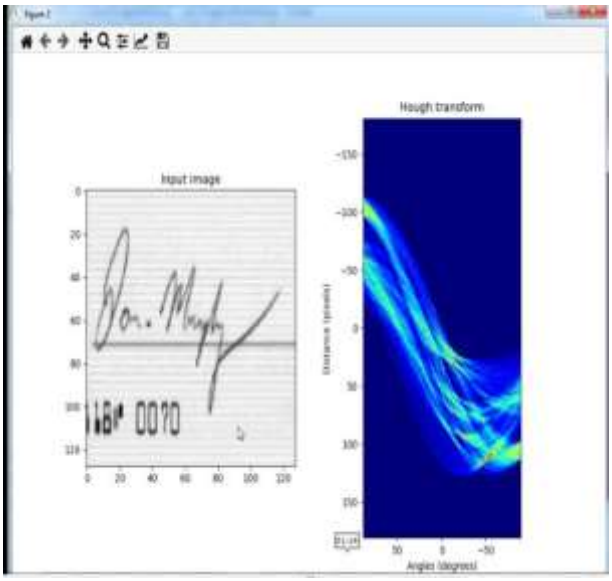

Result Image

CONCLUSION

Using the signature image's line properties, this research develops a novel offline forgery detection technique. The hough transform method for lines is used to extract the line characteristics and the hough space matrix. One way to check whether a signature is fake is to utilise the correlation coefficient.This technique yields a 10% FRR and a 0% FAR result after extensive testing and experimenting with a 300 signature dataset. A higher number of samples per individual will provide better results.

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