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Automated Bank Cheque Verification Using Image Processing

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ABSTRACT -Processing cheques manually is been done for decades and more efficient systems are still under research. In this entire processing system, providing a secured transaction with efficient verification is what more important. An instance cheque clearance system is proposed comprising of an unmanned customer and an operator station, and means for providing communication with secure transaction. The customer station includes an OCR scanner to scan a given cheque and a cash dispenser to withdraw the cash. Secure means are provided for enabling the operator to verify the identity of the cheque bearer by recognizing MICR number.

KEYWORDS: cheques,OCR,MICR,secure transaction

1.INTRODUCTION

Automated bank cheque verification using image processing is an attempt to complement the present cheque truncation system, as well as to provide an alternate methodology for the processing of bank cheques with minimal human intervention. When it comes to the clearance of the bank cheques and monetary transactions, this should not only be reliable and robust but also save time which is one of the major factor for the countries having large population. In order to perform the task of cheque verification, we developed a tool which acquires the cheque leaflet key components, essential for the task of cheque clearance using image processing and deep learning methods. These components include the bank branch code, cheque number, legal as well as courtesy amount, account number, and MICR patterns. our innovation aims at benefiting the banking system by re-innovating the other competent cheque-based monetary transaction system which requires automated system intervention.

II. PROBLEM DEFINITION

With digital innovations happening across the world in all sectors, it becomes crucial for every industry to automate their processes to attain better performance and efficiency for any model. Banking and financial industry plays a crucial role since large number of transactions occur in the form of bank cheques.

III. METHODOLOGY

Pattern Matching is the technique of locating and checking specific sequence of data pattern from a raw data. It helps in finding all the occurrences of the given pattern in the string. In case of pattern matching the match has to be exact. Pattern matching is an important aspect in programming. Pattern matching is used by major applications for doing their respective tasks.

OCR programs are best examples of text which are available in different formats as well as different fonts which are used to compare and recognise the characters which are used in a scanned document

IV. MODULE DESCRIPTION

The proposed system is a mobile application through which we automate the process of depositing a bank cheque by sending the image of the cheque. It provides a mechanism for recognizing the cheque fields using Object Character Recognition. Various approaches are possible for character recognition with a lot of scope of research. We use various image processing techniques to extract the parameters of cheque and verify the character based on these parameters by comparing it to the samples stored in the database. The smartcard will be given to the bank customer. Whenever he wishes to deposit a cheque; first, he should place his cheque on appropriate position. Once cheque is placed properly; the payee should use his smartcard and enter the password to access his account. If fails to authenticate then whole process should be repeated. After successful authentication; an image of cheque will be taken by webcam and the data on the cheque image will be extracted by internal software. The extracted data will be sent to remote server accordingly with the help of Ethernet and TCP/IP protocol.

V. LITERATURE SURVEY

In [2], a system of off line for the digit identification of the isolated digits of handwritten is presented. An artificial neural network is trained with the gradient back propagation algorithm and several feature vectors are harbored to estimate the neural network performances. The input vector of neural network is formed by these feature vector parameters and is removed by several methods on the binary images of the handwritten digits. The methods include the barr features, the sondes application, the distribution sequence, the central moments of the different predictions, freeman image coding and profiles.

In [3], a cognitive thinking process is proposed for identifying any digit which is handwritten. In this, the hand written digit recognition is accomplished with a neural network based artificial intelligence machine through providing cognitive thinking process to machine. The proposed technique can be further utilized in various applications of handwriting recognition, signature verification and biometric verification. The features used, are the basically direction features, which can be accepted by methods of gradient feature, code feature, Sobel and Krish operators, are extracted in feature extraction process.

VI. PROPOSED SYSTEM

1. Logging on the system: First log-on to the system using the smartcard and the password provided to the user.
2. Reading the smartcard: After successful authentication of the smartcard the information is read from the card.
3. Image Acquisition: The image is acquired only after successful authentication a signal will be sent to the system to acquire the image by the controller.
4. Database Formation: First the database for training set is created. For this we should create database of 0 to 9 numbers and A to Z characters to recognize numbers and name on cheque. Database of various fonts should be used for increasing accuracy.
5. Recognize Account Number and Cheque Amount: The account number is recognized by the Optical character Recognition (OCR) method. This process helps to identify the sender and the amount is debited from the senders account and credited to the receivers account.
6. Recognize the cheque number and date field: This is done to ensure that the cheque amount is credited only once and that the image of the cheque is not used more than once. The account number, cheque amount and date fields are recognized using Optical Character Recognition (OCR). The process of Date field recognition helps to maintain the record of transactions carried out by every user.
7. Processing the Transaction for Valid User: On positive verification of the smartcard the extracted data is transferred to a remote server using Ethernet

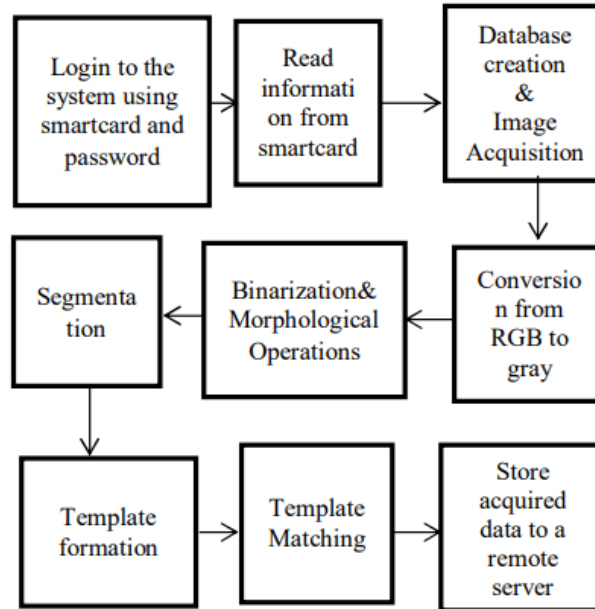


Fig 1. Proposed system

VII. CONCLUSION

The new system should be an on-line system. Shape is an integral part of cheque verification, it is a metric that is most easily imitated by a forger. Both global & local features should be used. Different methods have been tried with varying results, About 99% at the best. Great deal of speed improvement to be done. MICR segmentation into individual strokes needs attention.

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