



CHEQUE DEPOSIT SYSTEM USING OCR

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Abstract: Regular banks get an enormous number of cheque; these cheque are checked and submitted to their relating clearing banks for freedom. After confirmation the clearing banks send marked directions back to the bank expressing whether the cheque is cleared or dismissed. At that point the cash is moved from the payee a/c to the beneficiary's a/c. This entire procedure takes up to 3 working days only for between bank national cheque. In this way, there is a need to think of an elective technique to abbreviate the extensive procedure of storing cheque in banks and its freedom making the whole cheque clearing process a lot less complex and speedier. The propose system is used to store cheque in machine and utilizing OCR framework will filter the cheque and bring the subtleties and confirm the data, for example, cheque number, account number, sum and past exchanges to clear cheque moment. This proposed framework will change the meaning of cheque freedom, cheque will be clear in inside few minutes.

Keywords: Computer communication Network, Automated cheque processing system (ASPS), Distributed System, OCR (Optical Character Recognition), Artificial Intelligence.

I. Introduction

Digitization of cash move is an unquestionable requirement in the present condition of banking activities. Customers have different approaches to perform exchanges, for example, credit, wiring cash, etc. Be that as it may, the financial frameworks and numerous organizations acknowledges cheques as a proper methods for cash move. Cheques still goes about as a type of agreement and are broadly adequate all through the world. Storing cheques requires physical nearness of the investor at the bank, which hinders the pace of cash move and teller's action. To quicken the procedure, banks far and wide have embraced and developed rules for a computerized store of cheque examines.

It is presently satisfactory in many bank to store cheque utilizing a sweep (picture) of the filled and marked cheque. The investor can utilize his/hers cell phone camera to play out this activity. Rules for computerized cheque store incorporate severe necessities on the contributor end, for example, satisfactory perspective proportion of the cheque, the camera point, the splendor, picture goals and the worthy imperfections (collapsing, shadows falling on the cheques and so forth). To accurately digitize and transmit cheque information from smartphones to the bank, RSIP Vision has built an automatic cheque identification and OCR method in accordance with those digital transfer guidelines. The cheque scanner algorithm is based on input from smartphone camera. User places the camera above the cheque (no need to take a photo) and the algorithm does all the rest.

Several steps are involved in this process. The initial step is to identify the cheques boundaries. This is not always a trivial task ^ in natural imaging conditions, when the edges might blend with the background. Furthermore, the format of cheques in terms of color and background image might differ from depositor to depositor (indeed the US systems allows having cheque books with various colors and pictures printed on them). Our algorithm overcomes these difficulties and finds the cheque with rectangular boundaries matching in the limits imposed by the digital transfer guidelines. The automatized process of boundary detection also allows us to detect any defects in the cheque such as folded corner, tears, cuts and other abnormalities which will result in the rejection of the digital transfer. At the next stage, the OCR cheque scanner (where OCR stands for Optical Character Recognition) needs to extract the characters in the cheque, including the handwritten ones. Fields such as the depositoras name and signature and the cheque amount need to be ^ clearly extracted

and communicated to user for approval. To this end, our cheque scanner employs cutting-edge OCR algorithms which reliably extract these information. The algorithm can be integrated in the banks application on the smartphone or as a standalone. Indeed, this kind of software is now offered by banks throughout the world. RSIP Vision continues to work at the front line of OCR algorithmic development.

II. ARCHITECTURAL DESIGN:

A description of the program architecture is presented. Subsystem design or Block diagram, Package Diagram, Deployment diagram with description is to be presented.

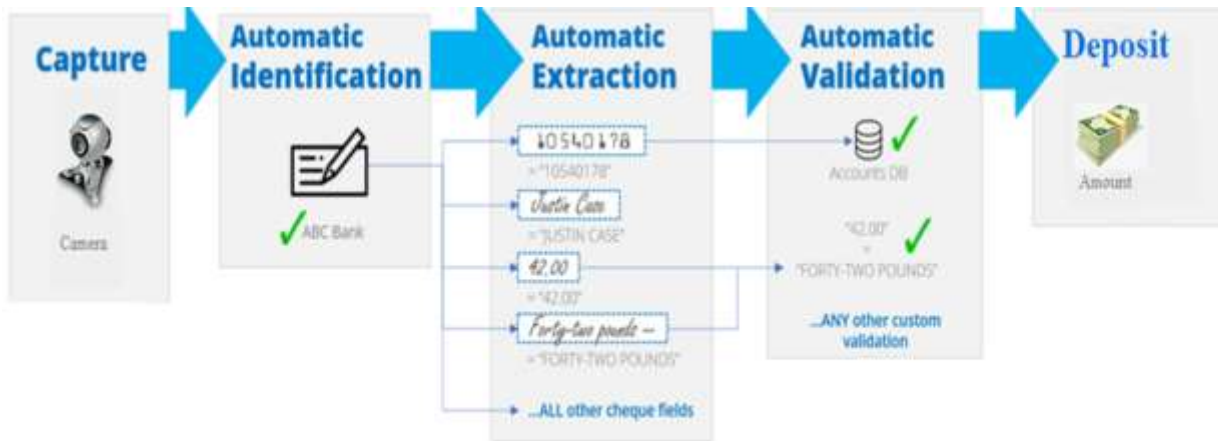


Fig.1 Architecture Design

III. CONCEPTUAL DESIGN OF THE SYSTEM:

Cheque clearing or bank clearance is the process of moving cash (or its equivalent) from the bank on which a cheque is drawn to the bank in which it was deposited, usually accompanied by the movement of the cheque to paying bank. Cheque deposit system helps the user to save their time and also helps to fasten the time of cheque deposition. This process can save the time and also help to increase the security while transactions are being processed. Everyday banks receive a large number of cheques; these cheques are checked and submitted to their corresponding clearing banks for clearance. After verification the clearing banks send signed instructions back to the bank stating whether the cheque is cleared or rejected. Then the money is transferred from the payee a/c to the receiver's a/c. This whole process takes up to 3 working days just for inter-bank national cheques. Therefore, there is a need to come up with an alternative method to shorten the lengthy process of depositing cheques in banks and its clearance making the entire cheque clearing process much simpler and speedier. The Proposed system is used to deposit cheques in machine and using OCR system will scan the cheque and fetch the details and verify the information such as cheque number, account number, amount and previous transactions to clear cheque instant. This proposed system will change the definition of cheque clearance, cheque will be clear in within few minutes. With the development in image processing it is now possible for machines to read from documents as in the case of humans. Use of image processing in cheque deposition can reduce the manual efforts, time and also become cost effective. Paper cheques are still used widely for non-cash transaction even after the implementation of credit/debit cards and other means of electronic transactions. In many countries including India, the cheque processing procedure requires a bank employee to read and enter the information on a cheque. As large number of cheques has to be processed every day, an automatic reading system can save much of the work. Even with the advent of successful character recognition algorithms it is still difficult to recognize handwritten information. So we use specially printed cheques for our system. The manual cheque clearing process is as shown in fig 1. It is a time consuming process and also require a lot of human effort and time.

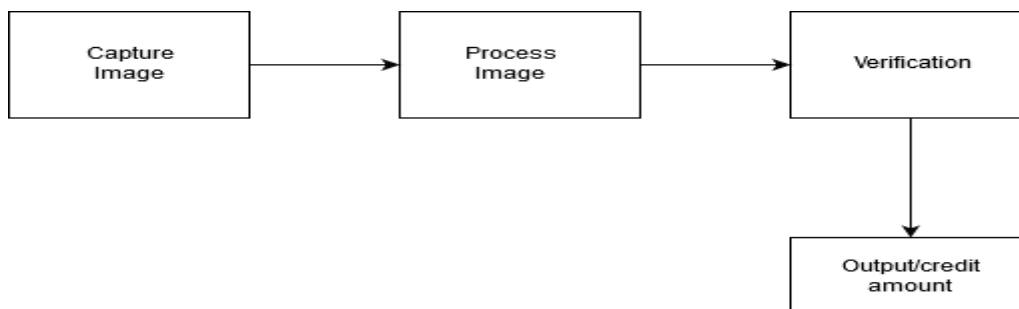


Fig.2 Data Flow Diagram

IV. COMPONENTS

- **Cloud** :-A cloud server is a logical server that is built, hosted and delivered through a cloud computing platform over the Internet. Cloud servers possess and exhibit similar capabilities and functionality to a typical server but are accessed remotely from a cloud service provider.
- **OCR** :- The OCR Technology based application which will used to analyse the data on cheque,which will avoid human work n save time. The OCR framework can likewise be utilized in various viable applications, for example, number-plate acknowledgment, shrewd libraries and different other continuous applications. Another significant territory is multi-lingual character acknowledgment framework. This is one of a kind method in which cheque kept through machine.
- **Admin** :- When cheque is deposited, the bank admin can authenticate all information of account holder like last transactions, previous cheque history. After authentication, the bank admin can decide whether allow transaction or decline.

V. SYSTEM IMPLEMENTATION:

The system is utilized to store cheque utilities and confirm the data, for example, cheque number, account number, sum and past exchanges to clear cheque moment. This proposed framework will change the meaning of cheque freedom, cheque will be clear in inside couple of minutes. It is utilized to process cheques without human inclusion. A register can be embedded with a machine where the framework filters the sum to be given and the right measure of cash is moved. This innovation has almost been consummated for printed cheque, and is genuinely precise for written by hand cheque too diminishing the holding up time in banks. The OCR framework can likewise be utilized in various viable applications, for example, number-plate acknowledgment, shrewd libraries and different other continuous applications. Another significant territory is multi-lingual character acknowledgment framework. This is one of a kind method in which cheque kept through machine.

- A. Database and Web Interface
- B. Hardware Implementation
- C. K-Mean Algorithm

A. Database and Web Interface:

All the data from the system are read, processed and stored in the database. Then all the necessary decisions are taken based on the data. The database keeps all the information about all the variables to keep the authority updated about the current status of the account. The data is then imported from the database and shown in the implemented sample web interface in real time. A web interface has also been created to demonstrate how proper authorities can check the cheque authentication at any point of time. The website fetches data from the database and send message to the user about transation status.

B. Hardware Implementation:

The hardware part includes camera and processing unit. It is presently satisfactory in many bank to store cheque utilizing a sweep (picture) of the filled and marked cheque. The investor can utilize his/hers cell phone camera to play out this activity. Rules for computerized cheque store incorporate severe necessities on the contributor end, for example, satisfactory perspective proportion of the cheque, the camera point, the splendor, picture goals and the worthy imperfections (collapsing, shadows falling on the cheques and so forth).

C. K-Mean Algorithm:

k-means is one of the simplest unsupervised learning algorithms that solve the well known clustering problem. The procedure follows a simple and easy way to classify a given data set through a certain number of clusters (assume k clusters) fixed apriori. The main idea is to define k centers, one for each cluster. These centers should be placed in a cunning way because of different location causes different result. So, the better choice is to place them as much as possible far away from each other. The next step is to take each point belonging to a given data set and associate it to the nearest center. When no point is pending, the first step is completed and an early group age is done. At this point we need to re-calculate k new centroids as barycenter of the clusters resulting from the previous step. After we have these k new centroids, a new binding has to be done between the same data set points and the nearest new center. A loop has been generated. As a result of this loop we may notice that the k centers change their location step by step until no more changes are done or in other words centers do not move any more.

VI. SCREENSHOTS:

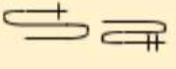
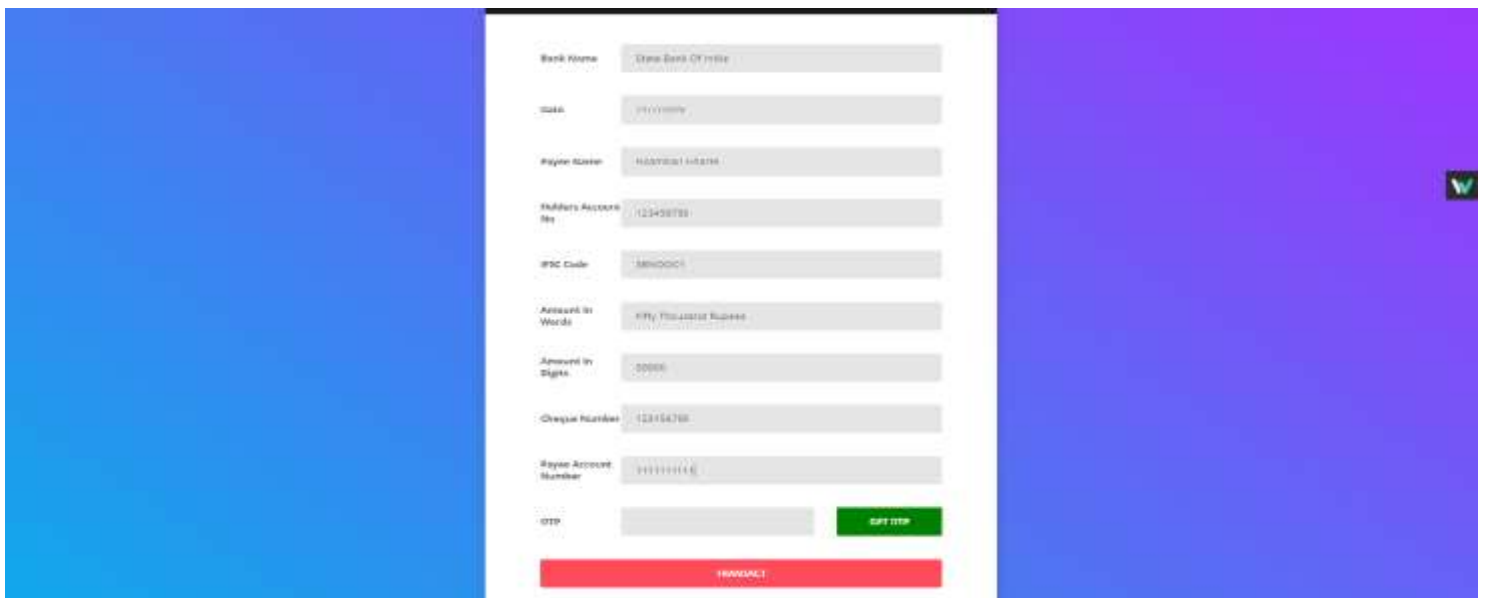
OCR APPLICATION FORM					
State Bank Of India Panchavati, Nashik	IFSC : SBN0001	Date <table border="1"><tr><td>21</td><td>07</td><td>2019</td></tr></table>	21	07	2019
21	07	2019			
Pay : <u>Nilambari Gharte</u>		<table border="1"><tr><td>Rs. 500000 /-</td></tr></table>	Rs. 500000 /-		
Rs. 500000 /-					
Amount : <u>Fifty Thousand Rupees Only</u>					
<table border="1"><tr><td>Account No.</td><td>123456789</td></tr></table>	Account No.	123456789	Sign : 		
Account No.	123456789				
65899 123456789 1213456					

Fig- Cheque In Above Fig show the overall design of bank cheque where all information is in proper format which could be identical to OCR system.



Bank Name: State Bank Of India
Date: 21/07/2019
Payee Name: NASTIKI GHATE
Payee Address: 123456789
IFSC Code: SBN0001
Amount in Words: Fifty Thousand Rupees
Amount in Digits: 50000
Cheque Number: 123456789
Payee Account Number: 91111111111111111111
OTP: [] [GET OTP]
[TRANSACTION]

Fig 3- OCR

In Above Fig shows the form where details scan from cheque and verify using OTP system.

CONCLUSION

Cheque deposit system using OCR is an image based cheque clearing system for faster clearing of cheques. In this system, an image of the cheque is captured at the presenting bank and is sent to the database of payee bank for clearing. This system proposed a method to detect alterations in these cheque images. This method enables the payee bank to detect fraudulent modifications of the important contents of the image by checking the cheque number from the original and the watermarked images. A slight variation in the group division scheme also provides the capability of identifying the manipulated portions of the image.

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REFERENCE

1. S. S. Gonge and A. A. Ghatol, "An integration of SVD digital image watermarking with AES technique for copyright protection and security of bank cheque image" 2016 2nd International Conference on Contemporary Computing and Informatics (IC3I), Noida, 2016, pp.769- 778. doi: 10.1109/IC3I.2016.7918064
2. S. Singh, T. Kariveda, J. D. Gupta and K. Bhattacharya, "Handwritten words recognition for legal amounts of bank cheques in English script" 2015 Eighth International Conference on Advances in Pattern Recognition (ICAPR), Kolkata, 2015, pp. 1-5. doi: 10.1109/ICAPR.2015.7050716
3. S. S. Gonge and A. A. Ghatol, "Combined DWT-DCT digital Water- marking Technique Software Used for CTS of Bank." 2014 International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT), Ghaziabad, 2014, pp. 776- 783. doi: 10.1109/ICI- CICT.2014.6781379
4. Raghavendra S. P and A. Danti, "A novel recognition of Indian bank cheques based on invariant geometrical features" 2015 International Conference on Trends in Automation, Communications and Computing Technology (I-TACT-15), Bangalore, 2015, pp. 1- 5. doi: 10.1109/ITACT.2015.7492682
5. M. Rajender and R. Pal, "Detection of manipulated cheque images in Cheque Truncation System using mismatch in pixels" 2014 2nd International Conference on Business and Information Management (ICBIM), Durgapur, 2014, pp. 30-35. doi: 10.1109/ICBIM.2014.6970928.
6. P. Dansena, K. Pramod Kumar and R. Pal, "Line based extraction of important regions from a cheque image" 2015 Eighth International Conference on Contemporary Computing (IC3), Noida, 2015, pp. 183- 189. doi: 10.1109/IC3.2015.7346676.
7. A. Sharma and V. Chaurasia, "Removal of high density salt-and-pepper noise by recursive enhanced median ltering" 2014 2nd International Conference on Emerging Technology Trends in Electronics, Communication and Networking, Surat, 2014, pp. 1-4. doi: 10.1109/ET2ECN.2014.7044971.