iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** III **Month of publication:** March 2018

DOI: http://doi.org/10.22214/ijraset.2018.3420

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue III, March 2018- Available at www.ijraset.com

Cheque Authentication and Verification using Automatic Scanning Machine

[1]Prof. Sudhakar Hallur, Amruta. Kulkarni[2]
[1,] Department of ECE [2]Department of BCA and BBA, KLS Gogte Institute of Technology, Belagavi

Abstract: ***From the earlier days, the conventional method of filling up a credit form in the respective banks for the deposition of the cheque and need to submit it. The disadvantages of this system are that the follow-up or the enquiry for the crediting of the cheque need to be done and also manual intervention is very much needed. To eliminate these disadvantages, an automated system which includes a QR code scanner and authenticator at the back-end. The check included with a QR code is scanned of which information obtained is verified with the details of the person's account in the database maintained at the bank server. Once the authentication is done, the amount specified in the cheque of the respective bank and from respective account is being transferred to the intended person's bank account. This mode of transaction reduces human intervention and instant transfer is possible.***

Keywords: Encryption, Cheque, QR-code, Server, Authentication, Verification.

I. INTRODUCTION

From the earlier days, the conventional method of filling up a credit form in the respective banks for the deposition of the cheque and need to submit it. The disadvantages of this system are that the follow-up or the enquiry for the crediting of the cheque need to be done and also manual intervention is very much needed. There are various real life examples where the person loses his cheque or cheque's validity may expire due to no time availability or cheque may tear-off or old cheque and new cheque exchange limitations or manual interventions or different rules and regulations of different banks.

To overcome the real life examples mentioned in the previous section, a provision for including the QR code on the cheque has to be done by the bank who is issuing the cheque. This cheque's QR code which includes an information of Payee, Name of the bank of the payee, amount, digital signature, check validity, Account Number, Aadhar Card Number, PAN Number, from bank to be transferred, Address of the branch of the bank, etc. The QR code is scanned at an ATM machine which includes the QR code scanning provision. After scanning of the cheque, the cheque may be dropped at the scanning machine as a proof of transaction.

II. MOTIVATION

Recent incident involved a state-wide gang that mastered the art of stealing and encashing cheques from ATM drop boxes has been striking at will in different cities such as Ahmedabad, Vadodara, Surat and Mumbai the gang had stolen cheques and siphoned off money worth lakhs of rupees within a matter of few days. The gang worked professionally and stole cheques that were dropped in the drop box in the ATMs. The details on the cheque's such as name of the person on whom the cheque has been drawn or the amount was altered. A person among the gang had opened a fake bank account with the similar name on the cheque and then the amount was being transferred to that account. To avoid such incidents of tampering of a cheque, an encryption of the details of the cheque is necessary which also provides increased security.[1]

III. LITERATURE SURVEY

To increase banking automation and provide more comfort to customers, Bank has installed CDMs at selected branches and e-Lobbies. The CDMs are self- operated without intervention of bank staff. The machines accept the cheques and also provides additional facility of account name /number verification for credit to the correct account. CDMs have gained popularity as cheques can be deposited even after bank working hours. Here the user has to insert his account number and the details of the user is displayed on the screen after validation. On confirmation the customer has to enter the cheque amount. On placing the cheque, the MICR line from the cheque is read and validated and the details of the customer are displayed on the screen. On successful transaction a receipt is being returned to the user. The major disadvantage here is that the customer have to again manually enter the details such as amount which may be mistyped which inturn will result in an unauthenticated user and also reduced security.[2] One can deposit the check online. To deposit a check online, initially a person has to enroll himself as a cheque depositor in association

©IJRASET (UGC Approved Journal): All Rights are Reserved

to his account. Either the person can deposit the check online using his personalized login and then entering the details of the cheque such as MICR line, cheque number, Amount, name, etc. or can download the application of the bank to which the person has to deposit or credit the money. The user is logged in using his credentials and once he logs in, deposit the cheque by initially endorsing it on the backside with the signature. The photograph of the endorsed cheque is being taken and is uploaded onto the server via the application. Once the amount is entered, it is validated with the amount to be transferred. Finally the check is deposited. Disadvantage of this system involved a lot manual work is to be done in terms of photograph quality being hampered, etc. [3] Another method involves the scanning of the complete cheque via a mobile downloaded bank application which allows the user to take the photograph of the complete cheque that has been issued. The image processing of the cheque is later done using an Optical Character Recognition (OCR) algorithm which reads all the details of the cheque and later auto- populates it to their respective fields which can later be again verified manually with all the details of the cheque. This method simplifies the entry of the details by just scanning mechanism but the risk here involves the optical character recognition where the characters such as the amount may be misinterpreted. Ex: 1 may be recognized as 7. This misinterpretation is due to the image quality or the distortions occurred in a cheque due to folding, soiling etc. [4]. In the recent days, some banks have started issuing eftCheque which intends to do all the manual fillup work on the mobile application itself. This provision can be availed by writing the cheque to a mobile number of the customer's choice on the mobile app. Deposit the cheque by scanning the current image of the physical real cheque with all the attributes and the parameters clearly mentioned on it. The photograph of the attested cheque (cheque signed by the cheque depositor) is also to be uploaded to the application. Once the cheque is transferred or deposited, the customer can track the status of the issued cheque to/from their account. The customer can also retrieve the transaction history of any cheques that he has made.[5].

IV. METHODOLOGY

Initially the current cheque deposition system was studied. The study revealed the various critical aspects of security and the issues related to the cheque deposition system. Literature survey with respect to the previous implemented methods were done. Advantages and Disadvantages of the previous methods were chalked out. The need for security and encryption for the transfer / deposition of the cheques was the head out. The hardware and the software requirements were studied. Algorithms for implementing the QR code is studied. Mechanism for QR Code scanning is chalked. After the complete feasibility is checked the implementation is done. The methodology figure may be as shown in the figure 1 below.

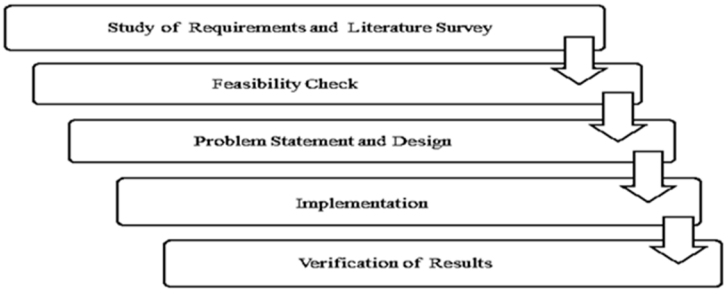


Fig 1. Implementation Methodology

V. BLOCK DIAGRAM

The block diagram of the following process is as shown in the figure 2 below

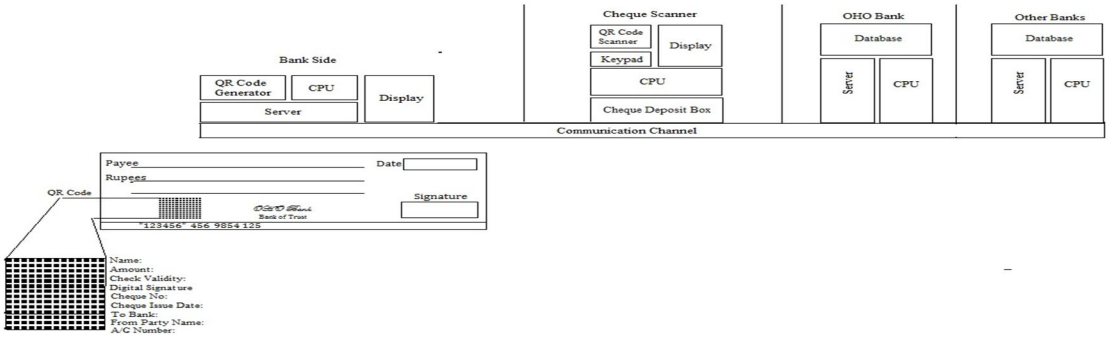


Fig 2. Block Diagram

Initially the cheque is being issued by some bank which includes the following parameters associated with it such as Payee Name, Amount, Cheque Validity, Digital Signature, Cheque Number, Cheque Issue Date, To Bank, From Party Name, Account Number and other parameters. These following parameters are encrypted into a QR code and are printed on the left side of the cheque as shown above. The cheque with an encrypted QR code is being issued to the user. The user / customer gets the cheque issued and then goes to an Scanning machine which can be readily included within an ATM machine. The customer places his cheque and is scanned. The user is prompted to enter his 4 digit PIN via a keyboard. Upon entering the pin, it is validated with the user's information within the database of the bank server if the cheque issued connected via a synchronous communication channel which uses an encryption of 128 bit SSL Encryption such that no third party tries to extract the information in between. Once the data is validated from the bank server, the complete information is displayed on the screen on the scanning machine side. Once the information is displayed, the user can click the "Enter" button or "Transfer" button on the screen. The system internally then checks whether the customer is of the same bank (in this above figure, it is OHO bank) or a customer of some other banks. If the customer is of the same bank then the transaction occurs within the bank itself and the details are updated into the database and the transaction acknowledgement number or print slip is returned to the customer. If the customer is of some other bank, then the user will be prompted with the entry of the PIN again since it is an outside own banking network. Upon entering the PIN, the communication is made via the communication channel using the same 128 bit SSL encryption and the transaction is processed and updated within the database of that bank.

VI. WORKING

The webpage has been developed such as all the information such as Payee, Amount(In Words), validity and other details to be entered on the cheque is being entered online and clicked on Generate QR Code button. This initiates information to be embedded via QR Code on the cheque is printed using a Thermal QR code printer NEO pro Thermal Printer. The webpage developed for the following process is as shown in the figure 3 below.

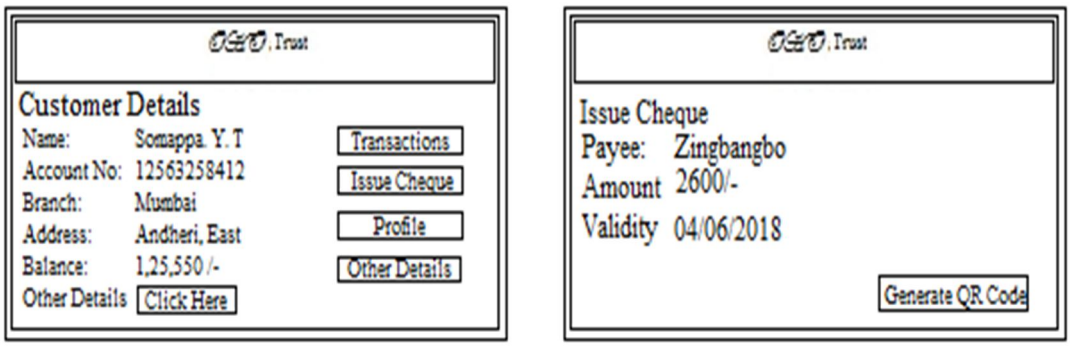


Fig 3. Webpage of bank for QR code generation

The thermal printer is interfaced with the desktop using a USB interface. The QR code generated on the screen is sent to the thermal printer. The QR code is attached on the left side of the cheque, a sticky plastic is coated on it and is issued to the customer as shown in the figure 4.

Fig 4(a).NEO Pro Thermal Printer

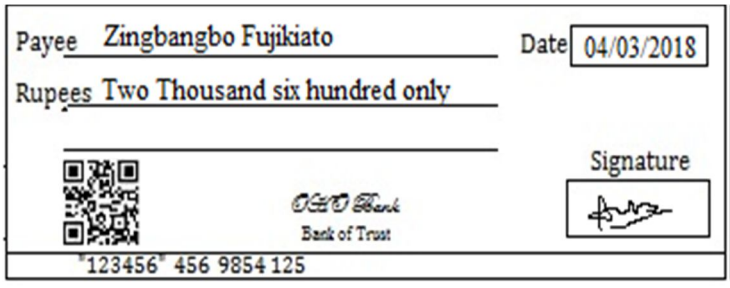


Fig 4 (b). QR embedded on Cheque

The cheque embedded with the QR code above is then placed on the scanner area for the QR code to be scanned. The user is being prompted with a 4 digit PIN on entering which the authentication processes is initiated.

©IJRASET (UGC Approved Journal): All Rights are Reserved

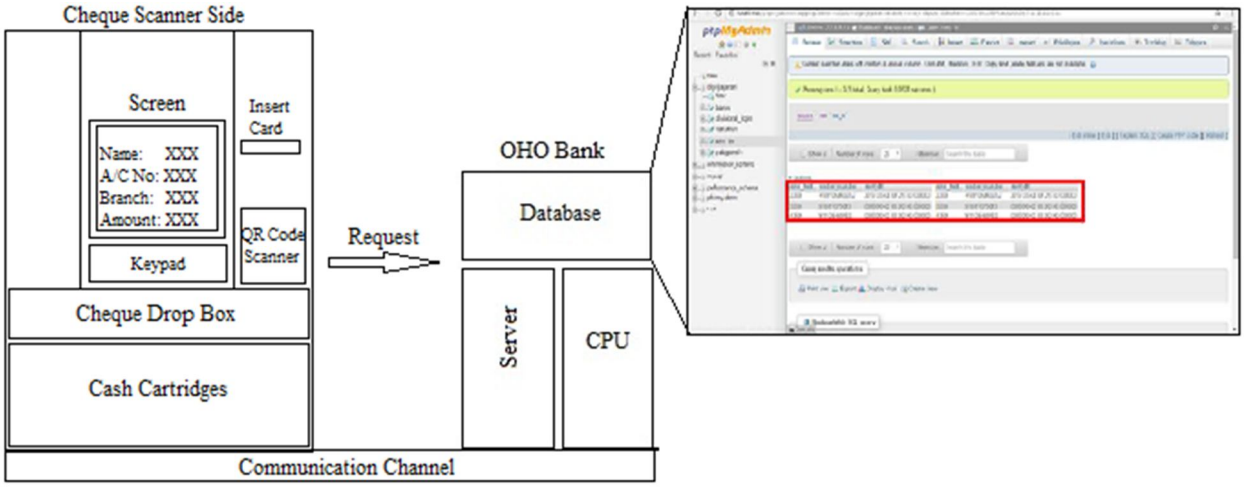


Fig 5. Authentication Process

On entering the 4 digit PIN, the details of the cheque that are being scanned along with the PIN are encrypted together and are sent to the purpose of authentication to the Bank server. The Bank Server decrypts and then later validates the request containing the details of the cheque. The database is being referred for validating the cheque details. The database used here is PhpMyAdmin. The database is maintained with a table of rows which contains the details of various users against the account number of the particular user. Once the details are validated, an acknowledgement is issued to the user and the transfer is completed if within the same bank.

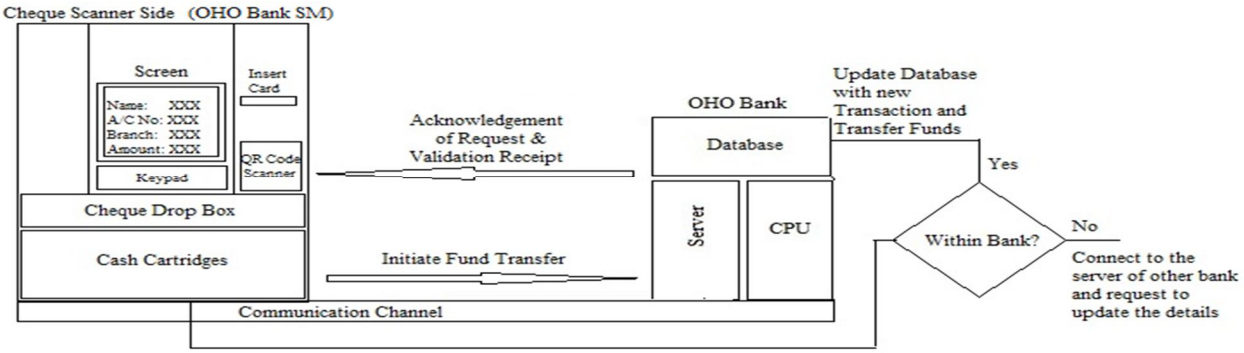


Fig 6. Authentication Receipt and Fund Transfer in Own Network

If the cheque issued is of bank of some outside the own network. Then the database is updated after the authenticationis being done with that particular Bank Server.

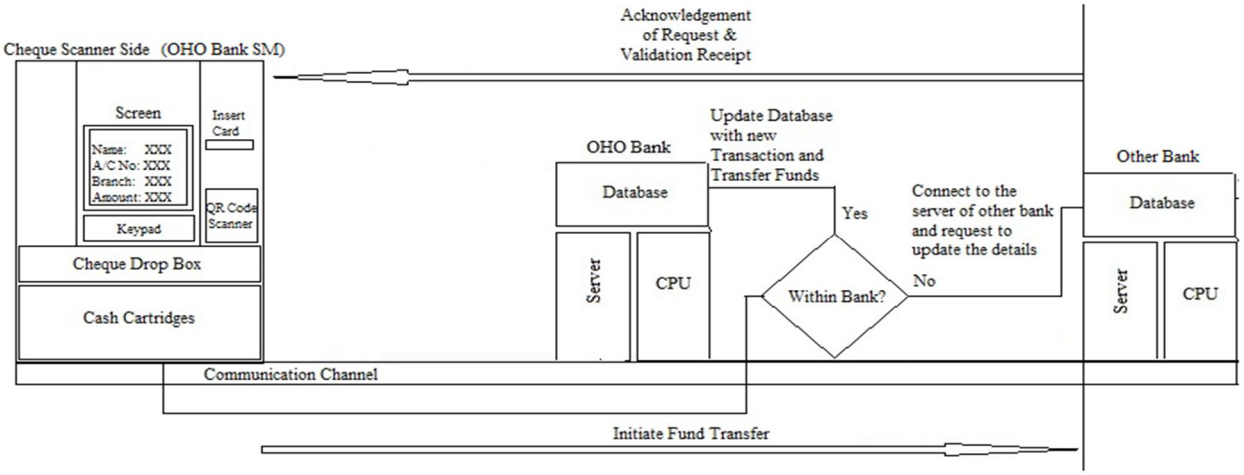


Fig 7. Authentication Receipt and Fund Transfer in Other Network

©IJRASET (UGC Approved Journal): All Rights are Reserved

VII. PROGRAMMING AND TOOLS USED

A. For Webpage Designing

The DBMS involves the creation of the database, tables and then the code for it. The DBMS is created using PhPMyAdmin. The creation of the DB simply involves a clicking on new, giving and name and clicking on Create.

Tables have to be created within the database. Click on New and set the parameters. The parameters can be set using different datatypes such as Int, Bigint, Char, Varchar, etc. The data to be loaded or fetched from the database is done using php language. The calculations are also done by embedding the mathematical calculations into the php coding script. The designs for the HTML pages are done as per the requirement.

B. Interfacing the Thermal Printer

The thermal printer is interfaced with the computer by installing the Device-drivers as specified in the installation list. The drivers helps the user to install and uninstall the printer as and when required.

C. Encryption/ Decryption Algorithm

SSL uses public-key encryption to exchange a session key between the client and server; this session key is used to encrypt the http transaction (both request and response). Each transaction uses a different session key so that even if someone did manage to decrypt a transaction, that would not mean that they would have found the server's secret key; if they wanted to decrypt another transaction, they'd need to spend as much time and effort on the second transaction as they did on the first. It is extremely difficult to decode the data. Servers and browsers do encryption ranging from a 40-bit secret key to a 128-bit secret key, that is to say '2 to the 40th power' or '2 to the 128th power'. The usage of 40 bits is vulnerable to a Brute Force Attack where as 128-bits is a very tough opponent to decode and decrypt. Here, this encoding and decoding of SSL has been done using C++ language.

D. Communication using TCP/IP

The communication in between the bank and the ASM machine is via the communication channel usin TCP/IP. The communication is programmed via Socket programming. This programming is done in the C Language. The complete handshaking process is initiated and completed in between ASM and bank.

VIII. MERITS AND DEMERITS

A. Merits

1) Followup is eliminated since the process of cheque encashment is automated.
2) The cheque can be encashed within time-period of validity.
3) Even if the cheque is torn and if QR code is not hampered, Then encashment can be done.
4) Old cheque and new cheque limitations can be overcome.
5) Manual interventions is not at all required
6) The Different rules and regulations of various banks are nowhere applied due to automation.

B. Demerits

1) No remedy if the cheque is lost.
2) The customer should compulsorily get it encashed within the validity deadline.

C. Applications

Similar kind of applications can be done with the ones which has the time deadline parameters come into place such as Tax Updation, Any Document Upload, etc.

IX. CONCLUSION

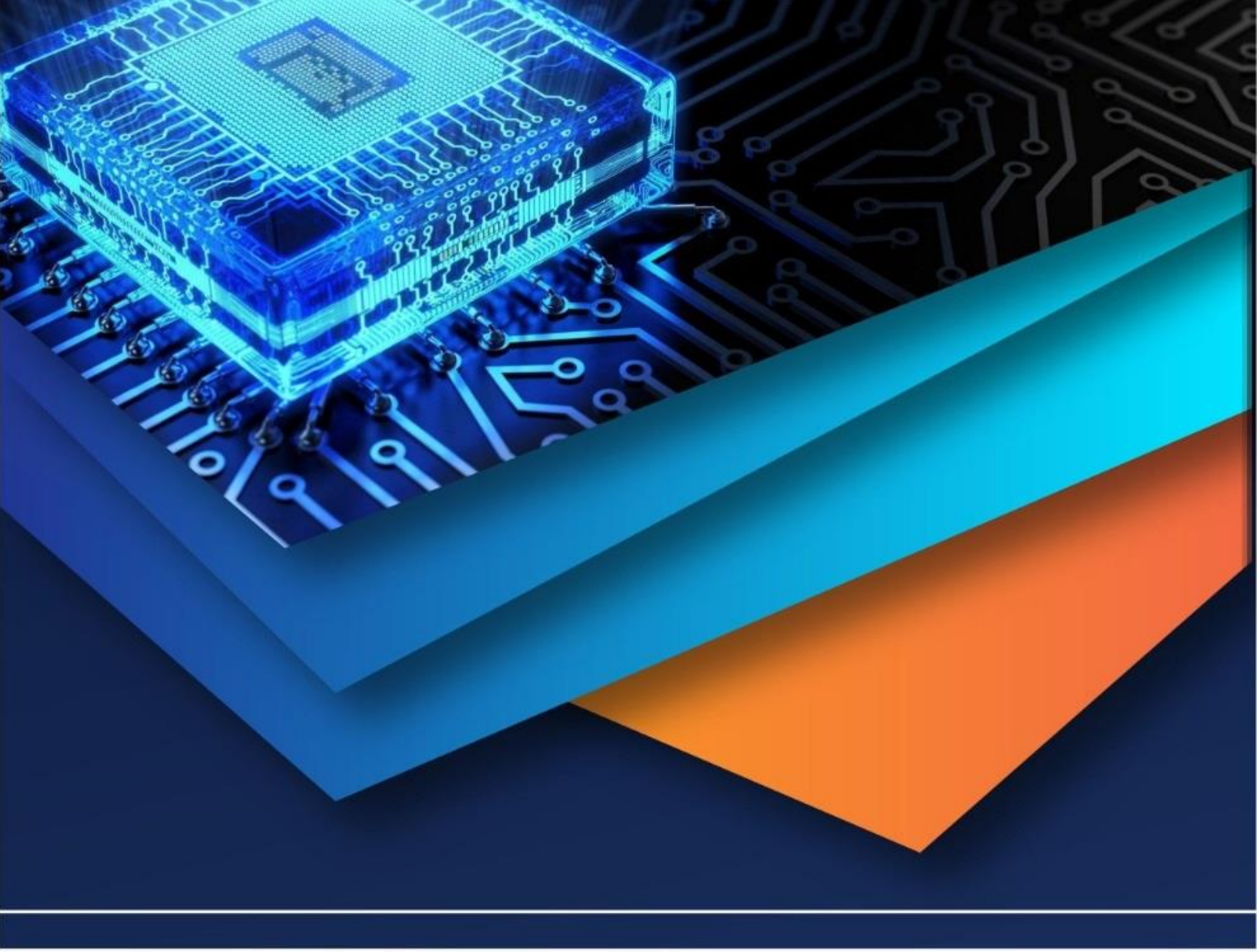
The disadvantages of the follow-up or the enquiry for the crediting of the cheque or cheque's validity may expire due to no time availability or cheque may tear-off or old cheque and new cheque exchange limitations or manual interventions or different rules and regulations of different banks is overcome by the system mentioned above. A very simple method which eliminates all the simple problems which are followed within time.

©IJRASET (UGC Approved Journal): All Rights are Reserved

REFERENCES

[1] Think before dropping cheques: Cheque fraud https://timesofindia.indiatimes.com/city/vadodara/Think-before-dropping-cheques-in-ATM-deposit box/articleshow/11827148.cms , Feb 9th, 2012.
[2] Deposit: http://www.unionbankofindia.co.in/Cheque_Deposit.aspx
[3] Wikipedia: Check how to drop a cheque online : https://www.wikihow.com/Deposit-a-Check-Online
[4] Cheque detection using OCR, Furkushi, Nagatao, May 2016.
[5] eftcheques Apps: https://www.icicibank.com/mobile-banking/eftCheques-app.page
[6] Socket Programming: http://www.csd.uoc.gr/~hy556/material/tutorials/cs556-3rd-tutorial.pdf

©IJRASET (UGC Approved Journal): All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)