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A Novel Bank Authentication for Secure Transactions

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ABSTRACT: Increasing digital technology has revolutionized the life of people. The banking system in today's world is open to threats of fraud and cyber-attacks. Since today's banking system is built on centralized databases, it is easy for an attacker to penetrate in any such database which will easily compromise all the information and data of the customers of the bank. This vulnerability of today's banking industry are often reduced by re-building the banking systems on top of block chain technology, which can remove the centralized database architecture and decentralize the data over the block chain, thus reducing the threat of database being hacked. Since the transactions over the block chain technology is verified by each and each nodes of the chain, it'll make the transactions more and safer thus making the overall banking system faster and secure.

KEYWORDS: Cyber security, Block chain, Visual Cryptography.

I.INTRODUCTION

One of the essential issues that the banking system is confronting today is the expansion in misrepresentation and digital assaults. Presently, the greater part of managing an account frameworks are based on a centralized database, which makes them more defenceless to digital assaults as all data is put away locally in one place. Additionally, numerous banking frameworks are obsolete and are, in this manner, more helpless against new types of digital assaults. By building new managing an account framework over block chain innovation, the possibility for extortion and information burglary can be decreased generously as the disseminated innovation secures records; it stores, scrambles and checks each and every piece of information in an exchange. Accordingly, if any information rupture or false movement happen, it would be made promptly evident to all gatherings who have consent to get to the exchange information on the record.

II.RELATED WORK

Block chain is considered as the important technological innovation behind Bit coin system. It facilitates the transaction payment process by creating a decentralized, general ledger to improve regulatory capacity and remove unnecessary intermediaries. At present, the block chain technology has been employed in the financial industry for a wide range of experimental application and exploration. In this paper, we firstly analyze the principle architecture and the technical characteristics of block chain [1]. Visual cryptography is a powerful technique in which a secret image can be divided into two or more shares and the decryption can be done using human visual system. Visual cryptography has wide range of applications like in biometrics, print online banking, cloud computing, internet voting, etc.The basic method of visual cryptography is a secret image is hidden into two or more shares which on superimposing will recover the hidden image. During the recovery it is not possible to get the original image due to various reasons like pixel expansion, contrast, storage, security, image types. Therefore various techniques have been developed to address these issues. A survey has been done on various visual cryptography schemes based on the number of secret, pixel expansion, type of share generated, image format, and number of secret image[2]. In today's world of digital communication, as technology progresses, there is more and more attention required on image security. Many visual cryptography algorithms have been suggested and digital watermarking in association with visual cryptography is also proposed for more image security. An image watermarking model based on progressive visual cryptography is proposed to decide optimal number of shares. A study on implementation of meaningful shares in combination with visual cryptography scheme for secret images is carried out for implementation of algorithm. Visual cryptography techniques are used to create meaningful shares. In this paper analysis of different algorithms are performed which

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generates meaningful shares. These shares are watermarked with cover images. After transmission of these watermarked images to receiving end, the receiving end will extract the shares from watermarked images and stacking of these extracted meaningful shares will generate the original secret image. Combination of Digital watermarking and visual cryptography adds enhanced security to secret images [3]. Evolved from the Merkle Tree, Block chain Technology is a fully decentralized digital register which keeps a secure history of data exchanges. The decentralization aspect of Block chain Technology does away the need of any central authority for managing it. In this paper we present a comprehensive overview on block chain technology. We first begin by shedding light on the fundamentals of Block chain Technology then we analyze some typical algorithms used in various block chains. Block chain, the foundation of Bit coin, has received extensive attention recently. Being an ineradicable data storing technology, Block chain can be used not only in financial assets but anything which has some value. However, being a human invention, downsides are even here in the block chain technology such as scalability issues, security problems, and not-so-user-friendly for non-technical people. Next, with common technical issues we have talked about the recent advances. We lastly conclude this paper by laying out possible future developments of block chain technology [4]. The block chain technology has revolutionized the digital currency space with the pioneering crypto currency platform named Bit coin. From an abstract perspective, a block chain is a distributed ledger capable of maintaining an immutable log of transactions happening in a network. In recent years, this technology has attracted significant scientific interest in research areas beyond the financial sector, one of them being the Internet of Things (IoT). In this context, the block chain is seen as the missing link toward building a truly decentralized, trustless, and secure environment for the IoT and, in this survey, we aim to shape a coherent and comprehensive picture of the current state-of-the-art efforts in this direction. We start with fundamental working principles of block chains and how block chain-based systems achieve the characteristics of decentralization, security, and audit ability. From there, we build our narrative on the challenges posed by the current centralized IoT models, followed by recent advances made both in industry and research to solve these challenges and effectively use block chains to provide a decentralized, secure medium for the IoT [5].Unlike the electoral system, there are many conventional uses of paper in its implementation. The aspect of security and transparency is a threat from still widespread election with the conventional system. General elections still use a centralized system, where in one organization manages it. Some of the problems that can occur in traditional electoral systems is with the organization that has full control over the database and system. It is possible to tamper with the database of considerable opportunities. Block chain technology is one of solutions, because it embraces a decentralized system and the entire database are owned by many users. Block chain itself has been used in the Bit coin system known as the decentralized Bank system. By adopting block chain in the distribution of databases on e-voting systems one can reduce the cheating sources of database manipulation. This project aims to implement voting result using block chain algorithm from every place of election. Unlike Bit coin with its Proof of Work, this will be a method based on a predetermined turn on the system for each node in the built of block chain[6].

III.PROPOSED SYSTEM

In the proposed system, the traditional architecture followed by banks which consists of a centralized database will be removed. The data will be largely distributed over the block chain which will make the banking systems decentralized and which will make the data ore secure .The transactions over the block chain will be in form of encrypted tokens which will be verified by each nodes on the block chain. To make any transaction valid, the nodes of the block chain will have to give the proof of the processing it has done in order to verify the transaction. That proof will be taken in terms of the amount of processing done. The above mentioned transaction system has two benefits. Firstly it will make the transactions faster by removing the intermediate processes employed in the normal transactions and secondly it will become nearly impossible for an individual to hack the system as it will require a huge amount of processing power which no one has.

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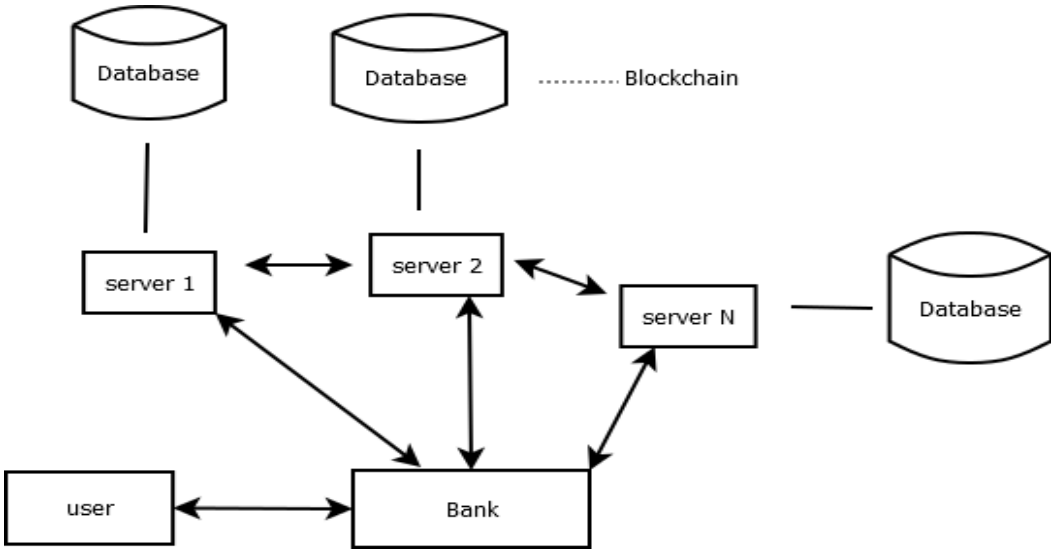

Figure 1: Block chain system architecture

- To solve the problem of authentication, we are proposing an algorithm based on image processing, i.e. visual cryptography which may be a special encryption technique to cover information in images in such how that it often decrypted by the human sensory system . But the encryption technique needs cryptographic computation to divide the image into variety of parts let N.

- The customer has to present the share images during all of his transactions. This share is stacked with the first share which will be received through mail and the other will be system generated to get the original image. Then decoding method is used to take the hidden password/captcha on acceptance or rejection of the output and authenticate the customer.

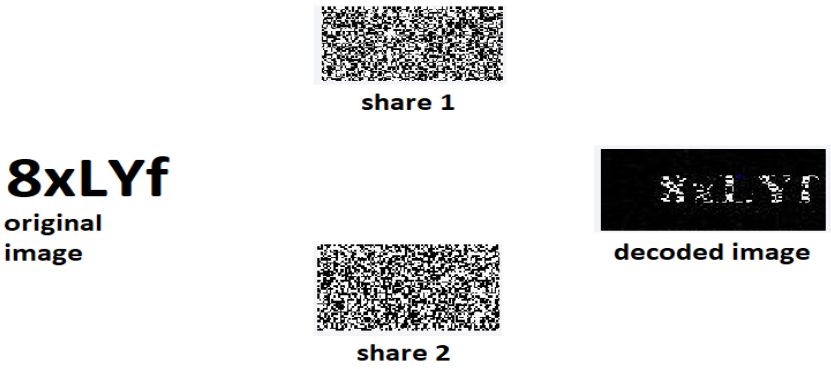

Figure 2: Visual cryptography mechanism

A.MATHEMATICAL MODEL

Let S be the whole System,
Set S = {I, P, O} Where,
Input (I) represented as: I = {I0, I1, I2, I3, I4}
I0 = User Registration Details
I1 = User Login
I2 = Transaction Id
I3 = User transaction amount
I4 = User transaction

Process (P) represented as: P = {P0, P1, P2, P3, P4}

P0 = Login by user-side
P1 = Approval of login
P2 = visual cryptography
P3 = block chain
P4 = user transaction process

Output (O) represented as: O = {O0, O1, O2, O3}
O0 = show user details
O1 = receiver id
O2 = user transaction successful
O3 = view balance

B.PROPOSED SYSTEM ALGORITHM

Input: a set N of users in the network
Input: a blockchain called B, b_n is the last block on the blockchain
Input: T, the deadline of transaction
1. While CurrentTime() < T
2. Foreach n∈ N
3. numOfTransaction←Dotransaction();
4. ForeachnumOfTransaction∈ Transaction
5. transactionmax←compare(numOfTransaction);
6. m←SelectMiner();
7. b_n+1 ←GetTrans(α);
8. B →AddBlock(m, B, b_b);
9. Foreach n ∈ N
10. Broadcast(n)

IV.RESULT

The mechanism of Transaction with our proposed system.

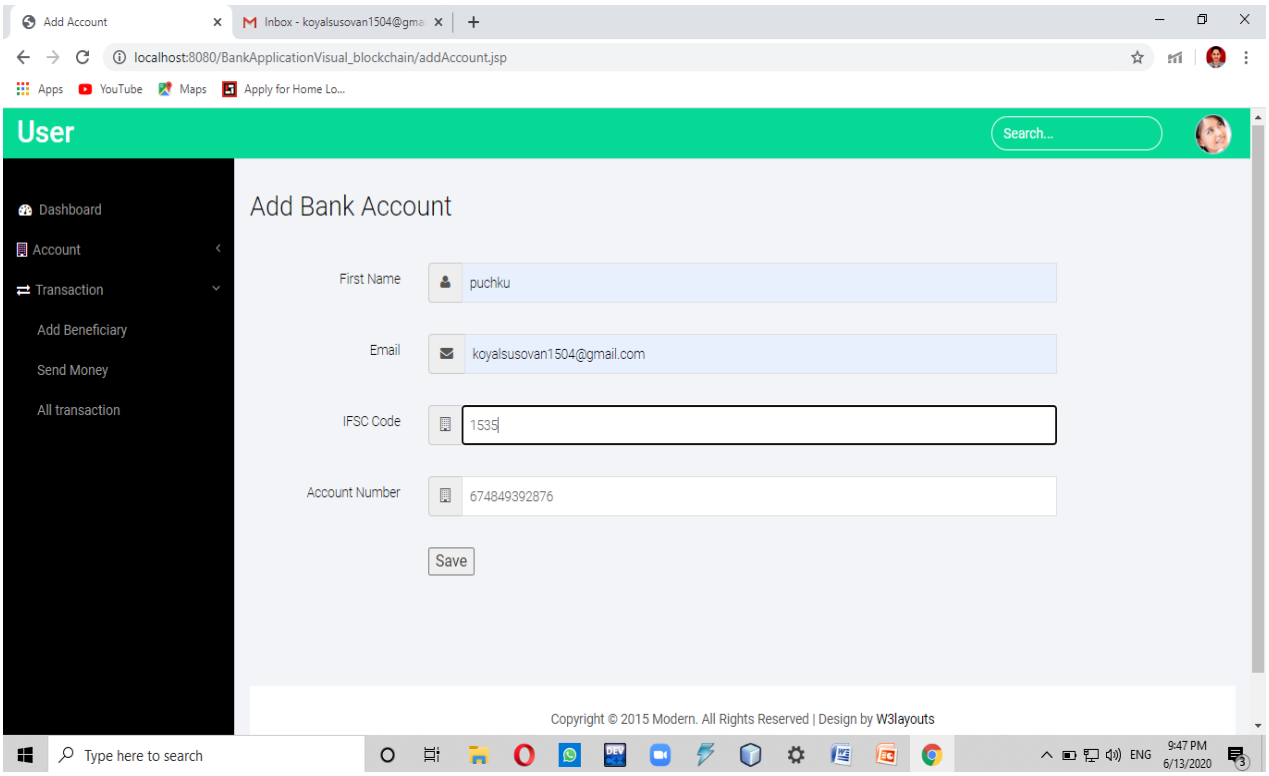

Fig 3. Adding beneficiary

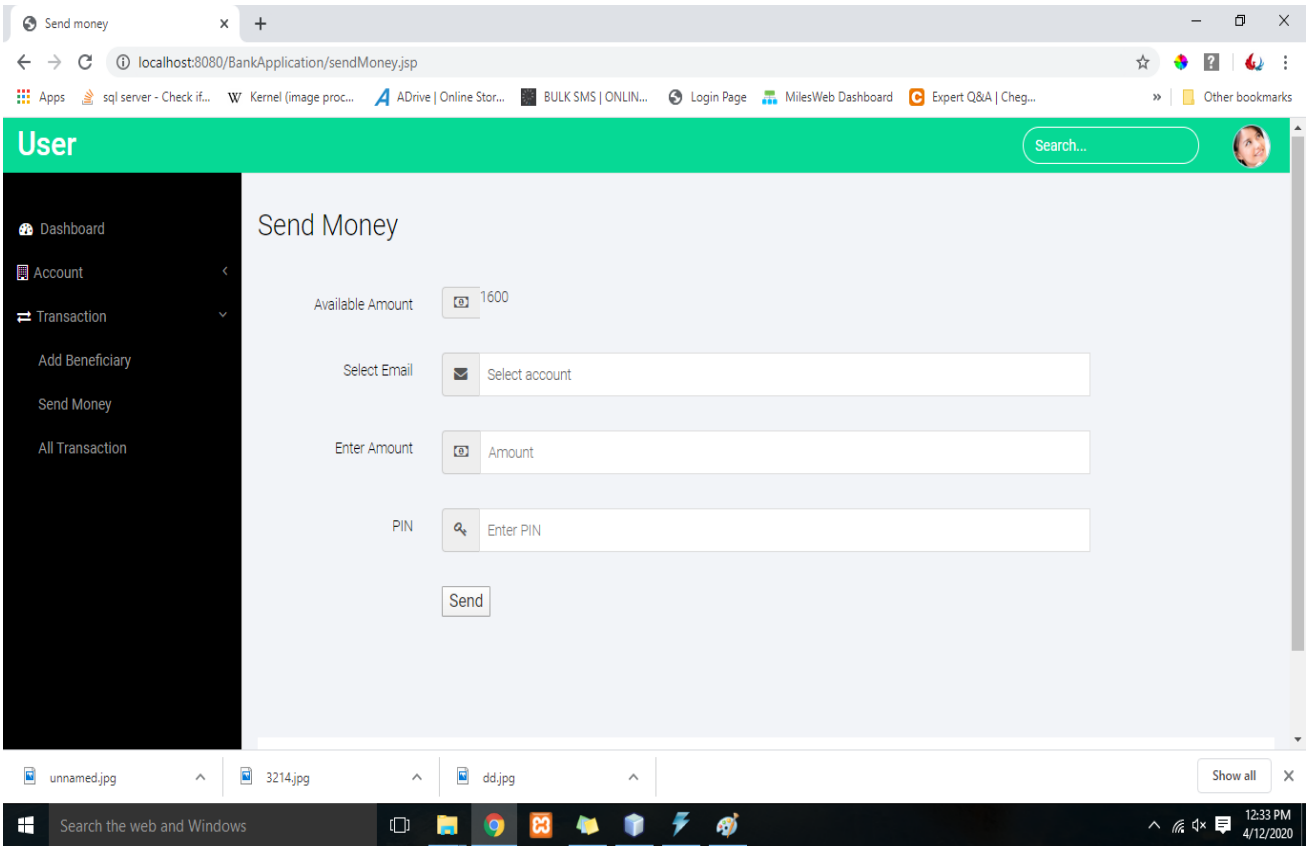

Fig 4. Sending Money to the beneficiary

Fig 5. Saving first share1 image received in mail

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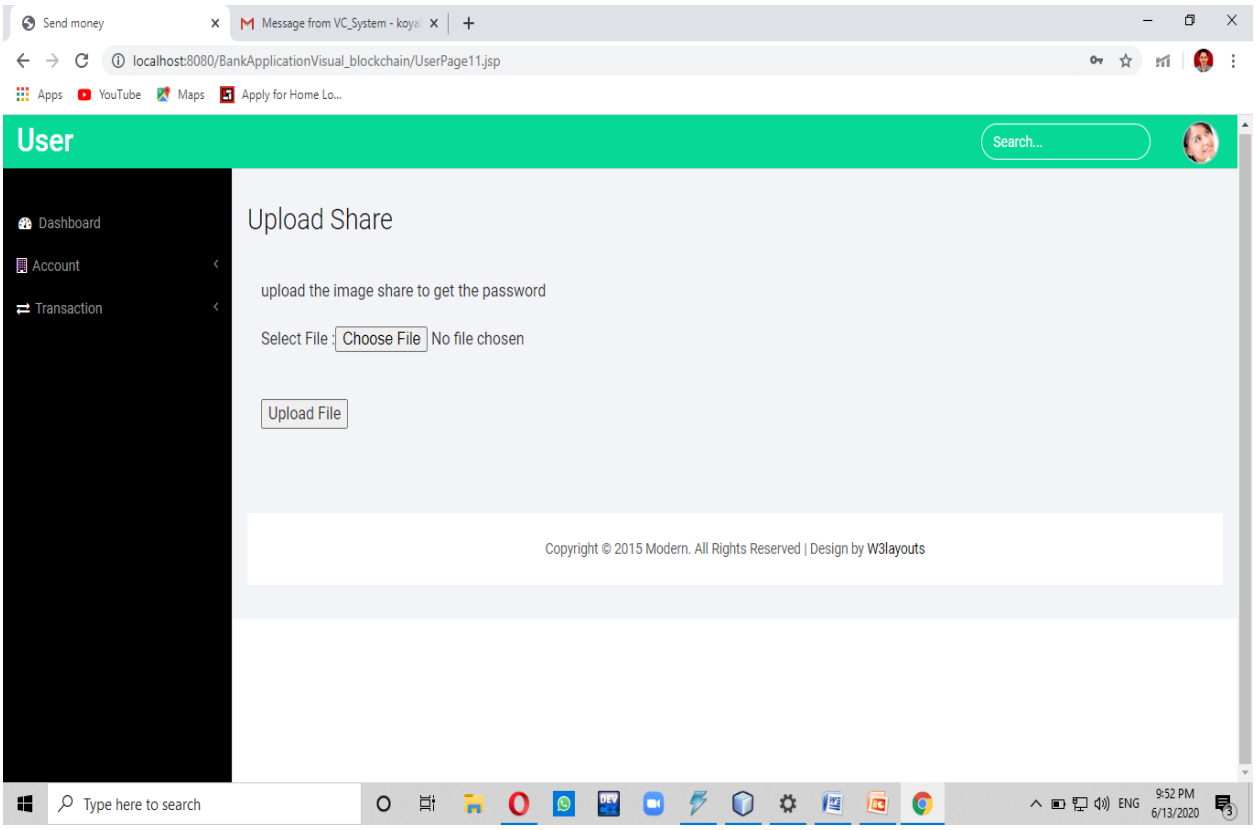

Fig 6. Upload the saved share1 image

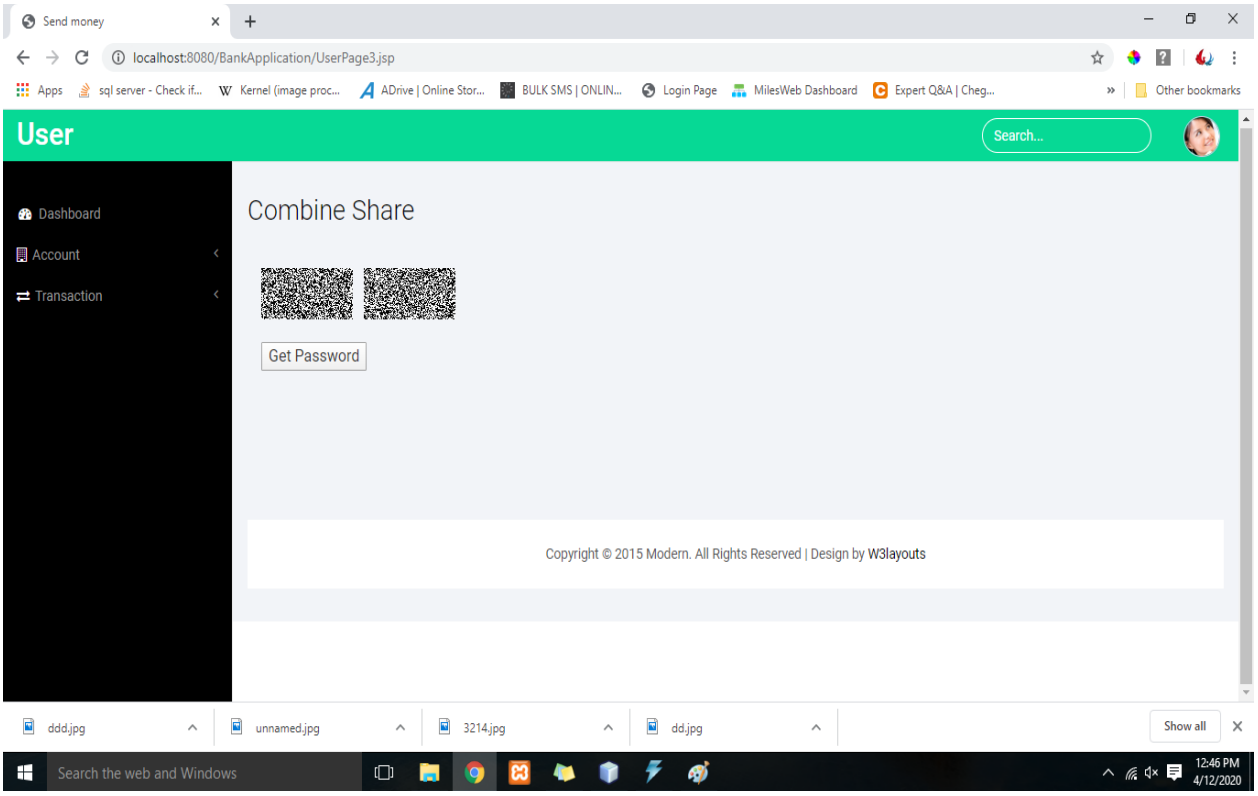

Fig 7. Combine share1 and share2 images

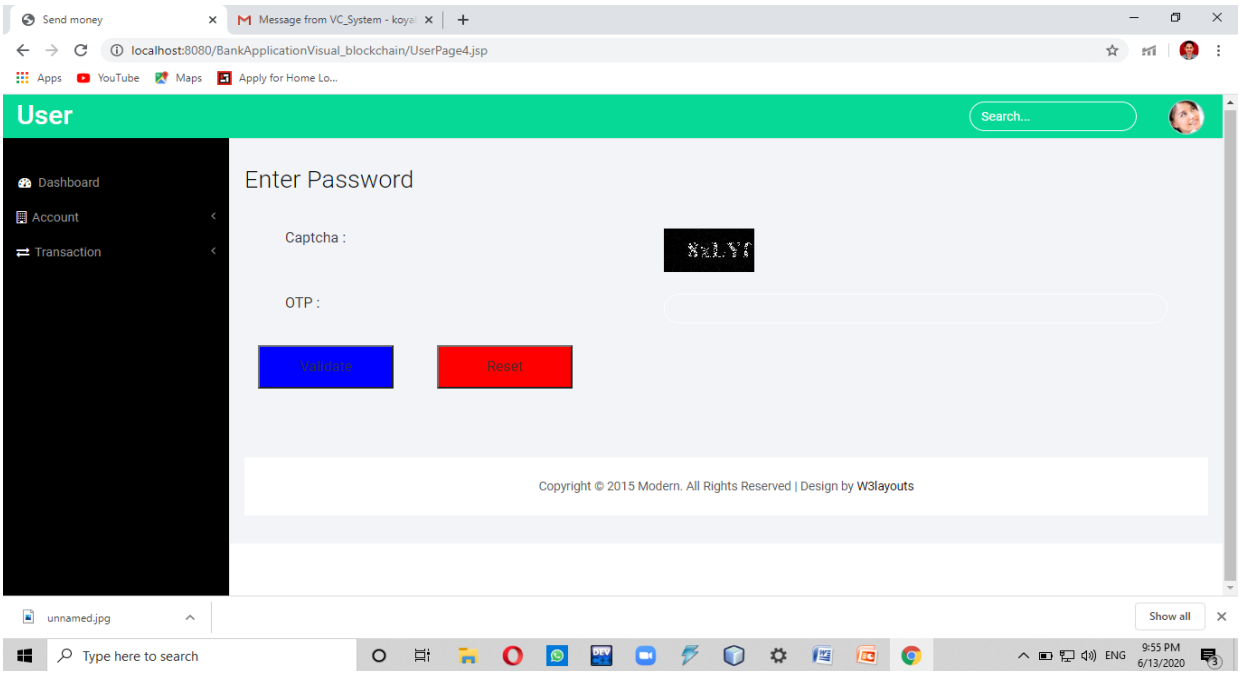

Fig 8. Validate the Captcha which is generated after combining 2 shares

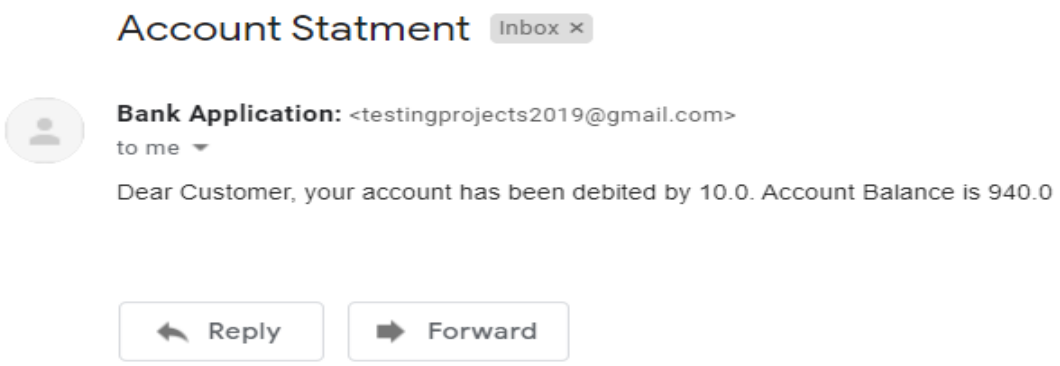

Fig 9. Balance debit confirmation message from bank

V.CONCLUSION

The proposed system is designed to provide a secure data and a trustworthy banking system. Block chain itself has been utilized in the bit coin system referred to as the decentralized Bank system. By adopting block chain in the distribution of databases on banking systems one can reduce the cheating sources of database manipulation. By using the visual cryptography algorithm we can prevent the hacking of the transaction.

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BIOGRAPHY

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