

An Approach of Secured Ecommerce Transaction Model without using Credit or Debit Card

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Abstract- E-Commerce or e-business consists of the buying and selling of products or services over computer networks including Internet. The amount of trade conducted electronically has grown with widespread Internet usage.

Security of transaction process in E-Commerce is more difficult to implement and there is no privacy of information as the information passes through the internet may be accessed by strangers.

In this paper we proposed an idea for secure e-commerce transaction. In this mechanism customer buy products from seller through online without using their credit or debit card details. The payment is done between seller and customer bank account. The purchased amount is being verified by customer bank from the customer and also by the seller bank from the seller. The purchased amount is being transferred from customer account to seller account after the proper verification of the amount from both the seller and the customer end.

This new idea is more secured compared to existing online payment system as we are making transaction between the seller and customer bank account without using the credit or debit card.

Keywords- E-Commerce Security, Online Fund Transfer, Verification of Amount from seller and customer.

I. INTRODUCTION

E-commerce is a term for any type of business, or commercial transaction that provides services for buying and selling products or exchange information across the internet. The various applications of E-commerce are online shopping, online banking, group buying, e-tickets etc. An online transaction system is a payment method that authorizes transfer of funds over an electronic fund transfer (EFT). In online transaction consumers buy products from seller with credit or debit cards.[1][2][3]

Online transaction in E-commerce is not secure. Credit card details or personal Information passes through the internet may be misused by other.[2][3][5] Fig-1 represents the process of an E-Commerce transaction.

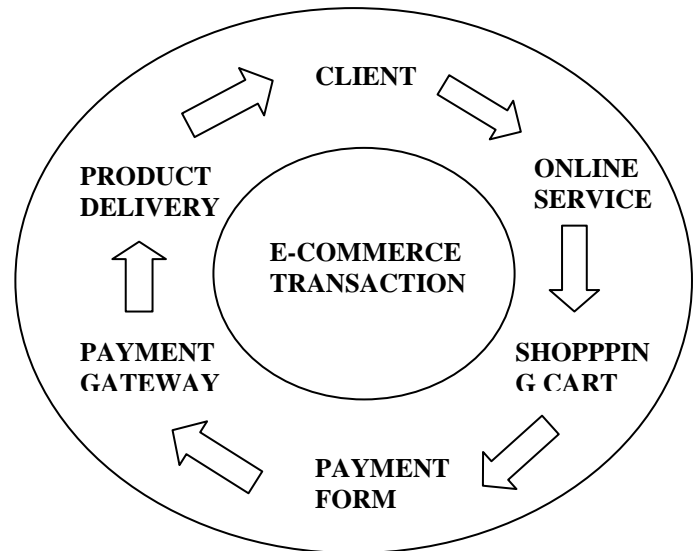


Fig 1: Transaction of E-Commerce

Here, we have proposed idea for purchase product through online. We have developed new transaction process where Customer buy product through online without using credit or debit cards. Customer and seller directly communicate with their bank for transaction. Here, Customer send message to their bank for purchasing product from seller and send their bank name, branch name without Account number to seller. Seller forwards all details of customer to their bank. So Seller bank send request message to customer bank for transaction. Then customer bank send SMS to customer mobile for confirmation. If customer agree for transaction then customer send confirm message to their bank. After that Customer bank make payment to seller bank by send SMS to customer mobile that transaction successful. At last seller bank send confirmation to seller that transaction complete. [4][5]

Uses credit or debit card details for transaction are not secured because credit card or debit card details directly connected to bank account. So this proposed idea is more secure process. Here, credit card or debit card no, personnel identification no are not used for transaction and transaction commit after the confirmation of customer. [5][6]

In this paper section II describes entire procedure about transaction, section III describes Result and discussion, section IV draws conclusion.

II. ENTIRE PROCEDURE

We proposed a new idea for secure transaction without using credit or debit card. This transaction process is based on online where sellers and buyers bank are communicate with each other for transaction. Customer and Seller both should have valid email-id and bank Account.

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It is little more slow process comparing with other transaction, but it will be the best solution for secure transaction across the Internet. The whole process is describing in Fig-2.

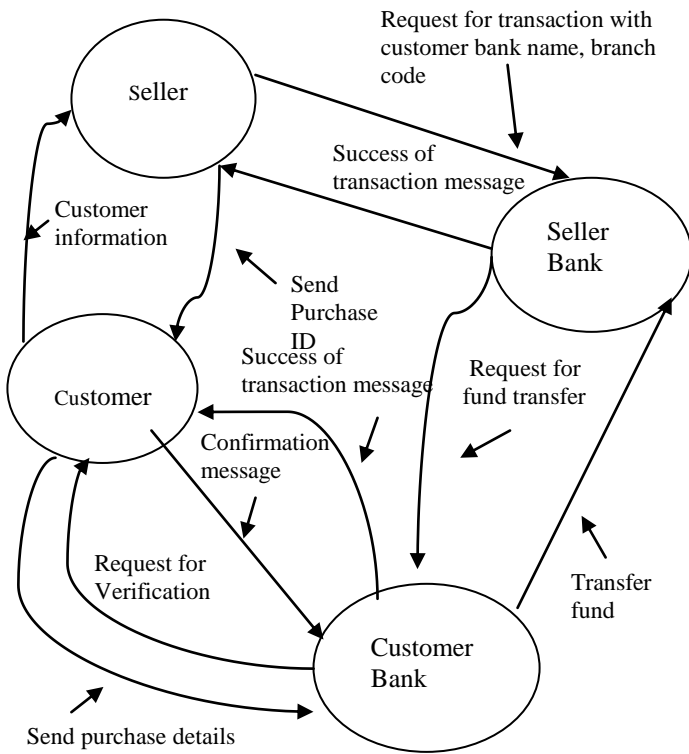


Fig 2: Proposed Model of Transaction

A) Step-1: Customer place order for purchase product.

Customer find their products from seller website and select products for purchase .After selecting the product ,Customer submit all the related information like name ,address, e -mail id ,contact number and selected products to the seller site.

B) Step-2: Submission Customer bank details to seller.

Seller creates a Unique PURCHASE ID and sends it to the Customer Mobile number by SMS or in e-mail id. Customer send details about his/her name of transaction bank, branch code to the seller. Then seller forwards those customer details to their own bank .Also seller send request to their bank for conduct the transaction between customer and seller. PURCHASE ID: This is a unique ID for each transaction. PURCHASE ID is created when customer buy product from seller. PURCHASE ID contains five parts. PURCHASE ID format is given below.

Date.	Time.	Item id.	Model	Serial
dd/mm/yy	hh:mm:ss		no.	no.

Example: 03/05/13.07:30:05.mob.N6363.1110231

C) Step3: Submission of information to customer bank and searching for customer account no.

Customer sends information to their own bank with purchase details of products with PURCHASE ID from his/her mobile number by SMS or from e-mail id. Customer bank find out the customer Account number by matching mobile number or

mail id as e-mail id and mobile number are unique for each customer. In this stage customer inform their own bank that they want to buy product before the transaction process start.

D) Step4: Submission of information to customer bank by seller bank and request for fund transfer.

Seller bank send purchase details such as unique PURCHASE ID, seller account number, bank name, branch code, product details, and customer details to customer bank and send request to make payment for products.

E) Step5: Verification purchase details by customer bank.

Customer bank verifies purchase details with the PURCHASE ID supplied by both customer and seller. Then customer bank send SMS with PURCHASE ID and unique 6 digit code to customer mobile and also in email id of customer for confirmation. Unique 6 digit code is the unique security code which created by customer bank against PURCHASE ID.

Example: Unique code: 176913

F) Step6: Customer confirmation to their own bank.

Customer send confirm message to customer bank from his/her mobile number or e-mail id by verifying PURCHASE ID and unique 6 digit code to make payment to seller.

G) Step7: Fund transfer between seller bank and customer bank

If customer bank confirmed by customer for transaction. Then Customer bank transfer total amount from customer account to seller account.

H) Step 8: Confirmation for completion of transaction to customer

Customer bank sends messages to customer mobile and to e-mail id that transaction successful.

I) Step9: Confirmation for completion of transaction to seller

Seller bank send message to seller mobile and e-mail id that transaction successful. Fig-3 represents the entire transaction process.

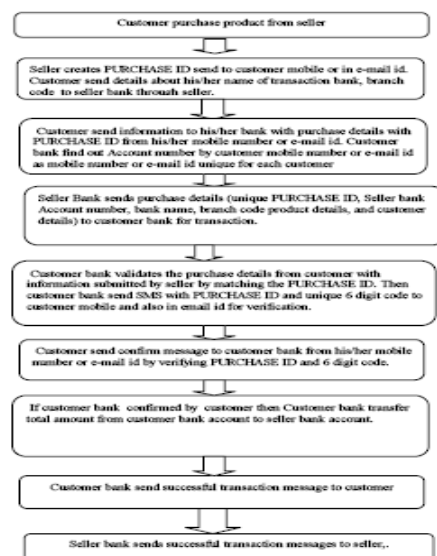


Fig 3: Entire Transaction Process between Customer and Seller

We have also expressed entire transaction's activity by using a Sequence Diagram. Sequence Diagram is the diagram which represents the sequence or order of activities to complete the entire transaction.

Fig 4 represents the communication between different objects for transaction and the sequence of activities

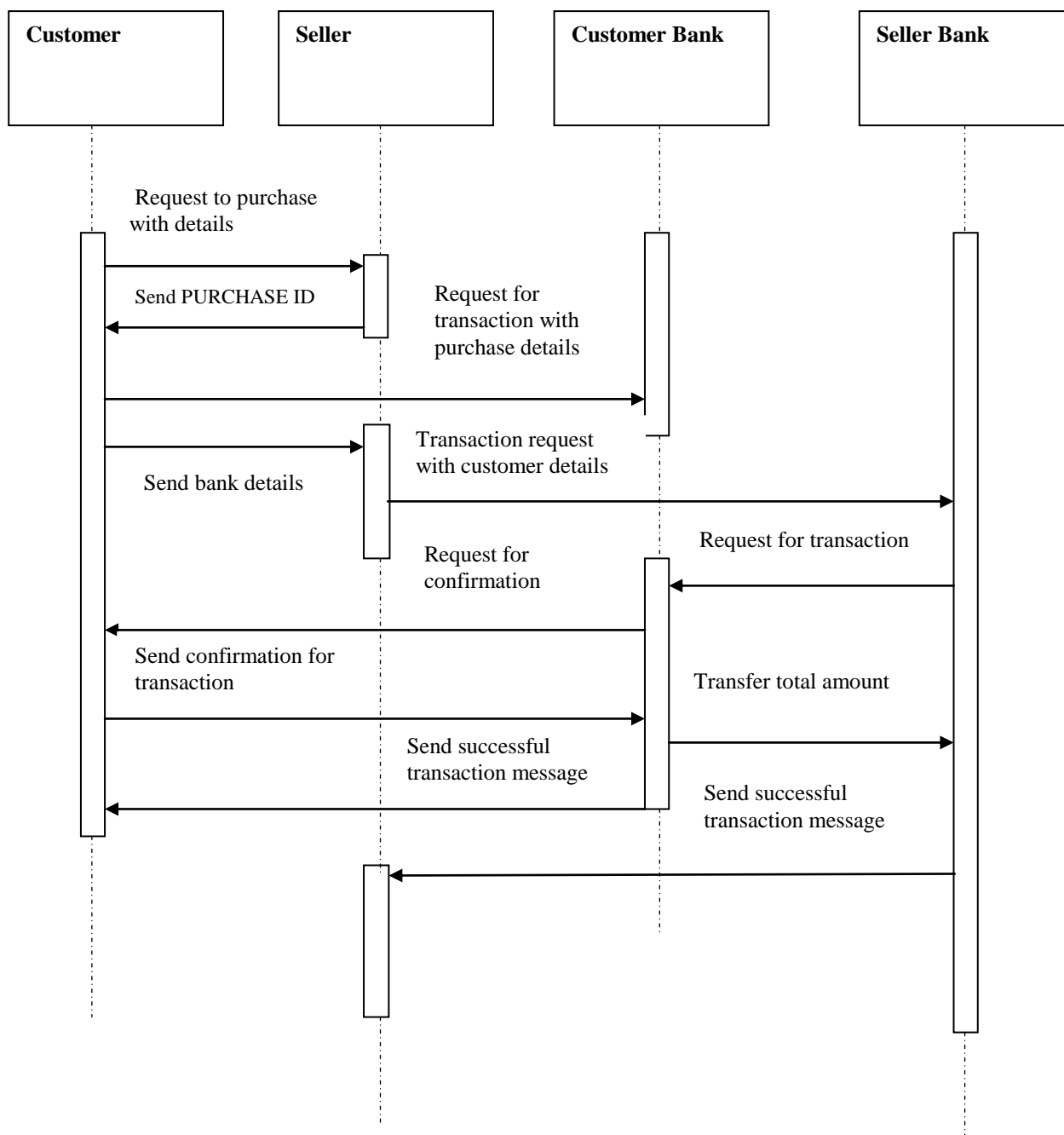


Fig 4: Sequence Diagram for the Transaction Process

III. RESULT & DISCUSSION

1. Mr. jone makes order for purchase mobile phone from NOKIA company website. Mr. Jone select NOKIA C2 and submit this information to NOKIA Company

Name: Mr. Jone,
Address: Kolkata, WB, India
Mobile number: xxxxxxxx15
E-mail id: Jone@gm.com

2. Purchase ID created by NOKIA send it to his mobile no. jone submits order to NOKIA Company with following details

Name: Mr. Jone
Bank name: ICICI
Branch code: ICICI107

NOKIA Company forwards this information to his bank HSBC.

3. Mr. Jone sends following information to his bank ICICI from his mobile (Mobile No: 9956784390) or from his email id (E-mail Id: Jone@gm.com).

Product Name: NOKIA C2
Product Serial No: 1110251
Product Cost: 3000
PURCHASEID: 03/05/13.07:30:05.mob.NC2.1110251

Then ICICI bank finds out account number (xxxx234) of Jone by matching his mobile no: 9956784390 of by matching his email id (Jone@gm.com) from bank's database.

4. NOKIA Company's bank HSBC sends request to Jone's bank ICICI for transaction with following details

NOKIA Account number: xxx579
Product Name: NOKIA C2
Product Serial No: 1110251
Product Cost: 3000
PURCHASEID: 03/05/13.07:30:05.mob.NC2.1110251

5. After verification of information by matching the purchase id submitted by Jone and NOKIA'S bank HSBS, ICICI bank send SMS to Jone's mobile no: 9956784390 with Purchase ID and 6 digit secure codes for confirmation.

Example:

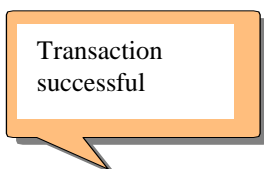
Message from ICICI
Secure code: 235179
PURCHASE ID: x.x.x.x.1110251

6. Jone confirms to his bank ICICI by sending message with 6 digit code: 235179 SMS from his mobile no: 9956784390.

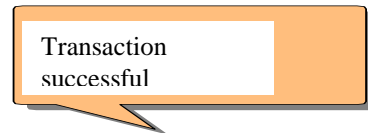
Message from Jone.
Secure code: 235179
PURCHASE ID: x.x.x.x.1110251

7. After receiving the confirmation message from Jone ICICI bank transfer Rs.3000 from Jone's account no: xxx234 to NOKIA bank's account no: xxx579.

8. Then ICICI bank send successful completion message to the mobile of Mr. Jone.



9. Then HSBC send message to NOKIA with successful completion of transaction message.



In this way the entire E-commerce transaction process is done in between the seller and customer bank account without the use of credit or debit cards.

IV. CONCLUSION

In this paper we implement new idea of E-commerce transaction between customer and seller without using credit cards. Customer purchase product from seller through online. Whole transaction between customer and seller is done through their bank with their valid account no without using credit card details.

The benefit of this proposed idea is to make secure E-commerce transaction between customer and seller as any Credit or debit card details are not being used in this transaction process. Credit or debit card details are not secure for transaction because bank account details are associated with credit or debit card transaction. Thus enhance the security.

Customer account number is not been disclosed to others and the verification of fund transfer is done by customer bank by sending the secured code to the customer mobile. Thus the security is increased as the customer doesn't have to share any information regarding his account and the secure code is only being known to customer.

As we have only focused into security concern so we have used several numbers of verifications thus the process take more time rather than existing E-commerce transactions. In future we want to implement a faster one.

REFERENCES

1. R. Kalakota A. B. Whinston "Electronic Commerce", Pearson Education, 1997, pp 3-12.
2. E Turbun, D. King, J. Lee, T. Peng, Liang D. Debborrah, "Electronic Commerce 2010", Pearson Education, 2010, pp .
3. J. Schuller "Teach yourself UML In 24 Hours". SAMS, 2004, pp 448-451.
4. Satti, M.M; Garner, B.J; Nagrial, M.H (2002, 25-28 Nov) on Information security standards for e-businesses IEEE Communication Systems, pp 641-645 vol.2. Available: <http://www.ieexplore.ieee.org>
5. Zhang Yifei, (20-22 aug, 2010) "Research on online payment pattern and security strategy of e-commerce", IEEE Internet Technology and Applications pp 1-4. Available : <http://www.ieexplore.ieee.org>
6. https://en.wikipedia.org/wiki/E-commerce_payment_system, E-commerce payment system

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