M-Payment between Customer and Merchant Using Cheque Image E-mail

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Abstract: - On M-commerce background customer inspired by the broadcast receiving agents for their purchase. There are six types of broadcasting agents e.g. T.V Broadcast, Telephone Broadcast, Radio Broadcast, Web cast, Satellite Broadcast, Cable Radio Broadcast. There are six entities which play an important role for presenting M-Payment scheme, e.g., Broadcast Receiving Agent, Customer, Merchant, Mobile Operator, Bank Module. The customer is paying amount for purchase of Item or services e.g., recharge T.V program, recharge mobile phone bill, etc. The customer sends cheque image e-mail through his own internet competent mobile to the merchant mobile. Here cheque image is the image of real bank cheque that is written and signed. The image of written cheque will obtained through mobile camera of good pixel. The sent e-mail from mobile is displaying e-mail id, cheque image document. M-payment is establishing interaction between customer and merchants through bank module and mobile operators.

Keyword: M-Commerce

I. INTRODUCTION

The work is focusing on certain issues based on m-payments. Broadcast capability, costly infrastructure, authentication, security and charges are found as issues for the existing payment system. Customer and merchant from both sides, they can not establish m-payment transaction on any time with proper authentication and with security level. From customer side and merchant side, they both need perfect, secure payment transaction of m-payment. The work is focusing on how to overcome these issues and problem. The work is suggesting solution for M-payment which is secured authentic and hopeful on m-commerce background. The Fig 1 is indicating complete transaction of M-Payment.

Broadcast receiving agents: There are six broadcast receiving agents [1]. Broadcast receiving agents receives the contents or advertise what ever the broadcast agents are propagating, e.g., (1) T.V Broadcast Agents (2) Telephone Broadcast Agents (3) Radio Broadcast Agents (4) Webcast Agent (5) Satellite Broadcast Agents (6) Cable Radio Broadcast Agents are six main broadcast receiving agents. And there are six broadcast receiving agents.

M-commerce: The economic transaction for purchasing goods, services and payments performing through electronics devices e.g., mobile device or computer system. The commerce can be established through the device which has mobility.

M-Payments: Electronic payment against economic activity performing through the device which has mobility.

Bank Module: An online application which has capacity to do authentication, banking services, and provide security. The bank module identifies the cheque image and proceeds for clearance of amount. The module keeps customers and merchant's bank account details in to database. For establishing M-payment, the module is identifying mobile, electronic, and network device. The online server has capacity to load the bank module.

Mobile Banking: Banking services can be performed through mobile device.

II. LITERATURE REVIEW

J. Trivedi, Dr. J. Pandya, Dr. A. Jani, P. Trivedi, Broadcasting and It's Receiving Agent Based M- commerce Business Model, published in Research in Management, 2012, The work has indicated full length explanation of Broadcasting and It's Receiving Agent Based M-commerce Business Model,P Soni, M-Payment between bank using SMS, The research work has instructed the SMS based m-commerce payment capability. Paul J. M.Havinga, Gerard J.M.Smit, Arne Helme, Serve of electronic payment methods and systems.

III. M-COMMERCE EXISTING PAYMENT SCHEMES

SMS Based Payment: Payment performs through mobile based short message service within two or more banking accounts [7]. There is mobile operator who use and installed payment application and all information about his credit or debit card in the SIM. The customer is transferring money to the market account using this application. The application is functioning in the device which performs encryption of his credit or debit card

information along with money to transfer to the operator. There are requests and configuration of the user and if it find proper it will transfer the money to the account of the customer to the merchant account. If there are more operators identifies, then complexity arises. If there are more different banks accounts identify then complexity arise. They need third party Gateways. The Gateways will remove the complexity.The advantages of the scheme is its simplicity in use If the customer has a phone number of merchant he can perform transaction easily.

WAP and GPRS Based Application: The another type of mobile payment system is an application based on WAP or GPRS. The application is using wireless application protocol. There is wireless application protocol gateways and perform transaction on networks. The application and the configuration of devices and network facility must be faster. The websites or server sometimes do not perform quickly and it be proved very slowly. Some time mobile telephone is thick client installed.

Reverse SMS Billing: There are special smart messages services recognize as premium SMS. The cost of goods and sending messages included in the cost SMS. The customer uses a service numbers and name the money to be transferred, along with the merchant number. He obtained an SMS from the operator, which is build accordingly. There is verification of reverse billing SMS. Extra amount is paying for receiving a special type of SMS. Digital content of ring tone, music, and video is an example of the special types of message. The advantage is there are no charges need to setup the system. A system is without more investments for payment the bill.

Mobile Operator Based Payment: A customer recharges his mobile phone for his communication purpose. An amount is credited to his account at mobile operator sides. There are so many items/services which the customer can purchase on the basis of his recharge credited. The airtel, a mobile operator is selling his 2G and 3G Internet services. The advertisement is broadcasting at mobile phone/websites and customer is inspired and has done the telephone recharge of Indian 50 Rs, There is airtel application for purchasing GPRS. The customer can dial using *567# and obtained main menu like 1.Rs 5(30 MB/1 Day), 2. Rs 6 (200 MB FB /1 day), 3. Rs.7(45MB/1 day),4.Rs 8(200 mb whatsap/1 day)Rs.19(125MB/4 days),6. More. Suppose customer wants to purchase Rs(45 Mb/1day) he will select 3rd option from the menu. Deduction performs from his telephone recharge. And there are number of Items/services a customer purchase on the basis of credit what ever the recharge has done. Message will receive about activation and deactivation and purchase the Item/services. Major advantages are, it is very simple menu based system for purchase. Here bank is not involved. No more infrastructure need. Drawback is the customer can purchase only in reserved amount what he has recharged for mobile phone.

IV. ISSUES

Broadcast Capability: Lack of broadcast capability in the present payment schemes. There is no advertise to be displayed on broadcast receiving agent so that a user can not inspired by the current updates, Goods must not be available as early as possible through broadcasting and broadcast receiving agent. So it is the need that advertisement must be displayed so that customer have knowledge about the updates and do the proper transaction.

Costly Infrastructure: Infrastructure plays an important role. The requirement is of the advance mobile which using GPRS and WAP. Thus appropriate Infrastructure need.

*Authentication and Security***:** A mobile can use by any person and do transaction on behalf of the authorize user so need proper authentication. There is some use of credit card and debit card information in to mobile for the purpose of payment. So there are certain chances of display the data to the unauthorized person.

Charges: M-payment is more costly because there are certain mediators. The mediator is important for establishing economic transaction. The mediator performs important services between customer and merchants.

5 Solutions

Use of Broadcast Capabilities: The present work is utilizing broadcast receiving agents for receiving advertisement and display the matter. The customer is obtaining the updated matter for the current purchase. Merchant is sending goods to the broadcasting agents and the customer is obtaining the goods through the broadcast receiving agent.

Cheap Infrastructure: e-mail service is so cheaper almost there is no cost for a email if you have internet connection. No need of any extra infrastructure. The customer is doing transaction through his own mobile and pay bill for the purchase.

Authentication and security: A bank module is keeping the record for customer as well as merchant's information as database. The bank module compares the customer-merchant E-mail, Name, MPIN, Phone Number, and Account Balance from the database. The image of the banks cheque is also compare with application program which contain optical character reader application and certain algorithm based program. The level of security will be achieved by the bank module.

Charges: There is no need to pay extra charges for the service to make successful m-payment system. The work suggests the existing technology of internet and mobile device for economic transaction. There is no need to pay extra service charges.

V.   M-PAYMENTS THROUGH BROADCASTING AGENTS BASED MODEL

The present work proposes m-payment schemes. M-Payments performing through cheque Image sent by customer and merchant through mobile. Customer is sending the cheque image of the real written amount and signed bank cheque. The image is obtained by his own good pixel mobile. The customer is sending the cheque as image document through e-mail to the merchant e-mail address against his purchase. Now merchant is observing the cheque image e-mail and forwarded to the bank module of the online server for clearing the amount. Bank keeps merchant's and customer's details into database. Bank module is performing through database and it plays an important role on customer and merchant transaction.
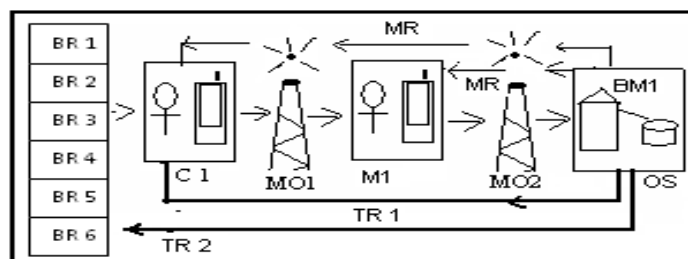

Fig. 1. Broadcasting Agents Based Model

BR1: Broadcast Receiving Agent 1, C1: Customer 1, MO1: Mobile Operator 1, MO2: Mobile Operator 2, M1: Merchant 1, BM1: Bank Module 1, MR: Message Receive, OS: Online Server, TR1: Goods Sends Physically, TR2: Goods Sends On Broadcasting Agents

Bank Module Performance:
 (I) Received E-mail Recognizing and Comparing with Database.
    1) Domain
    2) IP (Mobile IP)
    3) E-mail address.
 (II) Received Bank Cheque Image Recognize and Compare with Database
    1) Cheque Number
    2) Cheque Owner Detail
    3) Cheque Receiver Detail
(III) Achieve Authentication And Security Level
(IV) Transferring Balance or Fund
(V) Reduce Cheque Document Capability After One Time Use
(VI) Sending Messages To The Concern Parties
(VII) Tools and Technology Used and Its Related Work:
    1) Optical Character Recognizer for Cheque Image Recognize
    2) On Line Optical Character Recognizer for Cheque Image Recognize
       Example: www.onlineocr.net
    3) 3G or 2G Telephone Network or Internet for Transferring Data
Customer and merchant receive the message of amount transferred from customer's bank account to the merchant's bank account. Now merchant is sending items/ services/ goods/ Digital Goods to the customer on either physically or on broadcasting background as digital goods.

7 Data and Its Analysis
How the e-mail data is helpful? Received cheque image e-mail data for an economic transaction is useful for bank module. Merchant will send purchase item or service after completion of all tasks of bank module.
1. E-mail Received Node Data:
1)   Node: Jagdish Patel (Mobile Phone)
2)   Month, Time, Year: Dec 16 09:19:28 2014
3)   Senders E-mail Address: jagdish82patel@gmail.com
4)   Receivers E-mail Address: mrjlecturer@yahoo.com
5)   Domain Name and IP: domain of gmail.com designates 209.85.215.47
6)   Screen Shot 1. Mobile Photo of The Cheque Image Receive:

7) Screen Shot 2. OCR Out put of The Cheque Image:

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PROPRIETOR Plaase

2. E-mail Received Node Data:
1) Node: sumitpatel (Mobile phone)
2) Day Month Time Year: Wed, 17 Dec 2014 09:20:17 +0000
3) Senders E-mail Address: sumitpatelbcom@gmail.com
4) Receivers E-mail Address: mrjlecturer@yahoo.com
5) Domain Name IP: domain of gmail.com designates 209.85.220.52
6) Screen Shot 3. Mobile Photo of The Cheque Image Taken:

7) Screen Shot 4. OCR Out put:

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Table 1. Analysis in Tabular Format:

No	Content	Properly Recognige in e-mail	Half properly Recognige in e-mail	Not properly Recognige in e-mail	Not Properly Seen in e-mail	Internet Technology As recogniging Tool	OCR Technolgy Act As Recogniging Tool
1	Senders Node	√	×	×	×	√	×
2	Senders E-mail Addr.	√	×	×	×	√	×
3	Received E-mail Id	√	×	×	×	√	×
4	Domain Name	√	×	×	×	√	×
5	Image Cheque E-mail	×	√	×	×	×	√

VI.   CONCLUSIONS

The work has proposed M-payment schemes. The work has focused on past research related to the present work.
Existing payment schemes indicated with its advantages and drawback. M-commerce based payments, Issues

and solution instructed with. Work end with the m-commerce broadcasting agents based model which perform m-payment.

VII.   ACKNOWLEDGEMENT

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