Provision of Services through Mobile Applications: An Empirical Study

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Abstract: *As technology increases day by day, it's not limited to computer era it extends further in mobile technology. As mobile users has tremendously increased in last five years due to the vast use of internet and fast internet services. Users are using internet facility in mobiles for the various purposes like business, shopping, communication, etc. purposes. As every technology has pros and cons, in mobile technology especially in business sectors it has several disadvantages which forwardly referred as online or cyber crimes such as tampering with computer source documents, hacking, and forgery, financial crimes for e-business, identity theft, and mobile pornography. This paper provides a model for security purposes in e-business era and analysis of frauds or crimes related mobiles in various applications and also gives some directions to solve such major issues.*
Keywords: *Mobile Technology, Cyber space and online frauds*

I. Introduction

Mobile e-commerce is defined as all activities related to a commercial transaction conducted through communications networks that interface with wireless mobile devices [1]. We can say using internet, e-business has developed in mobile users are always connected and updates with the market now a days there are various online stores are available such as Paytm, Flipkart, Amazon, Snapdeal etc… which gives the update information about the market For communicating through social networking sites such as Facebook, Twitter, G-talk, Whatsup etc. mobile technology has used. With the use of mobile technology most of the people using internet facility for banking, online shopping, transactions etc.... When users are using the mobile for such applications the new name has given for this area m-commerce. The main thing for the security of m-commerce that user credentials to be kept secret, a high level of security should be ensured. Most of the people in India think that for using such application on mobile "are we having such infrastructure?" The answer is yes. In India the average data rate speed is 1.2 Mbps to 7.7 Mbps [2] [3]. In India approximately 200 million of peoples having smart phones [4]. Indian e-commerce rapidly growing because it got boost by the mobile communication. Because of the 4G Internet availability m-commerce growing very fast [5].

Why we should use the m-commerce, the reasons are
1. The device mobility. We can carry mobile phone anywhere.
2. 24×7 (All time) internet connectivity.
3. Personalization
4. 24×7 banking facility
5. Security

II. Applications of M-Commerce

As the mobile technology rapidly growing in various areas with the several applications some of are:
1. Air taxi provides the location based service
2. Ambulance or Air Ambulance provides the location based service
3. Mobile Advertising
4. Mobile entertainment services
5. Mobile TV
6. Mobile Shopping
7. Mobile Banking etc.

III. Literature Survey

Tarasewich et.al.,[1] presents some managerial and technological issues faced by individuals, companies, governments, and other entities. Mandaliya [2] presents the process of online transactions using mobile phones, its benefits and counterparts as well as the level of adoption of the m-commerce by the people and author concludes that with the pros there are lot of cons also presents of m-commerce but it expected to become much more popular in future. TRAI [3] TR's "my speed portal" gives the information about the Internet

speed provided by all ISPs in India and it also provide the average internet speed in India. Prakash and Balachandra, presents the security issues in wireless network and UMTS,LTE security features its network Architecture. Author also presents M-Commerce has become reality today. The support of large number of cellular network service providers with competing speed made user to use his mobile device as a transacting module rather than simply using it for making calls [5].

Giovanni presents the principal classes which participate in the mobile business industry and give an overview of their business models in which they argue that business models that explicitly address mobility, network effects and natural monopolies issues and that are profitable to all the different players needed to provide an end-to-end solution will be the most successful and sustainable [6]. Ngai and Gunasekaran classified five distinct categories: m-commerce theory and research, wireless network infrastructure, mobile middleware, wireless user infrastructure, and m-commerce applications and cases. They have given some suggestions for future research such as uses of (RFID) Radio frequency Identification which is more useful in future invention [7]. Antovski and Gusev proposed models of mobile payments are easy to implement considering the available technology infrastructure to offer a comfortable environment for secure mobile payment transactions [8]. Anthony et.al. presents relevance and potential role of m-commerce can play in the development of business environment and they also presents the applications of m-commerce and also gives the suggestions to improve the customer experience [9]. Singh Provides directions and guidelines for e-commerce security by which confidence of the customer e-commerce shopping should be improved [10]. While lot of work has been done on the m-commerce at out of India but in India very less work has implemented.

IV. Proposed Work

In this paper we are trying to simplify the M-commerce by a using following model. By using this model we can implement m-commerce more efficiently and securely.
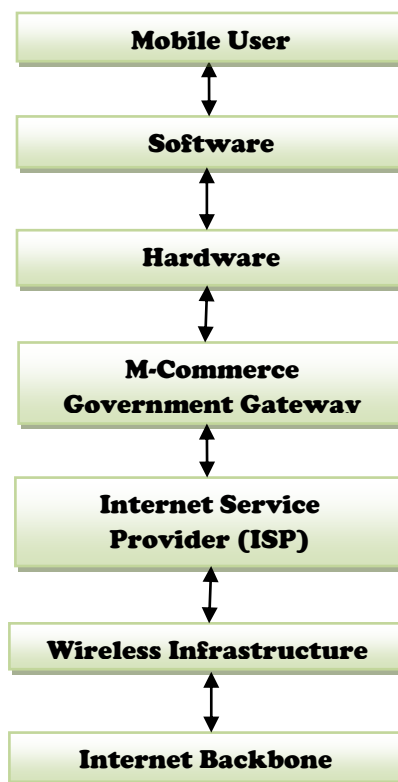

Fig. 1 Data flow in Mobile Commerce

The present model describes data flow for communication and the securities to be implemented in m-commerce for communication as well as e-business. For the proposed model the source level is Internet Backbone where the internet has been provided by specific telecom organizations for wireless infrastructure also which is the second level of the proposed model. At third level ISP provides the internet facility to mobile users. Our model highly recommend that for every transactions or the communications there should be one monitoring government gateway system for less frauds and there is no need to take extra efforts for collecting such information of the online transactions. To using all the facility of mobile commerce every Software and Hardware should be compatible on heterogonous platform, i.e. there are no such issues should arise that some

software is compatible with the hardware. In this model Security is maintained by every layer for the mobile users who are doing all such online transactions. Our proposed model Data flows at both directions. Every layer communicate with it's adjacent levers. This model is every simple to understand to implement and troubleshoot the problems arises in m-commerce.

V. Security Policies To Be Implemented

As every area having pros and cons, m-commerce also have cons, there are several crimes have registered. Internet is public network. Over this network we can make trades; this trades on the internet we called as an e-commerce. Doing these trades we can make money transactions electronically for selling and buying things or goods. As we doing trades on public network, we need to secure these trades money transactions. The following things are make our transactions and trades secure.

1) Use SSL
2) Use Government authorized payment gateways
3) Encrypt our data before sending on the internet
4) Create and use strong passwords for each level of transactions
5) Use digital certificate
6) Use digital signature etc.
7) We should maintain all system and application software updated.
8) We should have updated antivirus software in our device.

Now a day's crime in an e-commerce is increased. Not because of lack of security but because of lack of taking care to perform security thins such as using week passwords, make transactions over unauthorized payment gateways, doing transactions over unsecure (without SSL) web site etc.

For avoiding any unlike activity by criminals on web; we need to take care on both sides.

1. From vendor side
a. Always keep web server updated and secure.
b. Remove vulnerability in programming code and remove security holes.
c. Must use well configured software and hardware firewall in the inner network of server room.
d. Frequently checked web server or network by ethical hacker and remove security holes.
e. Give access to only those ports those give the access to the website only.
2 From customer side
a. Customer will take care of his passwords of emails, online banking account etc., always do transactions on trusted sites, always prefer authorized payment gateways etc.
b. For avoiding cyber crimes Govt. creates cyber forensic lab in each district recently.

VI. Conclusion

This paper gives preventive measures for service providers and customers to doing transaction over mobile devices. The main contribution of the paper is that proposed model which presents the level, work of this level and the securities which has to be implemented for the mobile commerce. We also strongly recommend that for every transaction or the communications there should be one monitoring government gateway system for less fraud and there is no need to take extra efforts for collecting such information of the online transactions.

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