Improving Security in e-Commerce Transactions

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Abstract— **With the developing technology online shopping of goods and various other products has increased to a great extent. With this service people tend to use their debit cards and credit cards for the online payment and this has been a common practice. Fraudsters take good advantage of this situation to commit frauds by making an identity theft. To avoid this many technologies emerged lately but they had some disadvantages which was not very comfortable for the end user. This project aims at implementing the web application for preventing online transaction frauds considering user comfort while making transactions from regular or different machine and from same or various other locations. Security is provided by the generation of OTP (One Time Password) providing a dual layer security mechanism which includes cookie based OTP generation and location based OTP generation. The key points of OTP generation, cookies, location parameters, dual layer security mechanism have been discussed in this paper considering user satisfaction and comfort with implementing the best possible security measures.**

Keywords:e–Commerce transaction, Online shopping portal, UPI based MPIN security feature,OTP generation,improved Security.

1. Introduction

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace. The objective of this project is to develop a general purpose e-commerce store where any product (such as Products, CDs, computers, mobile phones, electronic items, and home appliances) can be bought from the comfort of home through the Internet.

An online store is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e- mail notification is sent to the customer as soon as the order is placed. Science and technology is evolving day by day and new inventions are being made all over the world. With the growing technology lifestyle of humans has also changed to a great extent. Earlier everything that people used to buy was sold in the market. People used to go out of the house to buy a number of things. But today, with changed lifestyle, everything is sold online on various websites. People just need to sit at home and everything they want arrives at their doorstep with just a click. Because of this people are attracted to online shopping. Due to this online transaction

fraud has been increased. Online transaction fraud comes into the category of internet fraud where there is a use of internet services or software with internet access to defraud victims or to otherwise take advantage of them, for example, by stealing personal information which includes various credentials such as login, password and other information which ultimately leads to Identity Theft. The most common fraud is stealing credit card details; this is when the account number and PIN is hacked by malicious person or by group of hackers.

This project implements the application which will detect the machine from which the transaction is done. In this different machines are detected from which the transaction is done using same credentials. The location of the machine is also considered. Usually and most of the time a person does the transaction regularly from the same device, which may include home PC, laptop or smartphone. So there should be no need to confirm the person or user who is performing the transaction is a legitimate person because, he is doing the transaction from the regular device. If it is found that the transaction is initiating from different device, OTP will be generated and will be send to the registered email id of the legitimate user. If the user is doing transaction from the regular device but from another location different from the previous transaction location, OTP will be generated.

2. LITERATURE REVIEW

[1] Whenever any client tries to login to the web server using ID and password and with each incorrect submission the server stores the cookie on the client's computer. It increases the computational efforts of the fraudster with each login failure to the web server. Paper describes the mechanism to combat the Phishing attacks.

[2] The user will retrieve the OTP by email address. The web server creates an encrypted token for the user's machine for authentication purpose after receiving the one time password. Now if any time user wants to access the particular website the encrypted token will be used for the identification of the user. It prevents the phishing attacks using user machine identification.

[3] Generating OTPs and safe variable password for one time use using voice recognition mechanism. Using voice features, information of biometrics which is used for powerful personal identification. Simulation of voice samples is obtained from random five clients and there is a generation of keys for OTP with the help of noise-free recorded voices. Mobile device first capture the voice and then sampling process takes place from which the noise is removed and these noise-free sample is used to generate OTP keys. The protocol is used for secure communication and to exchange OTP keys between the devices. The paper includes brief discussion of the generation of OTP based on image authentication.

[4] Nowadays due to increase in the execution of phishing attacks the image authentication is very beneficial. Image based authentication followed by HMAC based one-time password is implemented to achieve high level of security. The website displays the grid of images to the user when he logins for the first time it consists of password set combined and mixed with other images. The user has to identify the correct images for the authentication process. The paper shows studies about the impact of fraud prevention on bank customer relationships.

[5] The paper focuses on the German retail banking market. Fraud prevention techniques and methods are beneficial to increase the quality of customer relationship and the customer loyalty. Socio demographics shows the fraud prevention with customer familiarity with and knowledge of bank's fraud prevention considering relationship qualities which includes satisfaction with bank and services, trust in bank and services, commitment to bank and customer loyalty which includes customer intention to continue relationship and customer intention for cross buying. Paper gives details about credit card fraud detection techniques and methods.

[6] One of the techniques used in the paper is the decision tree in which the nodes and edges are labeled with attributes name and attribute values respectively. This method is easy to implement but the disadvantage is to check each transaction one by one.
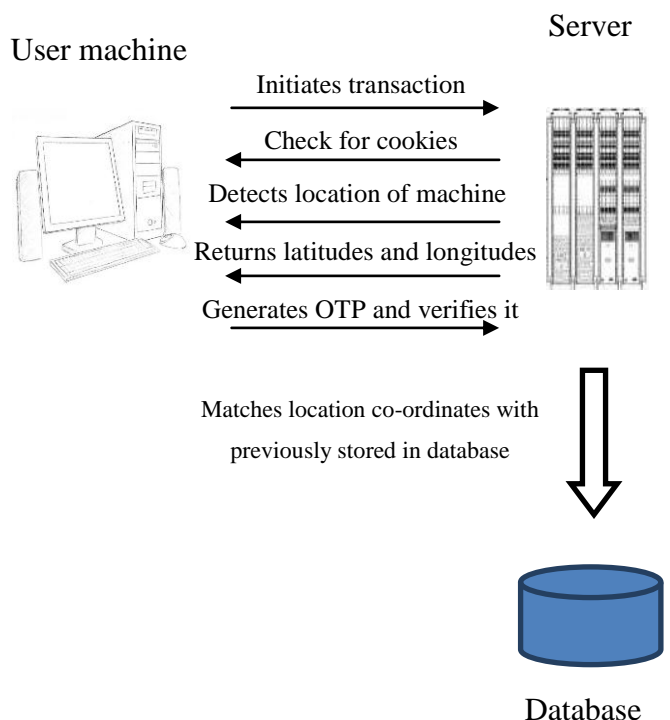
3. SYSTEM ARCHITECTURE

Fig.: System Architecture

4. PROPOSED SYSTEM

We have implemented the web application for the prevention of online transaction fraud using security mechanism. When user initiates transaction for the first time, cookies get generated on the user machine and OTP gets generated. The objective of this project is to develop a general purpose e-commerce store where any product (such as Products, CDs, computers, mobile phones, electronic items, and home appliances) can be bought from the comfort of home through the Internet.

5. CONCLUSION AND SUGGESTED WORK

The Internet has become a major resource in modern business, thus electronic shopping has gained significance not only from the entrepreneur's but also from the customer's point of view. For the entrepreneur, electronic shopping generates new business opportunities and for the customer, it makes comparative shopping possible. As per a survey, most consumers of online stores are impulsive and usually make a decision to stay on a site within the first few seconds. "Website design is like a shop interior. If the shop looks poor or like hundreds of other shops the customer is most likely to skip to the other site. Hence we have designed the project to provide the user with easy navigation, retrieval of data and necessary feedback as much as possible. Good shopping cart design must be accompanied with user-friendly shopping cart application logic. It should be convenient for the customer to view the contents of their cart and to be able to remove or add items to their cart. The shopping cart application described in this project provides a number of features that are designed to make the customer more comfortable.

We have designed the application using which we have added an extra layer of security in credit card transactions based on location ultimately providing double security and thus a secure online transaction system for the user for not just online credit card and debit card transaction but also transferring funds from one account to another securely. Similarly the application proves effective not only to the customers but also to banks and can easily implement it on a real time basis

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