



Review of Study on Comparative Analysis of Biometric Authentication Security for M-commerce

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Abstract: *In today's world in every field we need security so security is one of the most and hottest topic in today's era. In this paper, we have discussed about e-commerce and m-commerce which both are very opposite to each other as well as resembles in some sense. But now a day's m-commerce due to its more enhancing features is replacing and taking place of e-commerce. so for the purpose of security we have discussed here about different biometrics techniques and also their use for the purpose of security in m-commerce areas where user perform different transactions .when we need security we need many different techniques which are used for authentication to identify the legitimate user. So for that we have show comparative analysis and their pros and cons.*

Keywords: *M-commerce, security, biometrics.*

I. Introduction

E-commerce refers to electronic commerce in which person buys and sell their goods by using internet from their home by using desktop or their personal computers through their different browsers and perform transactions. E-commerce is further furnished by categorizing into different sections like business to customer(B2C),customer to merchant(C2M),customer to customer(C2C).All electronic commerce transactions follow a sequence of steps and all these steps are processed online through browsers. While buying or selling the goods from internet electronically then user must need www (World Wide Web) technology during the whole iterative steps of life cycle for processing a transaction. Here e-business and e-commerce are two different terms which are opposite to each other as in former we have exchange of goods not taking place between two different parties. E-commerce and M-commerce are two interchangeable terms used for buying and selling of goods from internet .In m-commerce we have a process in which processing takes place through your compact hand-held devices like smart phones, tablets, laptops etc. e-commerce is also known as unacknowledged shopping ,online shopping, e-shop etc. m-commerce is defined as "a special branch of e-commerce ,in which mobile devices and their network connection medium are used to buy, sell and promote products, services and information"[1]. Mobile commerce and m-commerce are the terms which are same for each other which are used to show the increasing needs of using network that collaborate with devices which are wireless such as tablets, laptops, and other hand held devices to start or end online transactions. As privacy is coming into be a major and important point for customers with the increasing number of frauds and imitation. So where there is a term privacy there must be a term used 'security' which prevents customers and merchants from being attacked by various fraudulent activities so that no loss will be there on both sides and also a feeling of trust must be maintained between two parties so that it becomes a good source for the customers to do their transactions easily and they feel comfortable by using it.

II. Purpose of Study

- Factors of m-commerce
- Attributes of m-commerce
- Techniques of biometrics
- Review of literature

III. Factors before Entering into Secure and Safe M-Commerce

Here various system analysts and engineers have come to a conclusion by judging various projects related to m-commerce and reach to a conclusion that m-commerce market will reach \$31 billion by the end of 2017. Following are the Facets:-

- **Mobile Intensification** If we roughly Count, average of 10 percent of customers or users are using websites through mobile as compared to their personnel computers. Here we have to do optimization for mobile customers.
- **Magnification of more aspects to mobile** More the features of the mobiles, more the customers get attracted towards to it so if you are deciding to shift your website into mobile asset then it is good for you.
- **Swift and Effortless** you must keep in mind that not each and every buyer is using second - generation or Third-generation connection for their processing .According to survey from kiss metrics a one second delay in

load time can result in a 7 percent decrease in sales. There are approximately forty percent users who leave their websites which are taking three seconds to load any page.

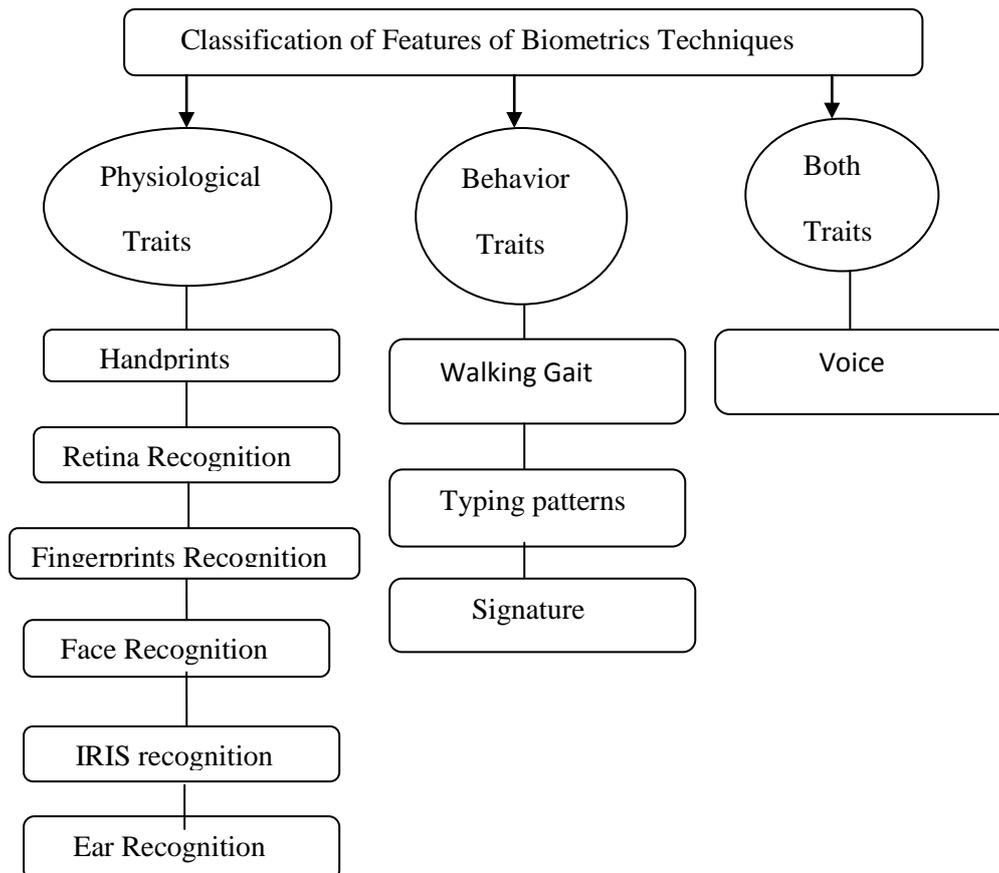
- **Follow simple and easy criteria** Do the payment of transactions in the way that the process of transactions in the way that the process of making the transactions does not make customers feel angry so that they does not feel comfortable to use mobile websites. For this feature ask for those details only which are required.

IV. Traits of M-commerce

- Interactivity
- Customization
- Pervasive
- Fast processing
- Reduced business costs

V. Techniques of Biometrics for the Security of M-Commerce

The word Biometrics derived from “bio” that means life and “metrics” that means measurement. In other words is the study of methods to uniquely recognize human traits of each person. The study of automated identification, by use of physical or behavioral features is called biometrics. [3]. There are number of biometrics techniques because these techniques are useful or needed every time, everywhere where we need to authenticate one’s identity. It is applied in almost every field where we need security like banking, payment gateways, mobile commerce etc. Biometrics has two very common terms, one is ‘Identification’ and then its ‘Verification’ .In identification system or the technology used for comparison will do one-to-many comparison to check the correct identity of right authorized person or user whereas in verification system will do one –to-one contrasting of already stored instance in a biometric database in order to verify the right person who is using the system and who has to be there. There are two types of traits in biometrics, one is physiological and other is behavior metrics traits. Here erstwhile is related to the shape of the body whereas hindmost is related to pattern of the behavior of a person. Biometrics is universal, unique, permanent and measurable feature which ensures the security of information in e-commerce and m-commerce.



VI. Biometrics Technologies

- **Fingerprint Identification**-It is the method of verification or identification where minute hand pattern is used to track the identity of the user. This is useful because two persons never have the same pattern for their fingerprints. This is the method in which reader device for fingerprints recognize the pattern of all the fingers with the sensor so then compare all pattern with the patterns stored in the database. As thumb, middle finger and

minute finger all have different patterns so all the patterns have been recorded with the help of reader. It is the popular method due to following reasons:-

- It is easy and cheap to implement
- Easy to use
- Uniqueness is one of the most important factors of security.
- As fingerprints varies from person to person so there are more chances of security.

Advantages-

- There is 100% absurdity of total security.
- This is one of the simple and accurate Technique where there are no chances of fraudulent attack.
- This is also very reliable method as reader used for fingerprints are reliable because no chances of forgetting the passwords and details are stored in database.

- **Face identification-** It is one of the easiest and rapidly growing method or technique of biometrics. It converts a digital image or screenshot of your photograph into a piece of code or information that describes the traits of person's face. This method is used to identify a particular person's identity from the remote location of merchant side without going to the place of user. For making and identification easier the face recognition reader needs only 15-20 nodal points out of total 80 points. But here to maintain accuracy we have to implement some special kind of methods.

Advantages-

- Fastest gathering that is easy to gather and store it in database.
- No additional amount of grounding is needed .
- It is totally non-intrusive to use.

Disadvantages-

- Uniqueness is not maintained.
- Facial traits can changes over time.
- Difficult to identify identical persons.

- **Iris recognition-**It is the method to identify or checking the identity of the user. It uses pattern recognition techniques based on the recognition of pupil present inside the retina of the eye. There are more than 200 points that can be used for comparison. Here false acceptance rate is low so this technique is better than fingerprint. It is fast and non-invasive method. Its performance and features lies between fingerprint and retina recognition.

Advantages-

- Here we have low false acceptance rate and rejection rate.
- Patterns inside the iris and pupil are very complex so it is very difficult to replicate any pattern.
- Very accurate and precise results.

Disadvantages-

- It is difficult to implement because of its higher cost
- If the pattern is not recognized accurately it will give wrong results.

- **Voice Recognition-**In this we have speech and speaker recognition and this is a process of identifying the features of the voice when any speaker speaks for his authentication and when the user provide his voice as input, then patterns of his voice is verified from the stored patterns in database. It can be used for longer distances and in this user need to use some additional device like microphones, Bluetooth device etc.

Advantages-

- Easy to use and no additional instruction is needed
- Reliable and inexpensive
- Difficult to construct
- Produce a detectable audit log

Disadvantages-

- Voice changes with time due to some problems like cough, stress etc.
- Database to store voice templates is very large.
- If the surrounding environment is noisy, the accuracy of the results is affected.
- Results give inaccurate response due to mental and stress conditions.

- **Odor recognition-** It is the contactless physical biometric that attempts to confirm person's identity by analyzing the olfactory features of the human body odor. The sensors or devices which are used here are capable of capturing the body odor from no-intrusive body parts [4]. In this technique there is an electronic nose used to sense the odor and it is a combination of pattern identification system and system for sensing. Every people belong to different

genes having different odors of their body. This technique is still under construction but very important for real-time applications.

- **Geometry of hand-** In this for the identity of the user we recognize the geometric shape of the hand of the user. Only hand features are not enough for higher security concerns and identity of user so it is necessary to combine various features to reach to the robustness. This technique does not have any false aspects.

Advantages-

- Easy for user to use
- Easy to collect data and information for hand geometry recognition

Disadvantages-

- Need additional integration of any other feature
- In this ratio of false positive and false negative is high

Biometric used	Features
DNA	The code of DNA is the human being hereditary traits
Iris	Pattern of iris and pupil
Face Recognition	Distance of various traits like nose, lips ,eyes
Hand Geometry	Patterns of fingers(middle, minute and thumb finger) and palm structure
Voice Recognition	Pattern, quality and pitch of voice
Finger print Recognition	Size and patterns of different fingers

Fig2. Classification of features of biometric techniques

Type	Ease of use	Accurate	Stability	cost	performance
Fingerprints	H	H	H	M	H
Hand geometry	H	M	M	H	M
Face	M	H	M	H	H
Iris	H	V.H	H	H	H
Voice	L	H	M	L	M

Fig3. Ranges of characteristics feature (H-high, M-medium, V.H-very high)

VII. Related Study

In this section the author has discussed some of the research paper related to the common topic has I have discussed some of them.kp Tripathi give the comparison of biometric technologies with refrence to human interface. Manivannan et.al, gives the analysis of system of biometrics. Harpreet sainii et.al, gives the biometrics technique for database security and Renu Bhatia gives the biometrics and face recognition techniques.

VIII. Conclusion

In this paper I conclude there are number of biometrics techniques are existing and used in many areas for the purpose of security so now mainly we can use it for the purpose of m-commerce in which we use handheld devices and also use some biometric techniques for the purpose of confidentiality. Biometrics provide overall high security and good performance and very helpful in identifying fraudulent activities during transactions of m-commerce. So this is very

helpful in m-commerce. All the techniques are mostly reliable and perform good results. For future References you can search about latest techniques of biometrics which are still under construction and use it for your research.

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