Volume-4, Issue-9, Sept-2015 • ISSN No 2277 - 8160

Research Paper | Computer Science

Use fingerprints as an e-mail password

Ruchika Arora Lovely Professional University Phagwara-144401, India.

Tejinder Thind Lovely Professional University Phagwara-144401, India.

ABSTRACT

fingerprints are unique so we can use it as a password to increase security. Fingerprints are never damage or changed after an accident it grows same like before it is, its also increase security and reduce security layers like captcha. Chapta is related to HIP (Human Interaction Proof) like finger prints are biometrics it itself is a human interaction proof. Fingerprints are brilliantly unique made from DNA (the genetic that tells your body how to develop) while it true that the fingerprints of two people from same DNA has different fingerprints

KEYWORDS : *(Password,Captcha, HIP)*

I. Introduction

In a fingerprint, the dark lines of the image are called the ridges and the white area between the ridges is called valleys Many types of minutiae exist, including dots (very small ridges), islands (ridges slightly longer than dots, occupying a middle space between two temporarily divergent ridges), ponds or lakes (empty spaces between two temporarily divergent ridges), spurs (a notch protruding from a ridge), bridges (small ridges joining two longer adjacent ridges), and crossovers (two ridges which cross each other) Some of these shown in Figure 1.

Figure 1: Fingerprint

We proposed a idea to fingerprint as a password. We use HTML, C#, Asp.net for code behind logics and sql server to store and manage database. We used a in built software of a fingerprint device convert fingerprints into digital form. and a algorithm used for matching fingerprint minute. The process start with take fingerprint impressions by using a fingerprint device; it stores the fingerprint images in a database in the form of jpg. For this we using a SIGN UP page. And then for identification we fill Username in SIGN IN page. Then fingerprint impression is taken with fingerprint scanner.

Both fingerprints are matched with a particular algorithm.

If they both are matched then login successfully in your email account.

The project starts with making two HTML Pages.

- SIGN UP
- LOG IN

In SIGN UP Page We have Username: for the User ID or Email address, Password: an alphanumeric based password Fingerprint Image panel: which reads human fingerprint image and saves the image and the path in database.

And we prepared a Log In page consists of the same features Username: for the User ID or Email address. Password: an alphanumeric based password . Fingerprint extraction panel: which reads human fingerprint image, saves the image in the temporary folder, and fetches the path of the image which is stored in the database and compares both the images.

II. ALGORITHMS FOR FINGERPRINT IMAGE.

Fingerprint matching algorithm is required to implement the system. Two of the algorithms are based on the following patterns:

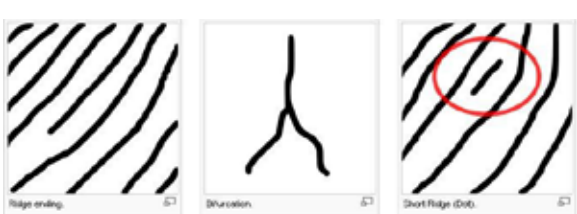
a) Minutiae-Based Matching: This is the most commonly used technique in which minutiae are extracted from the fingerprints and stored as points in the two- dimensional plane. Minutiae-based fingerprint comparison (matching) finds the alignment between the saved image and the input image that gives the results in percentage of comparison. We used this system in our project.

b) Ridge-Based Matching: Minutiae extraction is not easy in very low-quality fingerprint images so in this technique, features of the fingerprint ridge pattern (e.g., ridge shape, texture information) are extracted and hence the technique is more reliable than minutiae based matching. But the limitation of this technique is that sometimes we may not get unique pattern.

In this project, we used minutiae based matching algorithm. To implement this algorithm, we used C# and for code behind logics, we used C# and ASP.net. We also used Ajax in sign up and log in pages of fingerprint extraction panel to partially post back page. We made our pages responsive to make them compatible with mobile phones.

Minutiae term used in fingerprints as

a) Ridge endings
b) Ridge split
c) Short ridge
d) Dot ridge
e) Ridge enclose
f) Super ridges
g) Bridge or crossover rids

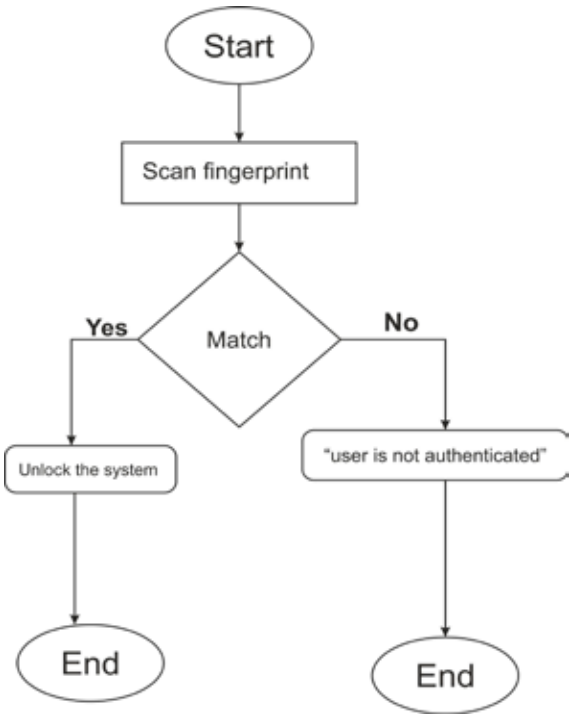


With the help of thinning algorithm, with thinning algorithm we analyses the ridges of an image with help ridges an bifurcation of an image.

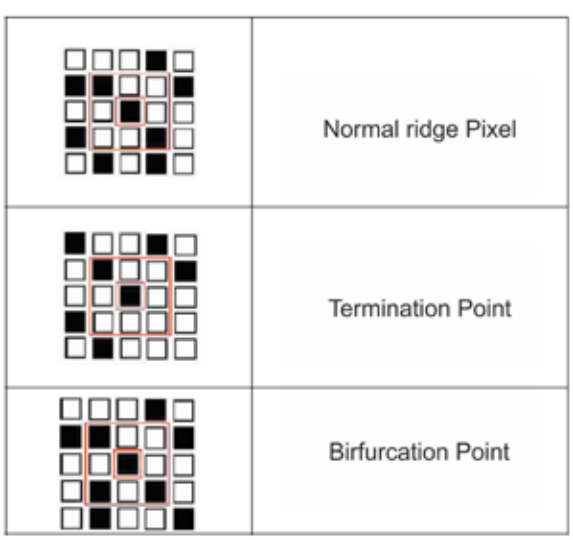
Biometric system can then operate in two modes: verification or iden-

tification. While identification involves comparing the acquired biometric information against templates corresponding to all users in the database, verification involves comparison with only those templates corresponding to the claimed identity.

While using fingerprints as password, logic is simple, it is compulsory to give finger print impression at the time of sign up along with username or e-mail ID. If the fingerprints matches with the fingerprint image stored in the database, the system is unlocked otherwise it will give the message that "user is not authenticated".



Fingerprint Image analysis with the term DPI, DPI stands for "Dots per Inch," which is an indication of visual fidelity – essentially how much information is available within an inch of space on an image.



A fingerprint reader with a low DPI will not offer incredible security because a blurry image of your finger notes fewer data points than a high-resolution image. With this we can save our time or make a tough security layer on web application.

III. CONNECTIVITY OF THE DATABASE

Connectivity of a database was provide with ASP.net and C# for code behind logics. ASP.net is compatible with c# and web pages and also compatible sql server.

For this we require some hardware

- Finger print scanner

Optical sensor is used in this fingerprint scanner With the fingerprint scanner provide us a fingerprint image in grayscale. We use this image to produce unique codes and pattern. By using this we can provide more security to our electronic mail account.

IV. CONCLUSIONS AND FUTURE SCOPE

With help of this seniaro we can use are fingerprint as an passwoard of our electronic mail account so the passwoard cannot be shared or stolen with anyone. Or the user is authentacated with the system or the third person not try to intrperpt or use your personal data .

We use this system to reduce CAPTCHA too CAPTCHA (Completely Automatic Public Turing Test to tell Computer human Apart) which provide security layer to the data and prevent data from automatic boots. Fingerprints are human biometrics so there is no need to HIP (human interaction proof) to give to the system. Its provide extra security layer to the email account. its hard to crack also. In foreign countries fingerprints used as a key of lock to open buildings the advantage of this is fingerprints never forgotten, destroyed or a uniqueness of this makes it special. In its future we can use the fingerprints as a password of our ATM Pin.

We can also secure fingerprints with applying encryption on the fingerprint codes and patterns. We can use RSA 2048 or sha-512 to secure this fingerprints codes or patterns.

REFERENCES

References | [1] Kuljeet Kaur, Vol. 9, Issue 2, No 2, March 2012)Koichi Ito, Ayumi Morita, Takafumi Aoki, Hiroshi Nakajima, Koji Kobayashi, and Tatsuo Higuchi3 "A Fingerprint Recognition Algorithm Combining Phase-Based Image Matching and Feature-Based Matching" | | [2] N.Krishna Chaitanya and V.Gouthani, "HIP Using Mirror Imaged Characters And Fingerprint Authentication For On-Line Election" International Journal of Advances in Engineering & Technology, May 2012 | [3] Jia Liang "A Research on Guided Thinning Algorithm and Its Implementation by Using C#" International Journal of Image Processing (IJIP), Volume (5) : Issue (5) : 2011 | | [4] Brian M. POWELL, Gaurav, Goswami, Mayank Vatsa, Richa Singh, Afzel Noor, "Genetically Optimized Face Image CAPTCHA IEEE Access", May-2014 | [5] Ravi. J, K. B. Raaja, Venugopal. K. R, " Fingerprint recognition using minutia score matching", International Journal of Engineering Science and Technology, Vol.1(2), 2009 .