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Ensuring Multitier ATM with AADHAAR Details by Using Bioinformatics

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ABSTRACT

In our daily life money is very important thing, all of them want to take less (or) more money with us in our routine life where the account holder can go, but we want to keep secure the money. So, the card holder access ATM that are available in all places. In nowadays the card holder using ATM by inserting a card and entering the pin number, after they were collecting cash. The usage of ATM provides convenient banknote trading to customers. Nowadays ATM generally authenticates the user by using debit/credit card with password. The account holder has some problems, by using debit/credit card because the password cannot verify the client's identity; it was not secure and convenient methods to public. Because sometimes the users can missed the ATM card, and also many times they forget the password, for this purpose we introducing the IRIS scanning methods in ATM, the account holder scan their IRIS in ATM scanner, the recognized IRIS image is compared with the AADHAAR BIOMETRIC DETAILS. Because the account holder already link their AADHAAR details with bank accounts. So the bank employees need not to gather all account holders Biometric details when opening a new account or make updating in it. It's a good and secure job for users to withdraw money, transferring money and depositing cash by choosing an option in ATM without using cards and pins. A BIOMETRIC IRIS recognition system used in ATM has provided security and improving the customer service, it makes their identification easier by increasing their both speed and quality of the process. BIOMETRIC is an identification and authentication processing technology utilizes the matchless characteristics of our human bodies [1]. By using this service the banking environment changes into paperless.

Keywords:- ATM, biometric, IRIS, authentication result.

I. INTRODUCTION

ATM is very popular and available machine in all places. By using the biometric applications in all banking environment is secured and it's specially concentrated in ATMs, because to reduce the frauds and crimes. And also it's very useful for bank employees from nationwide issues. ATMs uses personal identification AADHAAR number and magnetic strip to support from each account holders.

It's basically used for statistically analysing and measuring biological data identified and verified in human individuals body structure. This process is recorded and detected by an electronic device. The recognition of IRIS scanning is the best process for identification, the IRIS for all human beings is unique in nature it based on biological factors. The iris is a human internal organ it was protected by the external environment. By fitting the IRIS scanner in the ATM centre the account holder scan iris within 5 to 7 seconds after they identified. The specialized camera (or) scanner was used to scan the human iris within the distance of 5 feet [9]. The contact lens (or) eye glasses may not cause any problems in the scanning situation. After scanning, it displays the details of how many accounts the account holder having in how many banks. Now the account holder wants to choose the bank name in which they are going to transact the money.

II. OVERVIEW OF BIOMETRIC AUTHENTICATION

BIOMETRIC is a budding technology in current research field. An even more over secure type of authentication than using smart cards are called BIOMETRIC authentication. It increases day by day over being challenging requirement in Automated Secured private Authentication System. The traditional automatic private identification ATMs uses old-fashion approaches such as Personal Identification Number (PIN), ID card, password, Login Id, etc.

But, there are various extended dispute in the presented researches is called personal BIOMETRIC authentication. Among these, there are major challenging of iris recognition systems are appeared. They are related to *Iris Recognition Performance* and *Iris Template Security.*
There are many types of BIOMETRIC are there

- Fingerprint Biometric
- Face as Biometric
- Face Thermo gram Biometric
- Retina based Biometric
- Iris based Biometric
- Ear Biometric
- DNA Biometric
- Vascular or Vein Biometric
- Voice Biometric

- Signature based Biometric
- Hand Geometry Biometric
- Palm Geometry Biometric
- Keystroke Dynamic as Biometric
- Gait Biometric

A. *IRIS based BIOMETRIC*

The accuracy and authentication is very high. It takes minimum time for identifying an individual person. They using clear distinct patterns to identify the human eye when comparing with other biometric authentication system.

Fig 1: IRIS based BIOMETRIC

III. STRUCTURE OF HUMAN EYE

An IRIS based BIOMETRIC analyses the coloured ring that has the tissue it surround over the pupil. The human eye is in sphere shape and they having their average diameter 20mm. The eyes that are enclosed with three membranes the cornea and sclera and the outer cover are retina and choroid. The tough and transparent tissue that covers anterior surface of the eye with the continuous cornea the opaque membrane of sclera that encloses the remainder of optic globe [2]. The inside part of the sclera is iris.

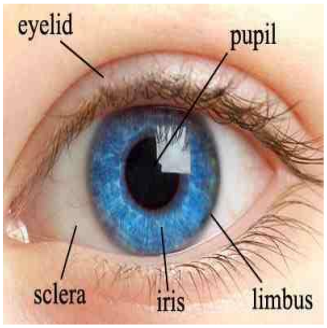

Fig 2: Outer Structure of Human Eye

The circular diaphragm of the IRIS which is lies between the cornea and human eye lens. The IRIS having the pupil. The pupil is the most important part for image scanning system is. It was unique in nature. We want to scan the pupil for identification .the average diameter of the iris is 12mm. the pupil size is vary from 10% to 80% of IRIS [8]. The iris patterns are formed by 6 months after the baby birth. It became stable after a year. This BIOMETRIC has the higher potential compare with average template matching performance. IRIS recognition is a process which is used to compare the given input image with the template iris image that is stored in the AADHAAR database. Image enhancement used to adjust the contrast of the image and also to remove noise [10].

- *IRIS*: An iris is a thin and in circular structure, and it is a colored circular muscle in the eye.
- *PUPIL*: A pupil is a circular opening and variable-sized in centre of an iris. It present as a black ring and it regulates the amount of beam that enters into the eye.
- *CORNEA*: A cornea is a transparent front segment of the eye that covers anterior chamber, pupil, IRIS and provides most of an eye's optical power.
- *RETINA:* A retina is a part of eye that converts imagery into electrical impulses send along the optic nerve for transmission backside to the brain. *SCLERA:* It is a protective fibrous outer layer that covers the whole eyeball except for the part enclosed by the cornea. The sclera is the white part of an eye.
- *CHOROID:* A choroid is a vascular layer. It lies between the sclera and the retina. The blood vessels in the choroid help provide oxygen and nutrients to the eye.

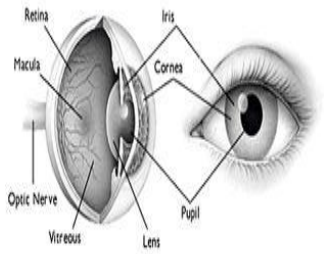

Fig 3: Inner Structure of Human Eye

V. PROPOSED METHODOLOGY

Instead of using ATM cards we introducing the IRIS scanner it secure you from ATM frauds. IRIS recognition is a BIOMETRIC AUTHENTICATION method which involves the pattern matching recognition technique on IRIS codes of human eyes. The IRIS usually has a blue, gray, brown, or greenish colour, and looks like furrows, rings and freckles in shapes with complex patterns that are visible upon closely going over, but it causes no any problem to scanning. The account holder just scans their eyes in ATM scanner that IRIS image was recognized by digital camera and specialized computer software will be used to compare with AADHAAR DATABASE. The specialized software can compare millions of images per second with a level of precision and confirm account

holders identity or authentication within a few seconds. It was securely collected database by our government. The account creator may not give or scan their biometric details while creating or updating their bank accounts. They just link their AADHAAR details with banks, they can update and stored within a second in online process. No physical contact is necessary for scanning IRIS because the ATM was always connected with network. So the user can access ATM after updating the details. It follows the functions given below and transacts your money safely. Iris recognition technology has become popular in security applications because of its ease of use, accuracy and safety.

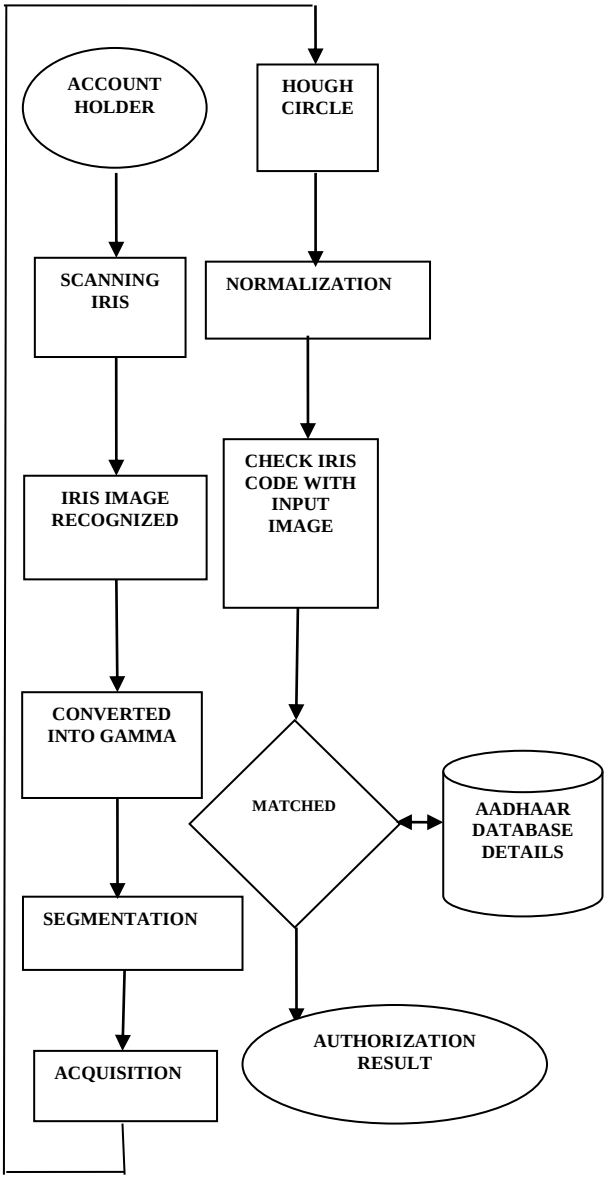

Fig4: Flow of Execution

A. *Iris Scanning*

IRIS is a muscle it standardize the size of pupil in the eye. It controls the amount of light that reaches the retina called as thin layer of cells that lays the backside of the eye ball. The left and right side of the IRISES are unique for individuals User accesses the ATM and scans their eyes in the ATM scanner having the high quality camera to make the sensible image of IRIS without causing any harm or discomfort for the data object. User's pupils are scanned by the ATM IRIS scanner and they were identified via the bellowed process [10].

- *RELIABLE:* Even twins also do not have same IRIS.
- *UNIVERSALITY:* Most of the populations in the world have unique IRIS.
- *INEXPENSIVE:* IRIS acquisition, operations and maintenance are relatively inexpensive in nature.
- *ACCURACY:* The finding that denotes IRIS offers the more accuracy when compared to other biometrics.
- *STORAGE:* IRIS requires only small amount of storage.
- *PERMANENT:* Showed that the IRISES are permanent in nature; their characteristics don't change over the course of time. They are formed in the fetal stage and it remains structurally unchanged.

B. *Conversion of Gamma*

To guarantee the accurate conversion of eye image a binary image; the gamma transform is applied on the enhanced image using the following ×= α 255 I(x, y) g(x, y) 255 round (3) where, g (x, y) is gamma image, I (x, y) is input image, determinesα is gamma factor. The value of α and α the process type on the image. When 1 the gamma image is brightening the image. So, we have =0.3 to convert all iris images in database α choose to binary and then convert it into gamma. The conversion of gamma is very efficient and high scalability. it has 10^6 energy of photon.

C. *Segmentation*

Image segmentation has done with the isolation of the actual IRIS region in a digital eye image. The iris region can be approximated by two circles, one for IRIS/SCLERA boundary and another, interior to the first, for the iris/pupil boundary. The eyelids and eyelashes normally obstruct the upper and lower parts of the IRIS region. Also, secular reflections can occur within the IRIS region corrupting the IRIS pattern. The segmentation denotes the particular part of the eye. They denoting that the pupil of the eye is scanned [2]. IRIS image segmentation- this is used to extract the region of interest, which is further used for feature extraction.

D. *Acquisition*

It is capture a sequence of pupil images from the subject of iris and made a pre processing by using a specifically designed sensor. Image acquisition-which is

done by the optical multispectral sensor. this involves the acquisition of eye images from a group of persons [3]. In this work, a database is created by collecting eye images and saved in .jpg _le format.

E. *Hough Circle Transform*

DAUGMAN's Integro-differntial operator, active contour models, and eyelash and noise detection. And detect the particular segment of pupil after used the circular Hough transform to detect the IRIS and pupil boundaries. The algorithm was chosen because it is less computationally complex than other segmentation techniques and it is also less prone to secular reflections. The centre of the pupil can be considered as the reference point, and radical vectors pass through the IRIS region. The systems evaluate the focus of the image in real time by looking in the power of upper and middle frequency. Virtual circles technique can also be employed in it. Daugman's papillary work shows limbic boundaries of the eye as circles. They can be explained in three restriction radius r, and coordinating the center of the circle, x0 and y0. And he proposed an integro-differential operator for identifying the IRIS boundary by penetrating the parameter space. His operator and it is Where G(r) is a smoothing function and I(x, y) is the image Of the eye.

E. *Normalization*

The size of the pupil may change due to the variation of the illumination and the associated elastic deformations in the iris texture may interfere with the results of pattern matching. For accurate texture analysis, it is necessary to compensate this deformation. Since both the inner and outer boundaries of the IRIS have been detected, it is easy to map the iris ring to a rectangular block and the particular segment is texture to a fixed size. The Daugmans normalization methods that transform the Cartesian model in IRIS consistency from Cartesian coordinates to polar coordinates. This method recompenses the redundant deviation due to distance of eye from camera to position.

Xp (8) = xpo (8) + rp * cos (8),
Yp (8) = Ypo (8) + rp * sin (8),
x/8) = Xi (8) + ri * cos (8),
y/8) = YiG (8) + ri * sin (8).
It's called as a Cartesian to polar transform.

F. *AADHAAR Details Database*

The user pupil iris is converted into iris code and check if the code is matched with the AADHAAR BIOMETRIC DETAILS if the code gets matched then the user is an authorized person. There are three steps are mainly used in IRIS matching technique.

1. Establishing spatial communication between two IRIS signatures.
2. Matching quality between two IRIS signatures.
3. Appropriate higher accuracy for poor eyesight persons.

The ATM includes all the bank names and the users account details in the ATM database. It was current update in online. So, if the user creates a new account in any bank. The current user name will added to the ATM database. They show all the bank data and how many accounts the user having in other banks then the account holder will get processed [6]. If the code cannot get matched they informed you are not an authorized person and skipped out.

VI.RESULT

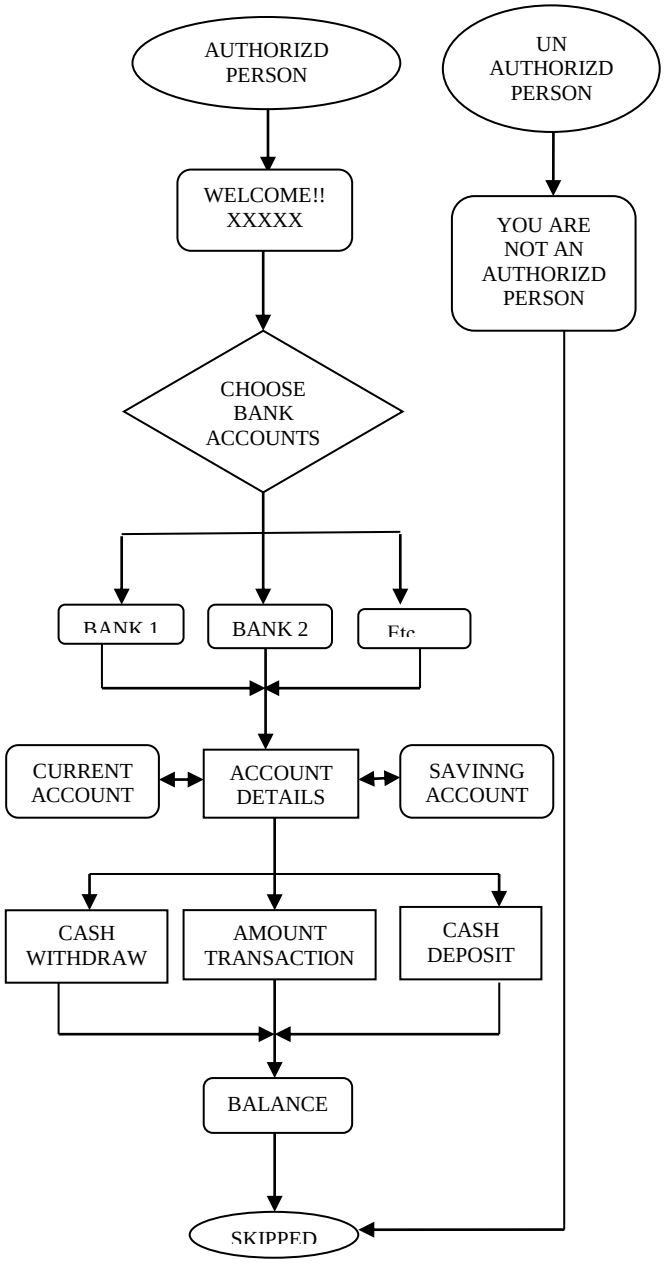

Fig5: Working Principles

Fig 6: IRIS scanning ATM

VII. CONCLUSION

The user cannot hold the ATM card with us for anytime, anywhere, when the card holder scanning their IRIS pupil and all the functionalities are done in a secured manner. If the IRIS code get matched the user were chosen account for transacting money in their bank account list, card less transactions take about 15 seconds to complete compared with around 45 seconds for more traditional transactions and also we may not use our passwords 1for accessing atm. the hackers cannot access our account [9].

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