

**RECOGNITION USING SECRET KEY IN IRIS FEATURES
EXTRACTION AND PALM PRINT FEATURES****K.Bharath Kumar¹, B.Aruna²**

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ABSTRACT:

The project proposes to implement the biometric security system supported combination of iris and palm print for authentication purpose. A Biometric system is actually a pattern recognition system that produces use of biometric traits to acknowledge people. the foremost distinctive makeup feature visible during a person's face is that the careful texture of every eye's iris. Palm is that the inner surface of a hand between the carpus and also the fingers. Palm print is spoken principal lines, wrinkles and ridges on the palm. The visible texture of a human iris and palm print is encoded into a compact sequence of 2-D rippling packet coefficients that generate a "feature vector code". This method proposes a multi-resolution approach supported rippling Packet remodel (WPT) for texture analysis and recognition of iris and palm print. the event of this approach is intended by the observation that dominant frequencies of iris texture area unit set within the low and middle frequency channels. The hand palm print image is aligned and cropped in keeping with the key points. The palm print image is increased and resized. Ordered changed Haar remodel is applied to the resized palm print image to get changed Haar Energy (MHE) feature. The ordered changed Haar rippling will maps the integer-valued signals onto integer-valued signals while not abandoning the property of good reconstruction. The options of palm print and iris area unit united then compared with info image feature vectors and its recognized victimisation geometrician or overacting distance. Finally the multimodal system shows the higher Performance accuracy for this automatic identification and authentication application.

Keywords:-Iris, Palm print, Secret key, DWT Process, Image Fusion.

1. INTRODUCTION:

IRIS

The iris (plural: irides or irises) could be a skinny, circular structure within the eye, to blame for dominant the diameter and size of the pupil and so the quantity of sunshine reaching the tissue layer. The colour of the iris is usually cited as "eye color."

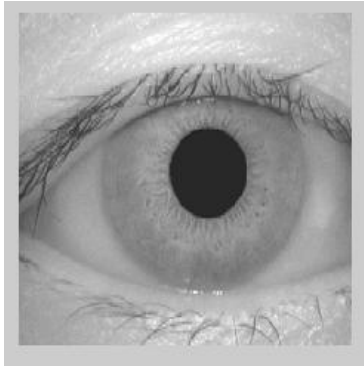


Fig 1: IRIS Image

Iris recognition is that the method of recognizing an individual by analyzing the random pattern of the iris (Figure: 1). The automatic methodology of iris recognition is comparatively young, existing in patent solely since in 1994. The human iris, associate degree ringed region set round the pupil and lined by the tissue layer, will give freelance and distinctive data of an individual.

The iris could be a muscle with within the eye regulates the dimensions of the pupil, dominant the quantity of sunshine that enters the attention. It's the coloured portion of the attention with coloring supported the quantity of hormone pigment with within the muscle (figure: 2).



Fig: 2 IRIS Structure

Although though the correlation and also the structure of the iris is genetically connected, the main points of the patterns don't seem to be. The iris develops throughout antepartum growth through a method of tight forming and folding of the tissue membrane. Before birth, degeneration happens, leading to the pupil gap and also the random, distinctive patterns of the iris. Though genetically identical associate degree individual's irides area unit distinctive and structurally distinct, that permits for it to be used for recognizing functions. Iris primarily based biometric, on the opposite hand, involves analyzing options found within the coloured ring of tissue that surrounds the pupil. Identity verification, beyond question the less intrusive of the eye-related bioscience, uses a reasonably typical camera component and needs no shut contact between the user and also the reader. Additionally, it's the potential for beyond average template-matching performance. Iris bioscience work with glasses in situ and is one amongst the few devices which will work well in identification mode. simple use and system integration has not historically been robust points with identity verification devices,

however you'll be able to expect enhancements in these areas as new merchandise emerge. during this study, we tend to think about iris recognition technique, as a result of it provides a good individuation among individuals even between twins.

PALMPRINT

Palm print Image info (or CASIA-Palm print for short) contains five, 502 palm print pictures captured from 312 subjects. for every subject, we tend to collect palm print pictures from each left and right palms. All palm print pictures area unit eight bit gray-level JPEG files by our self-developed palm print recognition device.

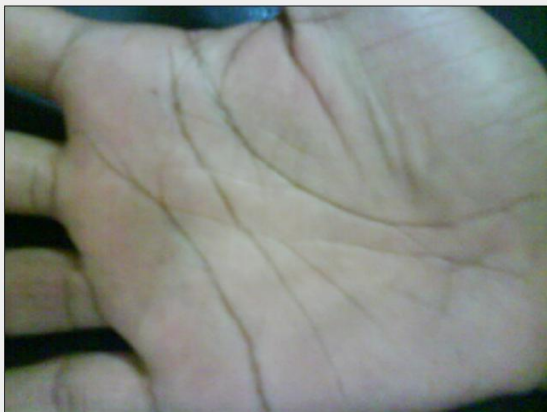


Fig: 3 Palm print Image

In our device, there are not any pegs to limit postures and positions of palms. Subject's area unit needed to place his palm into the device and lay it on a uniform-coloured background. The device provides associate degree equally distributed illumination and captures palm print pictures employing a CMOS camera mounted on the highest of the device.

DISCRETE WAVELET TRANSFORM:-

The separate riffle remodel (DWT) was developed to use the riffle remodel to the digital world. Filter banks area unit wont to approximate the behaviour of the continual riffle remodel. The signal is rotten with a high-pass filter and a low-pass filter. The coefficients of those filters area unit computed exploitation mathematical analysis and created accessible to you. See Appendix B for a lot of data concerning these computations. In riffle mouldering of a picture, the decomposition is completed row by row so column by column. for example, here is that the procedure for associate degree $N \times M$ image. You filter every row so down-sample to get $2N \times (M/2)$ pictures. Then filter every column and subsample the filter output to get four $(N/2) \times (M/2)$ pictures of the four sub pictures obtained as seen in Figure twelve, the one obtained by low-pass filtering the rows and columns is cited because the LL image. The one obtained by low-pass filtering the rows and high-pass filtering the columns is cited because the LH pictures. The one obtained by high-pass filtering the rows and low-pass filtering the columns is termed the hectoliter image. The sub image obtained by high-pass filtering the rows and columns is cited because the HH image. every of the sub pictures obtained during this fashion will then be filtered and sub sampled to get four a lot of sub pictures. This method will be continuing till the specified sub band structure is obtained.

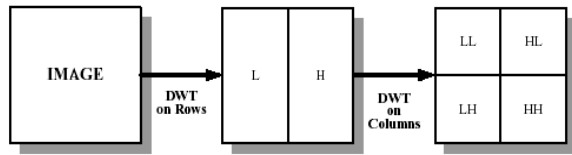


Figure 4: Block Diagram of DWT (a) Original Image (b) Output image after the 1-D applied on Row input (c) Output image after the second 1-D applied on row input

Wavelet transform is a multi-resolution tool that can be used to analyze the palm print image in different decomposition levels. Level one palm print decomposition is used to extract the fine lines of the palm print. The higher the decomposition level, the coarser the extracted palm lines, such as wrinkles and principal lines. Haar wavelet is used to find the discontinuity between two pixels. It is not calculation expensive compared to other types of wavelet such as Daubechies wavelets, Mexican hat wavelets and Molest wavelets. Haar wavelet decomposes the palm print image into approximation (A), horizontal detail (H), vertical detail (V) and diagonal detail (D).

IMAGE FUSION

Multi sensor data fusion has become a discipline which demands more general formal solutions to a number of application cases. Several situations in image processing require both high spatial and high spectral information in a single image. This is important in remote sensing. However, the instruments are not capable of providing such information either by design or because

of observational constraints. One possible solution for this is data fusion.

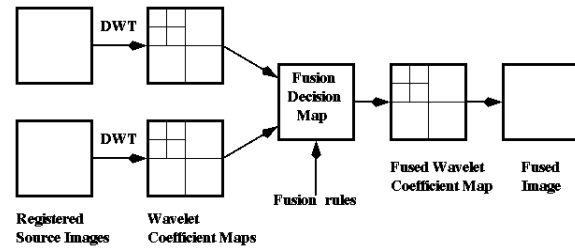


Fig: 5 Image Fusion Block Diagram

In wavelet decomposing of an image, the decomposition is done row by row and then column by column. For instance, here is the procedure for an $N \times M$ image. You filter each row and then down-sample to obtain two $N \times (M/2)$ images. Then filter each column and subsample the filter output to obtain four $(N/2) \times (M/2)$ images of the four sub images obtained as seen in Figure 12, the one obtained by low-pass filtering the rows and columns is referred to as the LL image. The one obtained by low-pass filtering the rows and high-pass filtering the columns is referred to as the LH images. The one obtained by high-pass filtering the rows and low-pass filtering the columns is called the HL image. The sub image obtained by high-pass filtering the rows and columns is referred to as the HH image. Each of the sub images obtained in this fashion can then be filtered and sub sampled to obtain four more sub images. This process can be continued until the desired sub band structure is obtained.

KEY GENERATION

A key is used to encrypt and decrypt whatever data is being encrypted/decrypted. Symmetric-

key algorithms use a single shared key; keeping data secret requires keeping this key secret. Public-key algorithms use a public key and a private key. The public key is made available to anyone (often by means of a digital certificate). A sender encrypts data with the public key; only the holder of the private key can decrypt this data. Currently, key lengths of 128 bits (for symmetric key algorithms) and 1024 bits (for public-key algorithms) are common.

For some protocols no party should be in the sole possession of the secret key. Rather, during distributed key generation every party obtains a share of the key. A threshold of the participating parties needs to cooperate in order to achieve a cryptographic task, such as decrypting a message.

RESULT ANALYSIS

Each of the feature vectors is matched using Euclidean Distance with the remaining 5 feature vectors in the database.

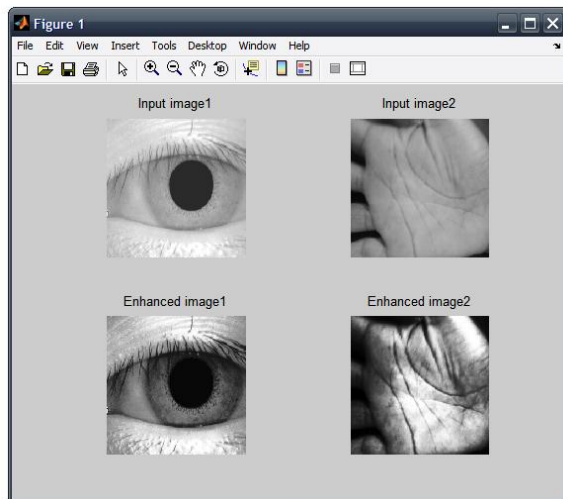


Fig: 6(a) Iris Image and Palm Print Image Selected

The genuine ED distribution graph and imposter ED distribution graph are normalized because for every feature vector, there will be nine genuine matching and 990 imposter matching. If both of the graphs are plotted directly, the imposter ED distribution graph with 990 000 value will cover the genuine ED distribution graph with only 9000 value.

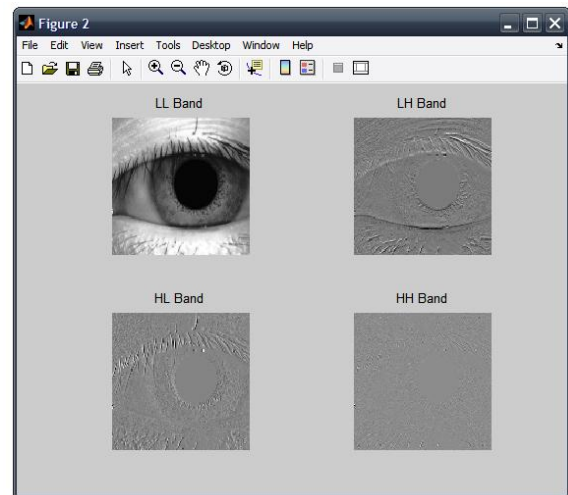


Fig: 6(b) Iris Image using DWT Process

Traditional model checkers have used breadth-first or depth-first search to traverse through the design's state space.

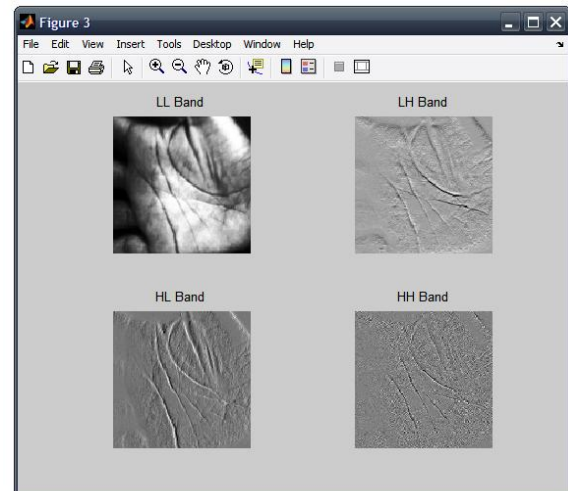


Fig: 6(c) Palm print Image using DWT Process

While these search techniques are very thorough, they are not optimized towards finding bugs in large state spaces.

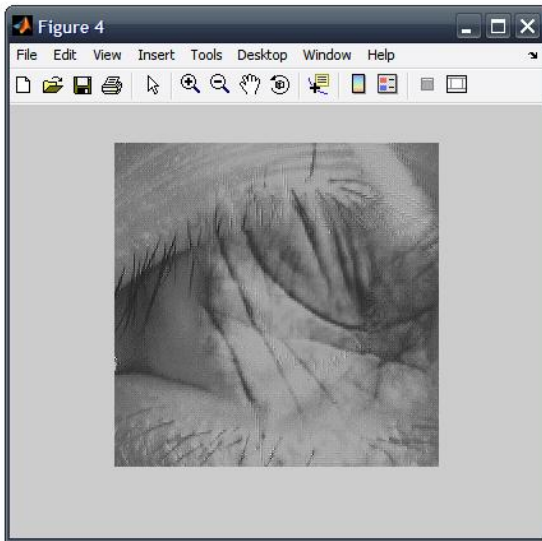


Fig: 6(d) Fusion of Iris and Palm Print Image

In the field of artificial intelligence, where is also a need to search through large state spaces, there is the notion of using evaluation functions to heuristically search a large space in a “hill climbing” or best-first search fashion

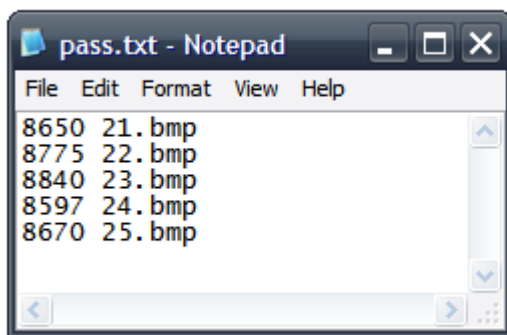


Fig: 6(e) Database Images

Hamming distance between two strings of equal length is the number of positions for which the corresponding symbols are different. Put another way, it measures the minimum number of substitutions required to change one into the other, or the number of errors that transformed one string into the other.

CONCLUSION

From info, eight completely different iris pictures of thirty persons area unit taken (240 samples of iris) and code matrix is made. From info of palm print, eight completely different palm pictures of twenty persons area unit taken and code matrix is made. By concatenation and shifting the feature vector s area unit amalgamated. Once a brand new iris associate degreed palm image area unit bestowed as an input, the code matrix of the pictures is got wind. Exploitation the changed performing distance, the pattern matching is performed. Supported this worth, the category to that the new image belongs to is calculated. With this data the False Acceptance magnitude relation (FAR) and False Rejection magnitude relation (FRR) for every category area unit calculated for testing pictures. The popularity performance of iris feature alone exploitation riffle packet remodel. The calculated False Acceptance magnitude relation (FAR) and False Rejection magnitude relation (FRR) exploitation wavelets.

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