## Content Checked For Plagiarism:

### ABSTRACT

Periocular biometrics is the characteristic trait of biometrics used for human recognition that involves the region around the eye. Acquisition of the periocular biometric is expected to require less subject cooperation while permitting a larger depth of fields compared to traditional ocular biometric traits (viz., iris, retina, and sclera). In the proposed work, I will study the feasibility of periocular region as a biometric trait for human recognition as compared to other ocular biometrics. Global and local information are extracted from the periocular region using texture and point operators results in a feature set for representing and matching this region. In this work, we will develop a novel computational intelligence based and technique for periocular biometric-based human recognition. In most of the researchers, it has been found that statistic-based applications employed for periocular based human recognition. Therefore, we will design to develop, synergistic, integration of neural fuzzy system for efficient periocular based biometric system. Moreover, we will use different feature extraction techniques such as LBP, PCA, ICA for pre-processing of periocular biometrics. Comparative Analysis with other competent technologies is also the essential part of this research work.

### KEYWORD

Periocular, Biometrics, computational Intelligence, Feature extraction, face, fusion, local binary patterns, periocular recognition, scale-invariant feature transform.
Plagiarism Scan Report

Summary

<table>
<thead>
<tr>
<th>Report Generated Date</th>
<th>04 Oct, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plagiarism Status</td>
<td>100% Unique</td>
</tr>
<tr>
<td>Total Words</td>
<td>315</td>
</tr>
<tr>
<td>Total Characters</td>
<td>2184</td>
</tr>
<tr>
<td>Any Ignore Url Used</td>
<td></td>
</tr>
</tbody>
</table>

Content Checked For Plagiarism:

INTRODUCTION

Aims: Identification and authentication of any human will be becoming very important in present time. In the surrounding where electronics devices will more commonly use and there is a need for accurate and secure authentication. Old techniques such as passwords, ID cards, are not accurate and secure. Thus, there shall be increasing to implement for automatic authentication process.

Biometric System: The word "biometrics" comes from the Greek words "bio" and "metric," meaning "life computation." The unparalleled of a personally, physiological and behavioral, characteristics is the basis for the science of biometrics. Typical physiological features measured include an individual's fingerprints, face, retina, iris, DNA and hand geometry.

Periocular: The term "periocular" comes from the prefix, "peri-", meaning "around or about", and the genesis word, "ocular", meaning "of a relating to the eye". In biometrics, the term has been applied to both a small region including the eye, eyelids, and lashes.

Acquisition: Researchers have explored multiple kinds of acquisition techniques in iris recognition. The facial region in the immediate vicinity of the eye. Acquisition of the periocular biometric is anticipated to require less subject cooperation while permitting a larger depth of field compared to traditional ocular biometric traits (retina, iris, conjunctiva, periocular.)

(1) (2) (3) (4)

Fig. 1. Ocular biometric traits: (1) retina, (2) iris, (3) conjunctiva [12], and (4) periocular

OBJECTIVE: In this research work following of aspect will be investigated and implemented:

- The effectiveness of incorporating the eyebrows,
- An use of side information (left or right) in matching,
- The manual versus automatic segmentation schemes,
- The local versus global feature extraction schemes,
- The fluidization of face and periocular biometrics,
- An use of the periocular biometric in partially occluded face image
- An effect of pose variation and occlusion,
- An effect of masking the iris and eye region,
- Development of novel technique for periocular recognition,
- Comparative Analysis.

[13]
Content Checked For Plagiarism:

LITERATURE REVIEW

The research topic [2] of its kind, based on periocular biometrics has exploration and analysis of biometrics recognition using periocular images especially when compared to iris recognition. Authors presented a feasibility study of periocular biometric recognition, when using local descriptors, LBP (Local Binary Pattern), HOG (Histogram of Oriented Gradients) and global descriptor SIFT (Shift Invariant Feature Transform) features. The performance result with these descriptors with and without eye brow was also reported by authors.

Another interesting work [13], which is an extension of the research paper, has extensively presented results with various aspects of periocular recognition that include role of eyebrows, left or right eye information contribution, manual or automatic segmentation impacts, local and global feature's effectiveness, performance achieved by periocular biometrics. The experiments carried in this topic used FRGC 2.0 database [31]. In recent research [4], gender and ethnicity were identified using periocular images. Another researcher [5] studied the effect of using fusion techniques on periocular and iris images for non-ideal images of the eye characterized by occluded irises, motion and spatial blur, poor contrast and illumination artifacts. The experimental results using MBGC database [6] shows that score level fusion can improve the recognition performance.

In this work, we will develop novel computational intelligence based technique for periocular biometric based human recognition. In most of the researcher, it has been found that statistic based applications are employed for periocular based human recognition. Therefore, we will design and develop, synergistic, integration of neural fuzzy system for efficient periocular based biometric system. Moreover, we will use different feature extraction techniques such as LBP, PCA, and ICA for pre-processing of periocular biometrics. Comparative Analysis with other competent technologies is also the essential part of this research work and also investigates the effect of inclusion/exclusion of eyebrows in periocular biometrics. We will use standard database such as UBIRIS.v2 database [9].
Content Checked For Plagiarism:

EXPECTED IMPACT ON ACADEMICS/INDUSTRY

In spite of the tremendous progress made in ocular biometrics, there are significant provocation encountered by these systems:

(1) The iris is a moving object with a small surface area that is located within the independently transfer eyeball. The eyeball itself is located within another moving object—the head. Therefore, convey localizing the iris in eye images obtained at a distance in unconstrained environments can be difficult [11]. Furthermore, since the iris is generally imaged in the near-infrared (NIR) portion (700-900 nm) of the electromagnetic (EM) spectrum, proper invisible lighting is required to illuminate it prior to image accession.

(2) The size of an iris is very small contrast to that of a face. Face images get with low decision sensors or large standoff distances offer very little or no data; about iris texture.

(3) Even under ideal shape characterized by appreciative lighting conditions and an optimal deadlock distance, if the subject blinks or closes his eye, the iris data cannot be reliably get.

(4) Retinal vasculature cannot be effortless, imaged unless the subject is collective. In addition, the imaging device has to be in close presence to the eye.

(5) While conjunctiva vasculature can be imaged at a distance, the curvature of the sclera, the secular likeness, in the image, and the fineness of the vascular patterns can surprise the feature extraction and similar modules of the biometric system [12].

The performance of perocular recognition could be further enhanced by incorporating the information related to the eye shape. The applications of biometrics will be divided into the following three main body.

Commercial: applications such as computer network sign in, electronic data security, e-commerce, Network access, ATM, credit card, bodily access control, cellular phone, PDA, medical records database, and distance learning.

Government: applications such as national ID card, correctional, solution, driver's license, social security, welfare disbursement, border control, and passport control.

Forensic: applications such as corpse distinguish, criminal investigation, terrorist identification, parenthood resolution, and missing children.
Content Checked For Plagiarism:

METHODOLOGY OF THE RESEARCH WORK

We will be adopting two different approaches to the problem: one based on global information and other based on local information, and we use different methods for feature extraction and matching. In the proposed works are as followings:
1. Pre-processing,
2. Feature extraction,
3. Development of novel learning algorithms,
   A. Global Versus,
   B. Soft computing base technique,
4. Comparative Analysis.

Report generated by smalliseotools.com
Plagiarism Scan Report:

Summary

<table>
<thead>
<tr>
<th>Report Generated Date</th>
<th>04 Oct, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plagiarism Status</td>
<td>85% Unique</td>
</tr>
<tr>
<td>Total Words</td>
<td>130</td>
</tr>
<tr>
<td>Total Characters</td>
<td>903</td>
</tr>
<tr>
<td>Any Ignore URL Used</td>
<td></td>
</tr>
</tbody>
</table>

Content Checked For Plagiarism:

MAJOR INPUTS (INFRASTRUCTURE) REQUIREMENT

- Face data set- FDS is a database of static images of human faces.
- Region Extraction- The extraction of regions from multiple images simultaneously with their correspondences.
- Local binary patterns- A type of visual descriptor used for classification in computer vision, and particular case of the Texture Spectrum model.
- Periocular recognition- Periocular recognition has gained attention recently due to demands of increased robustness of face or periocular in less controlled of scenarios.
- Scale-invariant feature transform- An algorithm are computer vision to detect and describe to local features in images.
- Academic Service: Computer Science & engineering. Department Faculty of Engineering & Technology, Rama University, Rama Kanpur, Rama City, G.T. Road, Mandhana, Kanpur (U.P.) 208 017

Report generated by smallseotools.com