ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
Available online at www.ijarbest.com
International Journal of Advanced Research in Biology Ecology Science and Technology (IJARBEST)
Vol. I, Special Issue I, August 2015 in association with VEL TECH HIGH TECH DR. RANGARAJAN DR. SAKUNTHALA ENGINEERING COLLEGE, CHENNAI
National Conference on Recent Technologies for Sustainable Development 2015 [RECHZIG'15] - 28th August 2015

Iris and user attributes based recognition system by minimizing the effect of contact lens

[1]K.Loganathan, [2]S.Sarika
[1]nathancsemtp@gmail.com, [2]sarika5077@rediffmail.com
[1]M.E Student, [2]Assistant Professor
[1,2]Department of Computer Science and Engineering
[1,2]Sathyabama University,Chennai

ABSTRACT

The exploratory results express the biometric including iris and user attributes constructed by various recognition methods can be parallel through the central rays in their convex polyhedral cones. It is to prevent by a method enlarged from iris templates can be fragmented into various segments. The experimental results also brings out the fact that convex polyhedral cone templates cannot be secured without a thorough security. This paper manages how the part of cosmetic lens is served as a challenge to iris recognition as it obscures. The natural iris design manufactures have many types and colours of lenses. This experiment is done to analyze the effect of these parameters on iris recognition. Diagnosing the presence of a contact lens is the first step to improve the ease of use and unwavering quality of iris acknowledgment for contact lens wearers. The success of iris templates depends on its computational advantages high matching speed for large scale identification and automatic threshold adjustment based on image quality. Many terms modified from iris templates were propounded for iris and user attributes based recognition.

***Index Terms*—Iris recognition, contact lens, lens detection.**

INTRODUCTION

IRIS is a standout amongst the most encouraging biometric modalities, what's more, is in normal utilization in expansive scale applications, for example, UAE port of passage and India's UIDAI (Aadhar) ventures.Though iris features are unique, late research results prescribe that they are affected by a couple covariates, for example, pupil dilation andsensor interoperability.Amethodfor applying patternrecognition techniquestorecognizethe identity ofapersonbasedon't heir irisisproposed. Alsodiscussedisa transformoftheiris imagefrom twotoonedimensionalspaceandovercominglimiteddatawith the generationofsynthetic images. Arecentemphasis on security hasresultedin increasedresearchattention beingoffered to thefield ofindividual identification basedon"biometrics". A biometricfeature isaninherentphysical or behaviouraltrait thatisunique amongindividuals.Inadditiontothese, the humaniriscanalsobeconsidereda validbiometricfeatureforpersonalidentification.The irisisthecolouredringon the humaneyebetweenthepupilandthewhitesclera.Eachhumani rishasa unique"IrisCode"of subtlefeaturesthatvariesgreatlyfrompersontoperson. Iris features remain constant over an individual's lifetime and are not subject to changesproducedby theeffectsofagingasotherbiometricfeaturesmay be. For thesereasons,thehumanirisisanidealfeatureforhighly accurateandefficient identificationsystems. Theuniquenessofiristextureliesinthefactthatthe processesgeneratingthosetexturesarecompletely chaoticbutstable.Hence in order touse the irisasa biometric, the feature extractionshould be able tocapture andencode thisrandomnesspresentinthe iristexture. Basedonanextensiveliteraturesurvey,we classifyirisrecognitionsystems intothreecategoriesdependingonthemethodbywhichthefeat uresfromthe texture a r e extracted for matching purposes. Thesethree categories are (a)appearancebased,(b)texture basedand,(c)featurebasedextraction.

Regardlessofthechallenges,thepopularityof irisscanning—anditscousin, facialrecognitiontechnology—isgrowing. Thisisparticularlytrueinphysical securityapplications,like thoseusedatsome airportsandgovernmentinstallations.Toprocess large numbersof individuals,abiometricssolutionmustbefast and non-intrusive.ProductslikeSarnoff'sIrisOntheMove(IOM)(video)allowsthe scanningofupto30peopleperminutefromadistanceofseveral feet.Thescannedindividuals donotevenhavetostop.Comparethiswithanexpected throughputof10to 15people perminutewithhigh-endhandorfingerprint scanners. No-contactscanning isthefuture of biometrics.Iris scanningispositionedto take a centralrole.

Irisrecognitionisanautomatedmethod ofbiometricidentificationthatuses mathematical pattern-recognitiontechniques on video images of theirisesof an individual'seyes,whosecomplexrandom patternsareuniqueandcanbeseenfromsome distance. Nottobe confusedwithanother,lessprevalent, ocular-basedtechnology, retinascanning, irisrecognitionusescameratechnology withsubtleinfraredillumination toacquireimagesofthedetail-rich, intricatestructuresofthe iris.Digitaltemplates encodedfrom thesepatternsbymathematicalandstatisticalalgorithmsallow unambiguous positiveidentificationof anindividual.Databasesofenrolled templatesare searched bymatcher enginesatspeedsmeasuredin themillions of templatespersecondper(single-core)CPU,andwithinfinitesimally smallFalse Matchrates. Many millionsof personsinseveralcountriesaroundtheworldhavebeen enrollediniris recognitionsystems, for convenience purposessuchas passport-free automated border-crossings, and some national ID systemsbased on this technology arebeingdeployed. Akey advantage of iris recognition,besidesits speedofmatchinganditsextremeresistancetoFalseMatchesis the stabilityofthe irisasaninternal,protected,yetexternallyvisible organof the eye.

FRAMEWORK ANALYSIS

TheBiometricFeaturesisbasicallyusedtoidentifythe individualsFace, Fingerprint,Handprint,Voiceandetc.Ifonetriestoidentify thepeople's imageusingface,itwilltakesomeseriousandtediousparts.Suchasthe skinmay getshrinks astimegoes, sothe uniqueidentificationgetschanged andmayshowsome false-positive results. Onecantakedifferentpartsofafaceandanalysethepresenceofthe person.Onecantakedifferentpartsofafaceandanalysethepresenceofthe person. IfweconsidertheHandprint,itwillalsobeuniqueforeachand every personbuteventhatgetssimilar betweenpeople.BasicallytheHandprintis alsounable tobelieveittobe trueor fake. AndfinallyvoicerecognitionisalsosaidtobeoneoftheBiometricFeature torecognize the person,but

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
Available online at www.ijarbest.com
International Journal of Advanced Research in Biology Ecology Science and Technology (IJARBEST)
Vol. I, Special Issue I, August 2015 in association with VEL TECH HIGH TECH DR. RANGARAJAN DR. SAKUNTHALA ENGINEERING COLLEGE, CHENNAI
National Conference on Recent Technologies for Sustainable Development 2015 [RECHZIG'15] - 28th August 2015

stillitalsocreatesthebottleneckproblemsand couldn'tbe abletoassured. IrisCode

GenerationtechniquealsohasaError False report.In this methodologythe iris images will occupy more memory space the in the database. In ahead of schedule things the eye has to match exactly with the database as if we stored the image. Even a small distraction also will not be allowed. One can take different parts of a face and analyse the presence of the person.

Iris code Bit Pairs decompression by exploiting Daugman compressionalgorithm. Gaborfilters,whichinfluencethedistributionsofthebitstoidentify thebitwise Hammingdistanceofphase. Decompressed iris images obtained from two public iris image databases areevaluatedbyvisual comparison, twoobjectiveimage qualityassessmentmetricsandeightirisrecognitionmethods .Implementsandtheiranalysesspecifically focused on the intra- relationshipofbitpairsinIris-Codesand localintensityvariation-basedmethodproposedby"Spoof"method.Our post-processingtechniquesareNormalization, Segmentationusing phase-based, textureanalysismethods.Utilizing this strategythe client will have the remarkable recognizable proof for his own points of interest. We can have more proficiency and security to the applications furthermore there will less memory use while putting away in the information base. Instead of putting away the iris picture, the iris code is going to store in the database.

SYSTEM ARCHITECTURE

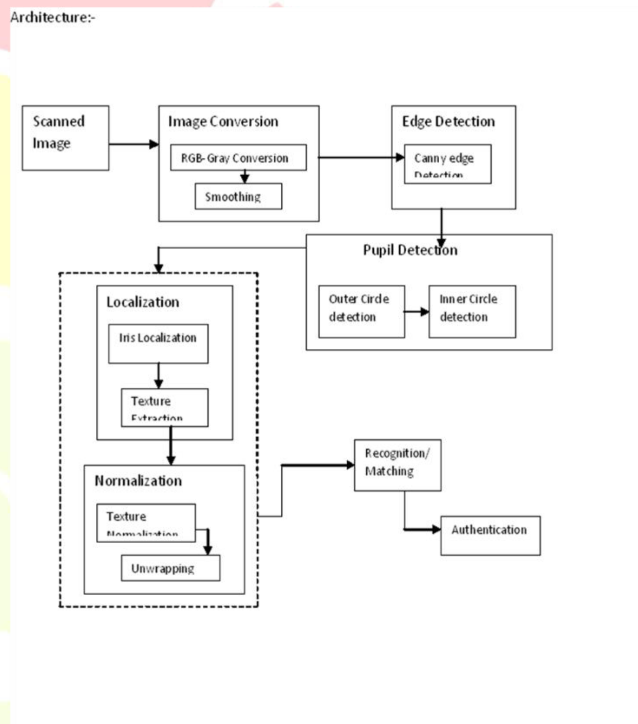


Figure 1: Architecture of IRIS Scanning system

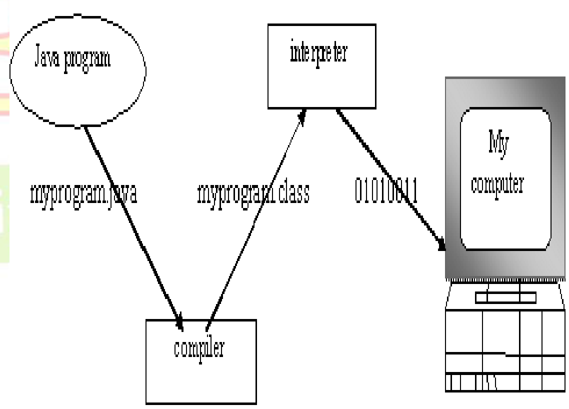


*Figure 2:**Execution system***

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
Available online at www.ijarbest.com
International Journal of Advanced Research in Biology Ecology Science and Technology (IJARBEST)
Vol. I, Special Issue I, August 2015 in association with VEL TECH HIGH TECH DR. RANGARAJAN DR. SAKUNTHALA ENGINEERING COLLEGE, CHENNAI
National Conference on Recent Technologies for Sustainable Development 2015 [RECHZIG'15] - 28th August 2015

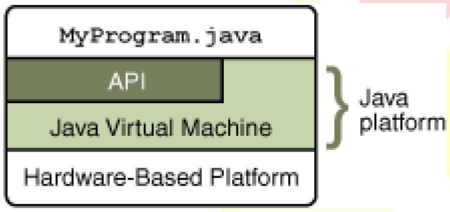


*Figure 3: Execution of program(**APIandJVM**)*

ALGORITHMS FOR LENS DETECTION

TheCanny algorithm basically findsedgeswherethegreyscaleintensity of the imagechangesthemost.Thenormalizediris imageis used to detectcornersusing covariance matrix.The detectedcornersbetweenthe databaseandquery imageare usedtofindcrosscorrelationcoefficient. Textured contact lenses are intended to change the appearance of the wearer's eye, giving it an alternate shading and/or composition. Sadly, they additionally incredibly diminish the measure of honest to goodness iris composition obvious to iris acknowledgment frameworks. This increments the possibility of a false non-match and a false match. Appropriately, these pictures ought to be dismisses before a layout is produced for them. The impact of delicate lenses is a great deal less. The honest to goodness iris surface is not covered to the same degree it is with textured contact lenses. It is our theory that applying a lens location calculation to first reject the cases with jumbled examples and permitting just without lens and delicate lens iris pictures can enhance the execution of iris acknowledgment calculations and diminish the false matches at higher confirmation rates. To test this speculation, the analysis was led and the execution of the iris acknowledgment was then assessed.

IMPACT OF LENS DETECTION ON IRIS ACKNOWLEDGMENT PERFORMANCE

To assess the suggestion that "identifying and dismissing the iris tests with textured contact lens can enhance the execution of iris acknowledgment calculations", another test is performed in which the yield of lens arrangement calculation is given as data to the iris acknowledgment framework. In this trial, the exhibition contains iris pictures without lens and the test contains pictures without lens, with delicate lens, and with textured lens independently. Amid test check (lens discovery stage), the pictures delegated textured lens are pronounced as "inability to process" and we slight them from our assessments. We have utilized the proposed calculation as the lens location calculation.

IMPLEMENTATIONMETHODOLOGY

MODULES

¬Image conversion

¬Edgedetection

¬Pupildetection

¬Normalization

¬Feature Extraction

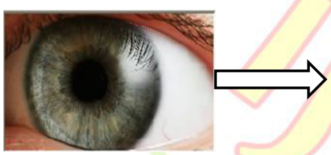
¬Matching

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
Available online at www.ijarbest.com
International Journal of Advanced Research in Biology Ecology Science and Technology (IJARBEST)
Vol. I, Special Issue I, August 2015 in association with VEL TECH HIGH TECH DR. RANGARAJAN DR. SAKUNTHALA ENGINEERING COLLEGE, CHENNAI
National Conference on Recent Technologies for Sustainable Development 2015 [RECHZIG'15] - 28th August 2015

MODULEDESCRIPTION

IMAGE CONVERSION:

Grayscale imagesare distinctfromone-bit black-and-white images,whichin thecontextofcomputerimagingareimageswithonly thetwocolours,black,and white(alsocalled*bi-level*or*binaryimages*).Grayscaleimageshavemanyshades ofgrayinbetween. Grayscaleimagesarealsocalledmonochromatic,denotingth e absence of any chromatic variation. Grayscaleimagesareoftentheresultofmeasuringtheintensit y of lightat eachpixelinasinglebandofthee lectromagneticspectrum (e.g.infrared,visible light,ultraviolet,etc.),andinsuchcasestheyaremonochromat icproperwhenonly agivenfrequencyiscaptured.Butalsotheycanbesynthesized from afullcolourimage;seethe sectionaboutconvertingtograyscale.



OriginalImage **Grayscale Image**

EDGE DETECTION:

Edgedetectionisafundamentaltoolinimageprocessingandc omputer vision, particularly intheareasoffeaturedetectionandfeatureextraction, whichaim at identifyingpointsin adigitalimageatwhichtheimage brightnesschangessharply or,moreformally, hasdiscontinuities.The edgesextractedfromatwo-dimensional image of a three-dimensionalscene canbeclassifiedas

- Viewpointdependent
- Viewpoint independent.

A*viewpointindependentedge*typicallyreflects Inherentpropertiesofthethree- dimensionalobjects, suchassurface markingsandsurfaceshape.

A*viewpointdependentedge*maychangeastheviewpointcha nges, andtypically reflectsthe geometryof thescene, suchasobjectsoccludingoneanother.

CANNYEDGE DETECTIONALGORITHM:

TheCanny algorithm basically findsedgeswherethegrayscaleintensity of the imagechangesthemost.Theseareasarefoundby determininggradientsof the image. Gradientsateachpixelinthesmoothedimage

The algorithmrunsin5 separatesteps:

1. **Smoothing**:Blurringof theimage toremove noise.

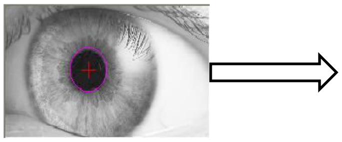
2.**Findinggradients**:Theedgesshouldbemarkedwherethe gradientsofthe image haslarge magnitudes.

3. **Non-maximumsuppression**:Onlylocalmaxima shouldbe markedasedges.

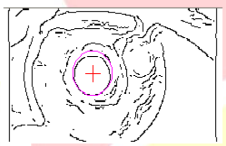
4. **Double thresholding**:Potentialedgesare determinedbythresholding.

5.**Edgetrackingbyhysteresis**:Finaledgesaredeterminedb ysuppressingall edgesthatare notconnectedtoaverycertain(strong) edge.

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
Available online at www.ijarbest.com
International Journal of Advanced Research in Biology Ecology Science and Technology (IJARBEST)
Vol. I, Special Issue I, August 2015 in association with VEL TECH HIGH TECH DR. RANGARAJAN DR. SAKUNTHALA ENGINEERING COLLEGE, CHENNAI
National Conference on Recent Technologies for Sustainable Development 2015 [RECHZIG'15] - 28th August 2015



PUPIL DETECTION:

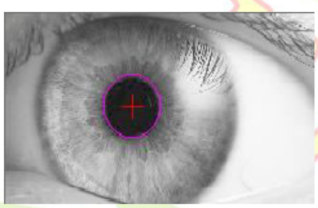


Theacquired iris image hasto be preprocessed todetect theiris,whichis anannularportionbetween the pupil(innerboundary)andthe sclera(outer boundary).Thefirststepinirislocalizationistodetectpupilw hichisthe blackcircular partsurroundedbyiristissues.Thecenter ofpupil canbe used todetectthe outer radiusofirispatterns. The importantstepsinvolvedare:

1. Pupildetection (InnerCircle).

2. Outeririslocalization.

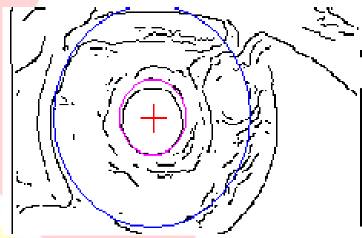
CircularHough



Transformationforpupildetection can beused.Thebasicideaofthistechniqueistofindcurvesthatca nbeparameterizedlikestraightlines,polynomials,circles,et c.,ina suitableparameter space.

Detectionof inner pupilboundary

Externalnoiseisremovedby blurringtheintensity image.Buttoo muchblurringmay dilatetheboundaries oftheedge ormaymakeit difficult to detectthe outer iris boundary, separating theeyeballand sclera.Thusa special smoothingfilter suchasthemedianfilteris usedontheoriginal intensity image. This typeof



filtering eliminates sparse noise while preservingimageboundaries.Afterfiltering, thecontrast ofimageis enhancedtohave sharpvariationatimageboundariesusinghistogram equalization.

NORMALIZATION:

Mustremoveblurredimagesbefore featureextraction.Localizingiris from animagedelineatestheannularportionfrom therestoftheimage.The conceptofrubbersheetmodalsuggestedby Daugmantakesinto considerationthepossibility ofpupildilationandappearingof differentsize in different images.Forthispurpose,the coordinate system ischangedby unwrappingtheirisandmappingallthepointswithinthe boundaryofthe irisinto their polarequivalent.Themappedimagehas 80× 360 pixels.It meansthatthestepsizeissameateveryangle. Thisnormalizationslightly

CONCLUSION

Inthiswork,wehave exploredamethodofcreatingiris texturesfora given personembeddedintheirnaturaliristexture(orsomeoneelse 'sifdesired)using justthe iriscode of theperson.If these textures are usedin an iris recognition system, theywillgivearesponse similar tothe originaliris texture.Thereare some papersthatdiscussthecreationofartificialiristexturesusing cuesfromanatomy, orbymodelingiristexturesusingvariousmathematicalmod elsfrom apure synthesispointofview.Tothebestofourknowledge,nowork currentlyexists thatstartsmodelingtheirisfrom theiriscodewhichisgenerallyconsideredtobe unidentifiabledata.Inourwork,wecreate theiris texturestartingfrom justtheiris bitcode oftheindividualandweembedthe necessary texturetocreatea iriscode. Ourresultsshow naturallookingirisimagesthatgivea similarrecognition (verification) performance asagenuineirisof the same person.

Withthehelpofbiometricsitwillbeeasiertotracktheactions ofuserof any devicesandmachines,adapttheirfunctionstohisneedsandt odemandhis liability foractionscaused.Iassumethatthiscanslowly changemany areasoflife andcreatealargemarketfor devicesthatareabletorecognizetheirusersandreact accordingtotheirneeds.

Asfuture work, we willexplore countermeasuresfordetectingsuch attempts.

REFERENCES

1.L.Flom and A.Safir,"Iris Recognition System,"U.S. Patent 4 641 349,Feb.3,1987.

2.J.Daugman. "How Iris Recognition Works,"IEEETrans.CircuitSyst.Video Technol.,vol.14,no.1,pp.21-30Jan.2002.

3.K.Hollingsworth,K.W.Bowyer,andP.J.Flynn,"Pupil dilation"

4.Degrades Iris Biometric Performance,"Comput.Vis.Image Understand,vol.113,no.1,pp.150-157,2009.

5.S.S.Arora,M.Vatsa,R.singh,andA.K.Jain,"On Iris camera interoperability," in Proc.BTAS,2012,pp.346-352.

6.R.Connaughton, A.Sgori, K.Bowyer,andP.Flynn,"AMultialgorithm analysis of three Iris Biometric sensors," IEEE Trans. Inf.Forensics Security,vol.7,no.3,pp.919-931,jan 2012.