A

Mini Project

On

IRIS RECOGNITION USING DAUGMAN ALGORITHM AND ANN

(Submitted in partial fulfillment of the requirements for the award of the Degree)

BACHELOR IN TECHNOLOGY

In

INFORMATION TECHNOLOGY

By

Muddam Ranadeep

(207R1A1295)

Under the Guidance of

Dr.V.Malsoru

(Associate Professor)

DEPARTMENT OF INFORMATION TECHNOLOGY

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

(Accredited by NAAC, NBA, Permanently Affiliated to JNTUH, Approved by AICTE, NewDelhi) Recognized Under Section 2(f) & 12(B) of the UGCAct.1956, Kandlakoya (V), Medchal Road, Hyderabad-501401

2020-2024

DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that the project entitled **IRIS RECOGNITION USING DAUGMAN ALGORITHM AND ANN** submitted by **Muddam Ranadeep (207R1A1295)** in partial fulfillment of the requirements for the award of the degree of B.Tech in Information Technology from the Jawaharlal Nehru Technological University Hyderabad, is a record of the Bonafide work carried out by him under our guidance and supervision during the academic year 2023-2024

The results embodied in this project has not been submitted in any other University or institute for the award of any degree or diploma.

Dr.V.Malsoru
(Associate Professor)
INTERNAL GUIDE

Dr. A. Raji Reddy
DIRECTOR

Dr. B. Kavitha Rani
HEAD OF THE DEPARTMENT

EXTERNAL EXAMINAR

Submitted for Viva voice Examination held on_____

ACKNOWLEDGEMENT

Apart from the efforts, the success of any project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this project.

I take this opportunity to express my profound gratitude and deep regard to my guide faculty, **Dr.V.Malsoru**, Associate Professor, for his exemplary guidance, monitoring and constant encouragement throughout the course of this Subject presentation.

I also take this opportunity to express my profound gratitude to my Project Review Committee (PRC) Coordinator, **Mr.MD Sajid Pasha** Assistant Professor. The blessing, help and guidance given by him shall carry us a long way in the journey of life on which we are about to embark.

I are also thankful to the Head of the Department **Dr. B. Kavitha Rani** for providing excellent infrastructure and a nice atmosphere for completing this project successfully.

I would like to express my sincere gratitude to **Dr. M. Ahmed Ali Baig,** Dean Administration, **Dr. D T V Dharmajee Rao,** Dean Academics, **Dr. Ashutosh Saxena,** Dean R&D for encouragement throughout the course of this presentation.

I obliged to our Director **Dr. A. Raji Reddy** for being cooperative throughout the course of this presentation.

I wish to express our sincere gratitude to the Management of **CMR Technical Campus**, Hyderabad, **Sri.Ch. Gopal Reddy,** Honourable Chairman, S**mt.C. Vasantha Latha,** Honourable secretary, **Sri.C. Abhinav Reddy,** Honourable Chief Executive Officer.

The guidance and support received from all the members of **CMR TECHNICAL CAMPUS** who contributed and who are contributing to this project, was vital for the success of the project. I are grate full for their constant support and help.

Finally, I would like to take this opportunity thank our family for their constant encouragement without which this assignment would not be possible. I sincerely acknowledge and thank all those who gave support directly and indirectly in completion of this project.

Muddam Ranadeep

(207R1A1295)

ABSTRACT

One of the main results of the validation system is based on the iris based iris recognition system and respective technology. The entire biometric process is very much authentic and unique than the other types of recognition system and validation process. This has provided innovative ideas in the daily lives of human beings. The multimodal biometric process has generally applied various types of applications for properly dealing with the appropriate and most significant limitations of the “unimodal biometric system”. The entire process has been generally included with the proper sensitivity of noise, the population coverage areas, variability cases of the inter class and intra class issues, vulnerability cases of possible hacking and the non universality criteria. The entire research paper has been mainly focused on the deep learning oriented machine learning system. The iris based iris recognition system to do the proper validation of human beings has been mainly done by ANN technique. In the existing data validation process, the iris recognition system has been mainly done with respect to the “high security protection system with actual iris". This entire project has been briefly elaborated on the best uniqueness, reliability process and the proper “validity of the iris biometric validation system” for the actual purpose of the person identification.

LIST OF FIGURES

LIST OF SCREENSHOTS

CONTENTS

IRIS RECOGNITION
USING
DAUGMAN ALGORITHM AND ANN

1. INTRODUCTION

1. INTRODUCTION

1.1 INTRODUCTION

The biometric process has been mainly used to recognize individual types of physical aspects and features. For this purpose, a tremendous amount of acknowledgement technologies have been generally provided with the actual iris, iris procedures and voice acknowledgement. The biometric mainly deals with the proper technical and technological fields for the body controls and body dimensions. The authentication system is based on the appropriate biometric security system that has increased the actual importance within all countries. The used system has been shown the proper valid and best impressive performance based on all these procedures and aspects. For this purpose, the iris is the only procedure for providing the proper security techniques to provide the true uniqueness and the strong privacy properties of the entire system. The exceptional iris assurance or the proper kind of imprint approval has been mainly insinuating the automated methods and procedures to ensure similarity between the two people iris. The entire chapter has been generally provided with the actual purpose of the fundamental research that is overall dependent on the research objectives and respective research questions. In this chapter, the research framework of the entire study has also been provided. The fundamental research has described all the factors that areresponsible for this recognition process.

1.2 PROBLEM STATEMENT

There are various types of problems and significant issues that have been mainly faced by the biometric security system. The central and foremost issue is the biometric authentication process, and technologies have been mainly raised in the various types of privacy concerns and security concerns (Hamd & Ahmed, 2018). During the processing time of the biometric data, there is no other option to undo or retrieve the respective information from the damage. For the case of the compromised passwords, anyone can modify it with iris, iris scanner and the ear image effects. So for all these aspects, the simple working performance of the biometrics remains within the security risks and privacy risks. There are various types of problems that have been shown in the different slides of the iris recognition system, such as the sensor module, preprocessor module and feature extraction process. All these security and privacy issues can be adequately solved by the appropriate types of technologies and modern and advanced techniques.

1.3 OBJECTIVES

Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.

It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors.
The data entry screen is designed in such a way that all the data manipulates can be performed. Italso provides record viewing facilities.

1.4 LIMITATIONS

Complexity of Malware Technique

Basic visibility

Zero-Day attacks

High – Dimensional Data

2. SYSTEM ANALYSIS

2.SYSTEM ANALYSIS

2.1 INTRODUCTION

In the pursuit of developing an efficient and secure data retrieval system for cloud environments, a comprehensive system analysis is essential. This section delves into the critical examination and evaluation of the existing system, highlighting its strengths, weaknesses, and the specific requirements that must be met to achieve the project's objective.

System analysis serves as the foundation for the subsequent phases of system design and implementation. By thoroughly understanding the current state of affairs, including the challenges faced in data security and retrieval on the cloud, we can formulate a well-informed strategy for the development of our solution.

2.2 EXISTING SYSTEM

The user Authentication is one of the key concern areas that form the part of secured access to data. Iris authentication and recognition approach that helps in authenticating the intended user utilizing the characteristic features of the iris. It has several other applications such as it is used in ATM's, and biometric recognition systems. This system typically contains different phases of functioning. The figure below shows the process involved for the iris recognition system. It happens to be a very useful approach in most cases. Figure 1 shows the process of Iris Recognition system and its different steps. Iris recognition is a form of bio metric authentication system that uses high end mathematical techniques and processes on the digital image of the Iris of the eye. It is mainly based on the pattern recognition method where in it identifies sharp and distinct patterns of the Iris that can accurately recognize the intended user. This recognition system is quite accurate and also gives improved performances. With the rise in the security breaches and other forms of authentication frauds, it is very important to have a stringent biometric system in place. Especially in places of high importance like the banks and ATMs, it is useful. Different algorithms are employed to encode the different set of patterns that exist in the iris localization scheme. It is useful to know the user is the real person or someone else impersonating the intended person. The system maintains a database. The database is usually big and consists of large number of templates of the iris features. This is then matched by the search engine of the model for the recognition purpos**e**

2.3 DISADVANTAGES OF EXISTING SYSTEM

Physical Contact**:** Fingerprint recognition requires physical contact with a sensor, which might not be prepared.

Sensor Limitations: The quality of fingerprint recognition heavily depends on the quality of the sensor.Low-quality sensors might result in inaccuracy

Complexity and Cost: Implementing a fingerprint recognition system requires specialized hardware (fingerprint sensors) and software, which can be costly to setup and maintains or inconsistent readings in situations where hygiene is a concern

2.4 PROPOSED SYSTEM

.

The proposed system is based in improvement in iris recognition based on the Daugman's algorithm for iris localization and the use of neural networks for classification. The proposed method detects pupil using Daugman's integro differential operator (IDO) and subsequently trains a neuralnetwork classifier for the final classification.

The Daugman's Algorithm**:-** The Daugman's algorithm is by far one of the most effective classifiers as far as iris recognition is concerned. It relies on the fact that regular shapes with distinctive boundaries can be easily segmented by the Daugman's algorithm. There are several steps involved in the IDO which re explained below.

Histogram Equalization:- This process generally improves the contrast of the irs thereby increasing the possibility of better segmentation.

Binarization**:**-The image Binarization technique is extremely effective in enhacing or amplifying the differences between the pupil and the iris section. The Binarization technique also is responsible for removal of interfering objects that may mar the separation performance.. Moreover, the binarization is based on applying an integro-differential operator to find the iris and pupil contour.

2.5 ADVANTAGES

High Security: The iris is a highly unique and stable biometric trait, making iris recognition a strong method for user authentication. The complexity and stability of iris patterns contribute to a high level of security.

Non-Intrusiveness: Iris recognition is non-intrusive, requiring only the capture of an image of the iris from a distance. This is more user-friendly and hygienic compared to methods like fingerprint scanning.

Resistance to Fraud: Iris recognition is difficult to spoof or counterfeit due to the complexity of iris patterns and the requirement for live-eye detection.

Accurate and Fast: When implemented correctly, iris recognition systems can achieve high accuracy rates and provide fast authentication, making them suitable for real-time application

3.SYSTEM STUDY

3.SYSTEM STUDY

3.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

Economical Feasibility

Technical Feasibility

Social Feasibility

3.1.1 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of funds that the company can pour into the research and development of the system is limited. The expenditure must be justified. Thus, the developed system is well within the budget, and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

3.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

3.1.3 SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

4.SYSTEM REQUIREMENTS

4. SYSTEM REQUIREMENTS

4.1 HARDWARE REQUIREMENTS

- Processor : Intel i3
- RAM : 8Gb
- Hard Disk : 1TB

4.2 SOFTWARE REQUIREMENTS

- Operating System : Windows 10
- Coding Language : Python 3.8
- Back-end : Python anaconda script
- Designing : HTML, CSS, Java script.
- Tool : Spyder,Python 3.8

5.SYSTEM DESIGN

5. SYSTEM DESIGN

5.1. SYSTEM ARCHITECTURE

Architecture defines the components, modules interfaces and data for a system to satisfy specified requirements. One should see as the applications of the systems theory to product development**.**

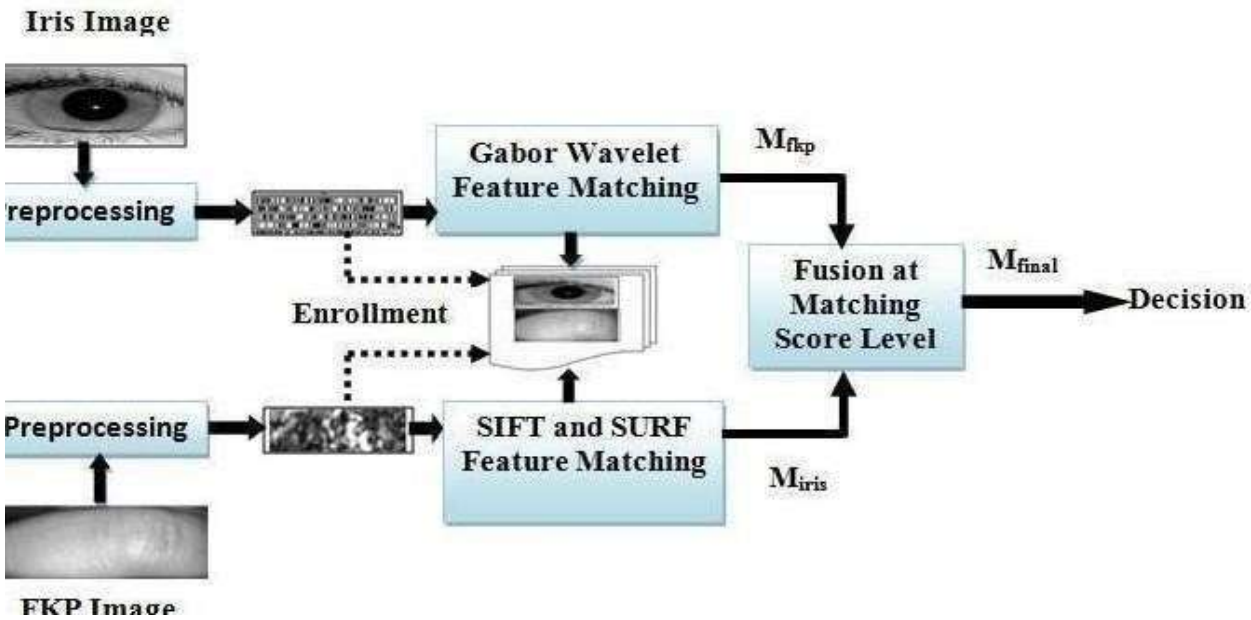


Fig 5.1 System Architecture

5.2 UNIFIED MODELLING LANGUAGE(UML)

UML stands for unified modeling language. UML is a standardized general purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the object Management Group.

5.2.1 GOALS OF UML

The Primary goals in the design of the UML are as follows:

- Provide users a ready-to-use, expressive visual modeling language so that they can develop and exchange meaningful models.
- Provide extendibility and specialization mechanisms to extend the core concepts.
- Be independent of particular programming languages and development process.
- Provide a formal basis for understanding the modeling language.
- Support higher level development concepts such as collaboration, frameworks, patterns andcomponents.
- Integrate best practices.

5.2.2 USE CASE DIAGRAM

In software engineering, a class diagram in the Unified Modelling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which contains information.

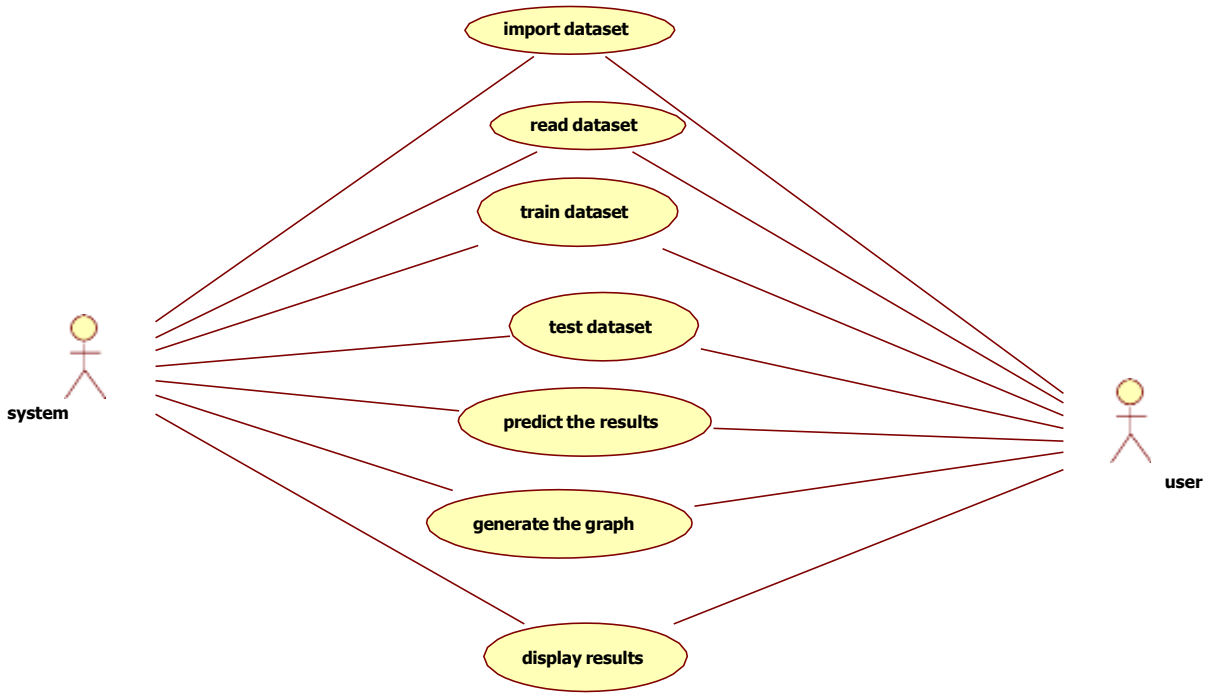


Fig 5.2 Use-Case Diagram

5.2.3 CLASSDIAGRAM

Class diagram is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), AND among objects.

Fig.5.3 Class diagram

5.2.4 SEQUENCE DIAGRAM

A Sequence diagram shows object interactions arranged in time sequence. It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the logical view of the system under development.

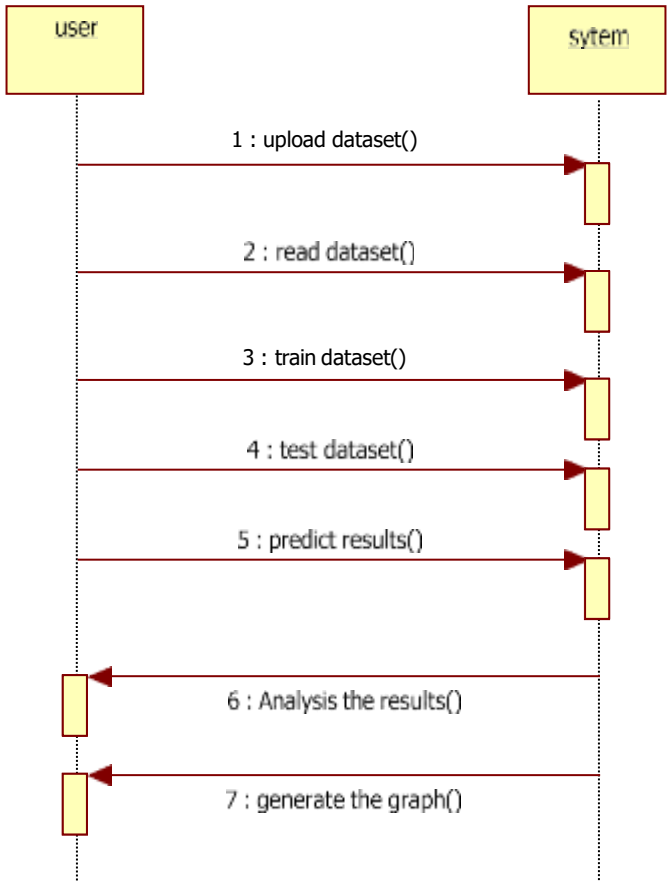


Fig 5.4 Sequence diagram

5.2.5 COLLABORATION DIAGRAM

In collaboration diagram the method call sequence is indicated by some numbering technique asshown below. The number indicates how the methods are called one after another. We have taken the same order management system to describe the collaboration diagram. The method calls are similar to that of a sequence diagram. But the difference is that the sequence diagram does not describe the object organization where as the collaboration diagram shows the object organization.

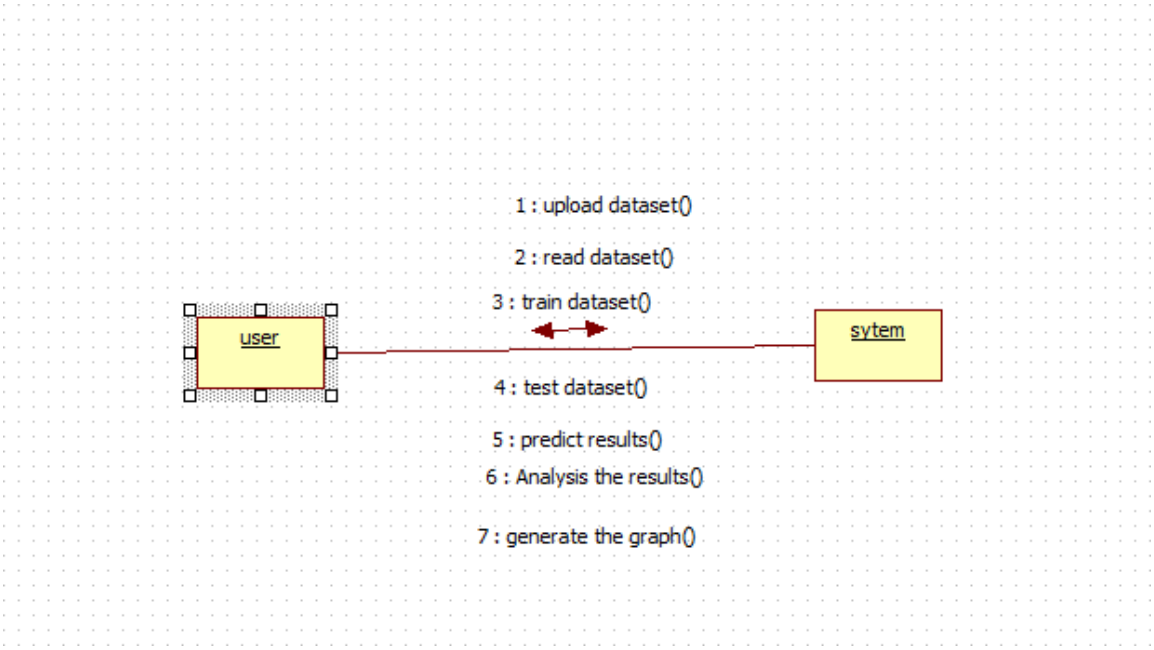


Fig 5.5 COLLABORATION DIAGRAM

5.2.6 ACTIVITY DIAGRAM

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

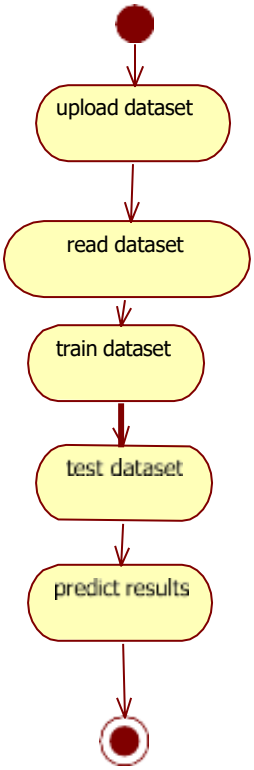


Fig 5.6 Activity diagram

6.IMPLEMENTATION

6. IMPLEMENTATION

6.1 MODULES

1.Image Acquisition

2.Preprocessing

3. Iris Segmentation using Daugman Algorithm

4. Feature Extraction using ANN

5. Template Creation

6. Matching and Verification

7. Decision Making

6.2 MODULE DESCRIPTION

Image Acquisition:Capture an iris image using a specialized camera, typically in the near-infrared spectrum,toensure clear and distinct iris patterns.

Preprocessing:Enhance the captured iris image to improve contrast, reduce noise, and remove artifacts.Normalize the iris image to correct for variations in size, pupil dilation, and rotation.

Daugman Algorithm:Apply the Daugman Algorithm for precise iris segmentation, isolating the circular iris regionand the surrounding sclera.

Feature Extraction using ANN:Train an ANN to extract relevant features from the segmented iris region.

Use the trained ANN to transform the iris image into a compact feature vector that captures unique characteristics.

Template Creation: Combine the iris features extracted by the ANN into a template that represents the individual's iris pattern.

Matching and Verification:Compare the extracted template with templates stored in the database using appropriate matching algorithms.Apply a similarity or distance metric to determine the similarity betweentemplates.

Decision Making:Make a decision based on the similarity score, determining whether the input iris image matches any template in database

6.3 SOURCE CODE

Code for design of iris recognition system through machine learning process

```
main = tkinter.Tk()
main.title("Iris Recognition using Machine Learning Technique") #designing main screen
main.geometry("1300x1200")
global filenameglobal model
def getIrisFeatures(image):
global count

img = cv2.imread(image,0) img = cv2.medianBlur(img,5)

cimg = cv2.cvtColor(img,cv2.COLOR_GRAY2BGR)

circles=cv2.HoughCircles(img,cv2.HOUGH_GRADIENT,1,10,param1=63,param2=70,minRadi
us=0,maxRadius=0)

if circles is not None:

height,width = img.shaper = 0

mask = np.zeros((height,width), np.uint8)for i in circles[0,:]:

cv2.circle(cimg,(i[0],i[1]),int(i[2]),(0,0,0))

cv2.circle(mask,(i[0],i[1]),int(i[2]),(255,255,255),thickness=0)blank_image =

cimg[:int(i[1]),:int(i[1])]

masked_data = cv2.bitwise_and(cimg, cimg, mask=mask)
 = cv2.threshold(mask,1,255,cv2.THRESH_BINARY)

contours=cv2.findContours(thresh,cv2.RETR_EXTERNAL,cv2.CHAIN_APPROX_SIMPLE)

x,y,w,h = cv2.boundingRect(contours[0][0])

crop = img[y:y+h,x:x+w]r = i[2]

cv2.imwrite ("test.png",crop)else:
```

```
count = count + 1 miss.append(image)

return cv2.imread("test.png")def uploadDataset():

global filename

filename = filedialog.askdirectory(initialdir=".")text.delete('1.0', END) text.insert(END,filename"

loaded\n\n");

def loadModel():

global model text.delete('1.0', END)

X_train = np.load('model/X.txt.npy')Y_train = np.load('model/Y.txt.npy')print(X_train.shape)

print(Y_train.shape)

text.insert(END,'Dataset contains total '+str(X_train.shape[0])+' iris images from '+str(Y_train.shape[1])+"\n")

if os.path.exists('model/model.json'):

with open('model/model.json', "r") as json_file:loaded_model_json = json_file.read()

model = model_from_json(loaded_model_json) model.load_weights("model/model_weights.h5")

model._make_predict_function() print(model.summary())

f = open('model/history.pckl', 'rb')data = pickle.load(f)

f.close()

acc = data['accuracy'] accuracy = acc[59] * 100

text.insert(END,"CNN Model Prediction Accuracy = "+str(accuracy)+"\n\n")text.insert(END,"See Black Console to view CNN layers\n")
```

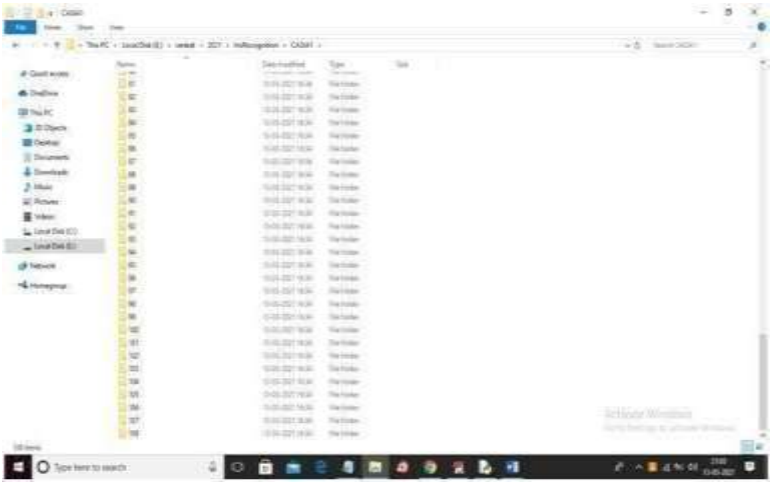
Code for checking the accuracy

```
classifier = Sequential()

classifier.add(Convolution2D(32, 3, 3, input_shape = (64, 64, 3), activation = 'relu'))

classifier.add(MaxPooling2D(pool_size = (2, 2)))

classifier.add(Convolution2D(32, 3, 3, activation = 'relu'))

classifier.add(MaxPooling2D(pool_size = (2, 2)))classifier.add(Flatten())

classifier.add(Dense(output_dim = 256, activation = 'relu')) classifier.add(Dense(output_dim =

108, activation = 'softmax'))print(classifier.summary())

classifier.compile(optimizer = 'adam', loss = 'categorical_crossentropy', metrics = ['accuracy'])hist

= classifier.fit(X_train, Y_train, batch_size=16, epochs=60, shuffle=True, verbose=2)

classifier.save_weights('model/model_weights.h5')

model_json = classifier.to_json()

with open("model/model.json", "w") as json_file:json_file.write(model_json)

f = open('model/history.pckl', 'wb')pickle.dump(hist.history, f) f.close()

f = open('model/history.pckl', 'rb')data = pickle.load(f)

f.close()

acc = data['accuracy']

accuracy = acc[9] * 100

print("Training Model Accuracy = "+str(accuracy))
```

7.SCREENSHOTS

7. SCREENSHOTS

7.1 IRIS Dataset



Screenshot 7.1Iris DataSet

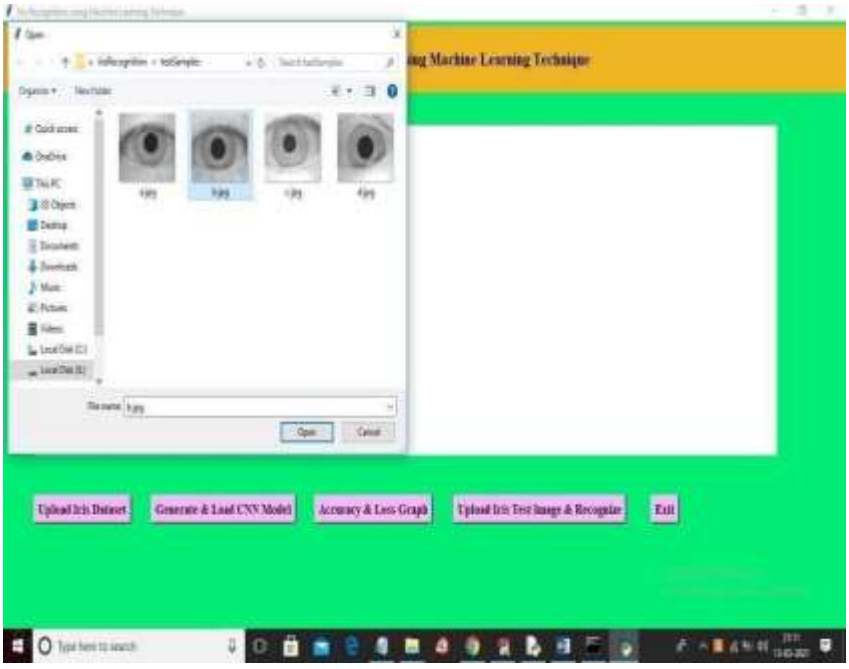
7.2 SCREENSHOT OF GENERATION OF THE ANN MODEL

Screenshot 7.2 Screenshot of generation of the ANN model

7.3 GENARATION OF THE LOSS GRAPH AND ACCURACY CHECK

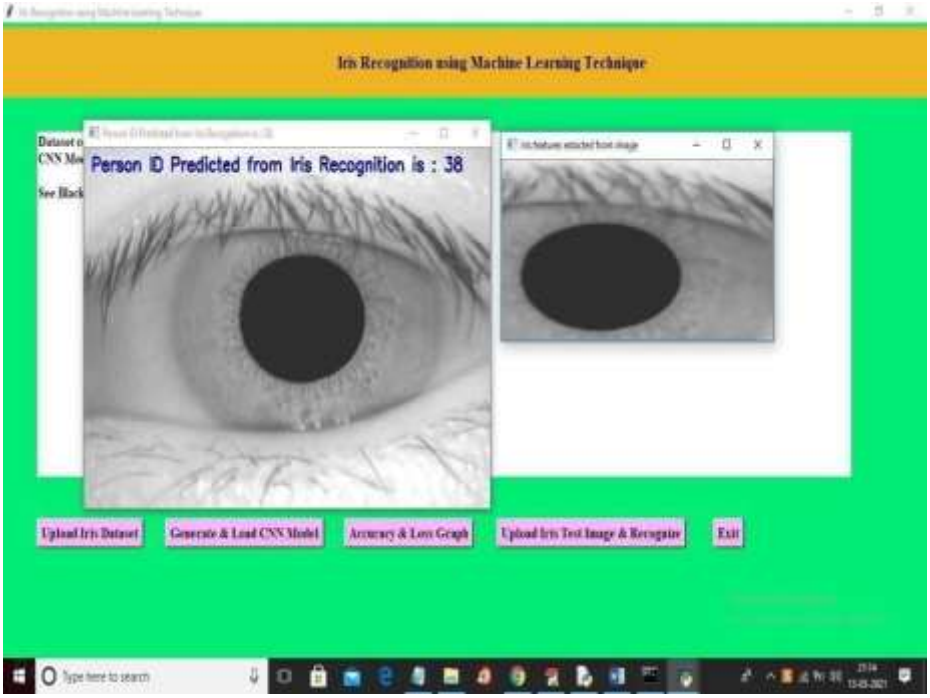
Screen shot 7.3: Generation of the LOSS Graph and accuracy check

7.4 RECOGNITION PROCESS



Screenshot 7.4 Recognition process

7.5 ACCURATE RECOGNITION IMAGE



Screenshot 7.5 Accurate recognition image

8.TESTING

8. TESTING

8.1 PURPOSE OF TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionalityof components, sub-assemblies, assemblies and/or a finished product it is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail unacceptably. There are various types of tests. Each test type addresses a specific testing requirements.

8.2 TYPES OF TESTING

8.2.1 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application

.it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately tothe documented specifications and contains clearly defined inputs and expected results.

8.2.2 INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcomeof screensor fields. Integration tests demonstrate that although the components were individuallysatisfaction,as shown by successfully unit testing, the combination of components is correct and consistent.

Integration testing is specifically aimed at exposing the problems that arise from the combination ofcomponents.

8.2.3 FUNCTIONAL TESTING

Functional tests provide systematic demonstrations that functions tested are available as specifiedby the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value ofcurrent tests is determined.

8.2.4 SYSTEM TEST

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points

8.2.5 WHITE BOX TESTING

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. I is usedto test areas that cannot be reached from a black box level

8.2.6 BLACK BOX TESTING

This Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot "see" into it. The test provides inputs and responds to outputs without considering how the software works.

8.2.7 UNIT TESTING

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

Test strategy and approach

Field testing will be performed manually and functional tests will be written

Test objectives

All field entries must work properly.

Pages must be activated from the identified link.

The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by theend user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

TEST CASES:

S.NO	Test Case	Excepted Result	Result	Remarks(IF Fails)
1.	User Register	If User registration successfully.	Pass	If already user email exist then it fails.
2.	User Login	If Username and password is correct then it will getting valid page.	Pass	Un Register Users will not logged in.
3.	User View User	Show our dataset	Pass	If Data set Not Available fail.
4.	View Fast History Results	The Four Alarm Score Should be Displayed.	Pass	The Four Alarm Score Not Displaying fail
5.	User Prediction	Display Review with true results	Pass	Results not True Fail
6.	Show Detection process	Display Detection process	Pass	Results Not True Fail
7.	Show Eye Blink Process	Display Eye Blink Process	Pass	If Results not Displayed Fail.
8.	Admin login	Admin can login with his login credential. If success he get his home page	Pass	Invalid login details will not allowed here
9.	Admin can activate the register users	Admin can activate the register user id	Pass	If user id not found then it won't login
10.	Results	For our Four models the accuracy and F1 Score	Pass	If Accuracy And F1 Score Not Displayed fail

Table:Test Cases Iris Recognition Using Daugman Algorithm and ANN

9. CONCLUSION AND FUTURE SCOPE

9. CONCLUSION AND FUTURE SCOPE

9.1 CONCLUSION

This is the final chapter in the assignment that discusses the entire research work and also analyses the software work that has been conducted for obtaining the expected outcomes. This chaptermainly focuses on the expected outcomes, findings and analysis, which will be compared with the actual outcomes. This chapter compares both the actual and expected outcomes. This chapter also discusses the limitations that were faced while conducting the research, as well as. It also provides how this research work can be extended in future. In order to determine the effects of the research and the software study, it is essential to know the fundamental objectives and aims of the study. For conducting the software work, more emphasis has been given on how the implications of different kinds of software and technology will be carried out so that the actual results are achieved. In this particular chapter, the connections between the prime objectives and the results have been built. Future recommendations on the software work will be made so that this research work can be expanded further.

9.2 FUTURE SCOPE

The entire work has been mainly used for the purpose of attempting various strategies for creating the iris-based iris recognition system. This particular system has been proposed various types of derivation quality with respect to the different types of features and aspects of the iris patterns. This process can be easily modified and developed by the renowned "convolution neural networking (CNN)" model with the actual numbers of few layers (Hava *et al*., 2019). The operational performance can be easily verified by the accuracy plots and the loads' case plot. The best effectiveness of the entire proposed approach should be easily tested with the help of the two types of challenging databases, such as the site databases and the CASIA database. The particular "convolution neural networking (CNN)" model has generally been ready to quickly developed and improved to measure all values of the challenges and problematic iris recognition based datasets (Hofer, 2020). For this purpose, various types of datasets and experiments have been conducted within two types of categories. All the categories are basically used for the actual purpose evaluation of the different types of training frameworks like the relevant learning rate

rates, proper filters with respect to the various layers, the quantity of the layers that are mainly used for building the appropriate "convolution neural networking (CNN)" model to show the correct types of the recognition system of all the individual person.

9.3 FUTURE REFLECTION

For the actual matter of the public policy and respective regulations, the proper use of the iris recognition technology has been mainly circulated with the proper deployment of the iris scanning process. In the present time, the iris recognition process has generally introduced various types of challenges for properly tracking the entire security process and privacy features of the entire recognition system (Kaliappan *et al*., 2019). There are various types of considerations that are mainly used for the proper determination of the applicability of iris recognition systems. This particular recognition system is very much highly activated and highly accurate, but the process is very much easy. The research materials have generally included various types of a new innovative process that will be more authentic for future use purpose. The respective scientific innovations have been done with respect to the customer's necessity and requirement against the proper implications. The entire process is a very robust and proper biometric system to properly identify the individual's identity with respect to the deep learning-oriented approaches.

10.BIBLIOGRAPHY

10. BIBLIOGRAPHY

10.1 REFERENCES

1. Adamu, A., 2019. Attendance management system using iris and iris biometric. FUDMA JournalofSciences (FJS), 3(4), pp.427-433.
2. Akbar, M.J., 2019. A Overview of Spoof Speech Detection for Automatic Speaker Verification. Albakri, G. and Alghowinem, S., 2019. The effectiveness of depth data in liveness face authenticationusing 3D sensor cameras. Sensors, 19(8), p.1928.
3. Alrahawe, E. A., Humbe, V. T., & Shinde, G. N. An Analysis on Biometric TraitRecognition. Arora, S. and Bhatia, M.P.S., 2018, July. A robust approach for gender recognition using deeplearning. In 2018 9th International Conference on Computing, Communication and NetworkingTechnologies (ICCCNT) (pp. 1-6). IEEE.
4. Arteaga Falconi, J.S., 2020. Towards an Accurate ECG Biometric Authentication System with Low Acquisition Time (Doctoral dissertation, Université d'Ottawa/University of Ottawa).
5. Ashraf, A. and Vats, I., The Survey of Architecture of Multi-Modal (Iris and Iris Recognition)Biometric Authentication System.
6. Attia, A., Akhtar, Z., Chalabi, N.E., Maza, S. and Chahir, Y., 2020. Deep rule-based classifier forfinger knuckle pattern recognition system. Evolving Systems, pp.1-15.
7. Cardia Neto, J.B., 2020. 3D face recognition with descriptor images and shallow convolutionalneuralnetworks.
8. Cortès Sebastià, G., 2018. End-to-End photoplethysmography-based biometric authentication systemby using deep neural networks (Bachelor's thesis, Universitat Politècnica de Catalunya). Derman, E., Galdi, C. and Dugelay, J.L., 2017, April. Integrating facial makeup detection into multimodal biometric user verification system. In 2017 5th International Workshop on Biometricsand Forensics (IWBF) (pp. 1-6). IEEE.
9. Elhoseny, M., Elkhateb, A., Sahlol, A. and Hassanien, A.E., 2018. Multimodal biometric personal identification and verification. In Advances in Soft Computing and Machine Learning in Image Processing (pp. 249-276). Springer, Cham.

10. Identification: State-of-the-Art. Covenant Journal of Engineering Technology, 3(1).
11. Garg, S.N., Vig, R. and Gupta, S., 2017. A Critical Study and Comparative Analysis of Multibiometric Systems using Iris and Iriss. International Journal of Computer Science andInformation Security, 15(1), p.549.
12. Gogate, G. and Azad, V., Iris Biometric Recognition for Person Identification in Security Society System.
13. Gonzalez-Sosa, E., Vera-Rodriguez, R., Fierrez, J. and Patel, V.M., 2018, February. Person recognition beyond the visible spectrum: combining body shape and texture from mmW images. In 2018 International Conference on Biometrics (ICB) (pp. 241-246). IEEE.
14. Gonzalez-Sosa, E., Vera-Rodriguez, R., Fierrez, J., Alonso-Fernandez, F. and Patel, V.M., 2019. Exploring Body Texture From mmW Images for Person Recognition. IEEE Transactions on Biometrics, Behavior, and Identity Science, 1(2), pp.139-151.
15. Guerra-Segura, E., Ortega-Pérez, A. and Travieso, C.M., 2020. In-air signature verification systemusing Leap Motion. Expert Systems with Applications, 165, p.113797.
16. Hamd, M.H. and Ahmed, S.K., 2018. Biometric system design for iris recognition using intelligent algorithms. International Journal of Modern Education and Computer Science, 10(3), p.9.
17. Hansley, E.E., 2018. Identification of individuals from ears in real world conditions.
18. Hava, V., Kale, S., Bairagi, A., Prasad, C., Chatterjee, S. and Varghese, A., 2019. Free & GenericFacial Attendance System using Android.
19. Haytom, A., Rosenberger, C., Charrier, C., Zhu, C. and Régnier, C., 2019, May. Biometric Application for authentication and management of online exams. In Summer School on Biometricsand Forensics.
20. Herbadji, A., Guermat, N., Ziet, L., Akhtar, Z., Cheniti, M. and Herbadji, D., 2020. Contactless Multi-biometric System Using Iris and Palmprint Selfies. Traitement du Signal, 37(6), pp.889-897. Hernández-García, R., Barrientos, R.J., Rojas, C., Soto-Silva, W.E., Mora, M., Gonzalez, P. and Frati,F.E., 2019. Fast finger vein recognition based on sparse matching algorithm under a multicore platform for real-time individuals identification. Symmetry, 11(9), p.1167.
21. Hofer, P., 2020. Gait recognition using neural networks/Author Philipp Hofer (Doctoral dissertation,Universität Linz).