iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VII **Month of publication:** July 2022

DOI: https://doi.org/10.22214/ijraset.2022.45904

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VII July 2022- Available at www.ijraset.com

A Facial Recognition System

Sreya Dey[1], Sankalita Poddar[2], Subham Chakrabertty[3], Souvick Sen[4], Akash Saha[5], Debmalya Sarkar[6], Rupa Saha[7]
[1, 2, 3, 4, 5, 6]*Student,* [7]*Assistant Professor, Department of Computer Application, Narula Institute of Technology, Kolkata, West Bengal, India*

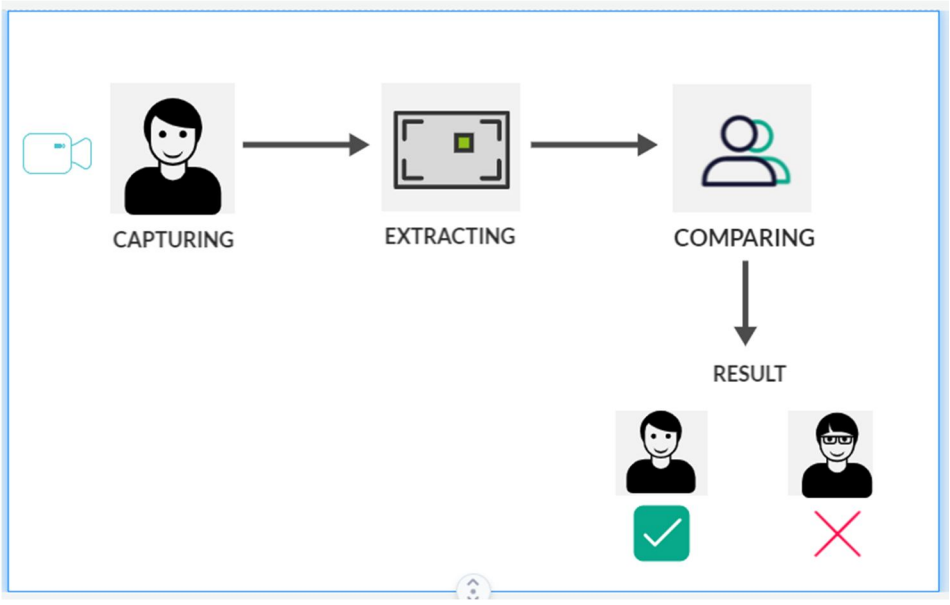
Abstract: ***This paper introduces the design, implementation, and validation of a Digital Signal Processor (DSP) -based Prototype face recognition and authentication system. This system is designed to capture image sequences, detect facial features in photos, and detect and verify a person. The current application uses images captured on a webcam and compares them to archived websites using the Comprehensive Component Analysis (PCA) and Discrete Cosine Transform (DCT) methods. Initially, real-time verification of the captured images was performed using a PC-based program with algorithms developed in MATLAB. Next, the TMS320C6713DSP-based prototype system is upgraded and validated in real-time. Several tests are performed on different sets of images, and the performance and speed of the proposed system are measured in real-time. Finally, the result confirmed that the proposed system could be used in a variety of applications that are not possible in standard PC-based applications. Also, better results were seen from DCT analysis than PCA results.***

Keywords: OpenCV, .yml , Black-Box Testing, White-Box Testing, Black-Box Testing, Python TensorFlow, Kivy ,testing

I. INTRODUCTION

The project's Real-time based face recognition is a complete Mobile- based application designed in Python. The main aim of the project is to develop a face recognition application where users' photos will capture and detect their information whether he or she has an authorized person or not. This application is based on security purposes. The application contains general people profiles and details. There is a provision for updating the security checking. This application also provides help desk, photos, and developers details in the project itself.

II. FACE RECOGNITION



The most basic function of the face recognition app is face recognition. First, you need to take a picture of your face and check it against the new face you took next time. The most common way to get a face is to use a "hair cascade classifier." Retrieving objects using the Hair's feature-based cascade splitter is an effective way to find the elements proposed by Paul Viola and Michael Jones in the 2001 article "Fast Object Recovery with Boosted Cascade of Simple Features." The Machine is a learning method based on cascade activity trained with many good and bad images. It is then used to search for objects in other images.

©IJRASET: All Rights are Reserved

Here, we will work on face recognition. First, the algorithm requires a lot of positive and negative images (face images) to train the separator. Then you need to remove the function. Fortunately, OpenCV includes both a trainer and a detector. If you want to train a separator for such as cars and planes, you can use OpenCV to create a separator.

III. TRAINER

This is the 2nd phase of the project where you have to use the OpenCV Recognizer "Tutorial" to capture all user data in the dataset. The whole process works specifically for a specific task in the OpenCV library. The result is a .yml file stored in the "Trainer\" directory.

IV. RECOGNIZER

This is the final stage of the project. Then capture the new face with the camera. If the person has captured and trained the face on the system before, the recognition function of the project will generate an "ID", "index number" and "guess". From the saved dataset. It also shows how confident the cognitive function is in this match found.

V. TESTING

It is a process that prevents bugs, reduce cost of development and improve system performances.
For doing this project we have done 2 types of testing:

1) Black Box testing
2) White Box testing

Black Box testing is used to run the software is working or not, whether the input is properly accepted and output is correctly produced or not.
Whereas, in White Box testing is used to check the internal details like it checks the logical paths, it checks the conditions of the loop used in coding. It also checks the loop is correctly running or not.

VI. SYSTEM REQUIREMENTS

For doing this project our system required some software like:

1) *Python:* It is a high-level language which is used to build websites and software.
2) *TensorFlow:* It is an open-source framework which is used to run machine learning, deep learning etc.
3) *OpenCV:* It is an application which is used to provide a common infrastructure for computer vision applications.
4) *Kivy:* It is a graphical python library that allows us to perform multi-platform applications.

VII. CONCLUSION

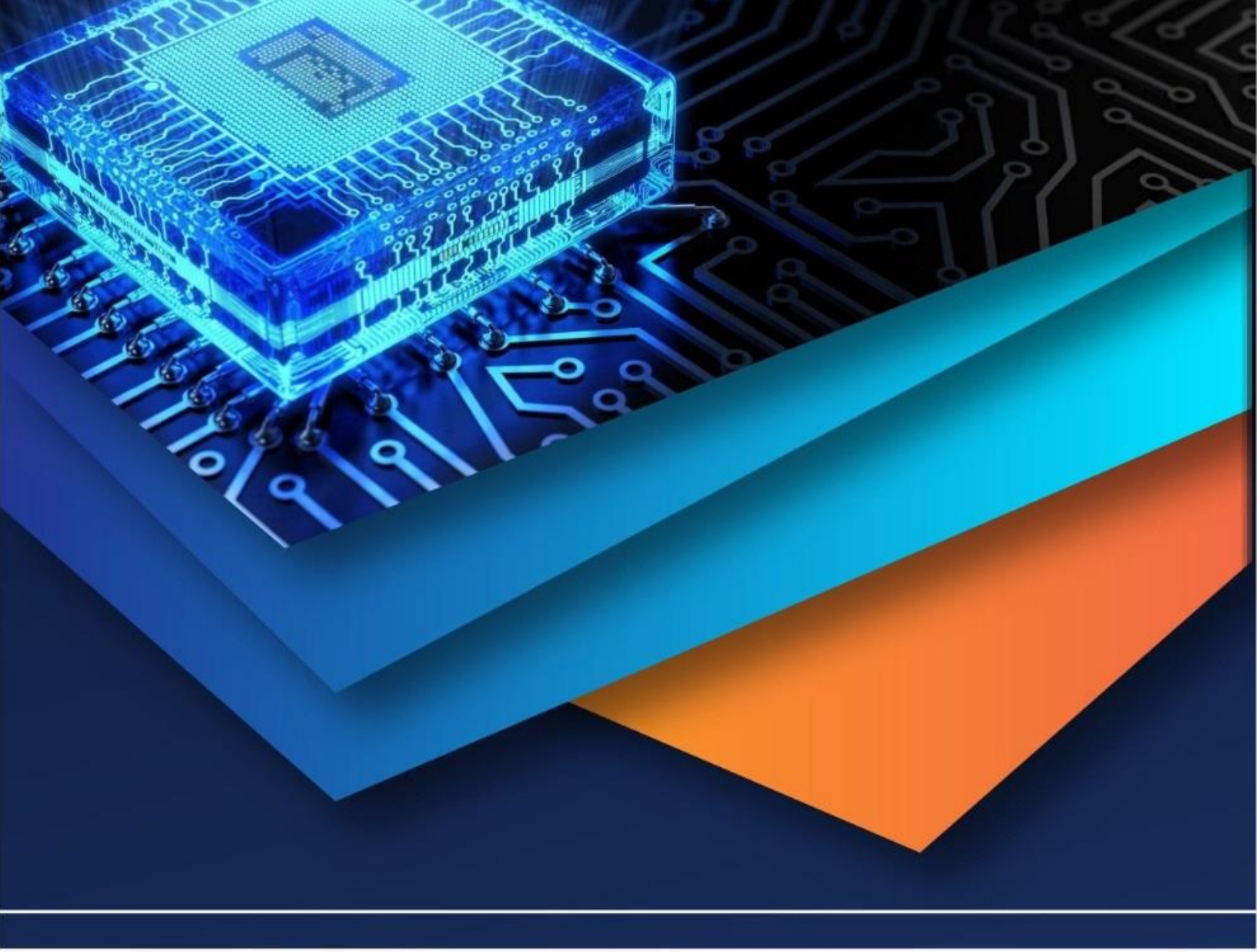
Face recognition technology has come a long way in the last 20 years. Machines can now automatically verify identity details for secure operation, safety and security features, control of access to facilities, and more. Face recognition systems are technologies that can identify a person's face using a digital photo or video frame on a face mask. These apps usually work to see a person's face. The algorithm requires a large number of positive and negative images to train the model. This application is completely application based and the interface is easy to use and up to date. The final step in this system is to capture the face and the system will display the results based on the input (whether verified or not).

VIII. ACKNOWLEDGEMENTS

We take this occasion to thank God, almighty for blessing us with his grace and taking our endeavour to a successful Culmination. We extend our sincere and heartfelt thanks to our esteemed guide & teacher in charge, Ms Rupa Saha, for providing us with the right guidance and advice at the crucial junctures and for showing me the right way. We would like to thank the other faculty members also at this occasion. Last but not the least, we would like to thank our friends and family for the support and encouragement they have given us during this work.

REFERENCES

[1] OpenCV.com
[2] Google.com
[3] TensorFlow.com
[4] YouTube Sources



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)