

Automated Face Detection System for Presence Marking using OpenCV

Ravindra Kumar¹, Dr. Mohammed Bakhtawar Ahmed², Mrs. Suniti Purbey³

¹Amity Institute of Information Technology, Amity University Chhattisgarh
rk30062001@gmail.com

²Assistance Professor, Amity Institute of Information Technology, Amity University Chhattisgarh
bakhtawar229@gmail.com

³ Assistance Professor, Amity Institute of Information Technology, Amity University Chhattisgarh
spurbey@rpr.amity.edu

Abstract - The main objective of this project is to create a real-time face monitoring system for face recognition of educational institutions and offices in order to develop and improve the current attendance system to be more efficient and effective than ever before. The old system now has a lot of ambiguity that has led to inaccurate neutrality and inefficiency. The most difficult task for any organization is to mark attendees. This background technology will be a real-time face recognition system. A person's face is one of the natural features that can identify a person differently. Therefore, it is used to track identification as the chances of the face turning or recurring are low. This program can be used to go to educational institutions and offices using real-time face recognition with the help of Python, OpenCV, Web Cam, and Excel file. Common methods such as eigen faces and fishermen's faces are sensitive to light, sound position, blockage, light etc. So, we used Python and AI to see real-time face recognition and overcome those difficulties. Attendance records will be automatically updated and stored on an excel sheet

Key Words: Real-time attendance System, OpenCV, NumPy, Excel, Face-recognition.

1. INTRODUCTION

Those in attendance were able to see a person's face in real time in his work. Presence plays a very important role in our normal lives. Nowadays most schools / colleges and offices take to the old paper or file system. This approach is a total waste of time and effort for students and teachers as well as office workers and others. With the help of advanced technology to solve the problem now Face-Detection is one of the areas of emerging research in computer science. A large application for personal recognition in the classroom system and offices Purpose Travel, where the school attendance sheet and IN / OUT time for students and staff can be stored as soft data for the latest records. The system is designed to avoid the annoyance of teachers and staff in entering data on a daily basis during visits and to avoid representation.

There are several biometrics used for Personal Recognition such as Iris, Fingerprints, Face etc. as Iris and Fingerprints are biometrics for a very short distance, but our application requires one to be away from the camera, centered in the

center of the camera. the classroom and office entrance gate to take the attendees smoothly or mark the presence. To improve the effective and efficient real-time face recognition system there are a few components that you need to hold in your hand. The program will only see faces registered in the system

METHODOLOGY

Open CV:

OpenCV-Python is an integrated Python library designed to solve computer vision problems. OpenCV now supports a large number of Computer Vision-related algorithms and machine learning and is growing day by day. Open CV is a BSD licensed product that is easy to use and code changer. The library contains more than 2500 advanced algorithms that cover your broad set of both basic and advanced computer vision and machine learning algorithms. These algorithms can be used for face detection, object detection, 3D object model rendering, 3D point production from stereo cameras, photo editing to produce the highest resolution image of the universe, to achieve the same. images from a photo website, removing red eyes from photos taken using light, tracking eye movements, location recognition and establishing signs to cover it with reinforced reality etc. includes C ++, Python, Java and MATLAB connectivity and supports windows, Linux, Android and Mac OS. An open CV mainly involves a real-time vision application using MMX and SSE commands when available. The full integration of CUDA and Open CL is gradually being developed. There are over 500 algorithms and about 10 times work from or behind those strategies. Open CV is naturally written in C ++ and has a template that works with STL containers.

OPERATING SYSTEM(OS)

The Python OS module provides a platform to establish communication between user and application. Provides a number of useful OS functions that are used to perform OS-based tasks and obtain relevant information about the operating system. The OS comes under standard Python modules. This module provides a practical way to use system-

dependent functionality. The Python OS module allows us to work with files and directories.

PyCharm IDE

PyCharm is an integrated development platform (IDE) used for computer programs. Especially in the language of the python program. Developed by Czech company JetBrains (formerly IntelliJ). Provides code analysis, graphic debugger, integrated unit explorer, integration with translation control system (VCS), and supports web development with Django and data science with Anaconda. PyCharm is a cross-platform, with versions of Windows, macOS and Linux. The Community Edition is released under the Apache License, and there is a Professional Edition with an Extra feature - released under a patented license sponsored by the registration and educational version.

Image Processing

Facial recognition can be divided into two main parts. Pre-detection analysis that includes facial detection and directional and subsequent detection is performed using a feature that extracts features and comparative steps. Image processing is the process of converting an image into a digital form and performing certain functions to obtain certain useful information. The image processing system usually handles all images as 2D signals when using pre-determined signal processing methods.

There are five basic main types of image processing:

- Visualization - Identify invisible objects in a picture
- Recognition - Separate or locate objects in the image
- Sharpening and renew - Create an enhanced image from the original image
- Pattern recognition - Measure the various patterns around the objects in the picture
- Retrieval - Browse and search images on a large digital photographic website such as the original image

FACE DETECTION

over the past few years, face recognition has become a major consideration and has been hailed as one of the most promising applications in the field of image analysis. Face detection can consider a large part of facial recognition activities. In terms of its ability to focus counting resources on the part of the image holding the face. The method of facial recognition is complex due to the variations present in all human faces such as posture, speech, position and position, skin color, presence of glasses or facial hair, differences in camera achievement, lighting conditions, and image correction. Object discovery is another computer technology,

which is linked to image processing and computer visualization and interacts with the detection of object objects such as a human face, a building, a tree, a car, etc. The main purpose of face recognition algorithms is to determine whether there is a face in the picture or not. In recent times, a lot of research is being proposed in the field of Face Recognition and Face Detection to improve more and more accuracy, but it is making a difference in this field when Viola-Jones came up with a real-time Face Detector. able to see faces in real time with high accuracy. Face detection is the first and most important step in facial recognition, and it is used to find faces in photos. It is part of the acquisition of the object and can be used in many areas such as safety, biometrics, law, entertainment, personal safety, etc. It is used to detect faces in real time to monitor and track a person or objects. It is widely used in cameras to identify multiple visuals in the Ex-Mobile camera frame and DSLRs. Facebook uses a face recognition algorithm to identify faces in photos and identify them. The main function of this step is to determine the weather the person's face is from the given image, and where the face is. The expected results of this step are pitches containing each face in the input image. For a strong and easily organized face recognition system. Face alignment is done to balance the scales and shapes of these pieces.

LITRATURE REVIEW

1.1 REAL-TIME FACE RECOGNITION BASED ATTENDANCE MARKING SYSTEM

The presence face recognition system is based on face recognition to solve problems of the previous presence system using this system using the camera to take a photo of the employee and students for face recognition and recognition. This image is compared individually with a face mask. The main advantage of this program is that its presence will be marked when the result is found on the face mask the face detection algorithm is developed using a skin-splitting process to increase the accuracy of the detection process. Although more efforts have been invested in the accuracy of the face detection algorithm, the system is currently untouched. This type of system is only suitable for staffing as they only need to report the presence of each class on a particular day, it will be difficult because the attendance system is not a portable module for the task of extracting a python system.

1.2 PROPOSED SYSTEM

The proposed system is to capture the real-time face of every student and employee that store the data into a single website. The face of the expert must be taken in such a way that everyone can see what the student's and employee's face like even the seating area and the way the students and employee stand. There is no need for the teacher to be physically present in the classroom

because the system capture the video and it automatically updated the attendance in website. All individuals in the category must register themselves by entering the information they required so that their photos can be taken and stored within the database. During the every class session a face is found in live streaming video of the class. The recovered face are compared with the existing images in the database. At the top of each session, a list of the absentees will be send to the appropriate in charge of the session.

1.3 IRIS RECOGNITION MANAGEMENT SYSTEM

The proposed system is a real-time face recording of every student and data storage worker on one website. The face of a professional should be taken in such a way that everyone can see what the student and employee's face looks like even the seating area and the way students and staff stand. There is no need for the teacher to be physically present in the classroom because the system automatically captures video and automatically updates the number of visitors to the website. Everyone in the class must register by entering the information they need to have their photos taken and stored on the website. During each class session the face is found in the live streaming video of the class. The recovered faces are compared with the existing images on the website. At the top of each session, a list of absentees will be sent to the appropriate moderator of the session.

BLOCK DIAGRAM

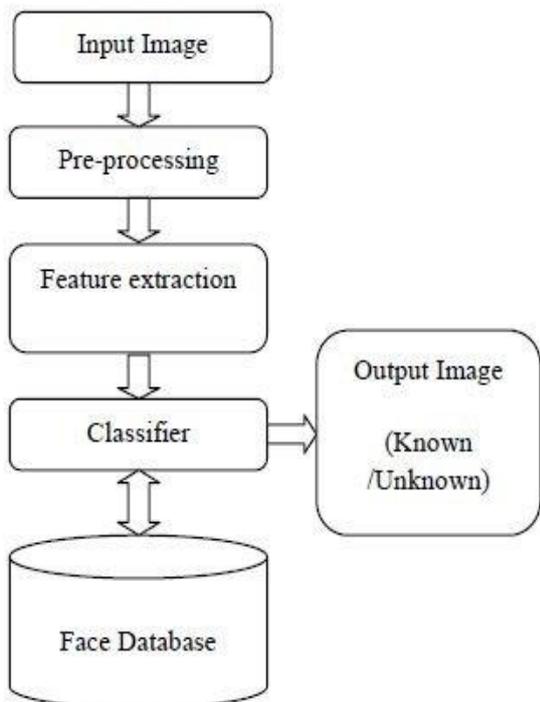


Fig 1. Block Diagram

ADVANTAGE

- High Acquisition Accuracy Low False Acknowledgment
- An excellent method for object matching Accurate and very fast
- Batter security, easy integration, and automated identification

RESULT ANALYSIS

A smart navigation system interface has been created. With the use of Interface a picture of each student is recorded and stored on a website i.e. an excel sheet. Eventually the image of the students is tracked and visualized.

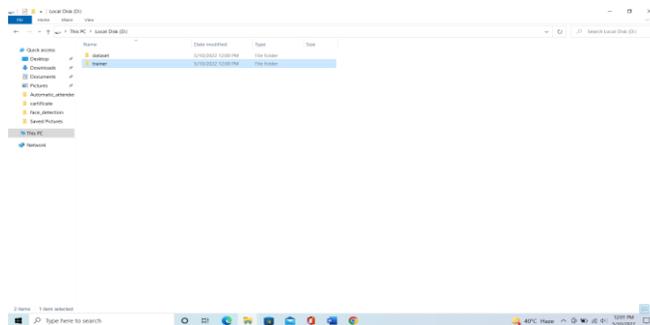


Fig 2. Created different folder.

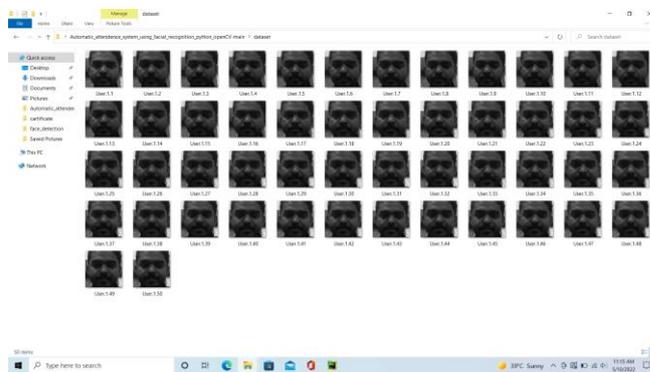


Fig 3. The Images are stored in folder name “dataset”.

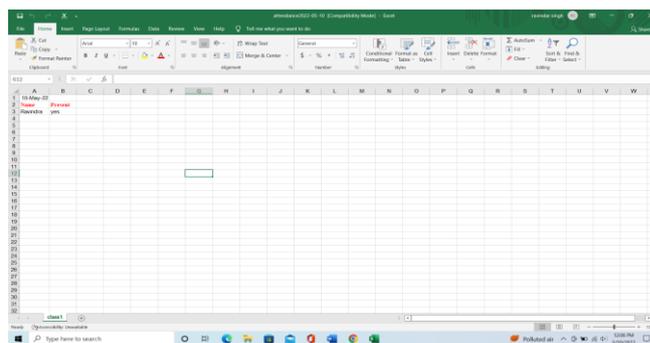


Fig 4. The student attendance recorded in Excel sheet.

CONCLUSION

I conclude this paper there are a few features added to this paper to improve the current and old system of marking people present for educational purposes and other very important objectives of researching this paper to save our valuable time and avoid proxies. With the use of OpenCV module images taken randomly and stored in the use of the real-time python module image compare the saved image when the image will be paved then the presence will be automatically saved on the data server.

FUTURE WORK

For future work on this project, I could use additional resources such as facial recognition for facial Emotion detection. In finding facial expressions our faces will be happy or sad and with the use of facial expressions detection the response is maintained and by using this system we will review any object.

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BIOGRAPHIES



Ravindra Kumar,
Amity institute of information
technology, Amity university
Chhattisgarh