Proceedings of the Fifth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC)
IEEE Xplore Part Number: CFP21OSV-ART; ISBN: 978-1-6654-2642-8

FACIAL RECOGNITION ATTENDANCE SYSTEM WITH USER INTERFACE

N V Krishna Rao[1]
Department of Computer Science and Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telagana-500043
Email Id: nvkrishnarao3@gmail.com

Paladugu Sirivanth[4]
Department of Computer Science and Engineering, SRM University, Guntur district, AP-522502.
Email Id: Saikumarkayam4@outlook.com

J Thirupathi[2]
Department of Computer Science and Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telagana-500043
Email Id: thirupathi.808@gmail.com

D Niharika[5]
Department of Computer Science and Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telagana-500043
Email Id: tarunakumari2908@gmail.com

D Naga Laxmi Pooja[3]
Department of Computer Science and Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telagana-500043
Email Id: sree.d.lakshmiphd@gmail.com

O Kranthi Kumar[6]
Department of Computer Science and Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telagana-500043
Email Id: dr.kksingamaneni@gmail.com

2021 Fifth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC) | 978-1-6654-2642-8/21/$31.00 ©2021 IEEE | DOI: 10.1109/I-SMAC52330.2021.9640775

ABSTRACT: **Attendance Monitoring System is essential in all organizations for checking the performance of students and it is not easy task to check each and every student is present or not. On the whole association participation need aid made manually Eventually Tom's perusing calling their register numbers or names and noted in participation registers issued by those Branch heads Concerning illustration a evidence also to some associations those learners needs will sign in these sheets which would be saved for future references. This methodology is dreary, intricate fill in What's more prompts mistakes Likewise couple from claiming understudies routinely sign for their missing understudies or letting go-between investment of the absent understudies. This technique also makes it difficult to check the individual understudy collaboration to an actual homeroom setting, which is merely the tip of the iceberg perplexingly with taking after each a standout amongst those understudies' investment. This article utilizes such systems for the purpose of incorporating a face ID number and an affirmation framework to consistently distinguish understudies who are setting off to class alternately not. Furthermore, their assistance in separating their appearances for information related to match is significant. This facial biometric structure snaps a photograph of a singular using Polaroid and separation that picture Furthermore contrast those pictures and the picture with will be place away at those hour from claiming selection Furthermore in the off chance that it matches means the support and screen those understudy execution continually. This research work might use those perfect from claiming man-consuming shark intellectual competence thought should screen understudy investment similar to getting the movies of the understudy At display for class on dismember the understudy data to what extent those understudy displays to population.**

Keywords: Attendance monitoring system, face detection and recognition, artificial intelligence , motion pictures.

I. INTRODUCTION

Face distinguishment will be essential On Every day an aggregation in place will distinguish family, companions alternately somebody we are acquainted with. We likely won't see that few about phases bring positively made with recognize human appearances. Mankind's data licenses us will get majority of the data and decipher those data in the Attestation collaboration. We get data through the picture anticipated In us, Toward explicitly retina as light [1]. Light will be a sort from claiming electromagnetic waves which need aid exuded from a wellspring onto a article Furthermore anticipated to mankind's dream. Robinson-Riegler, g., Furthermore Robinson-Riegler, b. (2008) alluded to that then afterward visual getting primed carried out Eventually Tom's perusing the mankind's visual system, we truly bunch shape, size, structure and the outside of the article to explore the information. The separated information will be diverged from various depictions of things or face that exist in our memory to see. [2]

Honestly, it is a daunting test to develop a motorized system to have comparable limit as a human to see faces. Regardless, we need colossal memory to see different appearances, for example, in the Universities, there are a huge load of understudies with different race and sex, it is hard to recall each face of the individual without submitting blunders [3].

Will prevail over human impediments, Pcs with practically limitless memory, more taking care of rate and power need aid used over face affirmation frameworks. The fundamental target of this undertaking is to foster face acknowledgment based computerized understudy participation framework [4]. To accomplish better execution, the test pictures and preparing pictures of this proposed approach are restricted to front facing and upstanding facial pictures that comprise of a solitary face in particular. Those test portraits Furthermore get ready portraits must be found by using a comparative contraption with surety no caliber contrast. Likewise, the understudies need on select in the data build should make discerned. The selection ought further bolstering be workable on the spot through the simple to utilize interface. [5]

II. RELATED WORK

At present the biometric system are evolving rapidly .They are evolving in to the promising authentication mechanisms compared to the traditional authentication mechanisms [6]. In the traditional authentication mechanisms include marking attendance manually by writing name

, signature or Toward providing for entry with a physical or virtual domain utilizing a password, PIN and so forth. This watchword What's more pin need aid challenging with recall and may go in to the hands of unauthorized persons which may cause great damage [7]. Face recognition is a type of authentication mechanism used for identifying a person and providing access.

There are many biometric authentication mechanisms such as finger print recognition ,iris recognition system etc., Face recognition is one of them .Face recognition is being used in many applications and this project uses face recognition in attendance system to mark the attendance of the students through face recognition. [8]

The facial acknowledgment innovation can be utilized in recording the participation through a high-goal advanced camera that identifies and perceives the essences of the understudies and the machine contrasts the perceived face and understudies' face pictures put away in the data set [9]. When the substance of the understudy is coordinated with the put away picture, at that point the participation is set apart in participation data set for additional estimation. In the event that the caught picture doesn't coordinate with the understudies' face present in the data set then this picture is put away as another picture onto the information base. In this framework, there are opportunities for the camera to not to catch the age appropriately. [10]

The systemproposed by the yohie kawaguchi and tetsuo shoji [11] using face recognition and this is based on active student detection method where it will have two cameras one is sensing camera and the other is the capturing camera .Sensing camera is used to estimate the seat and the capturing camera is used for capturing face and detecting it .In this the sensing camera estimates the seating area and then the capturing camera will be directed to that area and the face detection will be done by the capturing camera. [12]

Another one is proposed by varadharajan, Dharani and Jeevitha. In this they used eigen faces approach for recognition of faces .After detecting faces the faces will be cropped and the background subtraction will be done for both the grayscale and binary images. [13]

III. PROPOSED SYSTEM

In this system the attendance will be taken through face recognition technique by capturing the images through camera while in the class without any need to take it manually which is a disturbance between the class and a time taking process .In this system we propose a method to take attendance easily without any need to take it manually . The cameras in the class capture the video and from that video frame the image will be detected and is compared with the image stored in the data base if the image is found then the attendance will be marked a present or else it will be marked as absent .

The images of the students will be stored in the data base by training model .Multiple images of the student will be captured in different angles and stored in the data base such that there will be less chance of error .After capturing images from the video frame the images are compared to stored images in the data base ad matched .

The primary attempting standard of the undertaking is that, the feature caught information may be changed over under picture should identify and distinguish it. Further those perceived pictures of the learner may be given with attendance, else the framework marks those database likewise absent.

Tools Required:

- Pandas
- Python

SK Learn

- Tkinter

FLOW CHART

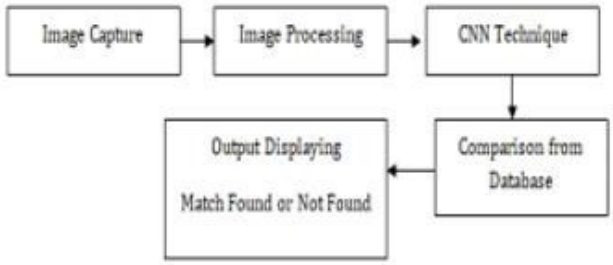

Fig 1: Flow chart

The image will be captured through a web cam or the video is recorded the image is captured from this video frame. After capturing the image the captured image is processed by using image processing techniques. After processing the image through CNN technique the useful characteristics are extracted and this is compared to the multiple images in the data base captured while training the model if the image matches with any of the images in the database the attendance will be marked as present or else marked as absent .At the end of the day an excel sheet will be generated for whole class attendance. shown in fig 1

A. Capture Video :

The Polaroid is settled toward a particular separation inside a classroom will catch features of the frontal pictures of the whole people of the class. 5. 2 differentiate Likewise frames starting with that Feature: the caught feature necessities on be changed over under frames for every second to simpler identification What's more distinguishment of the people face will produce that participation database.

B. Face Detection:

Face identification will be the procedure the place the image, provided for as a enter (picture) will be searched with find any face, then afterward finding the face the image transforming cleans up those facial picture for simpler distinguishment of the face. CNN algorithm can a chance to be executed with recognize the appearances. shown in fig 2

Fig 2: Face Detection

C. Face Recognition:

After those fruition from claiming identifying and more transforming the face, it is contrasted with the countenances display in the student's database will upgrade those participation of the understudies.

D. Graphical User Interface:

The GUI is developed using Python tkinter module. We created 5 Textboxes where we enter our input biological parameters and 2 buttons for 'Prediction' and 'Exit'. When we click on Predict button, the values we entered are fed to the model loaded and the classified output is shown at the text box corresponding to emotion.

In this recommended approach, face distinguishment scholar participation framework for user- inviting interface may be planned to utilizing PYTHON &TKINTER GUI BUINDING (Graphic client Interface). A couple buttons would planned in the interface, each gives particular function, to example, begin catch will be with instate the Polaroid and will perform face distinguishment naturally as stated by those face detected, register catch permits enlistment alternately registrations from claiming learners and redesign catch is with train those most recent pictures that have been enlisted in the database. Lastly, search catch Also perceive catch may be to search facial pictures starting with chose database Also distinguished the chose picture should test the purpose of the framework individually.

In this part, improved LBP with span two may be chosen and more utilized Similarly as suggested algorithm. The examination for picking the span will make further clarified in the examination.

IV. IMPLEMENTATION AND RESULTS

An user interface is provided for the admin to login and manage the attendance the admin need to sign up with his credentials and then he can login using his credentials any time and that will be redirected to another page with icons for adding student, training system, mark attendance, viewing student's data and to exit page. shown in fig 3

Add student is used to add student details to the data base. When the add student button is clicked the details will be asked and capture image button is provided to capture the images of the student. Here multiple images of the person in different angles is captured so that the detection would be easier and error free. In this we have taken 70 images of each student to assure maximum accuracy. The camera will be altered toward a particular separation inside An classroom on catch features of the frontal pictures of the whole learners of the class. 5. 2 differentiate as frames starting with the Feature: those caught feature necessities with be changed over under frames for every second to less demanding identification Furthermore distinguishment of the learners face will produce those participation database. shown in fig 4 & fig 5

id	Name	Department	Roll NO	Status
1	MANISH REDDY	ECE	177Y1A04D7	
2	SURYA ABHIRAM	ECE	177Y1A04G6	
3	RAJASHAKAR REDDY	FACULTY	0	
4	RAKESH	FACULTY	4826	
5	MANOJ	ECE	187Y1A0446	
6	DEVI PRIYA	ECE	177Y1A04C5	
7	BINDU SHREE	ECE	177Y1A04C4	
8	HIMA BINDU	FACULTY	86252	
9	KAVYA	ECE	177Y1A04D2	
10	MANIS	ECE	177	
11	KEHSAV	CSE	44198984	
12	MANISHHHHH	FACULTY	457452	
13	MANISH REDD	FACULTY	35413	
14	MANISH	FACULTY	12345	
15	MANISH REDDY123	ECE	177y1a04d7	
16	JEDC	IT	ewfc	
17	POOJA	CSE	17951A0598	
18	D POOJA	CSE	17951a0598	
19	D POOJA	CSE	17951a0598	
20	POOJA	CSE	17951a0598	
21	POOJA	CSE	17951a0598	present
22	AJAY	CSE	17951a0a5	
23	VIJAY	CSE	17951a0555	

Fig 3 Data set

Fig 4 Student data base

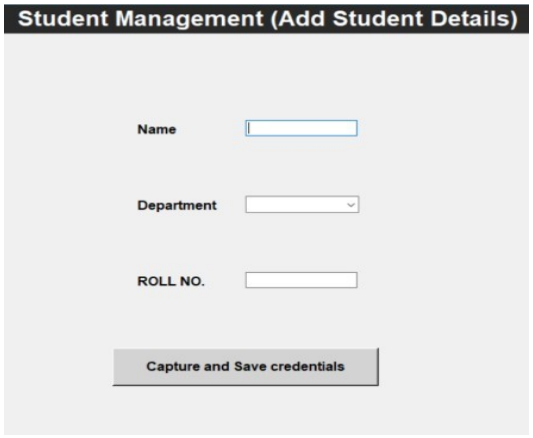

Fig 5 Student Management (Add Student Details)

Train system is used to train the whole system containing images and then mark attendance is used to mark the attendance of the students by capturing images from the video frame and marking the present if the face matches with the one in the data base or else attendance is not marked . we need to press enter after the face is detected to mark the attendance as present. This can be viewed in the view students data icon. When you click exit it will be redirected to the home page. shown in fig 6 & 7

Fig 6 Identifying

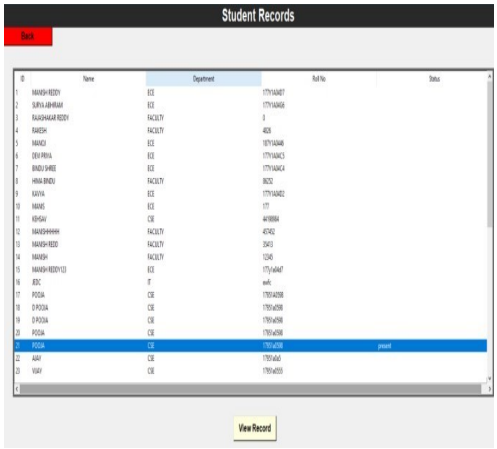

Fig 7 Student Records

At the end of the day an excel sheet for the whole attendance of the class for the day is generated

V. CONCLUSION AND FUTURE SCOPE

The face recognition attendance system simplifies the process of taking the attendance manually by avoiding the necessity to take the attendance manually .The face recognition technique is used to take the attendance by capturing images from the video frame and mark the attendance as present if it matches with the images stored in the data base .This saves the time and also the efforts which may be used for another productive work .This can be further improved by adding extra functionalities . This system can also be improved for detecting the faces with masks in the classroom as it is the need of the hour and the system can improved to identify the masked face also based on the image stored in the data base.

References

1. Yohei Kawaguchi, Tetsuo Shoji, "Face Recognition-based Lecture Attendance System", "3rd AERU…" 2005.
2. Akshara Jadhav, Akshay Jadhav Tushar Ladhe, Krishna Yeolekar "Automated Attendance System Using Face Recognition" Irjet Volume: 04 Issue: 01 | Jan -2017 .
3. Lerato Masupha,Tranos Zuva,Seleman Ngwira,Omobayo Esan "Face Recognition Techniques, Their Advantages, Disadvantages And Performance Evaluation" 2015 International Conference On Computing, Communication And Security(Icccs),1-5,2015.
4. Jireh Robert Jam, Face Detection And Recognition Student Attendance System,Kingston University London.
5. Expert Opinion: The Effect Of Artificial Intelligence On Face Recognition Avaliable At Https://Www.Everteam.Com/En/Artificial-Intelligence-Face-Recognition/Accessed On (08/10/2019).
6. Pradeepa .M, H P Mohan Kumar" Face Detection And Recognition For Automatic Attendance System Using Artificial Intelligence Concept" Ijesc Volume 8 Issue No.5 May.
7. Santana Fell "Ai To Mark Attendance" The Telegraph On line Edition Published On Wednesday, 25 September 2019.
8. N V Krishna Rao,Y HarikaDevi,N Shalini,A Harika,V Divyavani,Dr.N Manga Thayaru"Credit Card Fraud Detection Using Spark and Machine Learning Techniques", ICACECS2020,Machine Learning Technologies and Applications pp 163-172, Algorithms for Intelligent Systems book series (AIS),march 2021.
9. N.V.KrishnaRao,KayiramKavitha, Ashoka DeepthiManukonda, R.V.S.Lalitha, B.Abhishek Reddy" Semi-Equalizing Load in Multi-hop Wireless Networks" ",International Journal of Innovative Technology and Exploring Engineering' at Volume-9 Issue-1, November 2019 pp.3047-3051 (ISSN:2278-3075).
10. N V Krishna Rao,S. Laxman Kumar, K. Kavitha,Pudu Pravalika,KotteSruthi,R.V.S. Lalitha, "Fashion Compatibility using Convolutional Neural Networks", ACCES September,2020.
11. RAMYA KRISHNA RAJAVOLU, KAYAM SAIKUMAR. (2018) "Fetal Ecg extraction in light of adaptive filters and wavelet transform approval and application in fetal heart rate variability analysis of low power Iot platform". International Journal of Pure and Applied Mathematics, Vol 118 Issue 14, 307-313.
12. Saleem, I. A. M., & Jaisankar, D. S. (2018). A Study On Kaizen Based Soft-Computing In Electric Vehicle Manufacturing Processes. International Journal Of Innovations In Scientific And Engineering Research, Vol 5 Issue 5, 31-39.
13. G.K.Arunvivek Adil Al-Tamimi, S.Ragunath. (2020) "FEASIBILITY STUDY ON UTILIZATION OF SISAL FIBER AND CRUSHED TILE IN CONCRETE UTILITY BLOCK". International Journal of Innovations in Scientific and Engineering Research, vol 7 Issue 12, 189-195.