



The Attendance Based Security System of the Attendee Program Using Face Detection

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The Attendance Based Security System of the Attendee Program using Face Detection

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Abstract - - Face Recognition and Face Recognition is a vital innovation nowadays, likewise, we have seen frequently that they find an assortment of purposes, for example, mobile phones, military use, and exceptionally risky data in workplaces. We chose to grimace location machine as an understudy participation program and could supplant the standard paper-based framework and unique finger impression framework. The principal work on our venture will be finished with LabVIEW in light of the fact that LabVIEW is an exceptionally helpful altering device for face use and is extremely valuable for different clients. Our undertaking depends on the fundamental program in Lab Recovery which distinguishes faces by giving boundaries furthermore, the sub-frameworks are a succeed sheet coordinated with the program, and an informing gadget for

sending messages to parents of understudies or to the understudies who are missing.
Catchphrases: Smart Attendance System, NFC, RFID, OpenCV, NumPy

I. INTRODUCTION

The default study hall framework configuration utilizes the LabVIEW programming face acknowledgment calculation. The program requires a video recording gadget and a substantial LabVIEW calculation for it to be utilized actually. It sees the face and denotes its presence accurately. This framework will forestall pointless wastage of study hall time that is in many cases squandered as homeroom naming. Face acknowledgment is troublesome in regular daily existence to distinguish individuals. Human insight frameworks permit us to acquire information and grasp that in the acknowledgment framework. We help data through the natural eye, particularly the retina

which is the principal wellspring of data.
Light goes about as an electric flow that
empowers us to see various articles. 2 After
handling has been finished by a human
framework, we

arrange the circumstances, sizes, and surfaces of the item to acquire data. When the data has been audited the outcomes will be contrasted and the facial recollections accessible on the site. It is challenging to make such an improvement plan ready to see an unmistakable face as it is finished by people. As we want an enormous stockpiling region to keep a notable and shared face as there are a few understudies in schools, schools, colleges, and so forth. Each human face has a special character. Thusly, along these lines, an individual's continuous face is contrasted with the current in the information base. Today, the Face Recognition framework is extremely helpful in view of its basic and superior exhibition. The program is being utilized at air terminals and the FBI is utilizing the program to research lawbreakers. These days we can see Facebook is likewise utilizing Face Recognition to permit clients to label others in a photograph with the end goal of amusement. Likewise, Intel Company permits clients to get to their records utilizing Face Recognition. Numerous cell phone organizations add this element to their wireless open components.

II. RELATED WORK

Several ways are used before to take attendance of students in a classroom. The traditional way is to take attendance by teacher manually by using pen and paper. But the limitation with this approach is that it's a protracted process and there may be a loss of attendance records in the future. Another approach is a fingerprint-based attendance system in which a portable device capable of taking students fingerprints is moved inside the classroom. The advantage of this approach is that attendance we will take at lecture time without the instructor's intervention and this system guarantees the marking of full proof attendance. But the problem with the approach is that if we pass the device during lecture time, then there may be distracting of attention of both teacher and student

and student interaction required to have attended.

The first approach to take attendance is RFID (Radio Frequency Identification) based attendance management system in which each student will have one unique identity card. That card will be swapped in a machine to put attendance. The swap machine is directly connected to a system that stores attendance-related details. The limitation of the above approach is that unauthorized persons also can put the attendance.

The second approach is iris-based attendance management system. The limitation of is fingerprint-based attendance system is that the fingerprints of children are difficult to scan and time progresses, there may be variation in the fingerprints and many people may have improper fingerprints that may not be suitable for a fingerprint-based attendance system. So, the solution to above limitation is an iris- based attendance system because the eye is the most protected part of the body and does not go through much over a complete life of a human being. However, face recognition can be done automatically from video of the classroom. Face Recognition

System hasn't required active participation from students to put the attendance. With the help of the camera when we capture a face that face will be stored in a device with minimum dimensions, hence the space required for storage is also less.

III. LITERATURE SURVEY

It is based on the identification of face recognition to solve the previous attendance system's issues. This system uses a camera to capture the images of the employee to do face detection and recognition. The captured image is compared one by one with the face database to search for the worker's face where attendance will be marked when a result is found in the face database. The main advantage of this system is where attendance is marked on the server which is highly secure where no one can mark the attendance of others. Moreover, in this proposed system, the face detection algorithm is improved by using the skin classification technique to increase the accuracy of the detection process. Although more efforts are invested in the accuracy of the face detection algorithm, the system is yet not portable. This system requires a

standalone computer which will need a constant power supply that makes it not portable. This type of system is only suitable for marking staff's attendance as they only need to report their presence once a day, unlike students which require to report their attendance at every class on a particular day, it will be inconvenient if the attendance marking system is not portable. Thus, to solve this issue, the whole attendance management system can be developed on a portable module so that it can work just by executing the python program

IV. SYSTEM DESIGN

The design part of the attendance monitoring system is divided into two sections which consist of the hardware and the software part. Before the software design part can be developed, the hardware part is first completed to provide a platform for the software to work. Before the software part, we need to install some libraries for the effective working of the application. We install OpenCV and NumPy through Python.

Hardware Development

- Camera Module with good megapixels.

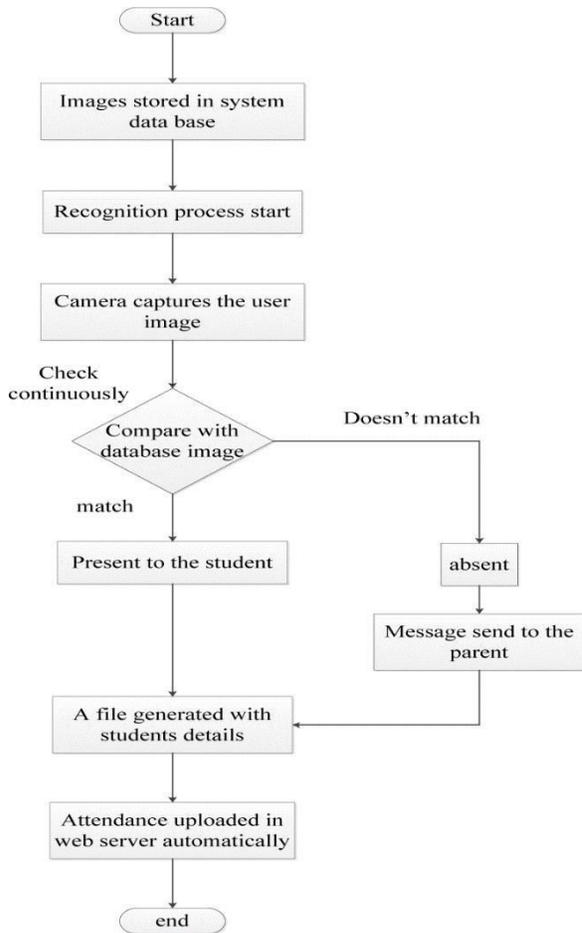
- Power Supply Cable
- 16Gb Micro SD Card Class 10

Libraries Development

“OpenCV” OpenCV (Open-source computer vision) is a library of programming functions mainly aimed at real-time computer vision. The OpenCV project was initially an Intel Research initiative to advance CPU-intensive applications, part of a series of projects including real-time raytracing and 3Ddisplay walls. The main contributors to the project included several optimization experts in Intel Russia, as well as Intel's Performance Library Team.

V. METHODOLOGY

The automated attendance management system helps to put attendance of the student when the face is recognized using video surveillance. The existing attendance system has several limitations, so we propose the attendance system in such a way that it will remove the limitations of the existing system. The flow chart of the proposed system is shown in Fig



VI. OVERVIEW

The proposed system is a software system that will mark attendance using facial recognition. In this project, we used the OpenCV module integrated with Python which will help the institution to make the attendance process easy and efficient. The system

comprises of Computer, HD Video Camera, and Wi-Fi module or Internet.

Steps of Working:

- Initiate the firstpage.py python script.
- Create a DATASET of the student by entering his ID Number.
- Train the dataset, the amyl file is created.
- A picture of the class is taken, and the RECOGNIZER python file is initiated.
- Attendance is taken by cropping the faces in the picture and comparing them with the faces in the database.
- If a face is matched, the responding name with PRESENT status is marked in an EXCEL file with the current date and time.
- The EXCEL file can be mailed by entering the email after initiating the MAIL python script.

VII. CONCLUSION

In this chapter, we observe how neural networks can be used to implement face detection and face recognition. It will speed up the attendance marking system. To conclude, we have discussed the

whole process of development of this system and we can rely on this system.

VIII. REFERENCES

1. S. Sawhney, K. Kacker, S. Jain, S. N. Singh, and R. Garg
2. Claude C. Chibelushi, Fabrice Bourel, —Facial Expression Recognition: A Brief Overview, 1-5 ©2002.
3. Aysegul Gunduz, Hamid Krim —Facial Feature Extraction Using Topological Methods © IEEE, 2003.
4. Kyungnam Kim, —Face Recognition Using Principal Component Analysis Kaggle. Challenges in representation learning: Facial expression recognition challenge, 2013.
5. S. Li and W. Deng, “Deep facial expression recognition: A survey,” arXiv preprint arXiv:1804.08348, 2018.
6. A.Krizhevsky and G. Hinton. Learning multiple layers of features from tiny images, 2009.
7. J. Deng, W. Dong, R. Socher, L.-J. Li, K. Li, and L. Fei-Fei. Imagenet: A large-scale hierarchical image database. In Computer Vision and Pattern Recognition, 2009. CVPR 2009. IEEE Conference on pages 248–255.IEEE, 2009.
8. Alex Mackey, “Introducing .NET 4.0: With Visual Studio 2010”, Press, USA, 2010.
9. Y. Lv, Z. Feng, and C. Xu. Facial expression recognition via deep learning. In Smart Computing (SMARTCOMP), 2014 International Conference on, pages 303–308. IEEE, 2014.
10. E. Correa, A. Jonker, M.Ozo, and.Stolk, “Emotion recognition using deep convolutional neural networks,
11. Introducing Microsoft .NET, Second Edition Author David S. Patil.
12. Joe Mayo, “Microsoft Visual Studio 2010: A Beginner’s Guide”, Tata McGraw Hill, 2010.
13. Real-Time Smart Attendance System using Face Recognition Techniques," 2019 9th International Conference on Cloud Computing, Data Science & Engineering (Confluence), Noida, India, 2019,pp.525.