

# AI Based Attendance Monitoring System

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**Abstract**— The existing attendance system makes use of manually entering and updating the attendance. This attendance system is time consuming and provides a way for students to give proxy for their colleagues. In this project we automate attendance system by using Artificial Intelligence and Cloud. This framework will consist of a database that will be stored on cloud which will have remarkable features of peoples voice. We update the attendance by making use of voice recognition framework which will be unique to each student hence no proxy can be made. After recognizing the voice system will update the identified student's attendance in the cloud. The stored database on cloud can be used by teachers to monitor student's attendance and generate periodic reports and send updates accordingly.

**Keywords** — Voice-recognition, Attendance-Monitoring, AI Based Attendance Monitoring System, Cloud Based Attendance System

## INTRODUCTION

Voice or speaker recognition is the ability of a machine or an application to read or write the spelling of comments, or to understand and carry out a command. The Voice recognition system, which makes it possible for consumers to interact with technology simply by talking to them, and the ability to carry out the annoying requests, reminders, and other simple tasks.

Speech recognition is the task of recognizing speech within audio and converting it into text. That is, we may suppose, in human speech, is essential to our day to day personal and professional life, and the speech-to-text feature, are a number of different applications. We may use it in order to make sense of the content in the support or sales call, in order to enable the voice, chatbots, or to record the content of the meetings and other discussions.

The most important are voice, data, consisting of the speaker, and audio output. Human speech is a special case of this. So the concept that we talk about in this article is, how to digitize a voice to voice, data, and why we have to transform the sound spectrograms, and in the word of knowledge and understanding. However, it is difficult to say, since the codes of the language.

## LITERATURE REVIEW

[1] V. Shehu and A. Dika, "Using Real Time Computer Algorithms in Automatic Attendance Management Systems: The system consists of a camera that takes the

photos, as a class, and send them to the image enhancement module. Once the image is improved, it is the recognition and face detection modules, and ever since it has been detected by the database server. At the time of the registration, schedules, photos from individual students' faces are stored in a database of faces, in which each of the faces that are detected by the input image, the algorithm, and to compare them one by one to the face. If no face is recognized, the traffic is selected on the server, so that everyone can enjoy and make use of it for various purposes. This system was made available for the use of the protocol. This is for a system with extraordinary graphics module, which will automatically receive an object of the class, and the date and time.

[2] K. SUSHIL KUMAR, S. PRASAD, V. SUSHIL, AND R. C. TRIPATHI, "REAL TIME FACE RECOGNITION USING ADABOOST IMPROVED FAST PCA ALGORITHM," The paper presents an automated system for recognizing faces, in the light of the world, in real time, in order to make a great house, one of the public faces of the people. This is a very complex issue, so as to subtract the background, in real time, the image still isn't all that difficult. In addition, there is a lot of variety in an image of a human face in terms of size, pose, and expression. The proposed system eliminates the majority of this variance. Real-time human face detection using AdaBoost from the Haar Waterfalls, and that the recognition of the identified faces in to use in a simple and fast PCA and LDA. After the matched face is the one that you used to enter the laboratory is involved in our case. It is a biometric system, but the system is not in real time, based on the recognition of human faces, with the help of a simple and fast it is to receive a high degree of accuracy.

[3] Prof. P.K Biswas, Digital Image Processing: Introduction has imaging and imaging devices. Image sampling and quantization, relationship between pixels and imaging geometry. Image enhancement techniques: Frequency domain, spatial domain, and fuzzy logic based. Image Segmentation: using edge detection and edge linking techniques, Image threshold and region oriented segmentations. Image representation schemes: Chain codes, polygonal approximation, and signatures. Shape descriptors: Fourier descriptors. Descriptor using moments. Descriptor using AR and CAR code length Texture is: Introduction to texture, different techniques of texture analysis and their comparison

[4] S. Z. Li and A. K. Jain, Eds., Handbook of face recognition. New York: Springer, 2005: A lot of interest on the face is coming from the public's growing concern about the protection, the necessity of the verification of the identity in the digital world, and a converse of methods in order to analyse the faces, and modelling, multimedia, management, and computer entertainment. This authoritative guide is the first to provide a full coverage of the face, including the fundamental, long-term methods, algorithms, systems, databases, and evaluation of methods and applications.

After a major input to the chapter by the editors, the 15 chapters are devoted to the sub components that are required for the development of the facial structure of operating systems, each of the chapters focuses on a specific topic, looking in a preliminary analysis of the data using the current methods, the present results suggest that, on the issues, and future directions.

[5] Anil K Jain, Lin Hong, Intel, and Rudolf, Biometric Identification. IEEE, 2004.N. Tom, Face Detection, Near Infinity - Podcasts, 2007: Biometric identification is the identification of a person based on their physiological and / or behavioral characteristics (biometrics).The connect/disconnect from a previously established kimliklərini / identities based on what they are and what they are doing. Because there are a lot of physiological or behavioral characteristics, which are different for each person, biometrics, and their essence, it is more reliable, and more capable than the knowledge-based and token-based methods to differentiate between an authorized person and an impostor fool.

Depending on the context they are being used, a biometric system may operate either in verification (identification), on the location or the recognition (identification) mode . The verification system to verify the identity of a person by comparing them with those in the occupied territories, the biometric characteristic of his biometric template (s) stored in the database. In this system, a person who wishes to be identified, you can apply for an id card, it is usually with the aid of a magnetic access card / smart card system, or to reject or to accept the application for an id card. In a speech recognition system to determine the identity of the subject (you cannot do this if the subject matter is recorded in the system database, and the search for a match, all of which are based on a template, but rather the subject of that make-up his or her identity.

[6] T. Kaneda, Computer recognition of huma faces Burkhouse, 1977: Image processing on a computer that has found application in various fields. Character recognition has been proved the most practical of success. In addition, these methods also extend to more complex applications, such as in the comments of most of the pictures and the x-ray film, image, size, nuclear physics, dealing with the large amounts of graphics data, which is transmitted from the

satellites, etc., with The specific problem addressed in this thesis is, to the computer, the analysis and identification of human faces, the Images of people's faces is successfully analyzed by a computer program that retrieves the characteristic facial features including nose, mouth, eyes, etc., the Program was tested with more than 800 images, the the studies were carried out with a focus on the method and the image analysis software.

The success of the flexible image analysis system, software reviews, we will describe in the next section. An experiment was carried out on some of the faces-20. I-1. Image analysis, as well as the recognition of a new dimension as you view the picture of a human face to the rice. 1-to-1, we identify the position of the nose, mouth, and eyes, and, in addition, we can say that one of the two images is, without a doubt, is described by the same person. The computer-aided image analysis and recognition are related to the nature of the two-dimensional image processing.

## IMPLEMENTATION

Firstly, we use a small dataset of voice recordings of 4 students. These recordings are stored in a folder called Datasets. We split the data into split ratio of 0.95 for training purposes. Once we have the audio files in .wav format, we extract the voice features using MFCC (Mel-frequency cepstral coefficients). We build the model using CNN algorithm by adding different layers. The trained model is saved in `speaker_recognition_model`.

After the training is done, we test the trained model. For testing we record students voice, where student is required to say their roll number or USN number. We convert the recorded audio to .wav format and extract MFCC features. We then use our trained model to find a match. Google Speech recognition is used to recognize the USN Number. If the voice sample and USN matches attendance is given else the message "Don't give proxy" is displayed

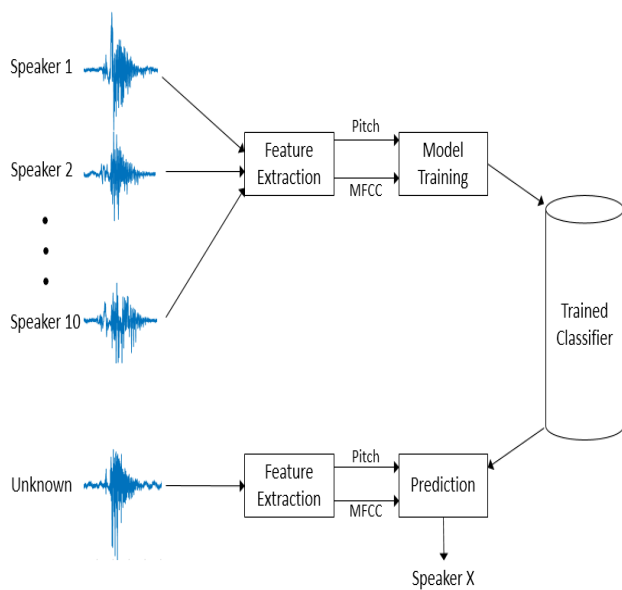


FIG 1: SYSTEM ARCHITECTURE

## TECH STACK AND RESULTS

There are features released in the audio wave format using signal processing techniques to record how people perceive sound. In python, we can use python-speech-compute MFCCs features. CNN is used to automatically and dynamically check the position of an object with the help of display, distribution, using various blocks of convolution layers, public, multiple layers, and fully integrated layers.

Python is a programming language used in the practice step, to build all the modules, and features. To accomplish these tasks, image processing, and support for infrastructure, computer vision and applications are used, Jupyter Notebook is used in order to perform given signage recognition. NumPy Library is a portable and usable application, offering support for several edits of various sizes and matrix.

## CONCLUSION

The purpose of the project to identify students and update their attendance using Artificial Intelligence was fulfilled. For identifying the students, voice Recognition Model was used, which is based on CNN (Convolutional Neural

Network). The accuracy of the model is around 60%. The accuracy can be increased by including more training data. Most of the datasets available online are not in Indian accent which made it difficult to gather data for the project.

The result expected from the proposed system seems to be an efficient, convenient and time- saving alternative for students and the teachers of schools, colleges etc. The proposed given system is to reduce the effort for the attendance, to save time and energy of taking attendance, to provide security for any kind of attendance. For these the system features and required research can be improved.

## References

- [1]. V. Shehu and A. Dika, "Using Real Time Computer Algorithms in Automatic Attendance Management Systems." IEEE, pp. 397 – 402, Jun. 2010.
- [2]. K. Sushil Kumar, S. Prasad, V. Sushil, and R. C. Tripathi, "Real Time Face Recognition Using AdaBoost Improved Fast PCA Algorithm," Int. J. Atif. Intel. Appl., vol. 2, no. 3, pp. 45–58, Jul. 2011
- [3]. Prof. P.K Biswas, Digital Image Processing.
- [4]. S. Z. Li and A. K. Jain, Eds., Handbook of face recognition. New York: Springer, 2005.
- [6]. Anil K Jain, Lin Hong, Intel, and Rudolf, Biometric Identification. IEEE, 2004.
- [7]. N. Tom, Face Detection, Near Infinity Podcasts, 2007.
- [8]. T. Kaneda, Computer recognition of human faces. Basel [etc.]: Burkhouse,
- [9]. A. L. Rekha and H. K. Chethana, "Automated Attendance System using face Recognition through Video Surveillance," Int. J. Technol. Res. Eng., vol. 1, no. 11.