Project Synopsis

on

**Audio Authentication**

Submitted as a part of course curriculum for

**Bachelor of Technology**

in

**Computer Science**



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**DECLARATION**

We hereby declare that this submission is our work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgement has been made in the text.

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**CERTIFICATE**

This is to certify that Project Report entitled “**Audio Authentication**” which is submitted by **Satyam Sirohi and Siddharth Shukla** in partial fulfillment of the requirement for the award of degree B. Tech. in Department of Computer Science of Dr A.P.J. Abdul Kalam Technical University, Lucknow is a record of the candidates own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

**Date: 12-12-2022 Supervisor**

**Signature**

Dr. Kalpana Sagar

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Last but not the least, we acknowledge our friends for their contribution to the completion of the project.

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**ABSTRACT**

The basic principle of this project is audio recognition and identification. There are many ways to identify a user like setting up a password given to few people accessing important data by only that password. There are other ways too like fingerprint and face id recognition and authentication.

Audio Authentication is another way of user identification and one of the best ways, we record audio files through device microphone and store the audio file in the database then the audio file is extracted and a print in generated using Hashing algorithms using Spectroscopy. Crest and troops in a sound wave generates a unique pattern and that pattern gets stored

in the database linked with the audio file forming a access link between the original audio and the extracted, compact version audio print. Extraction process can be implemented in two ways by using number of peaks or by using the distance between two crest and troops. After all this when a query is recorded and identified to be matched with the same audio print we have in our database, the user is granted access otherwise access is denied which makes it more secure and trusted authentication process.

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**INTRODUCTION**

There are various methods to secure our data and we are constantly upgrading them. In past couple of years we have moved from traditional password based authentication to retina based authentication, fingerprint based authentication, and audio based recognition and authentication.

Audio recognition is used in many places these days like siri, alexa, google assistant and many more, these are just ways to communicate with our devices. Audio authentication is just an extension of audio recognition.

Audio extraction in the form of audio prints is a process of converting the voice signals, i.e. the wave forms in a compact and unique pattern so as to use those audio prints as keys to unlock the system and identify the user in various domains of todays world.

**PROBLEM STATEMENT**

* To build a robust audio recognition and authentication system using audio prints which can be used to identify the source of a particular sound at any instance.
* Need of audio printing : it takes very small amount of space in memory and is more efficient then face recognition and thumb recognition.
* It has various significance such as identifying user , detecting false audio clips, etc..
* Audio printing uses spectrographic method to identify an user audio and other type of clip.

**OBJECTIVES**

* We use different and efficient algorithm’s to increase the printing and identification process of a user.
* The role of an audio printing is to capture the signature of a piece of sound, such as a audio of 5-10s ,that allows it to be differentiated from other audio.

**METHODOLOGY**

Here Fingerprint refers to Audio prints (extracted form)

Diagram

Description automatically generated

**Algorithms and Implementation techniques**

* Audio fingerprint / authentication system contains two major parts:
* Audio print extraction & Audio print matching algorithm
* Audio Print extraction can be done using Hash algorithm to make index table and GBVS(Graph based visuals saliency) to extract the perception features of Tempo-frequency domain.

**CONCLUSION**

The following project will give a software that can identify an unique user identity using user’s audio/voice by searching into the database.

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