VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI, KARNATAKA-590018

A Mini-Project Report

on

"HEAREASE "

Submitted in partial fulfillment of the requirements for the award of Degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

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Kottara Chowki, Mangaluru -575006, Karnataka.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Mini Project entitled **"HEAREASE"** is a bonafide work carried out by **DHANYA V SHETTY, USN: 4JK22CS014, HARSHITHA, USN: 4JK22CS017** and **KARTHIKA RAJ P, USN: 4JK22CS024 M.PAANDIYA VARSHINI,USN:4JK22CS025** students of **4thsemester Bachelor of Engineering** in **Computer Science and Engineering of Visvesvaraya Technological University, Belagavi,** submitted as a part of **Mini Project** during the academic year **2023-2024**. It is to certify that all corrections/suggestions indicated for internal assessment have been incorporated inthe report. The mini project report has been approved as it satisfies the academic requirements in respect of Mini Project work prescribed for the said degree.

Project Guide	**Vice Principal and HOD**
Mrs.Snitha Shetty	Dr. Antony P J

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Name of the Examiner(s)	**Signature with Date**
1. _____	_____
2. _____	_____

ABSTRACT

The Hearease is an innovative solution designed to enhance the auditory experience for individuals with hearing impairments. This web-based platform offers a suite of features that allow users to customize and optimize their hearing aid settings in real-time, ensuring a personalized auditory experience.This user-friendly website offers a range of features to assist individuals with hearing impairments and their caregivers. Tinnitus is a condition where a person is in an perception of ringing,buzzing or the humming sound in absence of the external stimuli.Recognizing these challenges, we embarked on a project that reduces the impact of tinnitus.Key functionalities include managing audio,noice reduction, accessing educational resources about hearing health.By offering a centralized hub for tinnitus related information and services, the Hearease aims to enhance the overall user experience and improve accessibility to essential support.By leveraging advanced algorithms and cloud-based technology, the Hearease aims to improve the quality of life for hearing aid users through seamless and effective auditory support.

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TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The Hearease Web Application for Sound Therapy is designed to streamline and enhance the process of managing and improving hearing health for individuals with hearing impairments through therapeutic sound exercises. This web-based platform provides a dual-interface solution:a sound therapy programs, audiological assessments and a user interface for participating in personalized sound therapy sessions.Built with modern technologies, this system ensures efficient data handling and a seamless user experience, addressing key challenges such as scalability, and usability. The system's responsive design guarantees accessibility across various devices, making it a versatile solution for modern sound therapy needs. Hearease is a music therapy website that offers a curated selection of calming music and soundscapes.It is specifically designed to help tinnitus patients manage their symptoms.It has an easy to use interface with various music categories. From the perspective of patients, hearease app aim to assist patients in masking, controlling, or managing tinnitus symptoms by means of providing a medidation and sound therapy.Tinnitus is a condition where a person is in an perception of ringing,buzzing or the humming sound in absence of the external stimuli.Recognizing these challenges, we embarked on a project that reduces the impact of tinintus.The Hearease Web Application for Sound Therapy provides a comprehensive solution for managing hearing assistance efficiently through therapeutic sound exercises, making it an essential tool for both administrators and users seeking an enhanced and personalized hearing experience.

1.1 Software Requirements

This section outlines the specific software requirements, such as android studio, java is used to build the system.Audio functionalities is implemented using react libraries and frameworks makes use of next.js.To develop web we find a use of html,css,tailwind css.TailwindCSS is also used for the overall styling of the page.For the navigation purpose in the page we make use of transcript and javascript. This section is an important part of the web development process, as it helps to ensure that the product will meet the needs and expectations of the end-users.

- **Development Environment: ANDROID STUDIO**

Android Studio is an integrated development environment (IDE) used for developing Android apps. It provides tools for coding, debugging, and testing applications. Debug and profile tools. Android Studio helps you debug and improve the performance of your code, including inline debugging and performance analysis tools.

- **Code Editor: Visual Studio Code (VS Code)**

Visual Studio Code is a lightweight and versatile source code editor developed by Microsoft. It supports various programming languages and features built-in support for Git version control, debugging, and syntax highlighting, making it an efficient tool for web development.

- **Frontend Technologies: HTML, JavaScript,CSS,TailwindCSS**

HTML (Hyper Text Markup Language) is the standard markup language for creating web pages and web applications. It provides the structure and content of a web page.

JavaScript is a versatile scripting language commonly used for adding interactivity and dynamic behavior to web pages. It enables features such as form validation, animations, and DOM manipulation.

TailwindCSS is a framework for building front-end applications.

CHAPTER 2

PROBLEM FORMULATION

In the realm of personal health and well-being, managing and addressing hearing loss effectively is crucial. Traditional hearing aids, while beneficial, can be expensive, stigmatizing, and often lack the necessary customization to meet individual needs. Moreover, these devices typically do not offer therapeutic benefits beyond sound amplification. With the advent of digital technologies, there is a need for an online solution that simplifies and enhances the process of providing sound therapy for hearing health. Develop a web-based Hearing Application for Sound Therapy that integrates both administrative and user functionalities. The system should facilitate secure, efficient, and personalized hearing therapy by providing tools for administrators to manage hearing profiles, sound therapy programs, while offering users an intuitive interface for participating in personalized sound therapy sessions and accessing support.

2.1 Problem Definition

Hearing loss can significantly impact an individual's quality of life, affecting communication, social interactions, and overall well-being. Traditional hearing aids, while helpful, often come with limitations such as high costs, stigma, and lack of customization. Additionally, these devices typically do not provide therapeutic benefits beyond amplification. With advancements in digital technology, there is a pressing need for an accessible, user-friendly, and customizable solution that can cater to the diverse needs of individuals with hearing impairments. This can be addressed through a web application that offers affordable, discreet, and personalized sound therapy.

The current methods of providing hearing assistance, including traditional hearing aids and rudimentary web applications, face several challenges. These include high costs, difficulty in accessing professional audiological services, and a one-size-fits-all approach that may not address individual needs effectively. There is a growing need for an innovative digital solution that can provide high-quality sound therapy, personalized to the user’s specific hearing profile, while being easily accessible and affordable.

2.2 Problem Statement

Traditional hearing aids are often expensive, stigmatized, and lack personalization and therapeutic capabilities. Existing web applications for hearing assistance do not always provide the necessary

customization, ease of use, or quality needed to effectively support individuals with hearing impairments. This project aims to develop a comprehensive Hearing Web Application for Sound Therapy that addresses these challenges by offering a customizable, user-friendly, and efficient platform for therapeutic sound exercises. The app will integrate advanced audiological features, user customization options, and a seamless user interface to enhance the hearing health and experience for users.

CHAPTER 3

PROPOSED SOLUTION

3.1 Proposed Solution

The proposed hearing web application is designed to address the challenges and gaps offering a comprehensive and user-friendly platform for managing and controlling tinnitus. The solution integrates advanced technologies and features to enhance both administrative and user experiences. Designing a web application for hearing aids involves several key considerations to ensure it meets the needs of users effectively:

1.User Interface (UI) Design:

- Focus on a clean, intuitive interface that is easy for users with varying levels of hearing impairment to navigate. Use high contrast and large, legible fonts.
- Responsive Design: The system will be fully responsive, ensuring compatibility across various devices (desktop, tablet, and mobile) to cater to diverse user needs.

2.Provide Curated Playlist:

- Allow users to customize settings such as volume, frequency response, and sound profiles based on their specific hearing needs.
- Specifically designed playlists for different times of the day and activities and customize the music according to their need.
- Customization: Options to create personal playlists and also they can adjust the sound levels.

3. Compatibility:

Ensure compatibility with a wide range of devices and operating systems, particularly considering accessibility features.

4. Remote Control and Monitoring:

Incorporate features that allow users to adjust settings remotely via their smartphones or computers. This can include real-time monitoring of battery life and device status.

5. Educational Resources:

- Provide educational materials on hearing loss, hearing aid usage, and maintenance to empower users and their caregivers.

6. Updates and Maintenance:

Regularly update the application to incorporate new features, improve performance, and address any security vulnerabilities.

CHAPTER 4

METHODOLOGY

The development of the Hearease Web Application for Sound Therapy involves a multi-faceted approach that integrates both technical and user-centered design methodologies to ensure a robust, secure, and user-friendly platform. Initially, the project begins with a comprehensive needs assessment, involving consultations with audiologists, individuals with hearing impairments, and other stakeholders to gather detailed requirements and understand the specific needs and challenges faced by users. This information forms the basis for designing the system architecture and defining key functionalities.The system architecture is designed using a modular approach, ensuring scalability and ease of maintenance.

The frontend of the application is developed using modern web technologies such as ANDROID STUDIO,TAILWINDCSS, HTML, CSS, and JavaScript frameworks like React ensuring a responsive and intuitive user interface. This interface is designed to be accessible across various devices, including desktops, tablets, and smartphones, to accommodate the diverse needs of users. Key user functionalities include personalized sound therapy sessions, access to audiological data, and the ability to customize therapy settings based on individual hearing profiles.

User testing is conducted iteratively, with feedback from real users being incorporated into the design and functionality enhancements. This ensures that the application remains user-friendly and effectively meets the needs of individuals with hearing impairments. Continuous monitoring and updates are planned post-deployment to address any issues, incorporate new features, and keep the system aligned with evolving user needs and technological advancements.

Overall, the development methodology emphasizes a balance between technical rigor and user-centered design, ensuring that the Hearease Web Application for Sound Therapy is a comprehensive, reliable, and accessible tool for enhancing hearing health through personalized sound therapy.

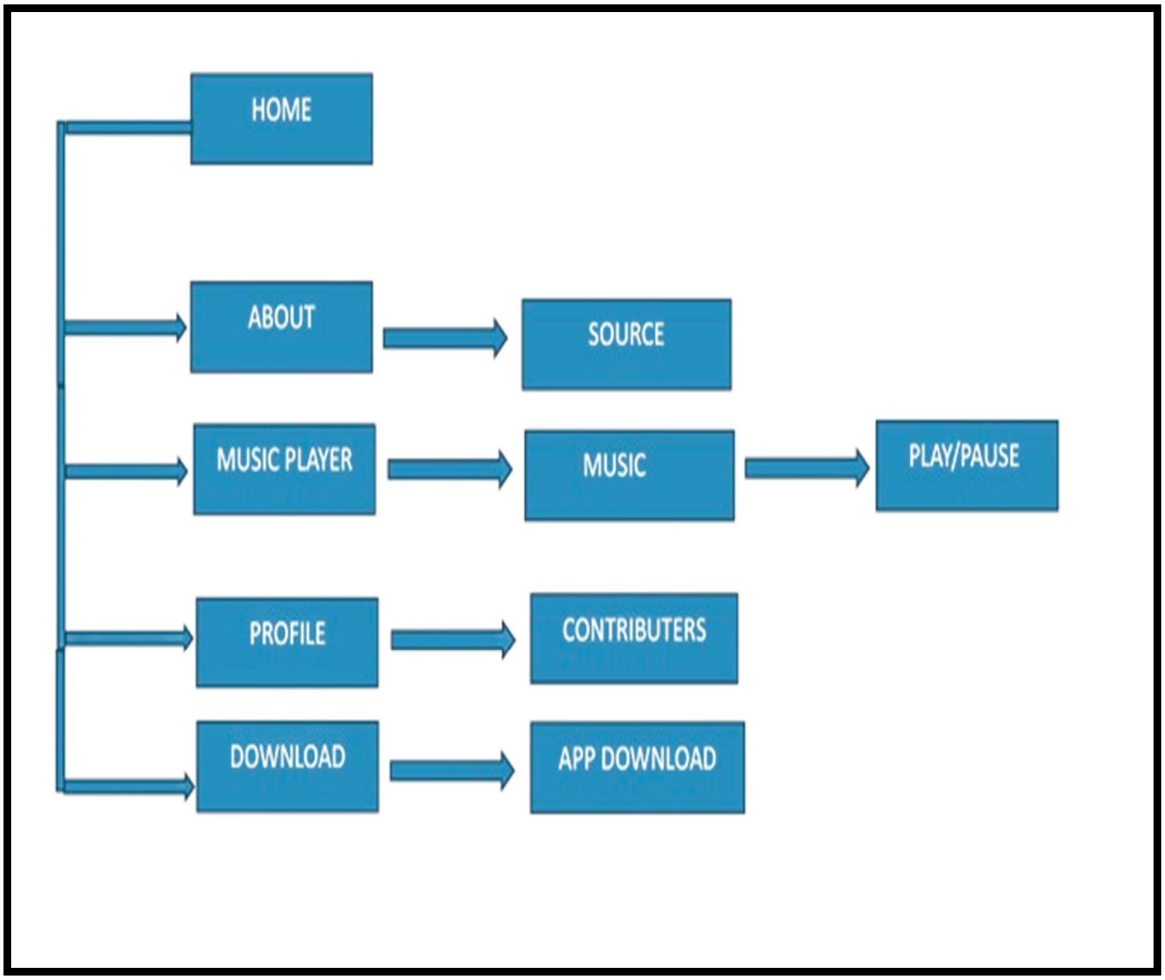

Fig 4.1:Flow of the Project

CHAPTER 5

RESULT

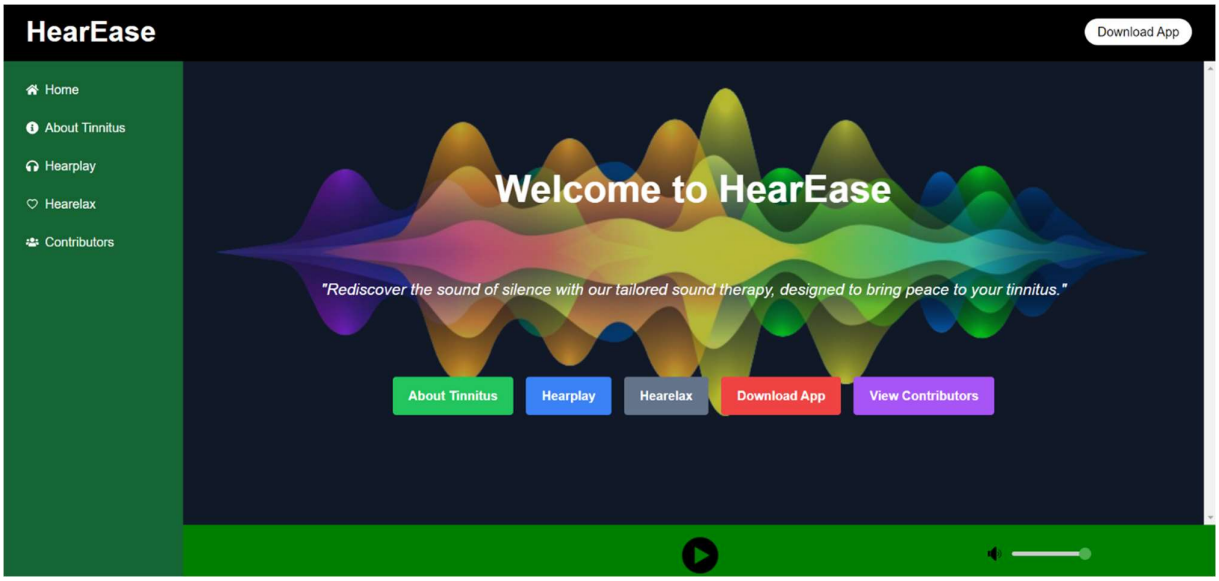

Fig 5.1:Home Page

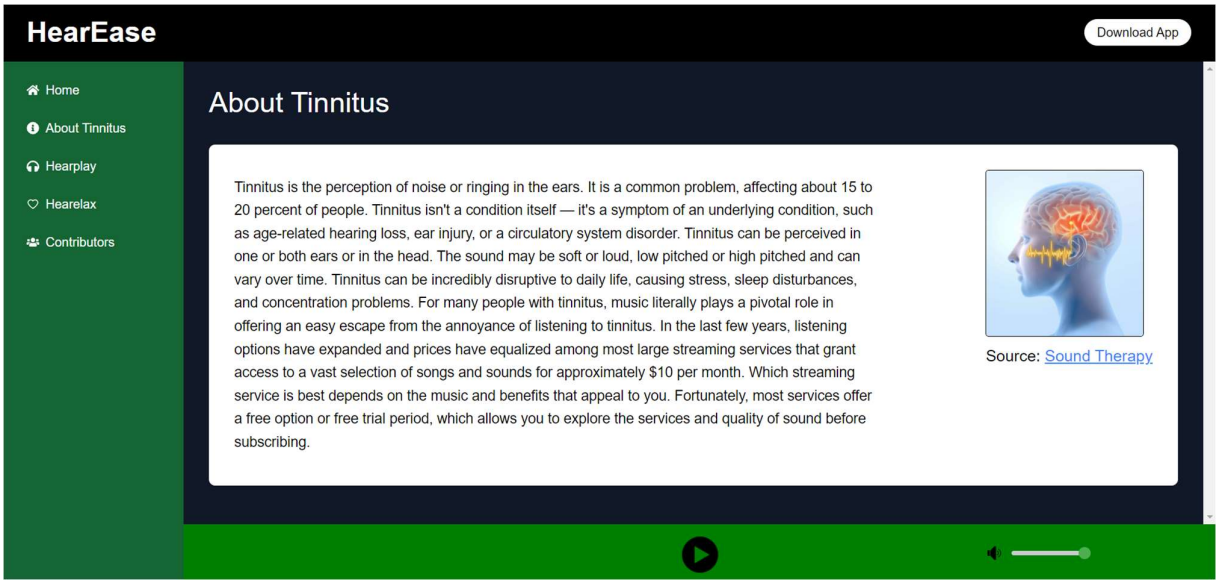

Fig 5.2:About Page

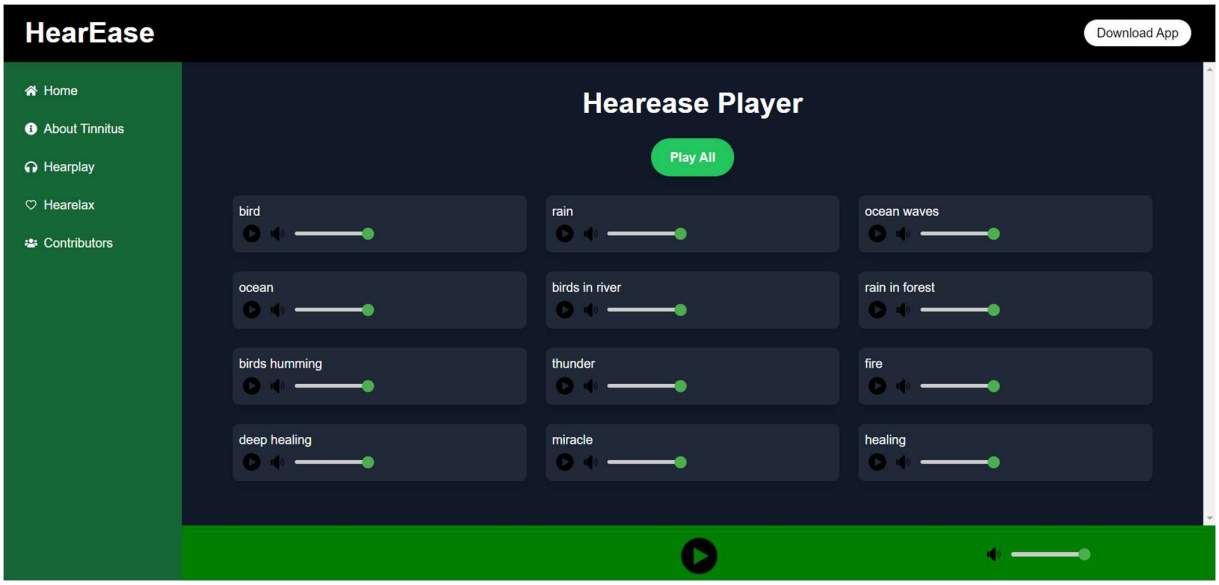

Fig 5.3:Hearplay

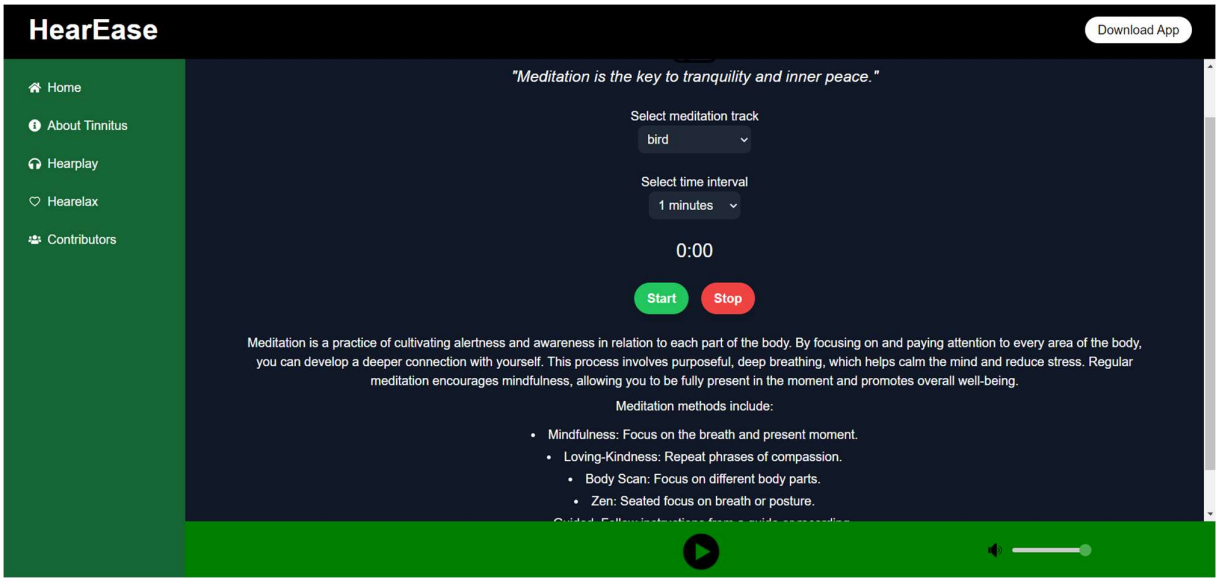

Fig 5.4:Hearrelax

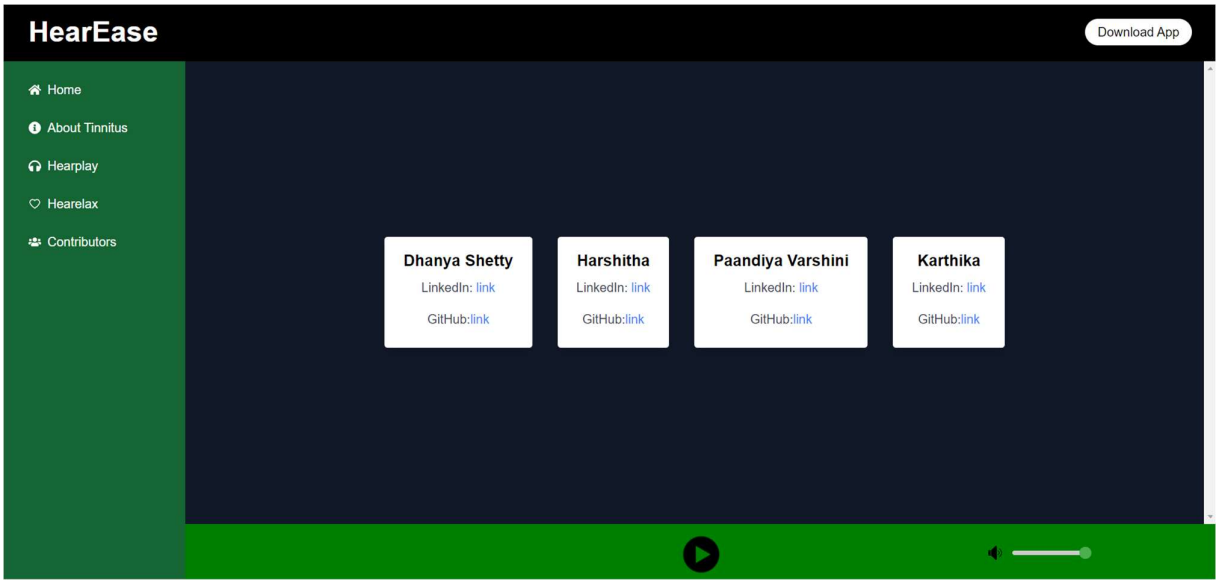

Fig 5.5:Contribution Page

CHAPTER 6

CONCLUSION AND SCOPE FOR FUTURE STUDY

6.1 CONCLUSION

The Hearease Web Application for Sound Therapy represents a significant advancement in the management and treatment of hearing impairments. By leveraging modern digital technologies, this application addresses the limitations of traditional hearing aids and existing web applications, offering a comprehensive, customizable, and user-friendly solution for sound therapy. The dual-interface design provides robust administrative tools for managing user profiles, sound therapy programs, and audiological assessments, ensuring that administrators can efficiently oversee and tailor therapy to individual needs.

For users, the application offers an intuitive platform to engage in personalized sound therapy sessions, access their audiological data, and customize their therapy settings, thereby enhancing their hearing health and overall quality of life. The emphasis on security, scalability, and usability ensures that the application is both reliable and accessible across various devices, catering to a wide range of user requirements.

Through continuous user feedback and iterative improvements, the application remains responsive to the evolving needs of individuals with hearing impairments. The successful integration of advanced audiological features, secure data handling, and a seamless user interface makes the Hearing Aid Web Application for Sound Therapy a vital tool in modern audiological care, promoting better hearing health and well-being for users.

6.2 FUTURE WORK

1. Enhanced User Experience: Continuously work on improving the user interface and experience by incorporating modern design principles, making the platform more intuitive and visually appealing.

2.Mobile Application Development: Future enhancements in mobile application

development for a hearing aid web application could include creating cross-platform apps for iOS and Android, ensuring seamless synchronization of user data and settings across all devices. Additionally, the app could offer remote control features, push notifications for updates and maintenance, and integration with health apps to provide comprehensive insights into hearing health**.**

3. **Integrating with a hearing aid**: Future enhancements for integrating hearing aids with a web application could include advanced Bluetooth connectivity for real-time, seamless communication between devices, allowing users to make immediate adjustments from the app. Firmware updates could be streamlined through the application, ensuring hearing aids always run the latest software. Diagnostic tools within the app could help users troubleshoot and maintain their devices efficiently.

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