

# IKSHANA - A USER FRIENDLY SOFTWARE FOR VISUALLY IMPAIRED AND HANDICAP PERSONS

<sup>1</sup>Ms. Samruddhi R. Khonde, <sup>2</sup>Ms. Vishakha R. Deshmukh, <sup>3</sup>Mr. Dhiraj M. Sharma, <sup>4</sup>Mr. Sanskar H. Goenka, <sup>5</sup>Mr. Sankalp P. Malani, <sup>6</sup>Dr. V. K. Shandilya\*

<sup>1-5</sup> U.G Student, Department of Computer Science & Engineering, Sipna C.O.E.T, Amravati, <sup>6</sup> Professor and Head, Department of Computer Science & Engineering, Sipna C.O.E.T, Amravati, India

## ABSTRACT

Persons with disabilities rely on alternative formats such as braille, large prints, tape recordings, etc. The information provided to visually impaired persons may or may not be valid, and this is part of the concern. As the internet and World Wide Web increased and ease of access to information resources for them. So to provide accessibility and useability an innovative solution is to provide alternate formats like converting the available material into other forms etc. to them. Overall, the project aims to promote inclusivity and accessibility by enabling visually impaired individuals to access digital content and stay informed about current events. This solution will empower visually impaired individuals to access digital content with ease and confidence, enhancing their quality of life and promoting their independence.

## I. INTRODUCTION

The work aims to improve the accessibility of the internet and digital content for visually impaired persons. It aims to provide a solution that enables visually impaired individuals to access the internet, read PDF documents, and listen to the top 10 news over voice commands.

Accessing digital content such as websites, documents, and news can be a significant challenge for visually impaired individuals. This can limit their ability to stay informed and connected with the world around them. Therefore, the proposed solution utilizes technology to provide an inclusive and accessible environment for visually impaired individuals. The system utilizes voice commands to enable visually impaired individuals to access digital content. The system allows users to browse websites, read PDF documents, and listen to the top 10 news stories over voice commands. The system uses text-to-speech technology to convert digital content into audio, which can be easily understood by visually impaired individuals.

Overall, the project aims to promote inclusivity and accessibility by enabling visually impaired individuals to access digital content and stay informed about current events. This solution will empower visually impaired individuals to access digital content with ease and confidence, enhancing their quality of life and promoting their independence.

## II. LITERATURE SURVEY

Blindness and blindness cause many public health, social and economic problems, especially in developing countries. The World Health Organization [11] reported that 37 million and 124 million people worldwide are blind and sighted, respectively. The increased portability and wide adoption of diverse web content and mobile technologies have resulted in the fact that computers are no anymore perceived as distinct

technological objects, but as more integrated tools to support everyday activities [12].

A study found that accessibility to public spaces is essential for visually impaired individuals to participate in social activities. The study also found that lack of accessibility was a significant barrier to participation in social activities. Studies have shown that early intervention and specialized educational programs can improve the educational outcomes of visually impaired individuals.

There are many software's that are developed for visually impaired persons [10] like JAWS, NVDA, etc. This software provides ease of access to handling web services. This software provides a platform to visually impaired persons to get knowledge and get updated with the internet. But this software performs a limited set of functions. The idea of web accessibility is to make the web open to disabled people [2]. This software is paid, costly, and not afforded by many people. These include speech-to-text [3] conversion of the speech given by the user as input. According to the input given by the user, the process has been done. And after processing text is converted to audio as an output. There are many software's that provide ease of access but perform a limited set of instructions.

Text-to-speech (TTS) technology reads aloud digital text [4]. Converts text to audio on computers, smartphones, and tablets. Text to speech is a program where you enter text and the output you get is text to speech. It does not require an internet connection and is very easy to use. Text-to-speech synthesizers [5] have evolved over the past few years to become what they are today. The suitable methods for TTS are Format, Articulators, and concatenation synthesis. In India, many research institutes are trying to perform text-to-speech in Marathi, Hindi, Telugu, and other local languages. There are many improvements that can be made to the TSS mix to have a natural and emotional effect. Alan is the most advanced voice AI platform that can add voice assistance to any existing app. With Alan, users can collect data from applications using voice commands. Unlike many other voice assistants, Alan allows companies to create their own voice experiences in their apps. Open AI ChatGPT [9] is a chatbot based on OpenAI GPT-3 language. It aims to generate human-like responses to user input like responses to user input in interactive content. Open Artificial Intelligence ChatGPT has studied large datasets of human conversations and can be used to generate responses to a wide variety of topics and suggestions. Chatbots can be used for customer service, content creation, and translation tasks and generate responses in multiple languages. OpenAI ChatGPT is available through the OpenAI API, which allows developers to access chatbots and integrate them into their applications and systems.

Artificial Intelligence (AI) is a technological development that will have a huge impact on everyday life and the law, including civil, criminal, and civil liability. One of the areas that artificial intelligence will affect is the management of intellectual property. One question is who should get patents for inventions of AI technology. Flutter is one of the future software for mobile app development, it allows users or developers to create multiple apps without limitations or difficulties, solving competition problems for manufacturers. Google has developed a platform known as Flutter which is an open-source mobile user interactive framework, announced in the year 2017, and is ranked 34th among the software, which is used for the development of an application. Flutter is a cross-platform framework that targets developing high-performance mobile applications[1].

It can create custom applications with a single code. In simple words, the functionality of Flutter, which is a software, is that it allows a developer to create a mobile application of both the operating system that is Android and iOS, with only one codebase. This means that you can use one programming language and one

codebase to create two different apps (for iOS and Android) [8].

A Screen Reader uses a text-to-speech engine to convert the text displayed on the screen to audible signals [6]. The text-to-speech software is connected with the software which converts the text into speech in the corresponding language. E-book Readers are another device that is commonly available where the e-book is read aloud using the text-to-speech engine [7]. Implemented work done by us to help the blind to input commands in various ways. For example, visually impaired people who know 2D art movements or gestures can interact with computers emotionally like normal people. Using depth sensors like Kinect to assist blind people in environment navigation or object recognition are a few examples that employ the latest technologies in this area.

### **III. PROBLEM STATEMENT**

Persons with the visually impaired rely on alternative formats such as braille, large prints, tape recordings, etc. The information provided to visually impaired persons may or may not be valid information and this is the part of concern. As the internet and World Wide Web increased and ease of access to information resources for them. So to provide accessibility and useability an innovative solution is to provide alternate formats like converting the available material into other forms etc. to them.

### **IV. PROPOSED STATEMENT**

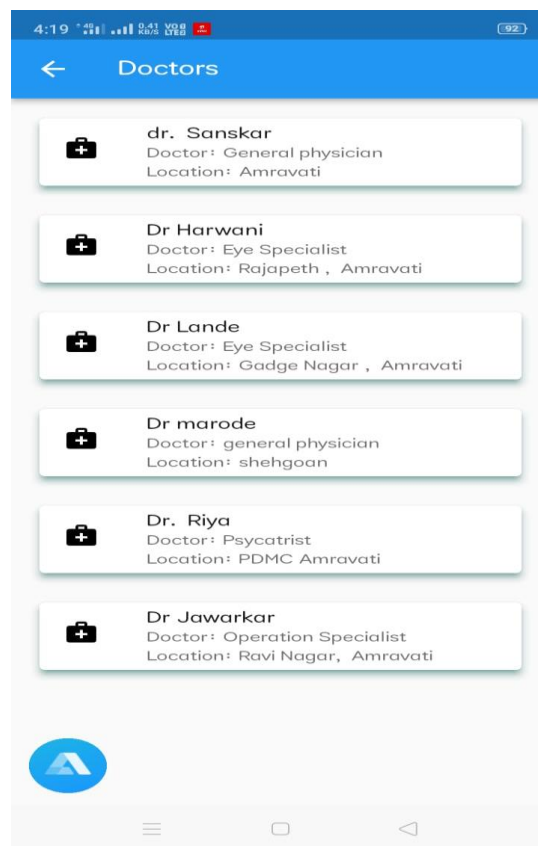
To overcome the odds, we have proposed a user-friendly solution for the backend software IKSHANA. She will search for information on the internet/Wikipedia and will give audio output to the user. Also, she will read any book that the user wants to listen to. She will provide the top headlines of India. Along with that IKSHANA will also open any website that the user wants to use.

#### **4.1 Modules**

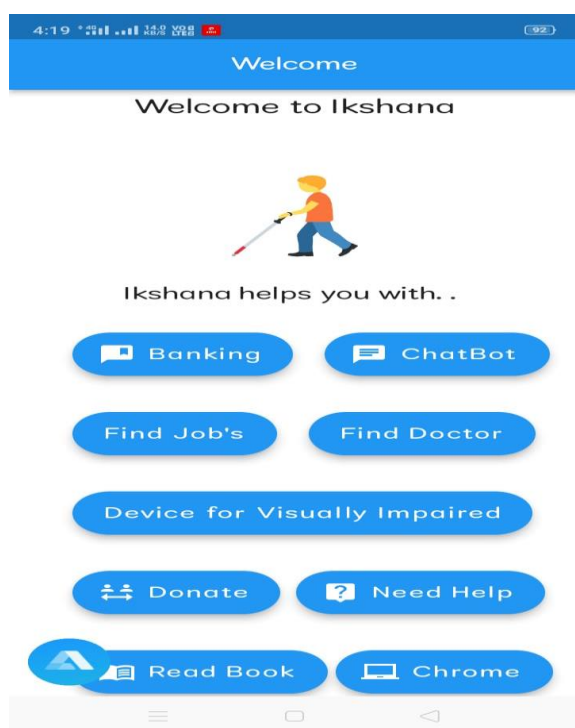
To develop the vision and provide facilities to the handicapped, old people, and visually impaired persons. In this work we have developed such modules which will provide the web access, audio books, top news, object detection i.e scanning, job opportunities, find my doctor and provide the searched information to the visually impaired persons.



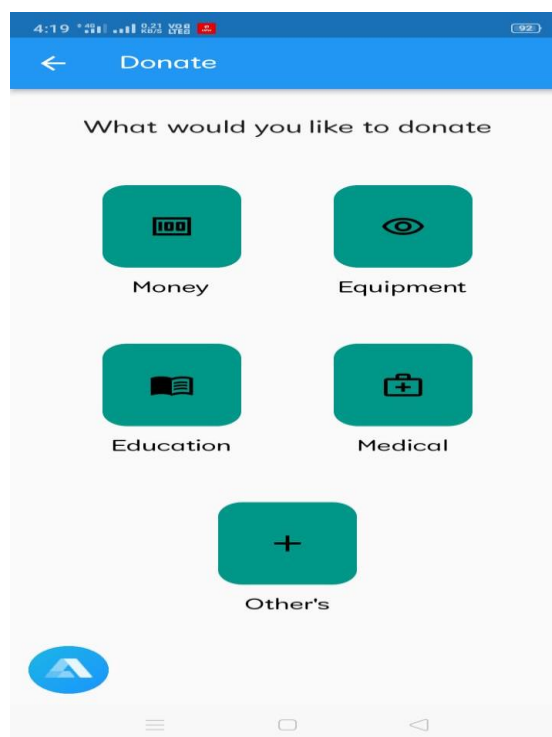
**Screenshot 4.1 ; Read Book**



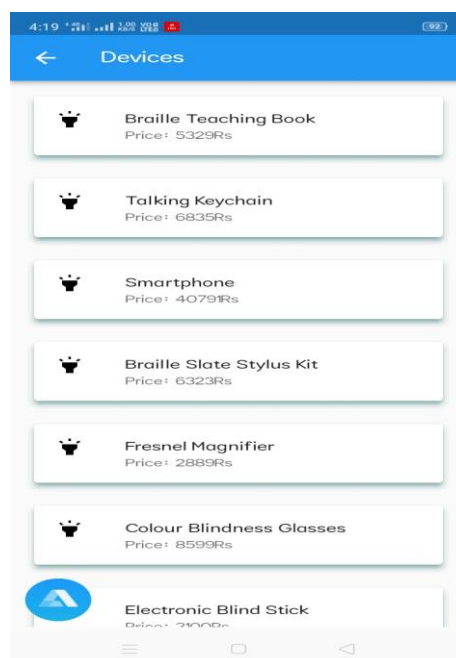
**Screenshot 4.2 : Doctors**



**Screenshot 4.3 : Home Page**



**Screenshot 4.4 ; Donate**



**Screenshot 4.5 : Devices for visually impaired**

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