

A Web Based Voice Recognition System for Visually Challenged People

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ABSTRACT: The World Wide Web contains huge information from all over world. It has information about simple things as well as very complex things. This makes it very useful for everyone. Nevertheless this enormous useful information is always accessible through browser which requires use of mouse and keyboard. Hence, it does always remain unreachable to specific community of people, especially to the people with visual impairment. The concept of voice browser is not new, however in this project we have used Voice Recognition and Text-To-Speech to make a two way communication between browser and user. Estimates suggest that there are between 180 and 220 million youth with disabilities worldwide, and nearly 80 percent of them live in developing countries. Visually challenged people use helpful devices such as speech synthesizers that can speak the letters, words and sentences shown in the screen. This is particularly helpful with applications such as word processors, email, and the Internet. Lately, however, there have been a few problems, specifically with the Internet. Many visually challenged people today use text-to-speech screen readers that work only with the character-based DOS operating system, not with graphical user interfaces such as Web browsers. Our application has been built to reduce the gap between physically challenged people and World Wide Web.

1. INTRODUCTION

It is very important and helpful to have some application which reduces the gap between physically challenged people and World Wide Web. This will be helpful for those with disabilities such as sensory or mobility problems, the internet can be a mixed blessing. For example home shopping, can be invaluable to those for whom busy streets present a difficult challenge. However, in much the same way as a building may be problematic to physically disabled people; a website may also present barriers to access. For example, a visually-impaired internet user can use a screen reader to translate the contents of web pages using speech synthesizers or Braille displays. The user will struggle to understand web pages if, for example, images are displayed on the page without a text alternative. The impacts of voice enabled systems have yet to be revealed but speech-enabled mobile phones, navigational systems, and automobiles might make a distinct contribution towards visually challenged people's life. Although future would certainly bring a lot of technological advancements but the pace of development, in this particular area voice enabled systems, remains to be slow.

This system is very useful in minimizing the problem of hours and hours of typing overhead and also helps when all the menu commands such as cut, copy, paste are executed just by the utterance of the word. The Text-To-Speech helps in two way interaction between the system and user by converting the text to audio which make it more interactive. This project will be especially advantageous for the physically challenged people, particularly those with visual impairment. The Basic idea behind this project is to allow the end user to use this application using his own voice.

II. LITERATURE SURVEY ON WEB DEVELOPERS

Tim Berners-Lee and et al [3] proposed a system on , The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect . Mike Paciello, author of the accessibility resource site Web ABLE! Calls the introduction of the web and its subsequent evolution the near-complete publishing paradigm shift one that has resulted in increased access to global information set never before achieved . But what began as primarily a text and number-based medium has evolved into one laden with detailed graphics, animated pictures, and complex page layouts. Although this evolution has proved a great benefit for the average user, it has created difficulties for people with disabilities.

2.1. LITERATURE SURVEY ON VISUALLY CHALLENGED PEOPLE

Muhammad Nabeel Talib and et al[4] proposed a system on Information accessibility on World Wide Web still remains to be a complex issue for visually challenged users as majority of websites are invaded by contents, both non-visual and visual. Accessibility measures in terms of a usable and visually challenged people-friendly website should be made available to visually challenged users. A particular area that can be improved on is the e-Business segment for visually challenged peoples. Easily-accessible, e-Business platforms could further promote entrepreneurship practices through the development of visually challenged people's friendly features such as voice. In current study, we investigated the existing difficulties such as inconsistent webpage structure, incompetent voice recognition engines and use of long sentences as commands to access the web-content and suggested a different numeric hotlist approach, in order to make the web more accessible, exclusively for visually challenged peoples.

2.2 LITERATURE SURVEY ON COMPUTER ASSISTING THE HANDICAPPED

Christopher R. Murphy and et al[2] proposed a system by studying about Computer programs and devices are available to allow people to input text using Braille keys on an otherwise regular keyboard. With certain printers they can produce their work as either a Braille copy or normal ink text. If a blind person does not know Braille, helpful devices such as speech synthesizers can speak the letters, words, and sentences shown on the screen. This is particularly helpful with such things as word processors, email, and the Internet. Lately, however, there have been a few problems, specifically with the Internet. Many blind people today use text-to-speech "screen readers" that work only with the character-based DOS operating system, not with graphical user interfaces such as Web browsers. Many companies put applications on graphics-intensive Intranets and Web sites. When they do this without providing text-based pages equivalent to the graphical ones they may be shutting the door on employees and/or customers that are sight-impaired.

2.3 LITERATURE SURVEY ON DISABLED ACCESS TO WEBSITE

UK Law proposes that accessibility should be addressed at the website design stage as many fundamental design decisions have an impact on accessibility. If you are a web developer, accessibility is something you should discuss with your clients, who may want designs which would fail to meet the minimum W3C standard. If clients insist on such designs, you should address this in the development contract. Seek an indemnity to protect you in the event of litigation over the website's failure to comply with the accessibility legislation. Although it is had not formed the grounds for judicial action, website accessibility is an important issue, this is not only in the context of legal compliance, but also because an easily accessible website will ultimately lead to a larger and more diverse user-base.

III. PROPOSED SYSTEM

To reduce the gap between handicap people and technology we came up with a concept called VIB. A browser is a software application used to enable computers users to locate and access web pages also used to bring the context of an HTML webpage into display, which allows quick access to links, buttons etc. Voice Integration Browser is a windows application that allows users to access Web via verbal commands. This application will be especially advantageous for the physically challenged people, particularly those with visual impairment. The Basic idea behind this application is to allow the end user to use this application using his own voice. Voice Integration Browser will help

people to access web while keeping hands and Eyes free of the computer. This can allow the users to multi- task that is to access the WWW when carrying out their daily routine.

Voice Integration Browser accepts spoken words as input and acts as per the command, either by response to the command or by producing synthesized speech. The input voice passes through the voice recognition process and would invoke an action in the browser only if it matches with one of the voice commands/vocabulary available in the voice recognition engine. A few commands have been defined in VIB, which are recognized when the user speaks it aloud. The TTS helps in converting the text results to audio which makes a two way communication between the user and the system.

3.1 SYSTEM ARCHITECTRE

System architecture is the conceptual model that defines the structure and/or behavior of the system. It provides a way in which products can be procured, systems can be developed an architectural overview of the overall system.

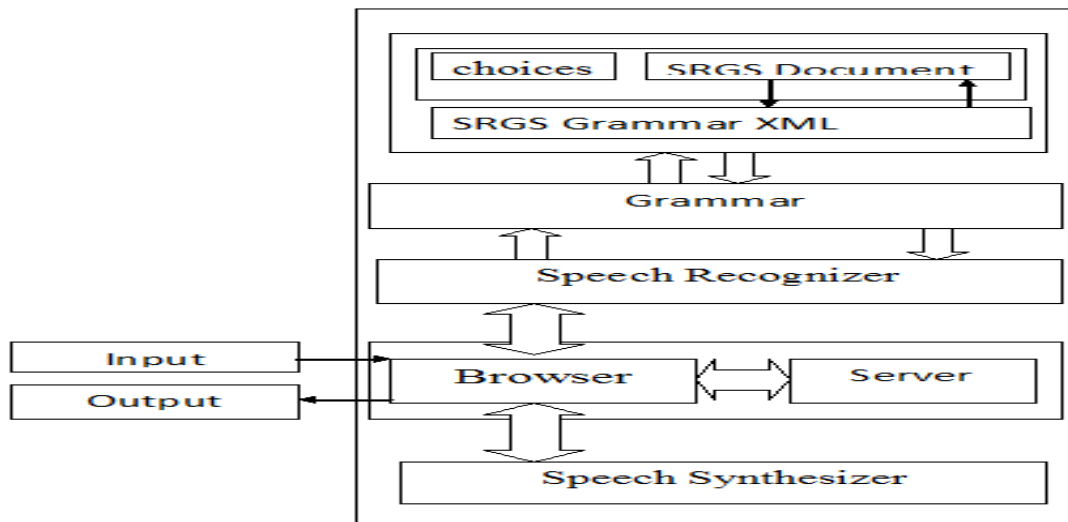


Fig 3.1 System Architecture

3.1.1. WEB BROWSER

The Web browser is the base module of the project, in this module the requests given from the user are redirected to a remote web server and the result are produced in the web browsers document area

3.1.2. VOICE RECOGNITION

In this module the input is given through voice. The voice recognition module compare the given voice based on the pronunciation with the loaded grammar and return the respective action assigned to words such as New Tab, Back, Forward, Print Page and operations like Redirecting the mouse pointer to the URI or search box will help to type words by pronouncing each letters.

3.1.3. TEXT TO SPEECH

The Text To Speech module responds to user like a artificial Intelligent agent by guiding through browsing. This module reads out the content in the web browser by parsing the web document by removing html tags and extracts only text to the user as audio. It also returns information's like date, day, time, weather, etc on request.

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IV. IMPLEMENTATION

4.1.1 OPEN BROWSER

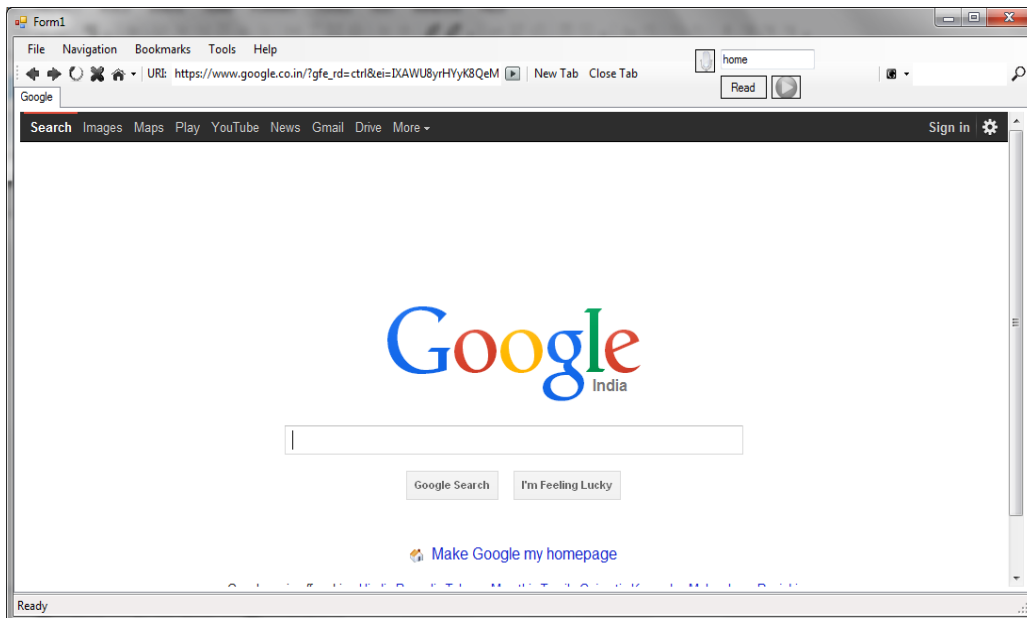


Fig 4.1 Open Browser

4.3.2 VOICE RECOGNITION

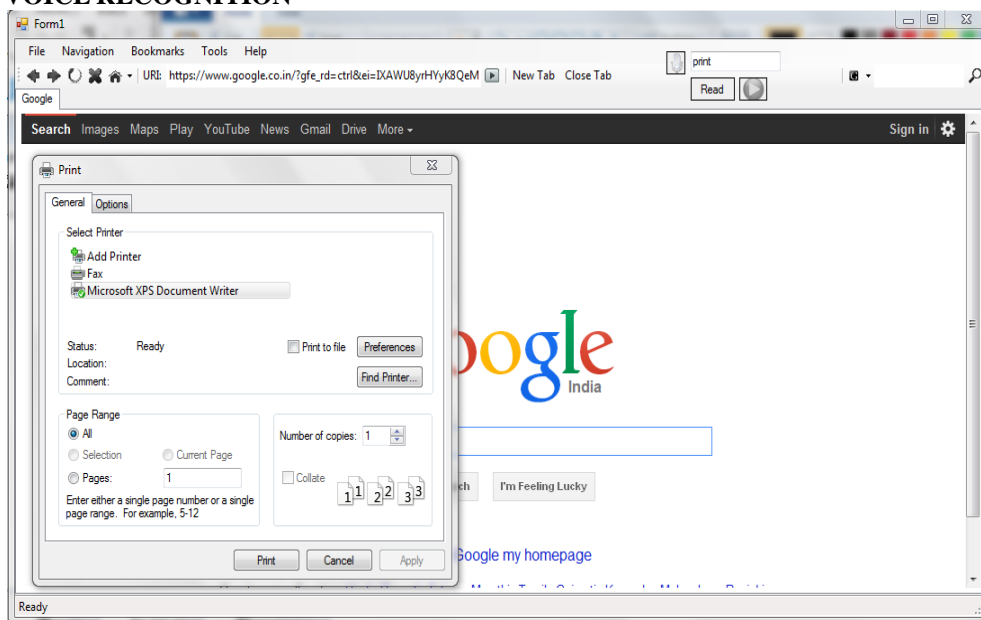


Fig 4.2 Voice Recognition

4.3.3 WEB PAGE

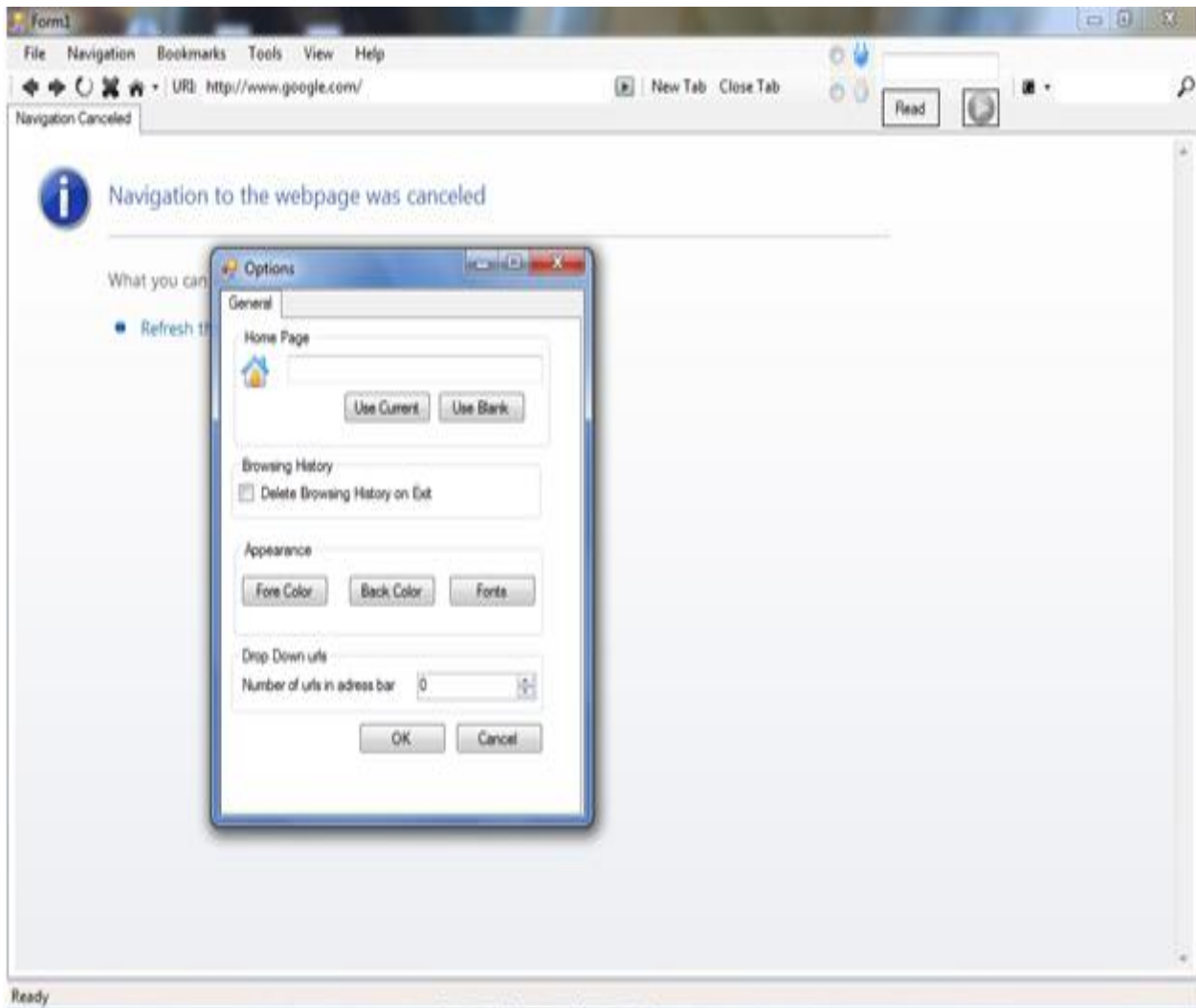


Fig 4.3 Web Page

V. CONCLUSION AND FUTURE WORK

The Internet is used in every corner of the World and lots of people have benefitted with the vast amount of information available on the internet. However, the physically challenged people have not been able to avail the benefits of the internet due to their inability to use the current technology. The VIB is an application which allows the people to use their voice to access Internet. This application helps especially physically challenged people who find it difficult to access internet. This application would be especially beneficial for blind people as they can hear the text written in the pages as Voice. Over all we focused on the basic features of VIB. We provide the solution for some challenges faced during the development of VIB. We have taken into account few future works as mentioned below in detail. In a single web page there are so many server controls which have to be handled completely like filling textbox, submit button etc.

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This will allow web page to run using voice command. VIB basically understands US English as language. It should be able to understand India accent which will make VIB more useful to the Indian people.

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