Reviewing the Web Portal Used By Visually Challenged People

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Abstract - *Not just gaining knowledge about how to access the internet is sufficient, sometimes the persons who are visually challenged also want to access the web, but it is not in their capability .It is one of the problem face by visually challenged people .So by making a web portal for visually challenged people is an important step in this direction which will help them to access the web and gaining knowledge from internet. This review paper brings light to advancements in technologies to provide a web portal by which internet is accessible by both normal and visually challenged people.*

Keywords—SQL (Structured Query Language), IDE (Integrated Development Environment), HTML (Hyper Text Markup Language)

1. INTRODUCTION

As there is advancement in technology day by day, and also there are various technology that helps visually challenged people to become independent and active members of the society[1]. For becoming independent they have to gain more knowledge in order to do that computer technology provides something that allows blind and visually challenged people to access the information on the internet. This is a beneficial step for the population that was not capable of gaining information from internet, For instance, by the advancement of technology, today a visually challenged person is capable of accessing internet and understand the text written on a web page by text to speech translator, as comparison to our past when visually challenged person would not be capable of accessing information present on the internet. However the advancement in technology also creates some problems to visually challenged person, as the design of webpage or the resources present in webpage is effectively used by them or they face difficulties in using them. For helping visually challenged person ,a web portal is designed by which they can access various things.Web Portal consist of certain predefined steps ,these steps were followed by the users after following these steps the user can access the internet , and the content available on internet is presented in the form of both voice and image .This portal follows the process availabe in Fig 1 .By following this process , firstly user have to open the web browser , then by giving commands the web portal is activated , and then portal would dictate the steps for the visually impaired person .And then it was the responsibility of user to give commands and process there task .Like if the user wants to listen music then user would say Music or the keyword dictated by portal at the start , then by recording the commands given by user portal will respond .

1.1 Technology Used

C#: This is the most flexible language generally used under .Net framework developed by Microsoft for developing web, console and windows based applications. For developing portal we are using a language name C# whose main work is to make an application which takes user command as voice and translate the data into audio form and gave that audio as an output to user.

ASP.NET: By this we can create ASP.NET applications in most of the .NET compatible languages, such as Visual Basic, C#, and J#. The ASP.NET compiles the Web pages and provides much better performance than scripting languages, such as VBScript. The Web Forms support to create powerful forms-based web pages[2]. It consist of two parts one page is for designing and other page is for logical concepts, which mainly means first one consist of html files and second one consist of coding part.

SQL SERVER: This is used for database connectivity, the web portal extract the data stored in sql server, and after extracting the data from server it give output to user.

1.2 Framework

.NET framework is a software development framework developed by Microsoft. It provides the programming environment where software can be developed, installed and executed. The basic feature of .NET framework is language interoperability, provides common runtime environment for execution of application. For making this portal we are using .NET framework 4.5 .

1.3 IDE Used

In order to make this portal, we require an IDE for using .NET technologies. The languages used in .NET are used by the programmer for developing coding logics. IDE provides a user friendly interface for developing applications easily.

By the use of IDE it is easy to debug the program and find inbuilt errors.

2. LITERATURE SURVEY

In past years several projects were made for visually challenged people, to provide them facility of accessing the internet. Some of projects are[3]:

MozBraille is an extension which transform Mozilla or Firefox to a stand alone internet browser designed for blind and partially slighted users. It offers three types of output to users. First one is braille output on a braille terminal ,second a text to speech output and a big character view.

Simply Web 2000 is an speech enabled and speech friendly accessible web browser, that main advantage is that it allow easy navigation of complex web pages or sites by visually challenged people. It uses Internet Explorer or some latest version.

Enhancing Internet Access (EIA) is a web browser usually designed for touch screen systems. It provide step by step training to visually challenged people to access the internet. The web tutorials are integrated into the web browser.

netECHO is a voice input and voice output based web browser or we can say it is a type of assistant designed for use by individuals who are visually challenged or have low vision. Using voice commands over a telephone line, the user gets access to a voice portal with customized information, such as stocks, news, horoscopes, restaurants, and directions. Starting from there, access to the entire Internet is provided.

ReadText is a software which reads the text file present on the web page and it also magnify the text for low vision people. It speaks all the digital files and web pages including ebooks and pdf files.

3. RESEARCH QUESTIONS

Based on the stated purpose of this research study, the literature review, and the conceptual frameworks used as structure, the research questions are as follows:

Q1: How do people who are blind or visually impaired would start the system for opening the above mention software ?

Q2: How do people who are blind or visually impaired and doesn't have any knowledge of how to use the software which help visually challenged people ?

Q3: What are the factors, from the perspective of people who are blind or visually impaired and have no source of gaining information present on the internet ?

4. METHOD

For solving the problems faced by visually challenged people we use .NET inbuilt namespaces like speech recognition and speech synthesis namespaces. By the use of speech recognition namespace, it enables the system to recognize the word input to the system in the form of voice. And by the use of speech synthesis namespace the system give output to user in the form of speech.

For accessing the content over the internet we provide two features either we make our own database, where we place all our data, and when user give command, for example if user give command of news then the data present in our database in news table will be executed and this data is converted into form of speech to be easily understood by visually challenged people.

Secondly for accessing the content of online web pages like the websites present on internet for this, we are using HTML Scraping, it means for example, if user search for news then by the help of HTML Scraping the content of the web page get fetched into a data table. From this table, with the help of speech synthesis namespace the system reads the text in the form of speech which is easily understood by visually challenged people.
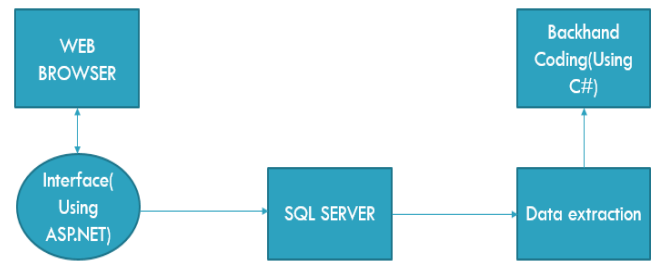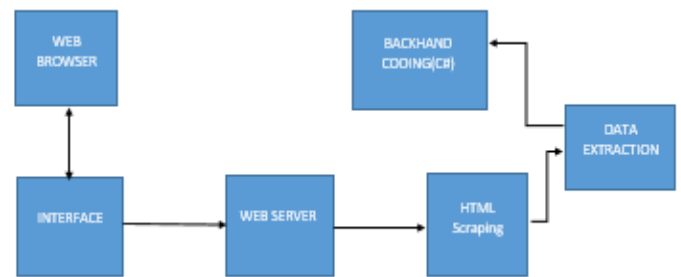

Fig 1: Components of Local Portal

Fig 2: Components of Online Portal

5. WORKING OF WEB PORTAL

Step1: Firstly the user open the web portal, and then spoke a predefined keyword by which portal will be activated.

Step2: Then the portal provide the instruction to user in both text and voice form.

Step3: After listening to instruction user speak its task what they want to do among the options given by portal.

Step4: Then portal fetch the data required by user from the database of various web pages and show it in the form of image and also in the form of audio for both visually challenged and low normal people.

Step5: By the use of portal user can listen to music, news and many more useful things for gaining knowledge.

6. CONCLUSION

We talked about .NET and the technologies included in it helps to develop web portal which is used by the users who are visually impaired and also by normal people . So this concept helps them to access the web and gaining knowledge from that .This can be possible by the output given by portal is in the form of voice. And by this web portal the user can access the data from the websites present in the internet or another concept is that they can use their local database to store data and fetch them when they required with the help of this web portal.

7. LIMITATIONS

This is a web base project, so for accessing the information on the internet the visually challenged people have to start the computer system, or mobile on which this software is installed. But it is not possible for them to start the system by their own. So this is the main disadvantage of this system. And in order to start the software we have to train the visually challenged people to how to use the software, it means it is difficult for new user to use the software efficiently. One of the major limitation is that the image available in the internet was not access by the visually impaired person because, it will not converted into speech format.

8. FUTURE RESEARCH

The technology in use will need to expand significantly in future for solving the problem of how to start the computer system by voice commands, because visually challenged people are not capable of start the system. In future, to expand the functionality of the web portal, we can make it as a assistant for people which will work by voice commands of the people. And in future we also add one more functionality of telling the user about the images present in the web page. For example, if there is a image present in the internet, then we can access the metadata off image from the webpage html file, which gives us information about image, and by converting those information from text to speech format we can easily explain visually challenged what image describes us.

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