

Third Eye: Online study materials for Blind

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Abstract

Around 200 million people in the world are blind and don't receive good education due to their visual impairments. Even if they want to get good education, they stay back due to their challenges. When a visually impaired student is present in the classroom, he/she may use a combination of methods, including readers, tape-recorded books and lectures and stylus, sometimes, Braille materials for his study purpose. But these materials are very costly and are hard for them to carry.

Apart from this problem, they always need the help from a third person. So we develop an application named Online Study Materials For Visually Challenged. This app is specially designed for Visually Challenged Students for their Android phones, so that they don't have to depend on any third person for help. The basic workflow of the system is that the system speaks out whatever trends or notes or assignments etc the user requires and the user will be able to download them by voice commands .

Keywords – Android, Braille, Tape-recorded books, impairments, stylus

I INTRODUCTION Internet is the global system of interconnected computer networks that carries a vast range of information resources and services. Nowadays nothing can be done without the help of internet. It serves as the major resource in most of the fields like education, business, health etc. In the present world due to many reason, visual impairments are increased. They are disorders in the function of the eye or with the lack of vision . About 20. of students in the world are blind and such

impairments makes the students to stay away from their abilities and even from good education. Some unsighted students carry braille materials and even slate and stylus or a Perkins Braille. Some others will get copies of notes from classmates and the caretaker type the notes onto disk for them .

These all have some drawbacks like cost of the materials, transportation difficulties, wastage of time etc. So we develop this android application for students having visual impairments.

Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software, and is designed primarily for touchscreen mobile devices such as smartphones. Google API (Application programming interface) is another tool that can be used for developing applications for unsighted people. It allows the integration with other services and to communicate with google services. It helps in speech to text and text to speech conversion. Android SDK text to speech engine is a very useful tool to integrate voice in your Android apps.

A. Areas of interests

What is needed is to convert the notes uploaded by teachers to voice and speech given by a visually challenged student to text. This conversion in android had become an interested topic for further studies and researches. In this work we uses Google API or Android SDK engine.

B.

Related work

Until 2013, there were no efficient speech-to-text engines. But just after that year, a system had developed where the system receives speech at run time through a microphone and the speech had been processed to recognize the spoken text. The text that had been recognized was stored in a file and this was developed on android platform.[2] The speech had directly acquired and suddenly it had been converted to text. Such a system can also increase system accessibility that helps the blind for data entry purposes. In this work, an application was developed that helps visually challenged people to convert spoken messages into SMS text messages and even record them.

Text to speech conversion transforms information stored as data or text into speech. It is widely used in audio reading devices for blind people.[3] This technology has enhanced a lot more. Rapidly growing use of digital voice storage for voice mail and voice response system which provide telephone information access. For example this technology can convert electronic mail to voice mail for audio access by phone.[1]

II PROPOSED SYSTEM

The proposed system is an android application developed for blind students for their study purpose in their android phones. This android application enables the user to get daily notes without the help of second person. By using this application he/she will be able to get notes uploaded by the teacher.

The blind person needs to fill the registration page with the help of a caretaker and it is one time registration, that is once registered he/she doesn't need to do it again. The registration is linked with the IMEI number of the mobile.

After the registration the user can open the application by pressing the volume button thrice. As the user can't see the text, all the conversation between the blind and system is in the form of voice. By pressing the volume button once the user can spell the name of the subject after that he/she can specify the needed module and get its notes. He /She can also search keywords in that specified module. The

verification of the request is given back as an immediate response. The application passes the information from the user to the server through internet and the server searches for notes in its database as shown in the Fig 1. The database used is MySQL. The required topics are given as voice with the help of Google API. Google API is used for the conversion of text-to-speech and vice versa.

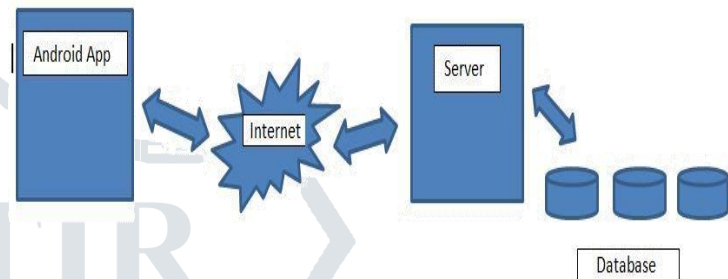


Fig 1. Searching of a note.

The teacher uploads the notes in the form of text. Every notes uploaded by the teacher is in the form of text document and is converted into corresponding audio file. Whenever needed the student can repeat the audio and can pause it and even resume the audio. Once the user pause the file and logs out, he/she can resume the file whenever he/she again logs into the application. After the requested topic is given, again the TTS engine is ready for next topic. The teacher can also give information about the assignments and this will also be a text document and is converted to voice. The information about the assignments are popped up and spelled when the user logs in to the application. The application also reminds about the deadlines of each assignments. The execution of the proposed system is shown in Fig 2.

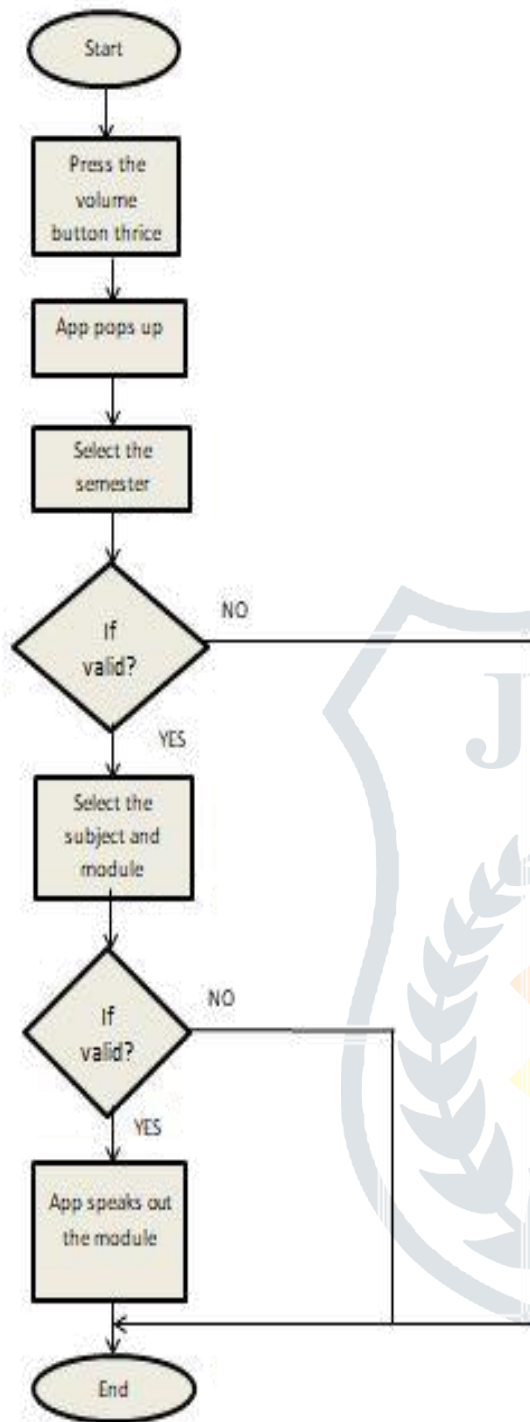


Fig 2. Flowchart of proposed system

CONCLUSION

The development of software field is the major contribution to mobile devices. Since mobile phone provides a great platform for students to explore, it is the major device that are used by students for their education in the present world. Google API has been turned as major platform for the speech to text and text to speech conversion which has been implemented in the android phones. It has been mainly helpful for unsighted people. Major advantage of this project is that its working is easily understandable by the students. This application can be downloaded by anyone and is of free of cost. For this application they don't need to carry their usual braille materials or tape recorders etc, since it is

installed in their normal android phones.

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