

E-BLIND EXAM PORTAL

**PAWAN BHARADWAJ^{1*}, TIRUMALA BALAJI G², VALLEESH PRABHU²,
SHREEHARI N² & RAHUL KUMAR²**

¹Assistant Professor, Department of Electronics and Communication Engineering, NIE Institute of Technology, Mysuru, Karnataka, India

²Research Scholar, Department of Electronics and Communication Engineering, NIE Institute of Technology, Mysuru, Karnataka, India

***Corresponding Author:** Pawan Bharadwaj, Assistant Professor, Department of Electronics and Communication Engineering, NIE Institute of Technology, Mysuru, Karnataka, India

ABSTRACT

*With humans moving towards higher standards of living and to a more digitalised and interconnected world, computers prove to play an eminent role by providing the Most efficient and optimum ways that in achieving the specified goals. Human resource and also the computer system provide the ideal paradigm of a trouble shooter. Such systems need to be user friendly, accurate, and multitasking as they are needed by every section of people. But when it comes to visually impaired people they (the software's/systems) pose an excellent deal of struggle and difficulty and therefore the complete utilization of the facilities is hampered while using the visual interface. This can be solved by using the hearing capability. Keeping this in mind the software will be able to read the text present in the screen, webpage, document or a text entered in a text box using FreeTTS text-to-speech synthesizer. The text will be converted into a speech by analyzing and processing the text using Natural Language Processing (NLP) then using Digital Signal processing (DSP) technology to convert this processed text into synthesized speech representation of the text. Through the speech or voice visually impaired people can be able to hear large volume of text easier. Other than just the text to speech facility the software will have a facility to extract the text into an audio file like *.mp3, *.wav etc. It will be an efficient way in which blind people can also interact with the computer and utilize the facilities of the computer.*

KEYWORDS: FreeTTS, Text-to-speech synthesis, Natural Language Processing, Digital Signal Processing

INTRODUCTION

Artificial speech has been a dream of the humankind for hundreds of years. The computer is a silent teacher for many. Usually computer instructions are transmitted visually through textual presentation--analogous to conducting a lesson using the chalkboard while not speaking. The majority of currently obtainable academic software system provides feedback through images, written words or electronic beeps and tunes. Special-education teachers are cognizant of is the issues created when students with learning problems are forced to use only written material--computer-based text has a similar potential for causing difficulty among poor readers and most importantly the visually impaired. Therefore, the idea of incorporating computer-generated voice into all kinds of software's has revolutionized the lives of people's and there is way more to go.

OBJECTIVES

- To develop an examination portal for visually impaired people with high accuracy for speech and text recognition.
- To make use of embedded system and machine learning

LITERATURE SURVEY

1. SPEECH RECOGNITION BASED ADAPTIVE EXAMINATION APPLICATION FOR VISUALLY IMPAIRED STUDENTS

Viswanath Subramanian Ramesh, P. Saranya and Ruchira Kapoor

With the help of Text-to-speech API, Speech-to-text API and the algorithm for analysis of cognitive ability we can develop a platform for visually disabled students to take examinations without any hassle. The data has to be trained for the various inputs taken from the user so that it can recognize every input taken and save it in a variable accordingly. After the answer is saved the scoring is done as per the adaptive nature of the test. This application can help increase the efficiency of the existing examination process of visually impaired students by a great extent. Further efficiency can be increased by developing this model for descriptive examinations.

2. DESIGNING MOBILE APPS FOR VISUALLY IMPAIRED AND BLIND USERS

Using Touch Screen Based mobile Devices: iPhone/iPad Javier Sánchez Sierra Centre for Computer Research in Music and Acoustics Stanford University Palo Alto, CA, USA

According to this, our research work has led us to the creation of a collection of Apps, following a common redesign centered on visually impaired and blind users. We have also created a *low vision mobile portal* that includes these apps, facilitating the visually impaired and blind users the access to a wide collection of Apps specifically designed for them. The portal is open to any developer willing to design an App for low visual users. An API including special low vision controls will be available to facilitate the design of the App in order to achieve the best user experience.

3. VOICE OPERATED TOOL-EXAMINATION PORTAL FOR BLIND PERSONS

Akriti Vats Students of BTech(IT) final year, Department of Information Technology

Speech recognition is used extensively for many purposes, but speech recognition is especially very useful for people who have difficulty in using their hands, ranging from mild repetitive stress injuries to involved disabilities that preclude using conventional computer input devices. Speech recognition provides best way for such people to give exams. Through speech recognition, instead of pressing buttons on keyboards one can easily operate a computer system by just using his/her voice. This tool provides a way for the people who cannot use their hands or cannot see to give exams by just using their voices. This tool works on voice recognition and provides a way for user to give examination. It aims to recognise the user through voice input and conduct aptitude exams type-free with the help of microphone and head phones only. The research for more accurate results is still on, in the field of voice operated tools. The future for the recognition of voice and speech is wide spread as more and more applications are now being made using speech recognition tool.

4. ONLINE EXAMINATION FOR VISUALLY CHALLENGED PEOPLE

J. Kanimozhi, A. Karkuzhali and K. Suresh kumar

UG Student, Department of Electronics and Communication Engineering, IFET College of Engineering, Villupuram, India

This challenge very useful for the blind peoples to admire their talent through doing the online examination like different peoples. Those peoples could try to do the extra growth by doing the web examination with none confusion. In future they may attend the net examination without difficulty through this challenge.

5. UNIVERSITY EXAMINATION SYSTEM FOR STUDENTS WITH VISUAL IMPAIRMENTS

*Konstantinos Papadopoulos, Zisis Simaioridis, Konstantinos Charitakis, and Marialena Barouti
University of Macedonia, Thessaloniki, Greece*

The developed university examination system is web based, platform independent and it can be easily used by students with visual impairments from any computer with internet connection and minimum requirements of additional software. Blind users only need screen reading software while students with low vision receive information either by reading or listening (with screen reading software) or by combining both modalities.

6. E-BLIND EXAMINATION SYSTEM

Akshay Naik Kavita Patil, Department of Computer Engineering PVPPCOE Mumbai

The proposed system seems to be far better and efficient in terms of technology and integration point of view. The accuracy of the speech recognition system was among the top challenges. The proposed system will provide a better option for Blind people to appear for the examination.

CONCLUSION OF LITERATURE SURVEY

From above literature survey we got that there are many methods incorporated to implement portal to solve problems in conducting visually impaired students. Most of them have accuracy issues in conversion from voice to text vice versa. Some have very high cost and maintain ace this problems can be solved by the method we are proposing.

MOTIVATION

The online examinations are in common for all competitive examinations in order to reduce the workload of the faculties as well as the students. Till date blind peoples cannot attend the online examinations due to various factors. To make them to participate in such exams like ordinary individuals an advanced system is proposed which make them to furnish their talents in all aspects of examinations conducted. Here the questions which are available as softcopy are being dictated to the students with the help of voice board, the blind peoples can hear it by using head phone. The applicants can answer it by pressing the keys provided in the keyboard. After answering the reply has been saved in the server by IOT (Internet of Things).

PROBLEM DEFINITION

In current system, the blind people who want to take the examination require a writer. The writer writes the answers which the blind dictates them. The traditional way for conduct-ing examination for the blind people requires scribe/writer. These candidates face difficulties in using the scribes for examinations. It is hard for them to dictate the answers to the scribes. Because, the scribes might be of lower qualification hence they cannot interpret their words and write them down as they are.

BLOCK DIAGRAM

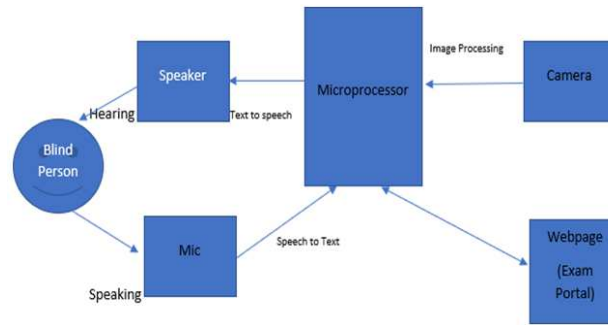


FIGURE 1

Admin will be having the privileges of authenticating candidate. Every candidate will have a **Unique Identification Number** similar to USN before starting the exam admin will enter the credential of the user and check the hall ticket when both are matched he will initiate the exam portal.

For speech acquisition we make use of Mic which will be interface with the microprocessor. When the student speaks to the mic the analogue signal of his voice will be converted into digital signal and will be processed for speech recognition by ASR engine and keyword will be entered into the database. Then data base sends this to exam portal. It will be stored there for valuation.

METHODOLOGY

Speech synthesis can be described as artificial production of human speech and Text-to- speech synthesizer (TTS) is the technology which lets computer speak to you.

The text-to-speech (TTS) synthesis procedure consists of 2 main phases that is shown in “Fig. 1”. The 1st is text analysis, wherever the input text is transcribed into a phonetic or another linguistic representation, and therefore the 2nd is that the generation of speech waveforms.

In the 1st phase of the software the raw input text is entered by the user or the text/document file is foreign to the software which fits below the text analysis. The text analysis is nothing however the method during which it converts raw text containing symbols like numbers and abbreviations into the equivalent of written-out words using the english dictionary words. This method is commonly known as text normalization, pre-processing, or tokenization.

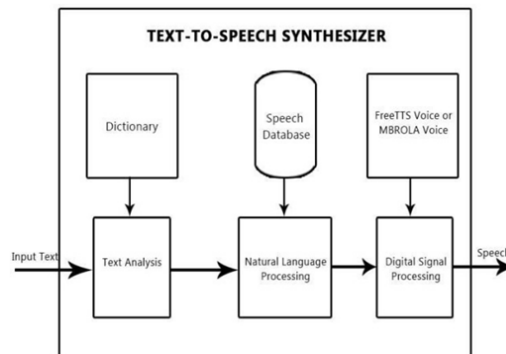


FIGURE 2

The 2nd phase of the software may be sub-divided into 2 components. The primary a part of the second part is

for the tongue process (NLP). The tongue process produces a transcription of the text scan, along with prosody wherever the speech info is referred for the process of words during a correct manner. the opposite half is for the Digital Signal process (DSP). The Digital Signal process transforms the symbolic data it receives from NLP into audible and intelligible speech.

REQUIREMENT ANALYSIS

- A. Hardware Requirements
- Raspberry Pi Board
 - MIC
 - Speaker
 - Display Device
 - Camera
- B. Software Requirements
- Free TTS
 - Python
 - Django
 - HTML CSS



FIGURE 3

FLOW CHART

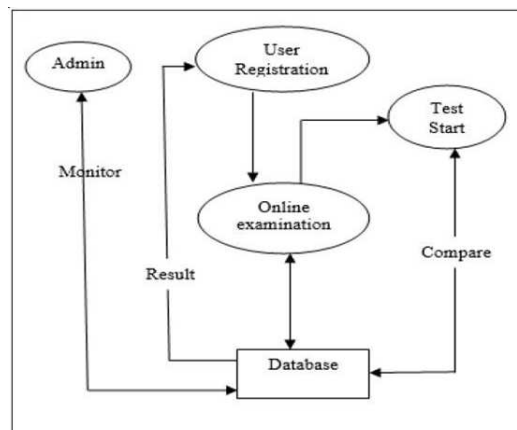


FIGURE 4

The above figure 4 diagram represents the working of E-Bind Exam Portal.

CONCLUSIONS

This project would be a awfully helpful one for each blind human and physically challenged to admire their talent easily through online exam like to her humans. In our project we will be going to deliver an entire application for physically challenged people which can provide an interactive interface. Examinee can easily give exam by giving easy voice commands.

Thus, physically challenged humans can easily give exam like a common man without a lot of issue. Through this they have been able to attend many exams in the future And also we will try to do as much as improvement in future as per the collection of feedback.

FUTURE SCOPE

In the further development we can include finger print reader for authentication purpose. This project can be deployed to make exam paper free. Valuation can be done in much short time.

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