# E-BLIND EXAMINATION PORTAL TEXT TO SPEECH AND SPEECH TO TEXT CONVERTER

Bhumika G J[1], Nisarga pal[2], Anusha K S[3],Nirmala D[4], Puneeth P[5]
[1,2,3,4,5]*VIII Semester, ISE Department*
*MIT,Mysore*

*(Email-[1]bhoomikajayarambj@gmail.com,[2]Nisargapal.5@gmail.com, [3]Anushaks051197@gnail.com , [4]nirmala.nimmi7d@gmail.com,[5]Puneethkumarp_ise@mitmysore.in*)

***Abstract***-With humans moving towards higherstandards of living and to a more digitalised and interconnected world, computers prove to play an eminent role by providing the most efficient and optimal ways in achieving the required goals. Human resource and the computer system give the perfect 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 a great deal of struggle and difficulty and 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) and 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.*

## I.INTRODUCTION

Artificial speech has been a dream of the humankind for centuries. The computer is a silent teacher for most. Often computer instructions are transmitted visually through textual presentation-- analogous to conducting a lesson using the chalkboard without speaking. The majority of currently available educational software provides feedback through pictures, written words or electronic beeps and tunes. Special-education teachers are well aware of the problems 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 significantly the visually impaired. Hence the idea of incorporating computer-generated voice in all types of software's has revolutionised people's lives and there is way more to go.

**Image Processing** is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image. Nowadays, image processing is among rapidly growing technologies. It forms core research area within engineering and computer science disciplines too.

There are two types of methods used for image processing namely, analogue and digital image processing. Analogue image processing can be used for the hard copies like printouts and photographs. Image analysts use various fundamentals of interpretation while using these visual techniques. Digital image processing techniques help in manipulation of the digital images by using computers. The three general phases that all types of data have to undergo while using digital technique are pre-processing, enhancement, and display, information extraction.

**Objectives:**

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

## II.LITERATURE SURVEY

[1] In "DEVELOPMENT OF GUI FOR TEXT-TO-SPEECH RECOGNITION USING NATURAL LANGUAGE PROCESSING" " proposed byPartha MukherjeeSoumen Santra.

In this paper Natural language processing is a widely used technique by which systems can understand the instructions for manipulating text or speech. In the present paper, a Text-to-speech synthesizer is developed that

converts text into spoken word, by analysing and processing it using Natural Language Processing (NLP) and then using Digital Signal Processing (DSP) technology to convert this processed text into synthesized speech representation of the text. Here we developed a useful text-to-speech synthesizer in the form of a simple application that converts inputted text into synthesized speech and reads out tothe user which can then be saved as an mp3 file.

[2] In "IMAGE TEXT TO SPEECH CONVERSION IN THE DESIRED LANGUAGE BY TRANSLATING WITH RASPBERRY PI " proposed by Rithika.H,B.Nithya santhosh.

The main problem in communication is language bias between the communicators. This device basically can be used by people who do not know English and want it to be translated to their native language. The novelty component of this research work is the speech output which is available in 53 different languages translated from English. This paper is based on a prototype which helps user to hear the contents of the text images in the desired language. It involves extraction of text fromthe image and converting the text to translated speech in the userdesired language. This is done with Raspberry Pi and a cameramodule by using the concepts of Tesseract OCR [optical character recognition] engine, Google Speech API [applicationprogram interface] which is the Text to speech engine and theMicrosoft translator. This relieves the travelers as they can usethis device to hear the English text in their own desired language.It can also be used by the visually impaired. This device helpsusers to hear the images being read in their desired language.

[3] In "University Examination System for Students with Visual Impairments" Proposed by Konstantinos Papadopoulos, Zisis Simaioforidis, 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.

[4]E-Blind Examination SystemAkshay Naik Kavita Patil,Department of Computer EngineeringPVPPCOE Mumbai-400022.

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:

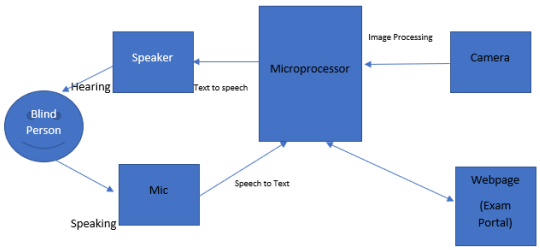
From above literature survey we got that there are many methods incorporated to implement portal to solve problems in conducting visually impaired students. Most of them have accuracy issues in conversion from voice to text vice versa. Some have very high cost and maintain ace thisproblems can be solved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

## III. 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 two main phases which is shown in "Fig. 1". The first is text analysis, where the input text is transcribed into a phonetic or some other linguistic representation, and the second one is the generation of speech waveforms.In the first phase of the software the raw input text is entered by the user or the text/document file is imported to the software which goes under the text analysis. The text analysis is nothing but the process in which it converts raw text containing symbols like numbers and abbreviations into the equivalent of written-out words using the english dictionary words. This process is often called text normalization, pre-processing, or tokenization.The second phase of the software can be sub-divided into two parts. The first part of the second phase is for the Natural LanguageProcessing (NLP). The Natural Language Processing produces a phonetic transcription of the text read, together with prosody where the speech database is referred for the processing of words in a correct way. The other part is for the Digital Signal Processing (DSP). The Digital SignalProcessing transforms thesymbolic information it receives from NLP into audible and intelligible speech.

## IV.BLOCK DIAGRAM




## V.EXPERIMENT

We are basically using image processing technologies in our project. We are mainly concentrating on blind people to take up the online test without taking the others help. speech to text comprise of small medium and large vocabulary conversion. such system process or accepts the voice which get converted to their respective text. This experiments shows the language model in improving the accuracy of speech to text conversion.and alsothis paper proposes a method at developing a complete system in which text can be converted to speech .it includes both text to speech and speech to text recognition text recognition using Free TTS and speech recognition done by the ASR(automatic speech recognition).

## VI.CONCLUSION

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.

## VII.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.

## VIII.REFERENCES

[1] S. Furui, K. Iwano, C. Hori, T. Shinozaki, Y. Saito, and S. Tamura,"Ubiquitous speech processing," in Proc. ICASSP2001, vol. 1, Salt Lake

[2] Text-to-speech technology: In Linguatec Language Technology Website. Retrieved February 21, 2014,

[3] from http://www.linguatec.net/products/tts/information/technolog y.

[4] V. Ajantha Devi, Dr. S Santhosh Baboo (Jul-Aug 2014), "Optical Character Recognition on Tamil Text Image Using Raspberry Pi"

[5] Raja Venkatesan.T,M.Karthigaa, P.Ranjith, C.Arunkumar,M.Gowtham,"Intelligent Transalate System for Visually ChallengedPeople" International Journalfor Scientific Research & Development(IJSRD), ISSN (online): 2321-0613, Vol. 3, Issue 12, 2016.

[6] J. Kanisha, G. Balakrishanan, "Speech Transaction for Blinds UsingSpeech-Text-Speech Conversions", Communications in Computer andInformation Science book series (CCIS), vol 131, part I, pp. 43-48, 2011

[7] C. S. T. Thu, T. Zin, "Implementation of Text to Speech Conversion",International Journal of Engineering Research & Technology, vol. 3(3), pp. 911-915, 2014

[8] P. S. Shetake, S. A. Patil, P. M. Jadhav, "Review of Text To SpeechConversion Methods", International Journal of Industrial Electronics andElectrical Engineering, vol. 2(8), pp. 29-35, 2014

[9] Lamel, L.F., Gauvain, J.L., Prouts, B., Bouhier, C., and Boesch, R., 1993. Generation and Synthesis of Broadcast Messages, Proceedings ESCA-NATO Workshop and Applications of Speech Technology.

[10] Black, A.W., 2002. Perfect synthesis for all of the people all of the time. IEEE TTS Workshop.