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VOICE ASSISTED EXAMINATION SYSTEM FOR BLIND

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ABSTRACT:

This examination system is specifically designed for blind people which helps them to attend their examination on their own without seeking the help of any other person. At present blind people take exams through braille or with the help of a writer (scribes) who performs on behalf of them. The proposed system allows visually challenged people to take exams online. The system dictates the questions for the candidate through **Speech Synthesis** (text to speech conversion) and their response could be recorded with the help of **Speech Recognition** (speech to text conversion). The recorded response can be stored in a database. This helps to improve the career growth of the visually challenged people.

Keywords: speech synthesis, speech recognition, database.

INTRODUCTION:

Of the total estimated 30 million blind persons in the world, 6 million are in India. In Tamil Nadu, the prevalence of blindness is 4 per 1000 population. The recent development trends in computer make it possible for the blind people to take an examination in an independent manner. There is no need for them to rely on other persons to do their exams. The development of such system requires the usage of two technologies namely **Text to Speech** and **Speech to Text**.

A Text to speech (TTS) also called as Speech synthesis should be capable of reading the any text aloud. Speech synthesis is an artificial production of human speech. The computer system used for this purpose is said to be speech computer or speech synthesizer. This can be implemented in hardware as well as software.

In recent few years speech recognition has become a strong medium to translate spoken words into text. Speech recognition is not only used as an assistive tool for blind but also for the people with partial vision and other impairments.

LITERATURE SURVEY:

1. Online examination system for blinds

B.Shanmuga Sundari ,Essaki Durai.k ,Srinivasa.S proposed a web based examination system.Here,test can be taken using a personal computer,the fingerprint is used for login purposes.The questions and options are given through speech synthesis.The answer will be received from the users with the help of limited keys on the keyboard.The results will also be delivered through voice.The major drawback is that the answer will be given by the blind candidate only through limited buttons on the keyboard. This system supports only multiple choice questions.

2. E-blind examination system

Akshay Naik,Kavita Patil,Vishal Patil,Ajinkya Tandel, Manjiri Pathak proposed a online examination system designed using Natural Language Processing.This system allows a particular company or an institute to conduct and manage examinations via online.This can be done through internet or Local Area Network.Candidate can answer his/her examination paper on the computer and submit the answers.The examination software evaluates the submitted answers and the results will be available immediately after the completion of an examination.The disadvantage of this system is that it cannot support long answers other than MCQ's.

3. Voice operated tool-Examination portal for blind persons

Akriti Vats,Apoorv Tandon, Deepan Varshney,Amit Sinha proposed a system where user is provided with the headphone equipment(headphone and microphone) along with the system.Authentication is provided by recognizing the thumb impression.This system also provides option such as NEXT,FINISH,etc.The result of the test is generated and saved in the user's database and the result is also spoken to the users.The demerit of this system is that it is designed only for aptitude type of questions.

4. Online examination for visually challenged people

J.Kanimozhi,A.Karkuzhali,K.Suresh kumar proposed an online examination system using Internet Of Things(IOT).In this system, the microcontroller shop the

textual content to the voice board that can convert the text to voice using head cellphone. After listening to the query the answers press by means of the blind men and women using keypad. The disadvantage is that the answer to the queries can be given only through limited keys in the keypad.

5. E-blind exam portal

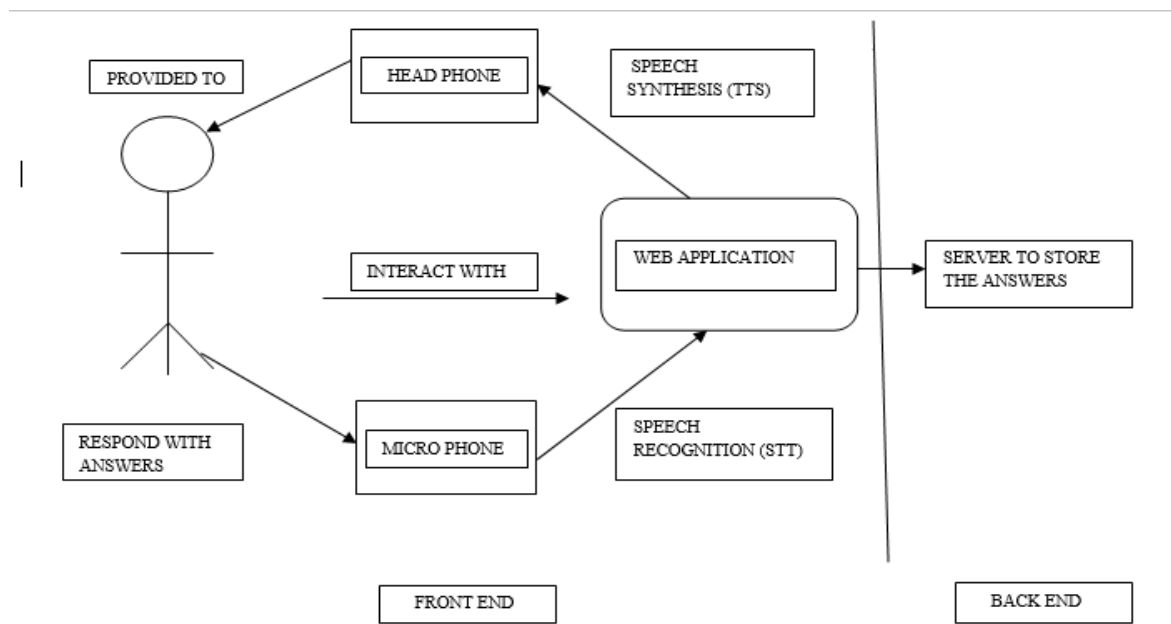
Pawan Bharadwaj, Tirumala Balaji G, Valleesh Prabhu, Shreehari N and Rahul Kumar proposed an examination portal for visually impaired with the use of embedded system and machine learning. The drawback of this system is that it only reads the textual content present in the screen through voice commands.

6. Voice based online examination for physically challenged

SaniaKhan, Sanskriti verma, Shweta Agarwal, Prateek Krishnatrey, Shivam Sharma proposed an examination portal for physically challenged people using .NET. The voice commands will be get from the user and it gets stored the database. The disadvantage of this system is that it supports yes/no questions and multiple choice question.

7. Computerized examination for visually impaired students

J. Deepika, D. Jayashree, D. Yamuna Thangam proposed a system for visually impaired students to take tests. Here an information which presents in the screen have been delivered through voice and the blind people will select their answer through the keys in keyboard. The drawback of this system is that third person is required to monitor and to help the blind candidates.



IMPLEMENTATION:

Web Application:

The candidate who are appearing for the examination gets authenticated with their unique credentials. The login can be done using voice commands. The front end can be designed with the use of HTML5 and CSS which adds new syntactic features.

Speech synthesis:

Speech synthesis in our system works with the help of gTTS (Google Text to Speech). In order to use gTTS we need the following python package which could be installed using the following command

pip install gTTS

The google text to speech works online. The questions are read out with the help of speech synthesis and candidate responds with the help of speech recognition.

Speech recognition:

Speech recognition could be made possible with the help of google speech API. In order to make the speech recognition work the following libraries must be installed. The commands to install those libraries are as follows

1.pip install SpeechRecognition

2.pip install pipwin

3.pipwin install pyaudio

4.pip install tensorflow

This requires an active internet connection to work. However, there are certain offline Recognition systems such as PocketSphinx, but have a very rigorous installation process that requires several dependencies.

Google Speech Recognition is one of the easiest to use. Google Speech-to-Text API reduces word errors by 54% in test after test.It has an impressive feature of extended punctuation options. It is free of cost for audio less than 60 minutes.

Database:

The database is used to import and export question between web application and used to store and retrieve the answers of the candidate for evaluation process.It is designed with the help of Python,PHP and MySql.PHP is a server side programming language and MySql is a relational database.

The database also holds the details of the candidates who are appearing for the examination.

CONCLUSION:

The proposed system is better suited when compared to the other existing systems, since it is capable of recognizing long answers. This would help the blind candidates to face their examinations on their own.

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