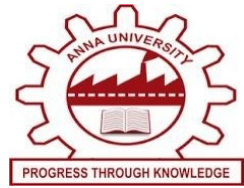




**AUDIOBOOK NARRATION USING
ARTIFICIAL INTELLIGENCE FOR
VISUALLY IMPAIRED PEOPLE**



A MINI PROJECT REPORT

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ABSTRACT

Visually impaired people are dependent solely on Braille books & audio recordings provided by NGOs. Owing to many constraints in above two approaches blind people can't have book of their choice. The presented work will provide them an opportunity to have an audio-book of English language of any printed book having English script. This plain text will be then fed to Text to Speech (TTS) converter which will generate the audio output file in English language corresponding to the input text script. Printed book to audio book converter has been successfully implemented and satisfactory results were obtained. Audiobook Narrator is usefull for Visually Impaired People. There can easily read the book using a Audiobook Narrator.

திட்டச்சுருக்கம்

பார்வையற்றோர் பிரெயில் புத்தகங்கள் மற்றும் தன்னார்வ தொண்டு நிறுவனங்கள் வழங்கும் ஆடியோ பதிவுகளை மட்டுமே நம்பியிருக்கிறார்கள். மேலே உள்ள இரண்டு அணுகுமுறைகளில் உள்ள பல தடைகள் காரணமாக பார்வையற்றவர்களுக்கு அவர்கள் விரும்பும் புத்தகம் இருக்க முடியாது. வழங்கப்பட்ட படைப்பு, ஆங்கில ஸ்கிரிப்டைக் கொண்ட எந்த அச்சிடப்பட்ட புத்தகத்தின் ஆங்கில மொழியின் ஆடியோ புத்தகத்தைப் பெறுவதற்கான வாய்ப்பை அவர்களுக்கு வழங்கும். இந்த எளிய உரை பின்னர் உரை முதல் பேச்சு (டி.டி.எஸ்) மாற்றிக்கு வழங்கப்படும், இது உள்ளீட்டு உரை ஸ்கிரிப்ட்டுடன் தொடர்புடைய ஆங்கில மொழியில் ஆடியோ வெளியீட்டு கோப்பை உருவாக்கும். ஆடியோ புத்தக மாற்றிக்கு அச்சிடப்பட்ட புத்தகம் வெற்றிகரமாக செயல்படுத்தப்பட்டு திருப்திகரமான முடிவுகள் பெறப்பட்டன. பார்வை குறைபாடுள்ளவர்களுக்கு ஆடியோபுக் கதை பயனுள்ளதாக இருக்கும். ஆடியோபுக் விவரிப்பாளரைப் பயன்படுத்தி புத்தகத்தை எளிதாகப் படிக்க முடியும்.

TABLE OF CONTENTS

S.NO.	TOPIC	PAGE NO
	ABSTRACT (ENGLISH)	i
	ABSTRACT(TAMIL)	ii
	ABBREVIATION	v
	FIGURES	vi
1	INTRODUCTION	
	1.1 Text-To-Speech(TTS)	1
	1.2 How Text To Speech Works	1
	1.3 Text-To-Speech Application	5
	1.4 Text-To-Speech	6
	1.5 Type Of Text To Speech Tools	7
2	LITERATURE SURVEY	9
3	EXISTING SYSTEM	14
4	PROPOSED SYSTEM	15
5	SYSTEM SPECIFICATION	16
	5.1 System Details	17
	5.1.1 Pycharm IDE	17
	5.1.2 Windows OS	18

	5.2 Hardware Details	18
	5.2.1 Processor	20
6	SYSTEM ORGANIZATION	21
	6.1 System Architecture	21
	6.2 Modules	21
	6.2.1 Input Module	22
	6.2.2 Database Module	22
	6.2.3 Speech Module	23
	6.3 Dataflow Diagram	23
	6.4 UML Diagram	24
	6.5 Class Diagram	25
	6.6 Activity Diagram	25
	6.7 Sequence Diagram	26
7	IMPLEMENTATION	27
	7.1 Output Screenshot	28
8	CONCLUSION	29
9	REFERENCE	31

LIST OF ABBREVIATIONS

- TTS** - Text-To-Speech
- OCR** - Optical Character Recognition
- NLP** - Natural Language Processing
- IDE** - Integrated Development Environment
- WSD** - Word Sense Disambiguation

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
1.1.1	Voice Recording	3
5.1.1	Processor	20
6.1.1	System Architecutre	21

CHAPTER-1

INTRODUCTION

1.1 TEXT-TO-SPEECH (TTS)

Text-to-speech allows developers to create natural- sounding, synthetic human speech as playable audio. You can use the audio data files you create using Text- to-speech to power your application or augment media like videos or audio recordings. Text-to-speech converts text or Speech Synthesis Markup Language (SSML) input into audio data like MP3 or LINEAR 16 (the encoding used in WAV files) This document is a guide to the fundamental concepts of using Text-to-speech.

Text-to-speech is ideal for any application that plays audio of human speech to users. It allows you to convert arbitrary strings, words, and sentence into the sound of a person speaking the same things. Imagine feedback to your users as playable audio files. Your app might take an action and then provide human speech feedback to the user.

1.2 HOW TEXT TO SPEECH WORKS

This software project is windows based software that reads a text file to the user. The bot reads a text file and associated pronunciations in its temporary database. The bot then reads and entire word to the user. The pronunciation of are article and basic words how been fed to the bot, the rest of the words and complex ones are calculated and read accordingly.

The bot can be effectively used to help read the text document for the user so that the user does not constantly need to look at the screen and read the entire document. Text to speech converter is a recent software project that allows even the visually challenged to read and understand various documents.

Speech synthesis

The process of translating text input into audio data is called synthesis and the output of synthesis is called synthetic speech. Text-to-speech takes two types of input: raw text or SSML- formatted data .To create a new audio file, you call the synthesizer endpoint of API.

Voices

Text-to-speech creates raw audio data of natural human speech. That is it creates audio that sounds like a person talking. When you send a synthesis request to Text-to-speech, you must specify a voice that speaks the words.

Text-to-speech has a wide selection of custom voices available for you to use. The voices differ by language, gender, and accent(for some languages).For example, you can create audio that mimics the sound of a female English speaker with a British accent .You can also convert the same text into different voice, say a male English speaker with an Australian accent.

Wave Net voices

Along with other transition, synthesis voices, Text-to-speech also provides premium, wave net-generated voices. Users find the wave net generated voices to find the wave net-generated voices to be more warm and human-like than other synthetic voices.

The key difference to a wave net voice is the wave net model used to generate the voice wave net models have been trained using raw audio samples of actual humans speaking. As a result, these models generate synthetic speech with more human-like emphasis and inflection on syllables, phonemes, and words.

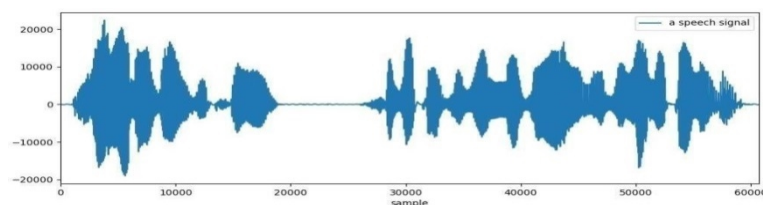


Fig 1.1.1 Voice Recording

This software project is windows based application that reads a text file to the user. The bot reads a text file to user. The bot reads a text file and associated pronunciations in its temporary database. The bot then reads an entire word to the user. The pronunciations of articles and basic words have been fed to the bot, the rest of the words and complex ones are calculated and read accordingly. The bot be effectively used to help read the text document for the user so that the user does not constantly need to look at the screen and read the entire document. Text-to-speech converter is a recent software project that allows even the visually challenged to read and understand various document.

Features:

- Text input: Users are provided with a text box where they can enter the required text in the software.
- Speech rate: Users can even alter the speech for application to read out text by choosing the appropriate rate provided by the software.
- Play/Pause options: Users can play, pause and play from start the speech whenever required.

Speech synthesis is the artificial production of human speech. A computer system used for this purpose is called a speech synthesizer. This can be implement either in software or hardware domain. A text-to-voice system converts normal language text to speech. It is micro controller based hardware coded in embedded c language. Well-articulated text-to-speech program, allows people with visual disabilities to listen. Currently, dumb people use hand language to convey their message to others, but listener not able to capture all information, this creates barrier between people. Present system aim is to make an easy conversion from text to speech. The operands that are to be compiling recognition are the alphabets and the numbers. The main intended goal to be attained Is to provide any valid text at the input via keyboard and the output is produced as a voice representation of the input text. This is based on the transition of the text into speech using the main frame speech processor.

When the desired text is provided as an input to be controller, it transmits the text to the controller via PIC which sends stored scan codes to controller which processes the data, stores in its memory i.e. into buffer as the ASCII code. The data is transferred donair.

1.3 TEXT-TO-SPEECH APPLICATION

Text-to-speech systems, also known as TTS, were first determine to aid the visually impaired by offering a computer-generated spoken voice that would “read” text to the user TTS software in general is considered an assistive technology tool that can be used in many ways. Another early application of this technology was to help people who have trouble reading. The amendment of the Individuals with Disabilities Education Act (IDEA) in 2004 compelled educational institutions to seek out technology to assist in fulfilling this mandate. The IDEA is a federal law ensuring educational services to children with disabilities throughout the United States.

TTS allows users to see text and hear it read aloud simultaneously. There are many apps available, but typically as text appears on the screen, it’s spoken. Some software uses a computer-generated voice and others use a recorded human voice. Very often the user has a choice of gender and accent as well.

Tablets and smartphones usually have built-in text-to-speech features. The software reads text files, and the names of programs or folders when pointed at on the screen and can read certain web pages aloud.

SUMMARY

Text-to-speech (TTS) technology reads aloud digital text — the words on computers, smartphones, and tablets. TTS can help kids who struggle with reading. There are TTS tools available for nearly every digital device. Text-to-speech (TTS) is a type of assistive technology that reads digital text aloud. It's sometimes called “read aloud” technology. With a click of a button or the touch of a finger, TTS can take words on a computer or other digital device and convert them into audio. TTS is very helpful for kids who struggle with reading. But it can also help kids with writing and editing, and even focusing.

1.4 How text-to-speech works

TTS works with nearly every personal digital device, including computers, smartphones, and tablets. All kinds of text files can be read aloud, including Word and Pages documents. Even online web pages can be read aloud. The voice in TTS is computer-generated, and reading speed can usually be sped up or slowed down. Voice quality varies, but some voices sound human. There are even computer-generated voices that sound like children speaking. Many TTS tools highlight words as they are read aloud. This allows kids to see text and hear it at the same time.

Some TTS tools also have a technology called optical character recognition (OCR). OCR allows TTS tools to read text aloud from images. For example, your child could take a photo of a street sign and

have the words on the sign turned into audio.

1.5 Types of text-to-speech tools

Depending on the device your child uses, there are many different TTS tools:

Built-in text-to-speech: Many devices have built-in TTS tools. This includes desktop and laptop computers, smartphones and digital tablets and Chrome. Your child can use this TTS without purchasing special apps or software. **Web-based tools:** Some websites have TTS tools onsite. For instance, you can turn on our website's "Reading Assist" tool, located in the lower left corner of your screen, to have this webpage read aloud. Also, kids with dyslexia may qualify for a free Bookshare account with digital books that can be read with TTS. (Bookshare is a program of Understood founding partner Benetech.) There are also free TTS tools available online.

Text-to-speech apps: Kids can also download TTS apps on smartphones and digital tablets. These apps often have special features like text highlighting in different colors and OCR. Some examples include Voice Dream Reader, Claro Scan-Pen, and Office Lens.

Chrome tools: Chrome has several TTS tools. These include Read & Write for Google Chrome and Snap & Read Universal. You can use these tools on a Chrome book or any computer with the Chrome browser. See more Chrome tools to help with reading.

Text-to-speech software programs: There are also several literacy software programs for desktop and laptop computers. In addition to other reading and writing tools, many of these programs have TTS. Examples include Kurzweil 3000, ClaroRead and Read & Write.

Microsoft's Immersive Reader tool also has TTS. It can be found in programs like OneNote and Word. See more examples of software for kids who struggle with reading.

CHAPTER-2

LITERATURE SURVEY

TITLE: Design and Implement of Text to Speech conversion for visually impaired people

AUTHOR: Itnuoluwa Isewon, Jelili Oyelade, Olufunke Oladipupo

YEAR: 2014

DESCRIPTION: A Text-to-speech synthesizer is an application that converts text into spoken word, 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 text. Is automatic conversation of a text into speech that resembles, as closely as possible. The character string is then proposed and analysed into phonetic representation is usually a string of phonemes with some additional information with low level synthesizer by the information from high level one.

The artificial production of Speech like sounds has a long history, with documented mechanical attempts dating to the eighteenth century.

TITLE: Voice Assisted Text Reading System for Visually Impaired

AUTHOR: Sanjana B, RejinaPravin j.

YEAR: 2016

DESCRIPTION: In the survey American Foundation for Blind 2014, is observed that there are 6.8 trillion people are visually impaired and they still

find difficult to roll their day today life it is important to take necessary measure with the emerging technologies to help them to live the current world irrespective of their impairments. In then motive of supporting the visually impaired, a method is proposed to develop a self- assisted text to in order to make them read and understand the text in an easier way. It is not only applicable for the visually impaired but also to any normal human beings who are willing to read the text as a speech as quickly as possible. A finger mounted camera is used to capture the text image from the printed text and the captured image is analyzed using optical character recognition (OCR). A predefined dataset is loaded in order to match the observed text with the captured image. Once it is matched the text is synthesized for producing speech output. The main advantage of proposed method is that, it reduces the dataset memory required for the comparison since only character recognition is being done. The same work is simulated using Matrix laboratory (MATLAB) simulator software for the performance analysis of proposed work for various input sets. Text to speech technology is the process wherein the computer is made to speak. It uses the concepts of natural language processing. In Text reading applications, there are many different techniques available such as label reading, voice stick, brick pi reader and pen aiding but these methods can perform text to speech by creating datasets. In order to address this problem, finger reading technique has been developed, it eliminates the data sets created and stored previously and provide a previous response of reading any text given as input captured image. The speech synthesizer converts the audio input into the text form and processes the text to further learning modules. Despite the advancement of

technology that allows for storing information electronically, textual information still remains the most common mode of information exchange. Virtually people who could restore normal vision with eye glasses or contact lenses are around 20% from the survey of ABF (www.abf.com) who could lead their normal lives. Apart from them 90% of world's visually impaired people who live in low, middle and even in most developed countries, cataract remains the leading cause of blindness.

TITLE: Voice and GPS Based Navigation System For Visually Impaired

AUTHOR: Harsha Gawari, Prof. Meeta Bakuli

YEAR: 2014

DESCRIPTION: The paper represents the architecture and implementation of a system that will help to navigate the visually impaired people. The system designed uses GPS and voice recognition along with obstacle avoidance for the purpose of guiding visually impaired. The visually impaired person issues the command and receives the direction response using audio signals. The latitude and longitude values are received continuously from the GPS receiver. The directions are given to the user with the help of audio signals. An obstacle detector is used to help the user to avoid obstacles by sending an audio message. GPS receivers use NMEA standard. With the advancement in voice recognition it becomes easier to issue commands regarding directions to the visually-Impaired. The system explained here provides the details to the users regarding where at present

he/she is located and spoken directions to travel to a remote destination. The visually impaired often lack the needed information for bypassing obstacles and hazards and have relatively little information about landmarks, heading, and self-velocity. This puts them into considerable disadvantage compared to sighted individuals navigating through familiar environments who have knowledge of these environments or who are navigating through unfamiliar environments on the basis of external maps and verbal directions to make a navigation system use friendly and accessible to the greatest proportion of vision impaired people, usability is a key focus of the project, and speech technology was identified as a priority feature of the system. Further, by replacing the Braille keyboard with a speech technology, the device will be more portable and less cumbersome to use while walking. Speech technology has been under development for more than three decades.

TITLE: Text-to-Speech Device for Visually Impaired People.

AUTHOR: Shirly Edward, jothimani, Jayaprakash.

YEAR: 2016

DESCRIPTION: People who suffer from low vision, sight and visual impairment are not able to see words and letters in ordinary news print, books and magazines clearly. This can make the reading process difficult which can disturb the learning process and slow the person's intelligence development. Therefore, a device is needed to help them read. So we had developed one such device that can scan and read any kind of text by changing it to voice message. The purpose of this device

is to process the input Image, pdf, Documents, Textbooks, and News Papers as input into a voice as output. Each Module for image processing and voice processing are present in the device. It also has the ability to play and stop the output while reading. It has less error rate and less processing time and acts as an artificial eye to visually impaired people. It doesn't need any human supervision. Cost efficiency. Raspberry pi 3 was used to develop the device. This device actually acts as an artificial eye to visually impaired people. It doesn't need any human supervision. Based on the survey by World Health organization in 2010, total population in India is 1181.4 million out of which people who suffer with blindness, low vision and visual impairment are 152.238 Million[1]. Figure 1 shows the number of people who are blind, with low vision and visually impaired (in thousands) per million population.

TITLE: Voice and GPS Based Navigation System For Visually Impaired

AUTHOR: Harsha Gawari, Prof. Meeta Bakuli

YEAR: 2014

DESCRIPTION: Gas leakage source detection and boundary tracking of continuous objects have received a significant research attention in the academic well as the industries due to the loss and damage caused by toxic gas leakage in large-scale petrochemical plants. With the advance and rapid adoption of wireless sensor networks (WSNs) in the last decades, source localization and boundary estimation have become the

priority of research works. The system explained here provides the details to the users regarding where at present he/she is located and spoken directions to travel to a remote destination. The visually impaired often lack the needed information for bypassing obstacles and hazards and have relatively little information about landmarks, heading, and self-velocity.

This puts them into considerable disadvantage compared to sighted individuals navigating through familiar environments who have knowledge of these environments or who are navigating through unfamiliar environments on the basis of external maps and verbal directions to make a navigation system use friendly and accessible to the greatest proportion of vision impaired people, usability is a key focus of the project, and speech technology was identified as a priority feature of the system. Further, by replacing the Braille key board with a speech technology, the device will be more portable and less cumbersome to use while walking. Speech technology has been under development for more than three decades.

CHAPTER 3

EXISTING SYSTEM

Our work describes that normal textbooks are convert into audio books by manually recording which require significant amount of manpower and time investment. Existing System Study:-Currently there is no such system available. It is the most essential part of the development of a project of a system analysis. System analysis consists of system element, process and technology. To analyze a system, has to study the systems in details.

The user's earlier need to login into official website. Therefore the need for a chat system facility was necessary. There is LAN network spread across various offices, so we can develop software which can work on LAN.

This activity relies on knowledge of the hardware, software, workload, and monitoring tools associated with the system under study. It also requires access to information recorded by accounting and software monitors during system operation. Here, we describe general approaches applicable to a variety of systems.

CHAPTER 4

PROPOSED SYSTEM

Our proposed system is Audiobook Narrator .This system has Text to Speech (TTS) converter which will convert the textbook e-book into the audiobook automatically.

This system use Optical Character Recognition (OCR) for automatic data extraction from printed or text document or image file and then convert them into machine readable language form.

Our system also use the concept of Natural Language Processing (NLP) that gives the machines the ability to read, understand, and derive meaning from human languages.

This process will open a new doors of knowledge sea for visually impaired as they can listen to any book of their choice in English.

CHAPTER 5

SYSTEM SPECIFICATION

5.1 SOFTWARE DETAILS

5.1.1 PYCHARM IDE

PyCharm is an Integrated Development Environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains. It provides code analysis, a graphical debugger, an integrated unit tester, integration with Version Control Systems (VCSes), and supports web development with Django as well as data science with Anaconda.

LOADING CODE

The Python window is an interactive Python interpreter that is useful for quick execution of geoprocessing tools or other Python commands. However, code that has already been written and saved to a stand-alone script or Python file can also be loaded into the Python window, modified, and executed. Below is a simple script that looks at a feature class and field and produces a unique list of field values. The sample is simple enough, but entering all 13 lines manually into the Python window would take considerable time. Instead, by right-clicking in the Python window and selecting Load, this code (contained in a stand-alone script or Python file) is immediately loaded into the Python window. Once loaded into the Python window, edits can be made to the feature class location, field name, or syntax,

and the code can be executed by hitting the ENTER key with the cursor at the last line of code.

5.1.2 WINDOWS OS

An **operating system(OS)** is system software that manages computer hardware, software resources, and provides common services for computer programs.

Time-sharing operating systems schedule tasks for efficient use of the system and may also include accounting software for cost allocation of processor time, mass storage, printing, and other resources.

5.2 HARDWARE DETAILS

5.2.1 PROCESSOR

A **processor** (CPU) is the logic circuitry that responds to and processes the basic instructions that drive a computer. The CPU is seen as the main and most crucial integrated circuitry (IC) chip in a computer, as it is responsible for interpreting most of computers commands.

CPUs will perform most basic arithmetic, logic and I/O operations, as well as allocate commands for other chips and components running in a computer.

Components and how CPUs work

The main components of a CPU are the ALU, registers and control unit. The basic functions of the ALU and register are labeled in the above

“basic elements of a processor section.” The control unit is what operates the fetching and execution of instructions.

The processor in a personal computer or embedded in small devices is often called a microprocessor. That term means that the processor's elements are contained in a single IC chip. Some computers will operate using a multi-core processor—a chip containing more than one CPU. A CPU is typically a small device with pins on it facing down in a motherboard. CPUs can also be attached to a motherboard with a heat sink and a fan to dissipate heat.

RAM (RANDOM ACCESS MEMORY)

Random-access memory (RAM) is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory. In contrast, with other direct-access data storage media such as hard disks, CD- RWs, DVD-RWs and the older magnetic tapes and drum memory, the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement.

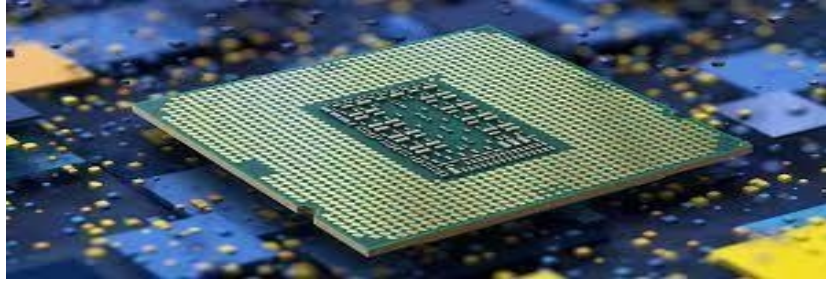


Fig 5.1.1 Processor

RAM contains multiplexing and de-multiplexing circuitry, to connect the data lines to the addressed storage for reading or writing the entry. Usually more than one bit of storage is accessed by the same address, and RAM devices often have multiple data lines and are said to be "8-bit" or "16-bit", etc. devices.

CHAPTER-6 SYSTEM ORGANIZATION

6.1 SYSTEM ARCHITECTURE

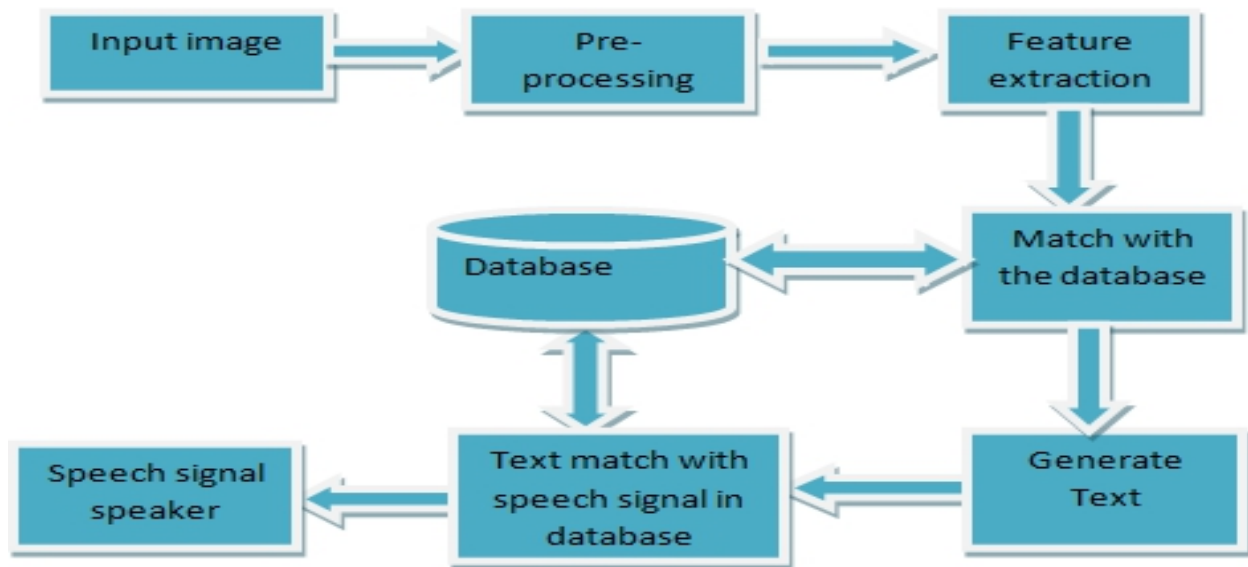


Fig 6.1.1 System Architecture

6.1 MODULES

1. Input Module
2. Database Module
3. Speech Module

6.1.1 INPUT MODULE

A module input is an entity in the module (a stock, a flow, or converter) that contains information that the module needs in order to run. Although you can explicitly define an entity as a module input, you are not required to; when you assign an entity as a module input (by using the Assign Input To command), that entity is automatically made a

module input. The plain text is first get into the Lexical Analyzer then it separate into tokens (smallest individual unit). The plain text is first get into the Lexical Analyzer then it separate into tokens (smallest individual unit). The plain text is first get into the Lexical Analyzer then it separate into tokens(smallest individual unit).

6.1.2 DATABASE MODULE

The Database Module embeds a fast, pure Java SQL database engine called H2 in Ignition. In addition it provides a simple graphical user interface called the database Editor that is used to create, alter, drop database tables and view/query/edit data in database tables. In the database module, it will check with the word in the book presented in the database. This module will check with the e-book in the database. In the database module, it will check with the word in the book presented in the database. In the database module, it will check with the word in the book presented in the database. In the database module, it will check with the word in the book presented in the database. In the database module, it will check with the word in the book presented in the database.

6.1.3 SPEECH MODULE

The speech module enables you to style how the elements in your document are spoken. The module contains properties to specify how a document is rendered by a speech synthesizer e.g. volume, voice, speed, pitch, cues, pauses, etc. It will calculate the word set and compare the set. Speech classification is a means for automatic classification of audio signals. Using these techniques, the incoming speech signals can be classified, sorted and prioritized. Speech synthesis


is the artificial production of human speech. A computer system used for this purpose is called a speech computer or speech synthesizer. Synthesized speech can be created by concatenating pieces of recorded speech that are stored in a database.

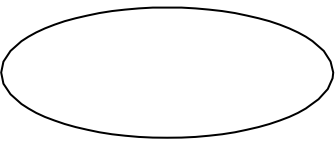


6.2 DATAFLOW DIAGRAM

A data-flow diagram is a way of representing a flow of a data of a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops.

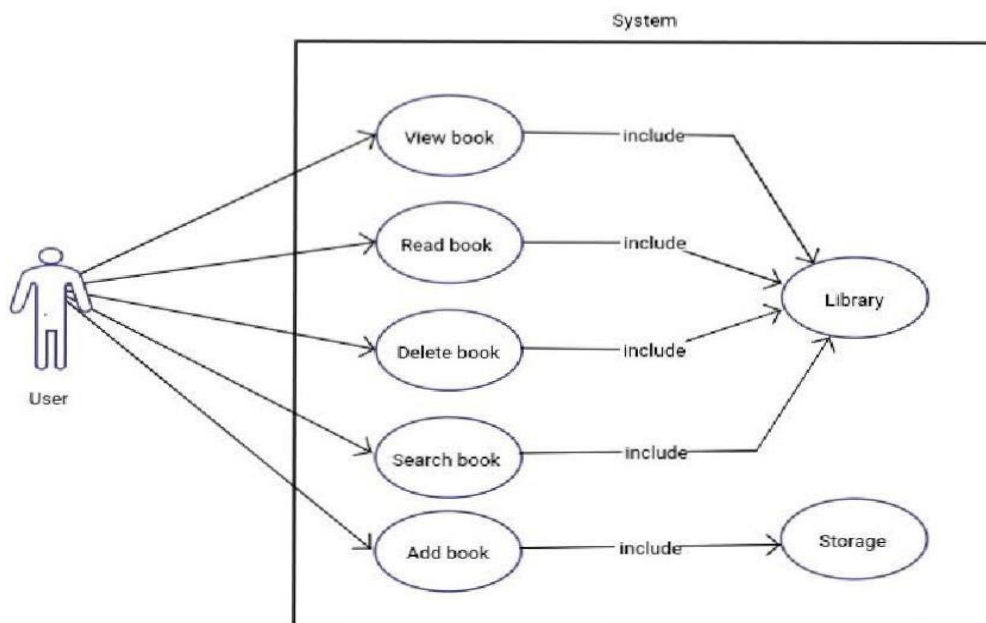
The visual representation makes it a good communication tool between User and System designer. Structures of DFD allows starting from a broad overview and expand it to a hierarchy of detailed diagrams. DFD has often been used due to the following reasons:

Data flow Symbols:

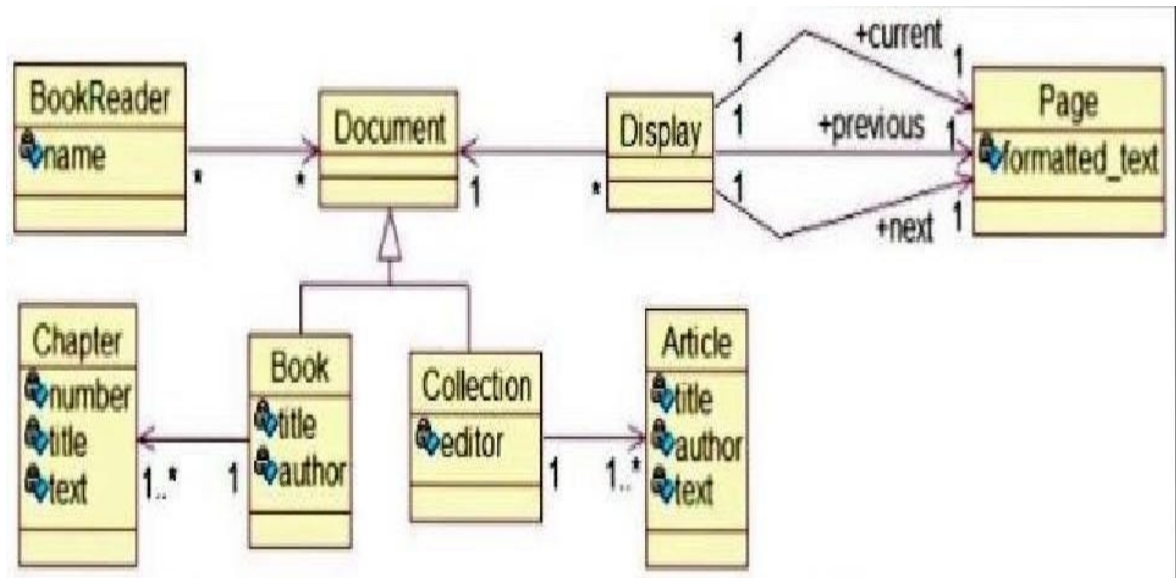
Symbol	Description
	An entity . A source of data or a destination for data.

	<p>A process or task that is performed by the system.</p>
	<p>A data store, a place where data is held between processes.</p>
	<p>A data flow.</p>

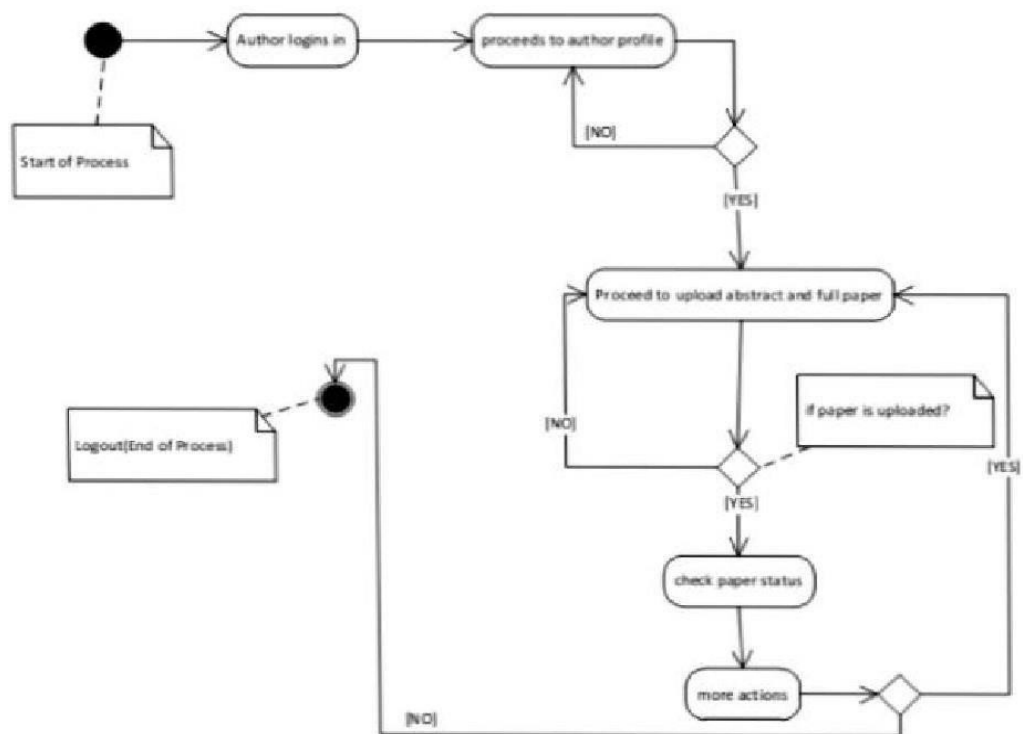
6.3 UML DIAGRAM



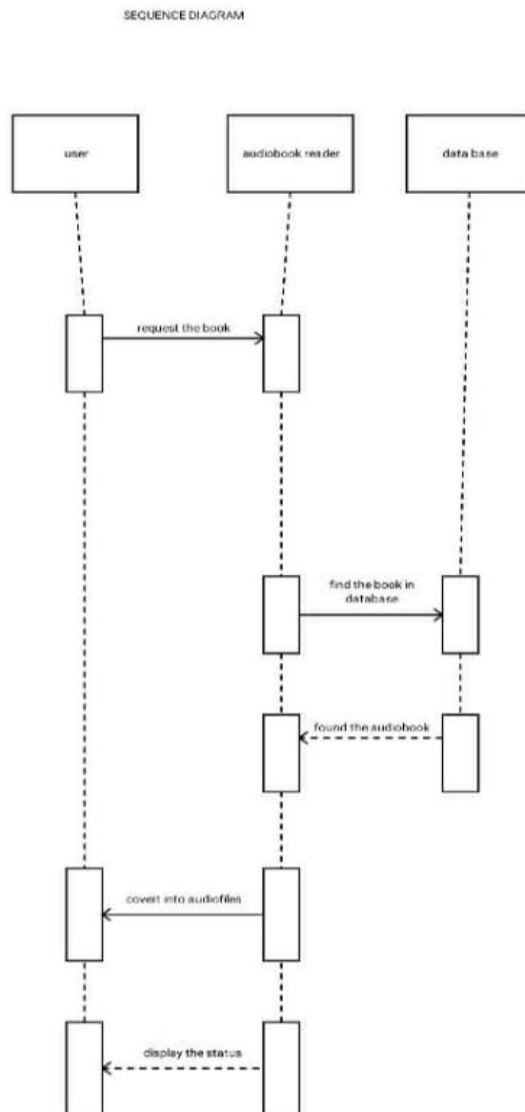
6.4 CLASS DIAGRAM



6.5 ACTIVITY DIAGRAM



6.6 SEQUENCE DIAGRAM



CHAPTER-7

IMPLEMENTATION

```
import pyttsx3
import PyPDF2
```

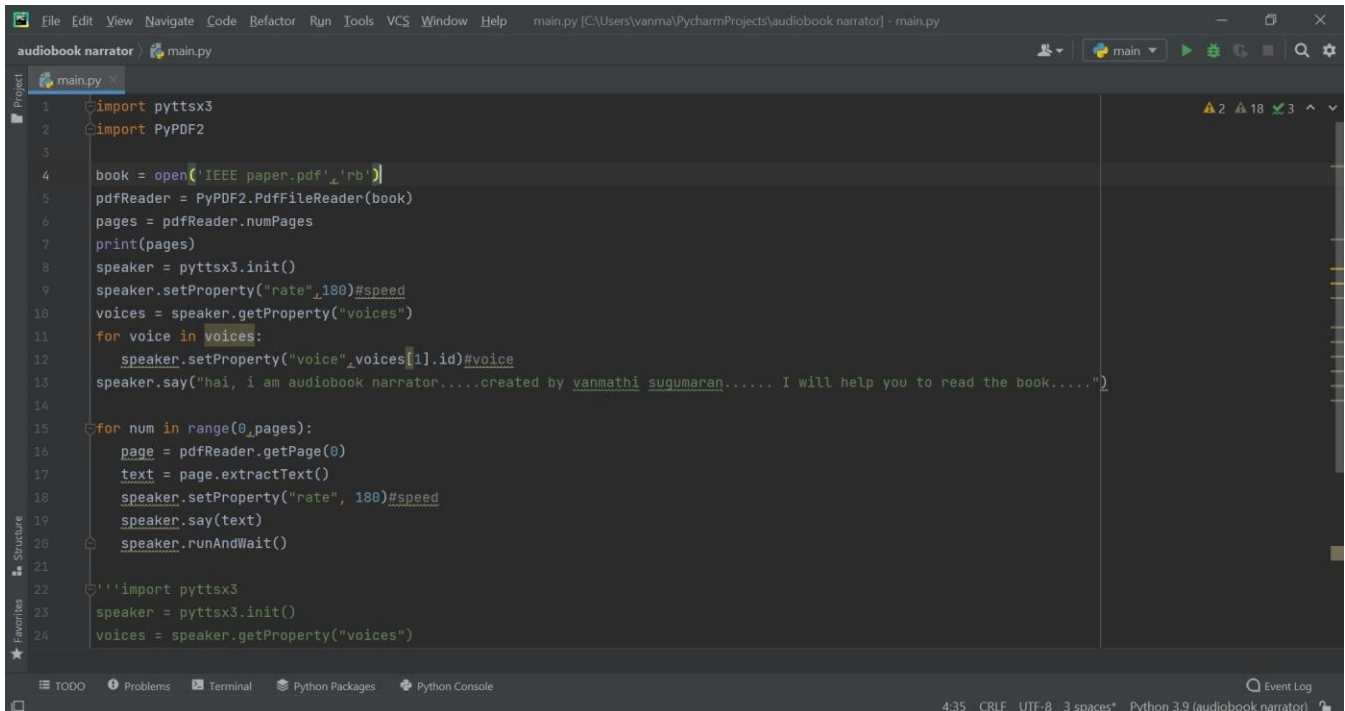
```
book = open('audiobook tamil.pdf','rb')
pdfReader = PyPDF2.PdfFileReader(book)
pages = pdfReader.numPages
print(pages)
```

```
speaker = pyttsx3.init()
speaker.setProperty("rate",130)#speed
voices = speaker.getProperty("voices")
for voice in voices:
    speaker.setProperty("voice",voices[2].id)#voice
```

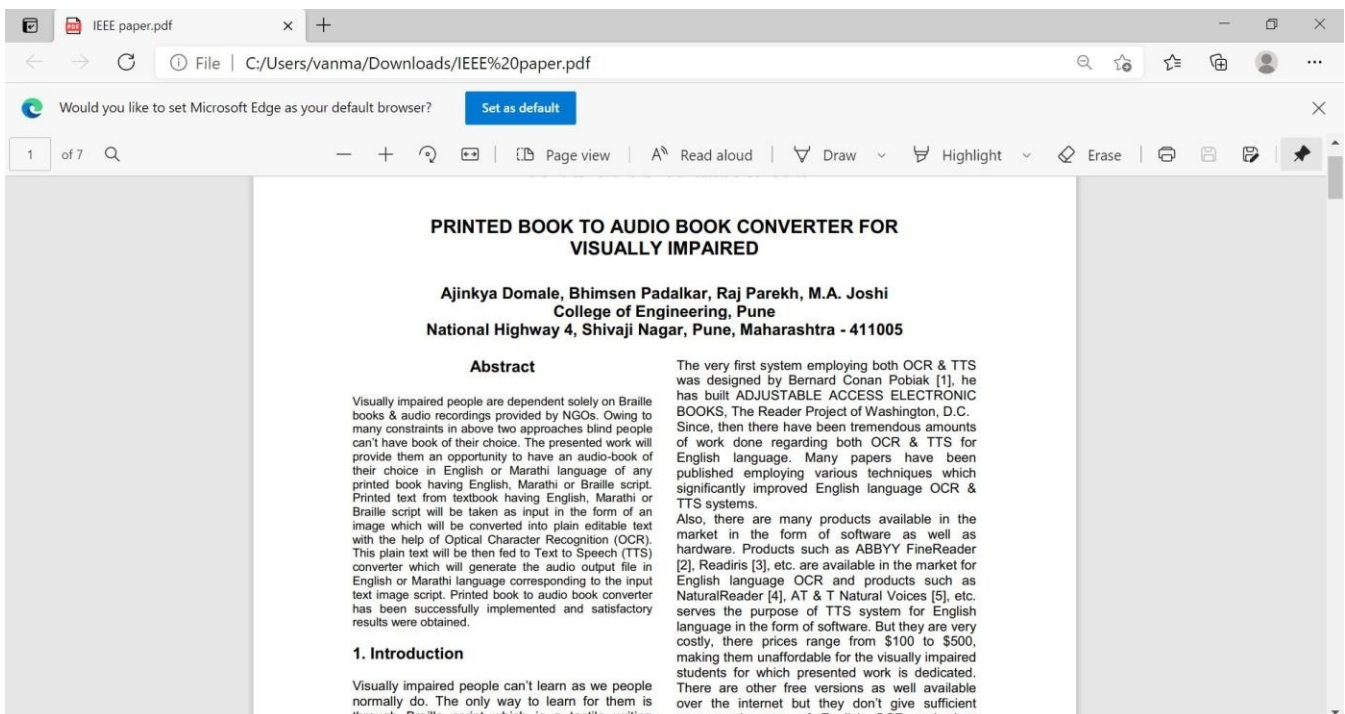
```
speaker.say("hai, i am audiobook narrator.....created by vanmathi
sugumaran..... I will help you to read the book.....")
```

```
for num in range(0,pages):
    page = pdfReader.getPage(0)
    text = page.extractText()
    speaker.setProperty("rate", 130)#speed
    speaker.say(text) speaker.runAndWait()
```

7.1 OUTPUT SCREENSHOT



```
1 import pyttsx3
2 import PyPDF2
3
4 book = open('IEEE paper.pdf','rb')
5 pdfReader = PyPDF2.PdfFileReader(book)
6 pages = pdfReader.numPages
7 print(pages)
8 speaker = pyttsx3.init()
9 speaker.setProperty("rate",180)#speed
10 voices = speaker.getProperty("voices")
11 for voice in voices:
12     speaker.setProperty("voice",voices[1].id)#voice
13     speaker.say("hai, i am audiobook narrator....created by vanmathi sugumaran..... I will help you to read the book.....")
14
15 for num in range(0,pages):
16     page = pdfReader.getPage(0)
17     text = page.extractText()
18     speaker.setProperty("rate", 180)#speed
19     speaker.say(text)
20     speaker.runAndWait()
21
22 '''import pyttsx3
23 speaker = pyttsx3.init()
24 voices = speaker.getProperty("voices")
```



CHAPTER – 8

CONCLUSION

With the year 2020 drawing its curtain and the number of COVID-19 cases showing no sign of decline, Malaysian students will likely continue learning from home. The situation calls for learning software and applications that are convenient, reliable, and effective. Disabled students, however, need to consider other aspects such as the suitability of the applications in meeting their learning needs and affordability since many educational institutions are now moving towards the 'bring your own device' approach . The paper presented a review on the use of Audible as an assistive technology for special needs learners.

The convenience, retention, volume selection, and delivery quality of the application have eased the visually impaired learner participant's learning process in his study during the pandemic. Despite the many positive reviews about Audible , the audiobook still has room for improvement. It was suggested that some features are added to the applications, such as note-taking and library customization features, as well as eliminating the hefty price tags on individual books by removing the Advances in Social Science, Education and Humanities Research, volume retail-based side of the business and marginally increasing subscription fees. With the flexibility that allows users to multitask, improvements on Audible will take it to the next level as the most sought-after learning application for visually impaired learners.

The Audiobook Narrator for blind produces a positive outcome when applied in practical world. In this research work, a Text-to-Speech device for visual

impaired people that can change the text image input into sound is implemented. This system is useful for visually impaired persons to access information which is in the form of documents, texts or printed forms. The future implementation may include accuracy and fulfil the limitations of existing systems.

CHAPTER -9

REFERENCES

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