

A Novel Approach for Voice based Text Summarizer

Pratima Mohan Thorat¹, Prof. Dr. M. S. Bewoor²

¹M.Tech Student, ²Associate professor,

¹²Bharati Vidyapeeth (deemed to be), University, College of Engineering, Pune.

Abstract- Automatic Text Summarization is a method to reduce a huge text into a meaningful condensed form. Today's era is technological era. The people are always in the need of instant information in the concise form. The today's life is a very fast like a machine. People do not have time to read a large book here text summary generator can help by providing the condensed form which can be read in minimum time. The paper presents a rigorous literature survey to study the different methods used to obtain the summary. Currently many summary generation techniques are available but there is a need to develop the summaries in the audio form. The audio forms of summaries can provide the information just by hearing. The people can hear the required information while doing the other work. Thus two tasks can be carried out simultaneously. The audio types of summaries can also be used by those who can read or handicap. The paper also presents a solution to this problem by suggesting a Novel approach to generate Voice based Summary Generator. The author presents the use of 'Hybrid-Cluster Graph' method to obtain the summary which further can be converted into the audio form.

Keyword- Automatic Text Summarization, Clustering, Pre-processing.

I. INTRODUCTION

Now- a- days the size of document is increasing exponentially, it's troublesome to read out the whole document thus outline of the same can help to provide the essence of the document. Auto summarizers can provide the solution to this problem. The auto summarizers must remove the redundant information available in the text. Text summarization is the process of generating summary for single as well as multi-documents which convey information present in it the minimal form. Summarization is an important activity in the analysis of a huge volume text file. The goal of auto summarization is to convey the main concept of it in such a way that the user will not have to waste time in reading the document and also it is well understood. Summary generated by the summarization technique. The objective and approach of summarization of documents explain kind of summary that is generated. The summary generated reveals the salient and shared information of document.

In Automatic Text Summarization have two approaches: 1) Abstractive and 2) Extractive text summarization. Abstractive

text summarization involves novel sentence generation for the summary. The sentence selection process is based on context within the text. Extractive summarization is nothing but identifying the important sentences from the original document and concatenating all the identified sentences as it is so as to generate the summary of that document. The extractive type method may result in the loss of important contents as the method do not focus on the context within the text.

II. LITERATURE SURVEY

Literature survey is the overview of the research work carried out related to the summarization. This overview mainly focuses on the clustering technique and previous text summarization technique.

In paper [1] the important part in extractive text summarization is identifying necessary paragraphs from the given document. During this work proposed extractive based text summarization by using statistical novel approach supported the sentences ranking the sentences are selected by the summarizer. The sentences which are extracted are produced as a summarized text and that converted into audio form.

In [2] the first input taken for processing is an audio file. An audio file is generated by recording spoken or already recorded human speech. The audio enter wave form is then converted into a text file, which is then used as input for text summarizer processing. The last word of the output text is a summarized document of the contents of the first recording.

[3] The paper summarizes the automatic summary of a source document as meaningful content, reflecting the main idea of the document without changing the information. If the user gets an effective summary, it helps to understand the document at a glance without having to thoroughly check it, so it saves time and effort.

In [4] the author formulated the MMS work as an optimization problem with modular functions. Adding audio and video does not appear to dramatically improve the performance of the text-only model, which suggests that better models are needed to capture interactions between text and alternative modes, especially for visual data.

In [5] This paper present the subject of audio event detection and reporting, and builds on previous paintings on the identification of audio events that are conceptually necessary to support a pattern of significance. They can take a synergistic approach to audio summation, where audio streams are important can be helped by exploiting textual modality. [6] The system goes through various stages of pre-processing, feature extraction, hearing, edge-viewing, image segmentation and text-to-speech (TTS) conversion.

[8] The paper provides methods for speech-to-text content and automated summary of speech-to-speech. It can support

speech unit extraction and capture. It has been concluded that the proposed methods are effective in spontaneous speech summary. The author introduces the concept of the OpenNLP tool for language processing of text for word matching. Processing document clustering algorithm is adopted when extracting meaningful and queried information from large offline documents [9].

In [10] this paper using various single as well as multi-document text summarization techniques. And focused on improving the quality of clusters is directly relates with the gist of the original input document.

Sr. no.	Title of Paper	Algorithm Used	Finding
1	Extractive text summarization using sentence ranking [1]	TextRank approach is used.	Sentences are ranked by assigning weights and that they are ranked supported their weights. Highly ranked sentences measure extracted from the input document.
2	Using latent semantic analysis in text content summarization and summary evaluation [3]	Sentence Extraction and Speech Summarization	Development of a sophisticated summarization Where Sentence Extraction and Speech Summarization used.
3	Audio data summarization system using Natural Language Processing [2]	Used Natural Language Processing (NLP) modules.	At First Python modules used to convert the audio files to text format. After that Natural Language Processing's modules are used for text summarization
4	Audio important event identification and summary using audio and text methods [4]	Used Synergistic approach for audio summarization	Hearing power is assessed by auditory and perceptual cues such as teaser power, noise and roughness; Everyone is known for being attentive and human hearing.
5	Converting image to text as well as speech using edge detection and image segmentation [6]	Using image processing, edge detection and Optical Character Recognition (OCR) for image to text conversion.	This paper present the system goes through various phases like preprocessing, feature extraction, visual perception, edge detection, image segmentation and Text-To-Speech (TTS) conversion.
6	Speech-to-text content and speech-to-speech summarization of spontaneous speech [7]	Two-Stage Summarization Method used.	Depends on speech unit extraction and abstraction for speech-to-text and speech-to-speech automatic summation
7	Video event recognition and summary using audio, visual and text capabilities [10]	Summarization Of Video using Audio and Segment Classification	The Video summarization provides a condensed or summarized version of a video stream by analyzing the video content by using classification
8	Automatic consumer video summarization by audio and visual analysis [11]	Saliency Models Approach is used.	This paper present the automatic video summary in the user domain, where many previous methods cannot be easily applied due to challenging issues for content material analysis and user pictures are captured with uncontrolled situations to gather with illumination, clutter, and large camera motion, and with poor quality sound tune as a mix of multiple sound sources under neat excessive noise.

9	Analysis of cluster based documents condensation techniques [15]	DBSCAN, Graph Based and Fuzzy C-Means Clustering Algorithm issued.	In Survey of paper the Analysis of cluster-based summation methods derived from expectation-based maximization, graph-based, hierarchical and fuzzy C-means clustering algorithms.
10	Empirical analysis of single and multi document summarization using clustering algorithm [16]	Text summarization over different clustering algorithms	Here they conducted a survey of various techniques for summarizing a single and multiple document and provides an analysis of treating a query sentence as a general one, segmented from documents for text summarization

III. PROPOSED WORK

Proposed system for text summarization consists of main steps pre-processing step and summary generation. Pre-processing step obtains a structured representation of the original text. Summary generation step deals with the algorithm that transforms the text into summary. Summary generation step of proposed system uses a Hybrid approach that involves an approach which is a combination of supervised and unsupervised method.

Hybrid-Cluster Graph Method: Hybrid-Cluster Graph methodology is applied on input documents. The approach is combination of Fuzzy C-Means Clustering, Support Vector Machine and Graph Based Approach. Fuzzy C-Means groups

the semantically relevant text fragments within the text. The support vector machine is used to assign the unique cluster to the sentences which are assigned fuzzy cluster. The use of graph and spanning tree tries to identify the important sentences from all the clusters. This reduces loss of important information. Generated summary converted text to speech and final output is given by text as well as audio file.

- A text format of the data is taken as input.
- An appropriate summarized output shorter text is generated in comparison to original and text summary is converted into an audio form.

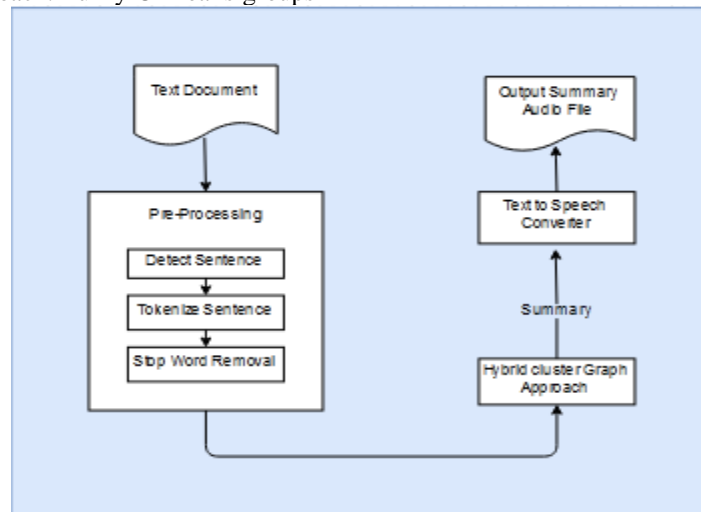


Fig.1: System Architecture

IV. CONCLUSION

The paper presents a rigorous literature survey of different summary generation techniques. The summary generators that can provide the summary in the audio form are the major need. The audio summary is helpful to provide the information to those is having some special requirements. The paper suggests a novel voice based summary generator that uses a 'Hybrid -Cluster Graph algorithm to obtain summary.

The summary generator which generates a query based abstractive type summary.

V. REFERENCES

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