



# A Survey on AI-Powered Meeting Assistants: Automating Agenda Generation, Summarization, and Record-Keeping: A Comprehensive Study

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## Abstract :

The AI-powered Online Meeting Agenda Generator is designed to streamline and enhance virtual meetings by automating key aspects of meeting management. This tool provides real-time transcription of meeting conversations and generates a concise summary, capturing key points and decisions. It also maintains a record of a series of meetings held for a specific topic, allowing users to easily refer back to previous discussions. The system retrieves notes from the last meeting, helping participants pick up from where they left off. Additionally, it tracks attendance, ensuring that records of participant involvement are maintained. This comprehensive solution improves meeting productivity, reduces manual note-taking, and ensures continuity in ongoing discussions.

**Keywords :** AI-powered, meeting agenda generator, summary generation, meeting notes, transcription, recordkeeping, meeting continuity, attendance tracking, virtual meetings, productivity tool, natural language processing (NLP).

## I. INTRODUCTION

In today's digital era, [1]virtual meetings have become a critical part of remote work and team collaboration. However, managing these meetings effectively can be challenging, especially when it comes to capturing key points, tracking attendance, and maintaining continuity between consecutive sessions. These common issue lead to a loss of critical information, inconsistent follow-ups, and reduced productivity. In today's digital era, [1]virtual meetings have become a critical part of remote work and team collaboration. However, managing these meetings effectively can be challenging, especially when it comes to capturing key points, tracking attendance, and ensuring continuity across multiple sessions. Manual note-taking is often time-consuming and error-prone, leading to lost information and a lack of focus in subsequent meetings. This highlights the need for a tool that can streamline the process and help teams stay organized.

The AI-powered Online Meeting Agenda Generator aims to solve these problems by using advanced technologies like real-time transcription, natural language processing (NLP), and automated recordkeeping. The tool generates concise summaries of each meeting, [2]keeps a detailed record of discussions held for specific projects, and retrieves notes from previous meetings to continue from the last discussed point. Additionally, it tracks participant attendance,[3] providing a comprehensive view of meeting engagement. This solution not only saves time but also enhances productivity, allowing participants to focus on meaningful collaboration.

## II. MOTIVATION

The motivation behind creating an [4]AI-powered Online Meeting Agenda Generator stems from the increasing challenges faced in managing virtual meetings efficiently [5]. As remote work and online meetings have become the norm, teams often struggle with capturing important discussions,

Key motivating factors include:

**Time Efficiency:** Reducing the need for manual note-taking and summarization, allowing participants to focus on discussions [6].

**Improved Continuity:** Ensuring smooth transitions between meetings by providing access to notes and summaries from previous sessions.

**Enhanced Record Keeping:** Maintaining a detailed history of meetings held for specific projects or topics, making it easy to retrieve information when needed.

**Accurate Attendance Tracking:** Automating the process of logging participant attendance, reducing errors and providing reliable data for meeting analysis.

**Boosted Productivity:** Helping teams stay organized, follow up on action items effectively, and make better decisions based on well- documented meeting notes.

**Saving Time for Participants:** Reducing the time spent on reviewing entire meeting recordings by providing quick, summarized highlights.

**Enhancing Decision-Making:** Ensuring that critical decisions and next steps are clearly documented and easily accessible [7].

**Leveraging AI for Smart Solutions:** Utilizing AI and NLP technologies to deliver a modern, efficient, and scalable solution for virtual meeting management.

## III. LITERATURE SURVEY

### 3.1. Paper Name: Online Meeting Summary Generator

Author Name: Yashodara P.H.E., Ranepura R.S., Bhashitha W.P.K.K., Thilakarathne Anuradha Karunasena, Pradeepa Bandara

**Abstract:** Understanding This research explores developing an automated system to generate Meeting minutes efficiently, addressing the shortcomings of traditional manual methods that are time-consuming and error-prone. The proposed system integrates Speech Emotion Recognition (SER) to identify attendee's emotions (e.g.: anger, joy, or Neutrality) and analyze meeting progress. It will generate comprehensive reports covering objectives, attendance, decisions, issues, action items, next meetings, and progress tracking. By automating this process, the system aims to improve accuracy, efficiency, and emotional analysis, providing IT professionals with meaningful insights and smoother meeting management.

### 3.2. Paper Name: Automatic Generation of Minutes of Meetings

Author Name: Anuj Pandya, Prof. Namrata Gawande

**Abstract:** This paper discusses the automatic generation of meeting minutes using Machine Learning algorithms and Natural Language Processing (NLP). Meeting minutes serve as official records of discussions within organizations, and automating their creation has gained interest due to its practical applications. The study reviews existing techniques, including the AMBOC Model, BART Summarizer, HMNet, and MSCG, which extract key action items from audio files. Machine Learning models like SVM and HMM are combined with these methods for classification and summarization, producing accurate and informative summaries for users.

### 3.3. **Paper Name: MeetSum: Transforming Meeting Transcript Summarization using Transformers!**

Author Name: Nima Sadri, Bihan Liu, Bohan Zhang

Abstract: This paper tackles the challenge of generating abstractive summaries from meeting transcripts using a Transformer-based Pointer Generator Network, addressing the issue of limited labeled data. The model combines LSTMs for encoding and decoding, a pointer network to copy input words, and a generator to handle out-of-vocabulary terms, with a coverage mechanism to prevent repetition. We show that zero-shot learning on meeting data using a news-trained model performs better than direct training on the AMI dataset. Further, pre-training on the CNN-Daily Mail dataset and finetuning on the AMI dataset enhances performance, achieving a 5-point ROUGE-2 score improvement with more accurate and human-readable summaries.

### 3.4. **Paper Name: Automatic notes based on video records of online meetings using the latent Dirichlet allocation method**

Author Name: Rakhmat Arianto, Rosa Andrie Asmara, Usman Nurhasan, Anugrah Nur Rahmanto

Abstract: Meeting minutes help assess whether meeting objectives are met, but in online meetings, they are still recorded manually, requiring significant effort to transcribe. To address this, an automated note-taking system is proposed, especially for the IT Department, using the latent Dirichlet allocation (LDA) method for text summarization and topic modeling. The system achieves 57.91% accuracy in summarization and a 64.56% coherence score for topic modeling, offering a reliable alternative to manual minutes.

### 3.5. **Paper Name: QMSum: Anew Benchmark for Query-based Multi-domain Meeting Summarization**

Author Name: Ming Zhong, Da Yin, TaoYu and AhmadZaidi

Abstract: Meetings are a key component of human collaboration. As increasing numbers of meetings are recorded and transcribed, meeting summaries have become essential to remind those who may or may not have attended the meetings about the key decisions made and the tasks to be completed. However, it is hard to create a single short summary that covers all the content of a long meeting involving multiple people and topics. In order to satisfy the needs of different types of users, we define a new query-based multidomain meeting summarization task, where models have to select and summarize relevant spans of meetings in response to a query, and we introduce QMSum, a new benchmark for this task.

### 3.6. **Paper Name: Action-Item- Driven Summarization of Long Meeting Transcripts**

Author Name: Logan Golia, Jugal Kalita

Abstract: The rise of online meetings has increased the need for automated meeting summary models. This paper introduces an approach that generates action-item-driven summaries using a recursive algorithm and action-item extraction. It divides long transcripts into topic-based sections, improving time efficiency, addressing long-term dependency in model.

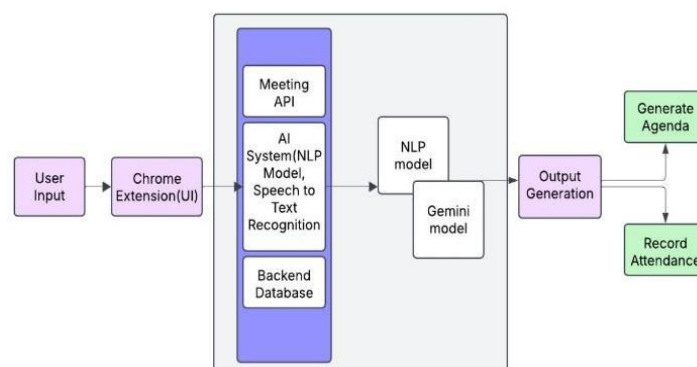
## IV. LITERATURE REVIEW

Reference No.	Methodology	Algorithm Used	Limitations
1.	This paper introduces a Transformer based model for abstractive meeting summaries.	LSTMs, Pointer.	The model was only tested on AMI meeting transcripts and not on other meeting types or non-meeting datasets.
2.	Human-annotated evaluations, literature review, encoder-decoder and decoder-only model analysis.	Transformer models, automatic evaluation metrics, human annotation.	Models struggle with factual consistency, query relevance, and require better evaluation metrics.
3.	The system enhances efficiency and accuracy by summarizing key points and analyzing attendees' emotions during meetings.	Emotion Recognition technology.	Variability in audio quality and emotional expressiveness can also impact Speech Emotion Recognition.
4.	This paper presents a method for automatically generating meeting minutes using Natural Language Processing.	AMBOC, BART, HMNet, and MSCG	The method's effectiveness depends on the relevance of generated summaries.

5.	Real-time content analysis, automatic question generation, attendee feedback integration, postmeeting analytics.	NLP, ranking algorithms, real-time processing frameworks	The models' difficulty in generating factually consistent, query-relevant, multigranularity summaries
6.	This study proposes an automatic notetaking system for online meetings using Latent Dirichlet Allocation (LDA).	Dirichlet Allocation	The system's 57.91% similarity accuracy is low due to differences in wording between the detailed summaries generated and the concise manual minutes.
7.	Action-itemdriven, recursive summarization, topic-based sections, combining summaries, handling dependencies.	Novel algorithm BERTScore, LLMs, and BART	Limitations include lacking decision, tension level analysis, and advanced segmentation techniques.
8.	Human-annotated analysis, correlation with human evaluations, encoder-decoder comparisons, model response analysis.	Transformer models, automatic evaluation metrics, human annotations.	Focus on English summaries, potential annotation gaps, limited dataset scope, model coverage constraints.

## V. METHODOLOGY

### 5.1 System Plan



**Fig.1. Architecture**

The AI-powered online meeting agenda generator using a Chrome Extension involves several key components working together to facilitate [8] features like generating summaries, keeping records of meetings, providing previous meeting notes, and attendance tracking. Below is the methodology for the system, along with the system architecture diagram.

### 1. User (Organizer/Participant):

The process starts with the user interacting with the Chrome Extension. The user initiates the meeting, checks past meeting records, tracks attendance, and reviews summaries[9].

### 2. Chrome Extension:

The Chrome extension is the central component that interacts with other parts of the system. It is the point of interaction for the user and handles data from both the meeting platform (Zoom/Google Meet) and the AI system.

### 3. Meeting Platform API (Zoom/Google Meet):

The Chrome extension sends requests to the Meeting Platform API to fetch meeting metadata like participants, duration, and meeting start/end time.

It also tracks attendance in realtime as users join and leave the meeting.

### 4. AI System (NLP and Transcription):

The AI System processes the meeting's audio/video feed in realtime. It transcribes the conversation, extracts action items, and generates a summary.

The AI uses [10] Natural Language Processing (NLP) algorithms to detect important topics, summarize meeting discussions, and store the generated summary.

### 5. Backend Database:

All data related to the meeting (summaries, attendance, actions) are saved into the Backend Database. This ensures that the meeting records are available for future meetings. For recurring meetings, the system can pull previous meeting data to continue discussions.

### 6. Meeting Data Storage:

The Meeting Data Storage stores all processed data, including summaries, transcripts, action items, and attendance. The data storage can be queried to retrieve historical meeting data when needed.

The architecture follows a layered approach, integrating a Chrome Extension UI, a robust backend system, real-time AI processing, and secure data storage. This design facilitates seamless user interaction, efficient summarization, and reliable record-keeping for a better meeting experience. The methodology highlights how various components work together, ensuring that the system is scalable, secure, and user-friendly.

This detailed overview serves as a roadmap for implementing the [11] AI-powered online meeting agenda generator using Chrome Extension architecture, focusing on modularity, real-time processing, and enhanced user experience.

## VI. EXPECTED OUTCOME

The AI-powered Online Meeting Agenda Generator is expected to revolutionize the way virtual meetings are conducted and managed, leading to a more efficient and productive collaboration experience. One of the key outcomes of this project is the ability to automate the generation of concise meeting summaries. By utilizing real-time transcription and natural language processing (NLP), [12] the tool aims to accurately capture the main points of discussions, decisions made, and action items identified during the meeting. This will help participants quickly review the highlights and stay on track without needing to manually go through lengthy meeting recordings[13].

Another anticipated outcome is enhanced continuity across meetings. The tool will keep a comprehensive record of meeting notes and summaries, allowing users to easily access previous discussions related to specific topics or projects. This feature will enable participants to continue from the last discussed point in subsequent



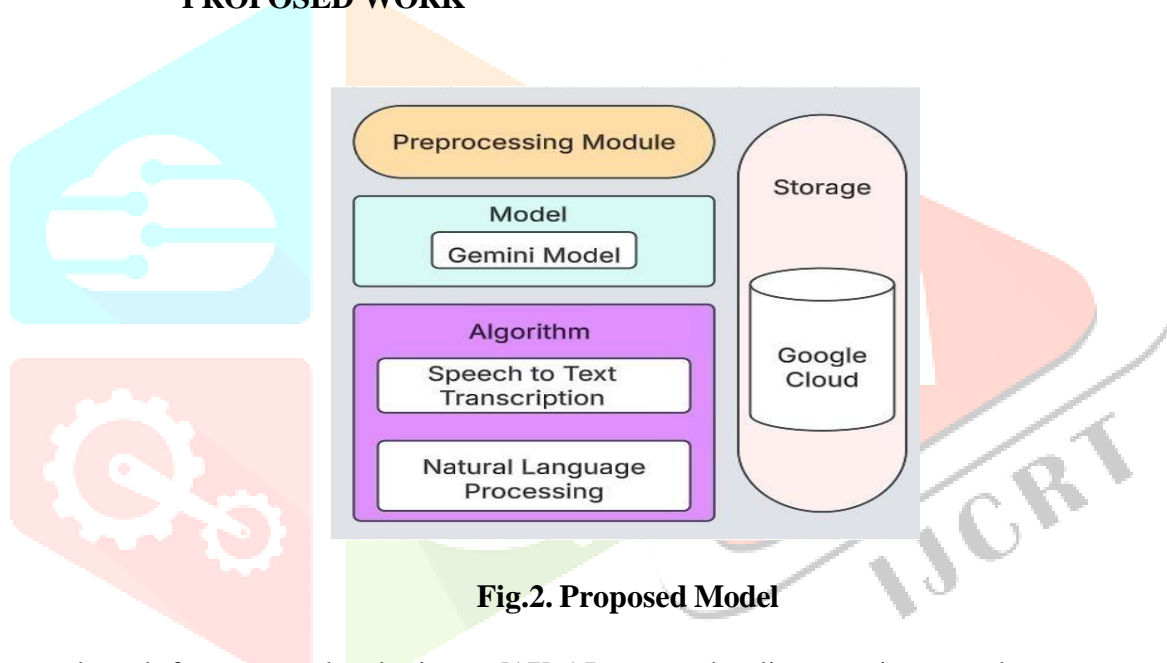
meetings, [14]reducing the time spent on recapping previous conversations and ensuring that important decisions are not overlooked. It will also help maintain the flow of long-term projects that require multiple meetings for planning and review.

Attendance tracking is expected to become seamless and automated with this solution. By logging participants based on their credentials, the system will generate accurate attendance reports for every meeting. This not only saves time but also provides reliable data for analyzing engagement and participation trends over time. Having a clear record of attendees will help organizers identify key contributors and follow up with those who may have missed the meeting.

The overall impact of the project is expected to be a significant increase in meeting productivity. With automated summaries, easy retrieval of past notes, and reliable attendance tracking, teams can focus more on discussions and decision-making rather than administrative tasks[15]. The tool is designed to save time and reduce the cognitive load on participants, enabling them to engage more effectively during meetings.

In addition, the project aims to deliver a user-friendly interface that simplifies accessing, reviewing, and managing meeting information. By leveraging AI technologies, [16] the tool is expected to offer a modern, scalable solution that adapts to different types of meetings and organizational needs, making it a valuable resource for businesses, educational institutions, and teams engaged in virtual collaboration.

## VII. PROPOSED WORK



**Fig.2. Proposed Model**

The proposed work focuses on developing an[17] AI-powered online meeting agenda generator that automates the process of summarizing meetings, keeping records of multiple meetings held for a specific purpose, and providing previous meeting notes to ensure continuity in discussions. The system will integrate speech-to-text conversion, natural language processing (NLP), and machine learning to generate accurate summaries and maintain structured meeting records. Additionally, it will include attendance tracking features to monitor participant engagement. Designed as a Chrome extension, the tool will seamlessly integrate with online meeting platforms, enhancing productivity and reducing manual effort in managing meetings efficiently.

## VIII. CONCLUSION

In conclusion, the AI-powered Online Meeting Agenda Generator offers a comprehensive solution for managing virtual meetings efficiently. By automating the process of transcription, summarization, and record-keeping, [18]the tool addresses common challenges faced during remote collaboration. It ensures that key points are captured accurately, decisions are documented, and participants can easily refer back to previous discussions. This not only saves time but also helps teams stay organized and focused on meaningful conversations, without the distraction of manual notetaking. The integration of features like automated attendance tracking and continuity from previous meetings enhances the overall user experience and boosts productivity. By leveraging AI and natural language processing, [19] the tool provides a scalable, reliable, and

user-friendly platform for meeting management. The expected outcome is a significant improvement in meeting effectiveness, making it a valuable asset for businesses, educational institutions, and any organization that relies on virtual communication.

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