

# Title

## AI-Powered Meeting Minutes Generator

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### Introduction

Meetings are an essential part of business and academic environments, but documenting them manually can be slow, inaccurate, and inefficient. With advancements in **Artificial Intelligence (AI), Speech Recognition, and Natural Language Processing (NLP)**, we can now develop automated solutions to generate meeting minutes more effectively. This project focuses on creating an **AI-powered meeting minutes generator** that can transcribe, summarize, and organize discussions automatically.

Recent progress in AI-based speech processing tools like **Whisper by OpenAI** ([Whisper Research](#)) and **Google Cloud Speech-to-Text** ([Google Cloud](#)) shows that meeting documentation can be made faster and more reliable. This research aims to build on these technologies to improve productivity and streamline meeting workflows.

### Problem Statement

#### The Issue

Meetings produce valuable information, but manually recording them can lead to missing key details. Many transcription tools struggle with **understanding context, summarizing key points, and identifying action items**. The challenge is to create a system that extracts and structures essential details accurately and concisely.

#### Who is Affected?

- **Professionals & Teams:** Employees need clear documentation of decisions and tasks.
- **Organizations:** Poor documentation leads to confusion and lost productivity.
- **Researchers & Students:** Well-structured meeting summaries help track discussions and ideas.

## Why is This Important?

AI solutions for meeting summarization have improved, but they still struggle with **accuracy, context awareness, and adaptability**. This project aims to address these gaps to provide more effective automated documentation.

## Aims and Objectives

### Research Aim

The goal is to develop an AI-based system that automates **transcription, summarization, and action item extraction** using speech recognition and NLP techniques.

### Key Questions

1. How can AI improve the accuracy of **speech-to-text transcription**?
2. What NLP models work best for **meeting summarization**?
3. How can key decisions and action items be automatically identified?
4. What are the privacy and security concerns with AI-based transcription?

### Research Approach

- **Speech Processing:** Using AI models like **Wav2Vec** and **Mozilla DeepSpeech**.
- **Summarization & NLP:** Testing models like **BERT-based summarization** and **Hugging Face Transformers**.
- **Action Item Extraction:** Leveraging research in **Extractive Meeting Summarization**.
- **User Testing & Evaluation:** Comparing results using **ROUGE** and **METEOR** scoring methods.

## Legal, Social, Ethical, and Professional Considerations

### Legal Considerations

- **Data Privacy & Security:** Ensuring compliance with **GDPR** and other privacy laws.
- **User Consent:** Making sure meeting participants agree to recording and transcription.

### Social & Ethical Considerations

- **Bias in AI Models:** Ensuring the AI transcription is fair and accurate across different speakers.
- **Confidentiality:** Securely storing sensitive meeting information.

### Professional Considerations

- **Workplace Integration:** Making the tool user-friendly for businesses.
- **Improved Collaboration:** Automating documentation to help teams stay organized.

# Background

## Current AI Meeting Documentation Tools

Existing tools like **Otter.ai**, **Google Meet Captions**, and **Whisper** offer basic transcription services but lack **structured summaries and action tracking**. This project aims to improve upon these existing solutions by providing **more structured and actionable meeting minutes**.

## Industry Impact

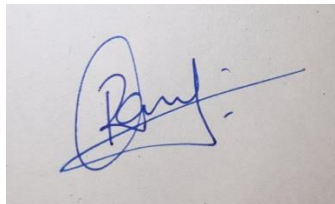
AI-driven meeting documentation can be useful for:

- **Business Meetings:** Ensuring important discussions are recorded accurately.
- **Academic Research:** Helping students and researchers keep track of discussions.
- **Government & Policy Meetings:** Improving documentation for transparency and efficiency.

## References

1. **OpenAI Whisper** – [Whisper Research](#)
2. **Google Cloud Speech-to-Text** – [Google Cloud](#)
3. **Hugging Face NLP Models** – [Hugging Face Docs](#)
4. **Wav2Vec for Speech Processing** – [Wav2Vec Research](#)

**ROUGE & METEOR Evaluation** – [ROUGE Evaluation](#)



Narahari Rahul Sai -

Student and First Supervisor Project Sign-Off			
	Name	Signature	Date
STUDENT: I agree to complete this project:			
SUPERVISOR: I approve this project proposal:			
Supervisor Comments/Feedback			

