AI Meeting Summariser: From Speech to Key Points

An AI-powered solution for automated transcription and intelligent meeting summarisation

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The Information Overload Problem

Modern workplaces face a critical productivity challenge: whilst meetings are essential for collaboration, they consume significant time and generate vast amounts of information that's difficult to process efficiently.

Research indicates the average employee spends over 15 hours weekly in meetings, yet critical decisions and action items frequently become lost in lengthy recordings and unstructured transcripts.

Time-Consuming

Hours spent reviewing meeting recordings

Raw Transcripts

Long, unstructured text difficult to navigate

Lost Information

Key decisions buried in data

Our Solution: A Smart, Automated Summariser

We've developed an AI-powered tool that transforms lengthy meeting recordings into concise, actionable summaries, saving time whilst preserving critical information.

1

Fast Transcription

Converts speech to accurate text in minutes using advanced AI models, handling multiple speakers and accents with high precision.

2

Intelligent Summarisation

Employs natural language processing to extract key topics, decisions, and action items whilst maintaining context and meaning.

3

Easy Access

Intuitive web interface allows users to upload audio files and receive professionally formatted summaries within moments.

Project Architecture

Our system employs a two-stage pipeline architecture that seamlessly transforms audio input into structured, actionable summaries.

Audio Input

User uploads meeting recording (.mp3, .wav, .m4a)

Speech-to-Text

Whisper model transcribes audio to text

Raw Transcript

Complete textual representation generated

Summarisation

BART/T5 model processes transcript

Final Summary

Concise output delivered to user

Technologies We Used

Core AI Framework

- **Python:** Primary programming language
- **PyTorch:** Deep learning framework for model training and inference
- **Hugging Face Transformers:** Pre-trained model library

AI Models

- **OpenAI Whisper:** State-of-the-art speech recognition
- **BART / T5:** Abstractive summarisation models
- **PEGASUS:** Alternative summarisation approach

Web Application

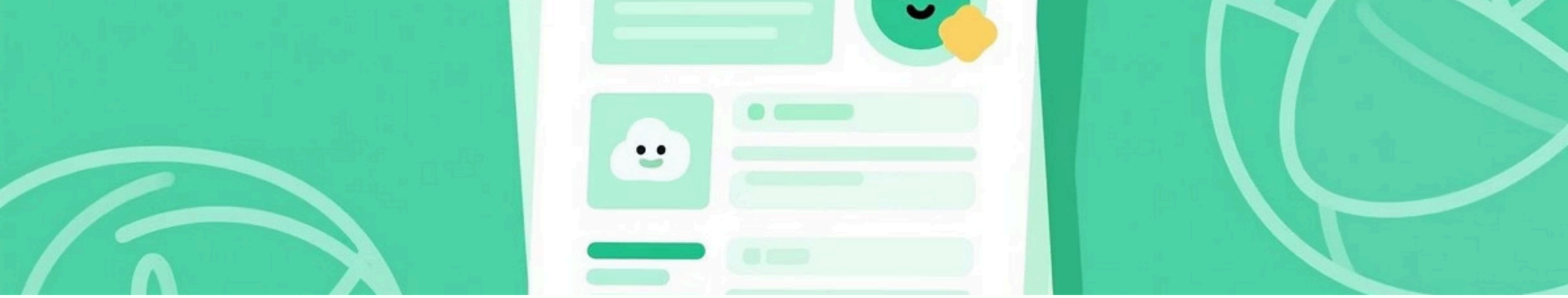
- **Flask / Streamlit:** Backend framework and UI
- **HTML/CSS:** Front-end design and styling
- **JavaScript:** Interactive elements

Demonstration: The Raw Transcript

Before summarisation, our speech-to-text model generates a complete, unedited transcript capturing every spoken word, including filler words, repeated phrases, and tangential discussions.

> "So, um, I think we should probably start by, you know, discussing the quarterly results. The numbers are, uh, quite interesting this quarter. Actually, before we dive into that, did everyone get a chance to review the slide deck? Okay, great. So as I was saying, the Q2 figures show a 15% increase compared to Q1, which is really encouraging. We also need to talk about the marketing budget for next quarter, and I believe Sarah had some thoughts on that. Sarah, would you like to share? Oh, and we also need to schedule a follow-up meeting to discuss the product roadmap..."

Challenge: Raw transcripts are difficult to parse quickly, making it time-consuming to extract actionable information and key decisions from lengthy meeting recordings.



Demonstration: The AI-Generated Summary

Our summarisation model transforms lengthy transcripts into concise, structured outputs that capture essential information whilst eliminating redundancy.

Key Discussion Points

- Q2 results show 15% increase compared to Q1
- Marketing budget allocation for next quarter requires review
- Product roadmap discussion scheduled for follow-up meeting

Action Items

- Sarah to present marketing budget proposals
- Schedule follow-up session for product roadmap
- Circulate detailed Q2 analysis to team

Result: In seconds, we transform verbose transcripts into clear, scannable summaries that highlight key topics, decisions, and action items for immediate comprehension.

Challenges We Faced

01

Audio Quality Issues

Handling background noise, overlapping speakers, strong accents, and varying audio quality required extensive model fine-tuning and pre-processing techniques to maintain transcription accuracy.

02

Model Selection & Optimisation

Balancing summarisation length with context preservation proved challenging. Some models produced overly brief outputs losing critical information, whilst others generated summaries nearly as long as the original transcript.

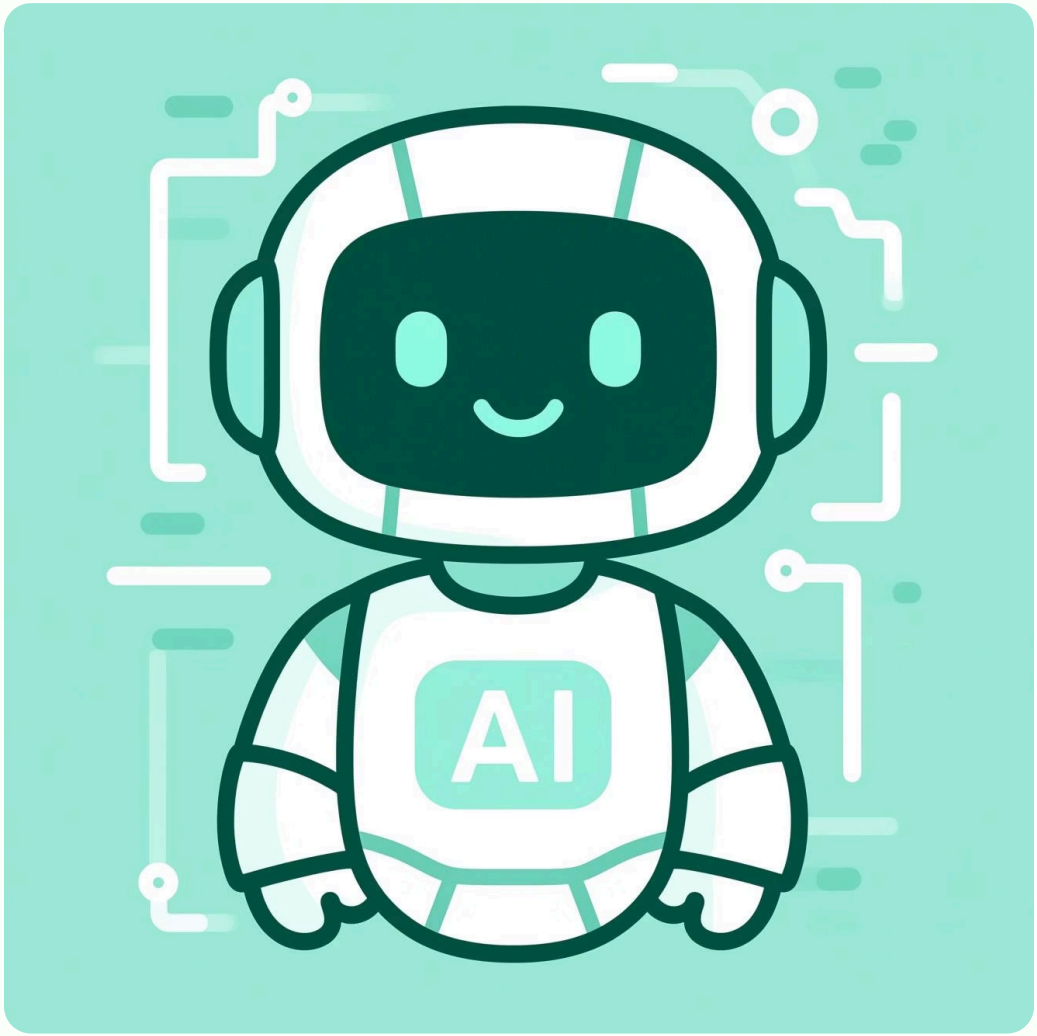
03

Processing Time Constraints

Large audio files demand significant computational resources. We optimised batch processing and implemented GPU acceleration to reduce processing time from minutes to seconds for typical meeting lengths.

Future Scope

Our project establishes a foundation for advanced meeting intelligence capabilities that can transform workplace productivity.



Real-Time Summarisation

Transcribe and summarise meetings as they happen, providing live updates and instant access to key points during ongoing discussions.

Speaker Diarisation

Identify individual speakers and attribute specific statements, enabling better accountability and more structured meeting records.

Action Item Extraction

Automatically generate to-do lists with assigned responsibilities and deadlines, streamlining post-meeting follow-up processes.

Thank You

We appreciate your time and attention. We're happy to answer any questions about our AI Meeting Summariser project.

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Questions?