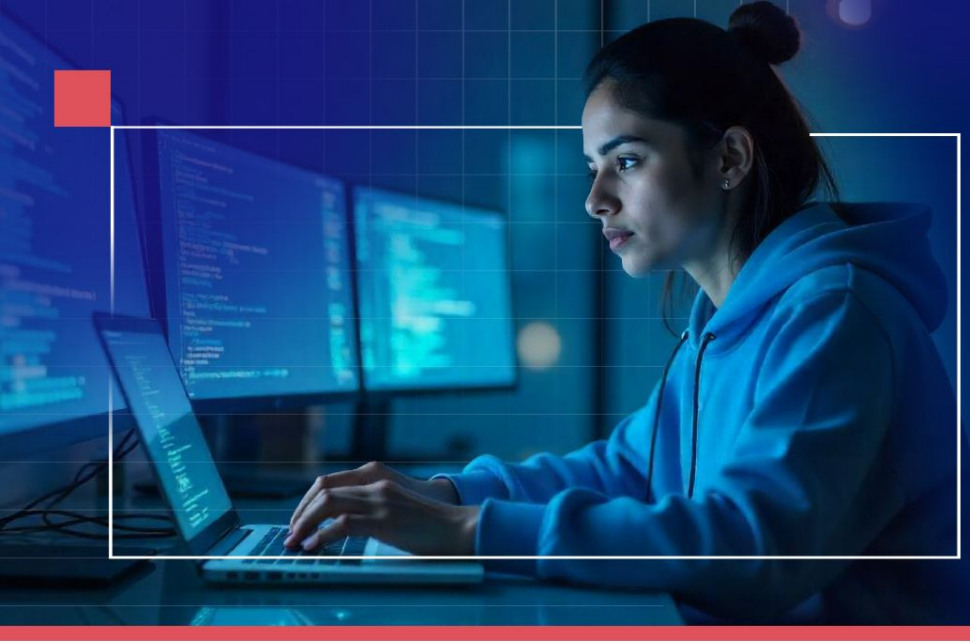


intel ai

Hackathon

From Ideas to Impact, Accelerate with OPEA.

Powered by H2S HACK2SKILL

Team Name : Ghostpye

Team Leader Name : Shantanu Nimkar

Theme: Intelligent Meeting Assistant

Team Members

Shantanu Nimkar
Sameer Borkar

Brief About the Solution:

Our AI Meeting Assistant is an intelligent post-meeting automation platform designed to reduce manual effort, enhance productivity, and improve accessibility. The solution allows users to upload meeting data in the form of transcript files or audio/video recordings (e.g., .mp3, .wav, .mp4). Once uploaded, the system automatically processes the content using a modular architecture powered by OPEA microservices.

The assistant performs a wide range of tasks:

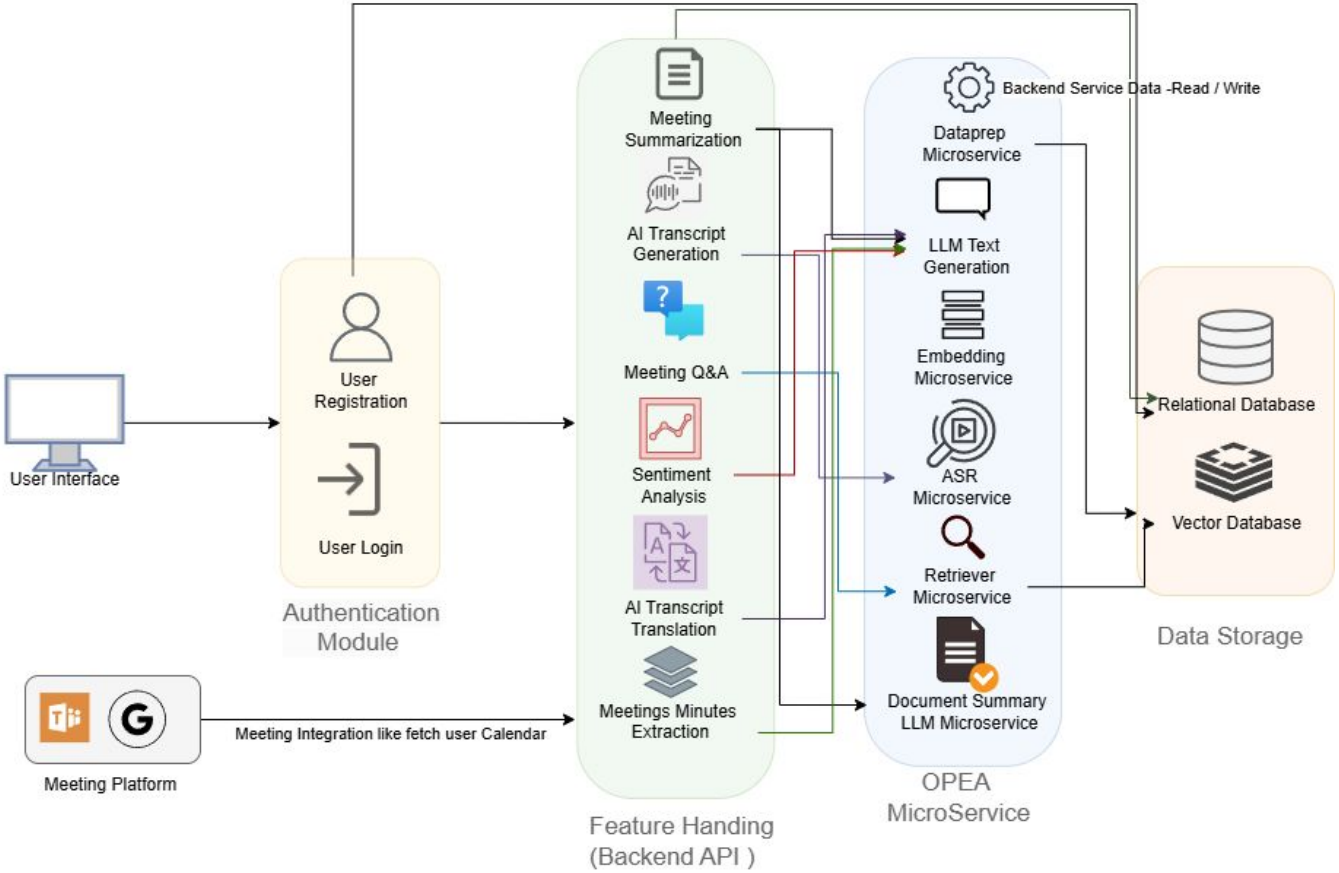
- **Transcribes** recordings to searchable text
- **Summarizes** discussions for quick review
- **Generates actionable Meeting of Minutes (MoM)**
- **Provides semantic Q&A** on meeting content
- **Analyzes speaker sentiment line-by-line**
- **Translates transcripts** across multiple languages

This system not only saves time but also eliminates repetitive tasks and ensures that important discussions don’t get lost or forgotten. It helps employees quickly revisit what was discussed, identify key decisions, and extract insights without rewatching long recordings.

Motivation/Stats/References

- **Time-Consuming Process**: Employees spend 15-30 minutes per meeting preparing MoMs, reviewing recordings, or clarifying discussion points.
- **Inefficient Retrieval**: Finding specific answers in long recordings is tedious and slows productivity.
- **Error-Prone Manual Notes**: Traditional note-taking varies by individual and often misses key points.
- **Cognitive Overload**: Participants forget details if MoMs aren't prepared promptly after meetings.
- **Data-Driven Need**: Studies show around 52% of employees struggle to recall action items; 70% find MoM creation a distracting, low-value task.
- **Language & Accessibility Gaps**: Recordings may include multiple accents or languages, creating barriers for comprehension and manual transcription.
- **Motivation**: Automate MoM creation, enable fast Q&A, and offer quick summaries to save time, improve accuracy, and enhance accessibility.

Proposed Solution/Architecture



Tech Stack

Backend: FastAPI (Python)
Database: PostgreSQL (via SQLAlchemy ORM)
Authentication: JWT-based Auth with OTP verification
File Storage: Local server file system
Vector Database: Redis with RediSearch

OPEA Microservices:

- **ASR Microservice**: Converts audio/video to text.
- **Dataprep Microservice**: Prepares clean text data and store to vector db.
- **LLM Microservice**: Powers Q&A and summaries.
- **Embeddings Microservice**: Create vector embedding
- **Retriever Microservice:** Enables semantic search across transcripts.
- **Document Summary Microservice**: Extracts concise Meeting of Minutess.

Frontend: Vite, React.js, Material UI, Redux toolkit
Containerization: Docker

Assumptions

1. Users will upload valid and supported meeting files (e.g., .mp4, .mp3, .wav, or .txt transcripts).
2. Meeting content will be in a language supported by the ASR and LLM models for accurate processing.
3. Audio quality will be clear enough for effective speech recognition (minimal background noise and overlapping speech).
4. Users have authenticated access and necessary permissions for platform integrations (e.g., Google Meet, Microsoft Teams).
5. All users are authenticated before accessing features and data is handled securely.
6. The backend server running microservices and vector DB (Redis) will have enough compute/memory to handle LLM and embedding tasks.
7. Users will operate the app in a stable internet environment, necessary for interaction with cloud-based microservices.

OPEA platform and microservices usage

The solution leverages OPEA's modular microservices architecture for scalable and efficient meeting processing:

- ***ASR Microservice**: Converts audio/video files into accurate transcripts.
- **Dataprep Microservice**: Cleans and structures raw transcript text for downstream processing.
- **LLM Text Generation Microservice**: Powers meeting summarization, Q&A, and Meeting of Minutes extraction using large language models.
- **Embeddings Microservice**: Converts text into vector representations for contextual understanding.
- **Retriever Microservice**: Fetches relevant transcript sections in response to user queries, enabling semantic search.
- ***Document Summary LLM Microservice**: Extracts key points and generates concise meeting summaries.

Novelty and Expected Results

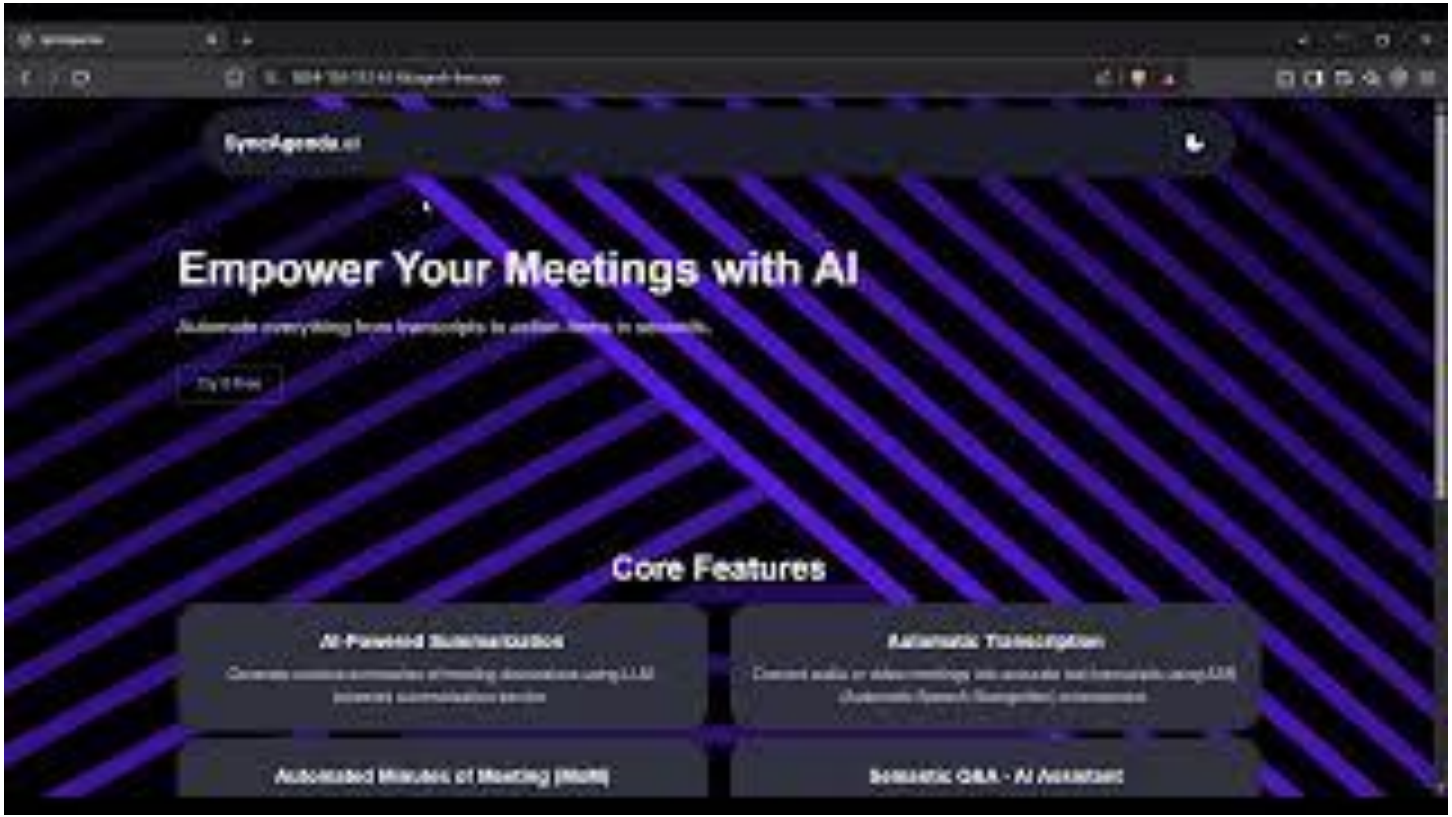
Novelty:

- Built on **OPEA (Open Platform for Enterprise AI)**: Leverages OPEA's modular and scalable architecture, allowing plug-and-play AI microservices for efficient and rapid deployment.
- Combines multiple advanced AI services—ASR, LLM, Embeddings, and Retriever—into a unified, end-to-end meeting assistant.
- Supports both text and media input formats (transcripts, audio, and video), increasing usability across platforms.
- Enables semantic Q&A on meeting transcripts, allowing users to instantly retrieve specific information without rewatching full recordings.
- Performs **line-by-line sentiment analysis**, offering deeper insights into speaker tone and meeting dynamics.
- Includes **multi-language transcript translation**, making meetings accessible to diverse teams.
- Future scope includes **real-time sign language conversion** for hearing-impaired users and **Jira integration** to create tasks from discussion points automatically.

Expected Results:

- **70–90% time savings** in Meeting of Minutes preparation and post-meeting documentation.
- Increased productivity through faster information retrieval and reduced manual effort.
- Improved meeting accessibility and inclusivity through translation and planned accessibility features.
- Higher decision-making efficiency by quickly surfacing key points and action items from past meetings.
- Standardized and accurate meeting documentation across teams and projects.

Demo Video



Resources

- Backend repository: https://github.com/shantanu1905/meeting-ai-assistant
- Frontend repository: https://github.com/sam-79/SyncAgenda
- Demo video and screenshot: https://drive.google.com/drive/folders/11vG-qsfFw3HfzsFNnd6dH65DwDC1cER9?usp=sharing
- Demo video : https://youtu.be/tfNfVElMucU

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Thank you