Case Study: AI-Powered Modular Minutes of Meeting (MoM) Generator

GitHub Repository: github.com/mukul-mschauhan/Minutes-of-Meeting
Live App: generate-mom.streamlit.app

Executive Summary

In the dynamic landscape of construction, civil, and project management domains, recording, interpreting, and structuring meeting minutes remains a labor-intensive, error-prone, and often unstandardized process. With the proliferation of hybrid documentation formats such as handwritten notes, scanned PDFs, or mobile-clicked images, teams struggle to translate raw information into actionable, uniform, and digitally processable records. This case study introduces an innovative solution: an AI-powered Modular MoM Generator that leverages advanced vision and generative AI models to streamline, standardize, and automate the generation of high-quality Minutes of Meeting across multiple formats.

Problem Statement

Despite the rising adoption of ERP and project collaboration platforms, large-scale industries such as construction, real estate, civil engineering, and infrastructure still rely heavily on manual note-taking and non-standard formats to record meeting discussions. Key challenges include:

- **Fragmented Documentation:** Teams record updates via notebooks, WhatsApp images, printed PDFs, or Excel sheets—making it hard to extract a coherent summary.
- **Loss of Accountability:** Without a structured format, assigning responsibilities, deadlines, or measuring progress becomes cumbersome.
- **Delayed Decision Making:** Project delays often occur due to missed communication or unrecorded discussions in project meetings.
- **Data Silos:** Unstructured and siloed MoMs prevent integration with digital dashboards or knowledge systems.

This creates a critical gap between raw discussion points and actionable execution plans. Organizations incur rework costs, coordination issues, compliance failures, and miscommunication due to inefficient MoM handling.

Business Objective

The objective of this project is to:

1. **Automate the Extraction** of handwritten and multi-format meeting notes using Vision AI.
2. **Generate Structured MoMs** in standardized tabular formats with key fields like deadlines, owners, work area, and remarks.
3. **Enable Instant Downloads** in Word and PDF formats.
4. **Offer Multi-format Input Support** (images, PDFs, DOCX, TXT).
5. **Integrate with Field Teams and Project Tools** through simple UI and future APIs.

The final aim is to reduce manual work, accelerate project alignment, and create an auditable digital trail of discussions and decisions.

Technical Solution

Architecture Overview

1. **Frontend**: Streamlit Web App Interface
2. **Image-to-Text Extraction**: Google Gemini 1.5 Flash Vision API
3. **Generative MoM Creation**: Prompt-engineered LLM using Gemini's text completion endpoint
4. **Output Formatting**: Tabular format via Python + Word and PDF generation
5. **Export Support**: `python-docx`, `xhtml2pdf`, and Streamlit download modules

Functional Flow

- **Step 1**: User uploads any format (image, PDF, docx, txt).
- **Step 2**: Image/text is processed to extract raw content.
- **Step 3**: Raw content is passed to the AI engine with structured prompt engineering.
- **Step 4**: LLM returns formatted tabular MoM content with sections such as Work Area, Sub-Component, Deadlines, Owners.
- **Step 5**: Final output is available for download as `.docx` or `.pdf`.

Key Features

Feature	Description
Multi-format Input	JPG, PNG, PDF, DOCX, TXT supported
Handwriting Recognition	Gemini Vision API for OCR of notes/images

Feature	Description
Structured Output	Work Area, Task, Assigned To, Deadline, Status
Export Formats	Word Document & PDF download
No-code UI	Streamlit App for non-technical users

Industry Use Cases

1. **Construction & Infrastructure Projects**
   Regular site meetings produce notes on-the-go. This tool digitizes them into structured project actions for dashboards and reports.

2. **Real Estate Developer Meetings**
   Site engineers and vendors can share image-based updates that are transformed into formal MoMs.

3. **Facility Management**
   Helps operations teams convert maintenance meetings into SOPs, task lists, and follow-ups.

4. **Architecture & Interior Design Studios**
   Tracks supplier updates, material readiness, or design feedback captured via WhatsApp images.

Business Impact

Metric	Before (Manual MoM)	After (AI MoM Generator)
MoM Preparation Time	45–60 min per meeting	3–5 min
Standardization	Low	High
Accountability & Traceability	Poor	Clear Assignment Fields
Format Consistency	Varies by user	Uniform across org
Error Rate	High	Low

Expected ROI: Reduction in coordination time, fewer delays, and improved compliance in documentation.

Future Roadmap

- Integration with Google Calendar/Outlook to auto-attach MoMs
- Slack/Teams Bot for MoM generation via chat interface
- API exposure for CRM/ERP ingestion

- Multi-language support
- Analytics dashboard for MoM tracking

Conclusion

The AI-Powered Modular MoM Generator is a practical AI product designed to solve a critical and recurring business problem. It brings the power of vision models and LLMs to everyday team operations—streamlining workflows, improving documentation hygiene, and enabling smarter execution.

This is not just a productivity tool but a step towards smart knowledge management for operations-heavy sectors.

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