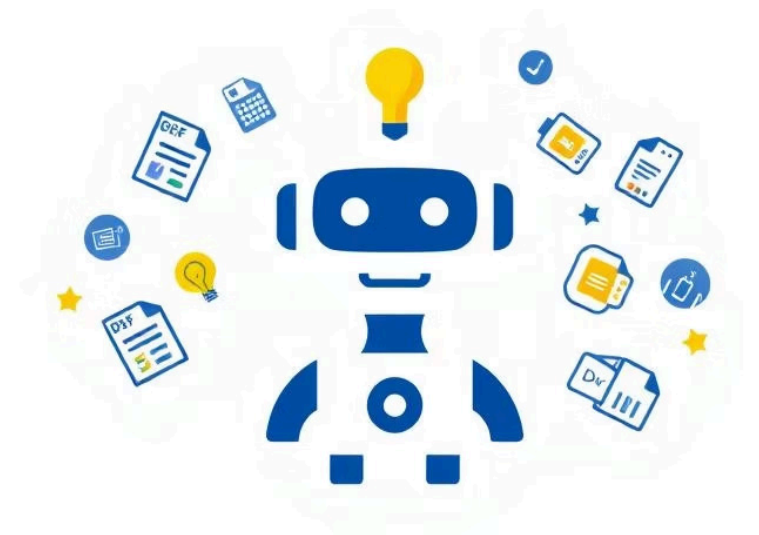# Your Smart Chatbot: Unlocking Document Insights

An Agent-Powered Approach with Model Context Protocol

Name: Kottapalle kasi visweswarreddy

Date: 23-07-2025

Drowning in Documents?

- "Imagine needing answers from piles of PDFs, spreadsheets, and presentations."

- "Traditional tools often can't understand all these formats or your complex questions."

Our Goal: Build a chatbot that truly understands *your* documents, no matter the type, and gives you instant, accurate answers.

Meet Our Intelligent Team!

"Instead of one big program, our chatbot is a **team of specialist 'agents'**, each with a clear job."

The Coordinator:

The 'Boss' – directs the workflow.

The Ingester:

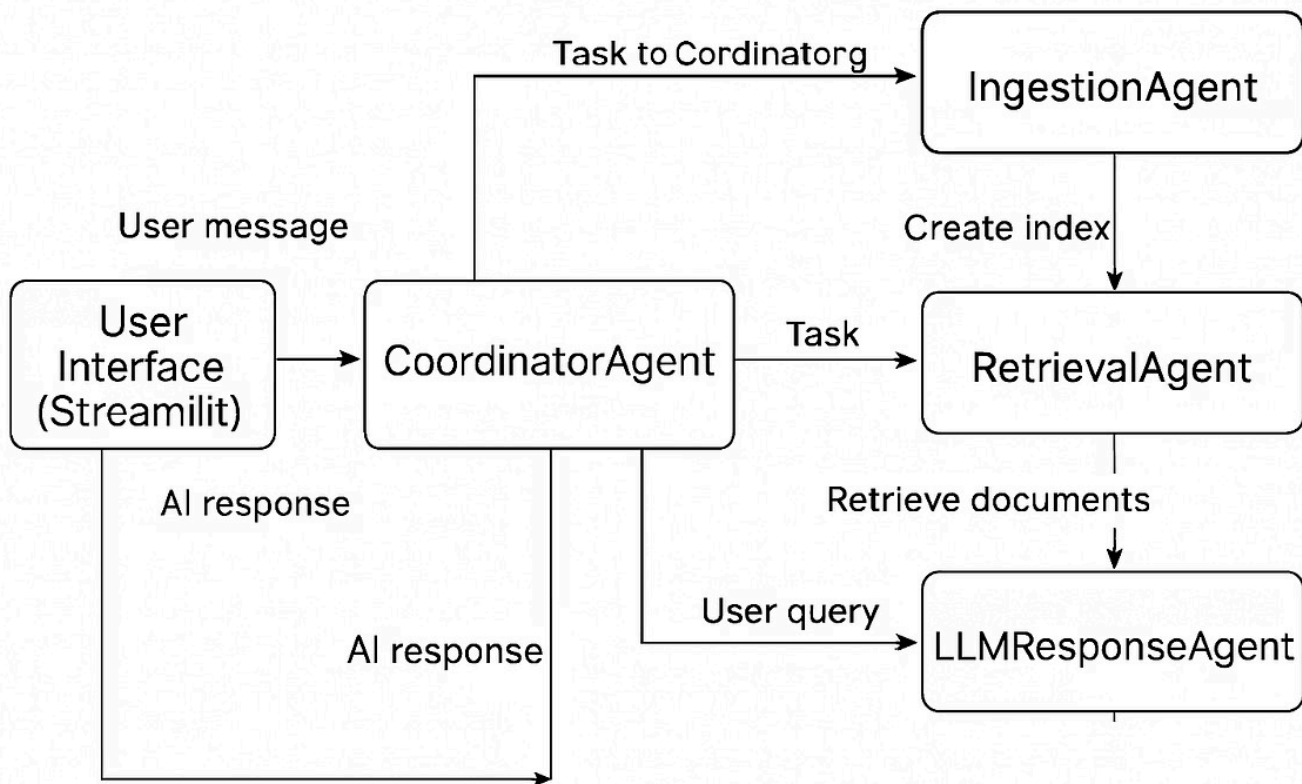The 'Reader' – understands different document types.

The Retriever:

The 'Librarian' – finds the exact info you need.

The LLM Responder:

The 'Storyteller' – crafts your answer.

Their Secret Language (MCP): "They talk using 'special notes' called **Model Context Protocol (MCP)** – clear rules for every message, ensuring perfect teamwork!"

The Blueprint: Our Chatbot's Inner Workings

"This diagram shows how our agents communicate step-by-step, powered by MCP messaging."

The Tools We Used

User Interface:

Streamlit (Easy-to-use web app)

Document Handling:

PyPDF2, pandas, python-docx, python-pptx (For all file types)

Local AI Brain:

Ollama with Llama3 (Our powerful AI model, running right on your machine!)

Core Language:

Python (The backbone of our agents)

Smart Search:

Sentence Transformers (Turns text into search codes) & **FAISS** (Super-fast search engine)

Message Structure:

Pydantic (Keeps our agent notes perfectly organized)
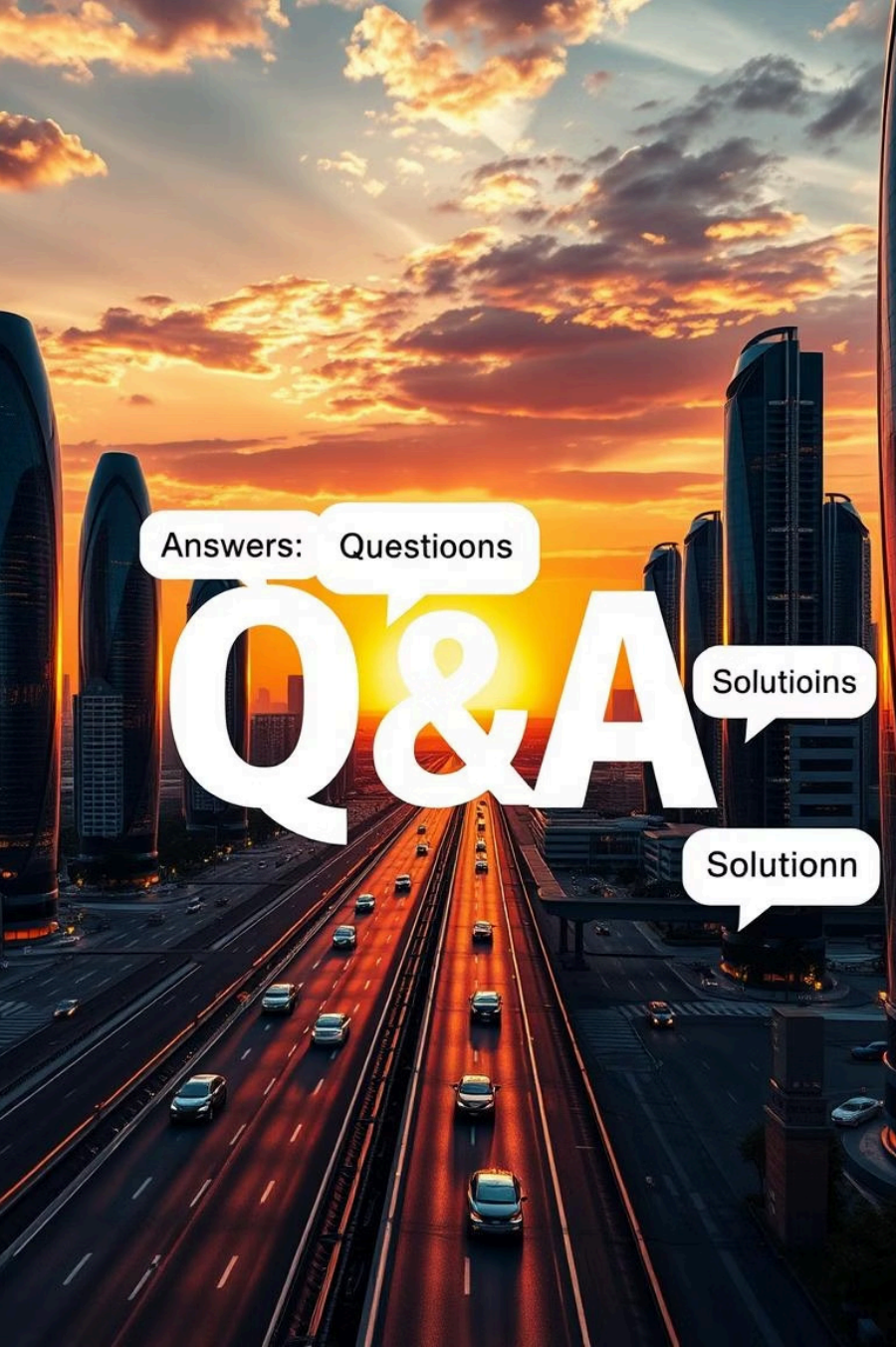
Live Demo & Our Journey's Insights

"Let's see our chatbot in action – uploading a file, asking a question, and seeing the precise answer with its sources!"

Key Learnings:

Making the 'Reader' handle *all* document quirks was a big task!

Teaching the 'Librarian' to find *just* the right clues.

Guiding the 'Storyteller' AI to stick *only* to the facts from your documents.

The Future & Questions

Exciting Future Ideas:

- Making agents work even faster (asynchronous communication).
- Smarter search techniques for even better accuracy.
- Agents that can learn and correct their own mistakes!
- Allowing multiple users with private documents.

"Thank you for your time!"