

## Customer Support Email RAG Automation

This n8n workflow automates **customer support email handling using AI-powered Retrieval-Augmented Generation (RAG)**. It continuously monitors incoming Gmail messages, classifies customer queries, retrieves verified policy information from a **locally hosted Qdrant vector database**, and automatically drafts professional, policy-accurate email responses using large language models. Focused on scalable AI automation, privacy-friendly RAG architecture, and real-world business workflows.

The system is designed for organizations that manage **policy-heavy customer inquiries**, such as housing authorities, real estate management, government bodies, or compliance-driven businesses.

### **A. Key Features**

- 1) **Automated Gmail Monitoring**
  - Polls inbox in real time
  - Detects new incoming support emails
- 2) **AI-Based Email Classification**
  - Automatically identifies customer support queries
  - Filters irrelevant or non-support emails
- 3) **Document-to-Vector Pipeline**
  - Fetches PDF documents from Google Drive
  - Extracts text content automatically
  - Generates embeddings using Ollama (local AI)
  - Stores vectors in Qdrant database
- 4) **RAG-Powered Policy Retrieval**
  - Searches knowledge base for relevant policy sections
  - Ensures responses are based on verified documents
  - Prevents hallucinations by grounding AI responses
- 5) **Professional Auto-Reply Generation**
  - Generates respectful and formatted email responses
  - Uses sender name personalization
  - Automatically sends reply via Gmail
- 6) **Fully Local AI Stack Support**
  - Ollama embeddings
  - Local Qdrant vector store
  - Privacy-friendly architecture

### **B. System Architecture Overview**

This workflow integrates modern AI and automation tools:

- **n8n Automation Engine** — Workflow orchestration
- **Gmail API** — Email ingestion and reply handling
- **Google Drive** — Policy document storage
- **Qdrant Vector Database** — Semantic search engine

- **Ollama Embeddings** — Local embedding generation
- **OpenRouter LLM** — AI response drafting

## C. Typical Use Cases

- Housing Society policy query automation
- Customer support email auto-response systems
- Legal document question answering
- Internal HR or compliance FAQ bots
- Knowledge-base powered email assistants

## D. Requirements

To deploy this workflow successfully:

- n8n instance (self-hosted or cloud)
- Gmail OAuth credentials
- Google Drive OAuth credentials
- Qdrant Vector Database (local or cloud)
- Ollama server for embeddings
- OpenRouter API key for LLM responses
- Policy documents stored in Google Drive

## E. Keywords

#CustomerSupportAutomation  
#EmailAutomation  
#SupportAI

#HelpdeskAutomation  
#SmartSupport

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