

RINGKASAN

IMPLEMENTASI CHATBOT BERBASIS LANGCHAIN DAN *RETRIEVAL-AUGMENTED GENERATION* (RAG) UNTUK NOTULENSI AUDIT SITE DI PT INDOSAT OOREDOO HUTCHISON GOMBEL

Tsania Laeli Ainurrohmah

Pengolahan notulensi audit site di perusahaan masih menjadi tantangan yaitu dalam hal mencatat, mencari dan penampilan kembali catatan yang tersimpan secara manual. Di PT Indosat Ooredoo Hutchison Gombel, karyawan kesulitan dalam menemukan notulensi audit site dengan itu perlunya solusi berbasis teknologi kecerdasan buatan. Salah satu inovasi relevan adalah chatbot berbasis *Large Language Model* (LLM) dan *Retrieval-Augmented Generation* (RAG) yang mampu menjawab pertanyaan pengguna berdasarkan isi notulensi.

Chatbot dengan *framework* LangChain memungkinkan sistem untuk bisa mengintegrasikan bahasa alami dengan basis data eksternal, sehingga proses pencarian informasi yang dilakukan dapat lebih cepat, akurat, dan efisien. Sistem dilengkapi fitur pencatatan, penampilan notulensi, ekspor hasil (TXT/PDF), rekap periodic (mingguan, bulanan, atau berdasarkan tanggal), pembaruan status audit site.

Penelitian ini mengimplementasikan chatbot notulensi berbasis LangChain dan RAG dengan dukungan PostgreSQL dan ekstensi pgvector untuk pencarian semantik yang relevan. Sistem dilengkapi antarmuka Gradio yang mudah digunakan serta fitur multi-user. Hasil pengujian dan implementasi menunjukkan seluruh fitur berjalan sesuai rancangan dan mampu meningkatkan efisiensi kerja tim audit, mempercepat pencarian data notulensi audit site, serta mendukung pembuatan laporan notulensi yang lebih terstruktur, cepat diakses, dan aman.

Kata kunci: Chatbot, Notulensi Audit, *Artificial Intelligence*, *Large Language Model* (LLM), *Retrieval-Augmented Generation* (RAG), LangChain, PostgreSQL, pgvector.

SUMMARY

IMPLEMENTATION OF A LANGCHAIN-BASED CHATBOT AND RETRIEVAL-AUGMENTED GENERATION (RAG) FOR SITE AUDIT MINUTES AT PT INDOSAT OOREDOO HUTCHISON GOMBEL

Tsania Laeli Ainurrohmah

The processing of audit site minutes in the company remains a challenge, particularly in recording, searching, and retrieving manually stored notes. At PT Indosat Ooredoo Hutchison Gombel, employees often face difficulties in finding audit site minutes, indicating the need for an artificial intelligence-based solution. One relevant innovation is a chatbot powered by a Large Language Model (LLM) and Retrieval-Augmented Generation (RAG), which can answer user queries based on the contents of the stored minutes.

The chatbot, developed using the LangChain framework, enables the integration of natural language with external databases, allowing the information retrieval process to be faster, more accurate, and efficient. The system includes features for recording and displaying minutes, exporting results (TXT/PDF), periodic recap (weekly, monthly, or by date), and updating audit site status.

This study implements a minutes chatbot based on LangChain and RAG, supported by PostgreSQL and the pgvector extension for relevant semantic search. The system also features a user-friendly Gradio interface and supports multi-user access. The test results show that all features functioned as designed and were able to improve the efficiency of the audit team's work, accelerate the retrieval of audit site minutes, and support the generation of structured, easily accessible, and secure audit reports.

Keywords: *Chatbot, Audit Minutes, Artificial Intelligence, Large Language Model (LLM), Retrieval-Augmented Generation (RAG), LangChain, PostgreSQL, pgvector.*