EnerGenius

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Company mentor: Ing. Erik Kajáti, PhD. , Ing. Martin Miškuf , PhD., Ing. Jozef Mocnej PhD.
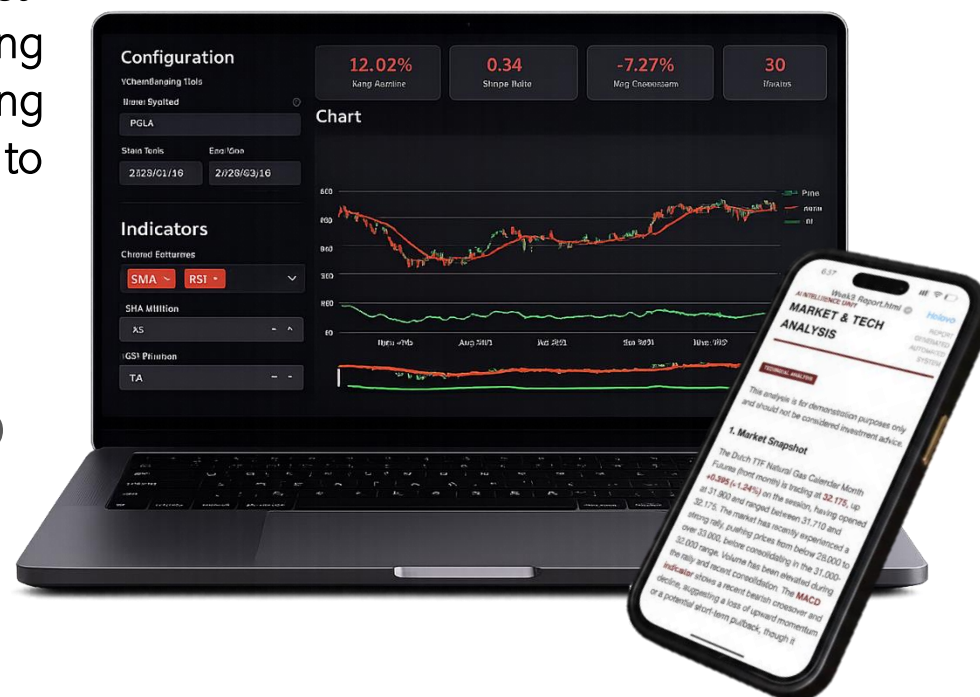University mentor: prof. Ing. Iveta Zolotová, CSc.

Market data is complex (many sources), fast-changing, and time-series based. Manual reporting is slow and inconsistent. Our automated reporting system uses RAG, indicators, and backtesting to generate standardized reports.

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Key Features

✓ Hybrid retrieval: BM25 + vectors
✓ Backtesting: custom functions
✓ Indicators: built-in signals
✓ Two-agent reporting: content → HTML

Solution Architecture

UI: Streamlit
Document processing: Docling
Embeddings: Nomic Embed
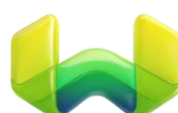**Vector DB:** Weaviate
Hybrid search: BM25 + Vector
Orchestration: LangChain
LLMs: Gemini (main) + local GPT-20B (optional)

How it's used?

1. select dataset/market
2. run indicators + backtesting
3. query knowledge through RAG search
4. generate a final report (text + HTML)

*The system demonstrates an automated reporting workflow enhanced with **RAG** (hybrid retrieval in Weaviate) **and LLM-based agents**. It improves the speed and consistency of analysis while producing shareable HTML outputs.*

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