



# AI-Powered Expert Advisor

Innovative Business Solutions with Large Language Models (LLMs)



# Product Definition

# Your Customer

Who are we serving?

- **Target customer:** Human technicians who work on production lines at manufacturing plants.
- **Demographic and behavioral characteristics:**
  - Users
    - Age: 20-60
  - Education
    - 85% High school
    - 35% Community college
  - Languages
    - English, Spanish, Cantonese, Mandarin, Urdu
  - Devices
    - 95% Mobile
    - 75% Computer
    - 25% Tablet

# The Problem

What user need are we addressing?

What is the user trying to do?	How do they currently do it?	What are the biggest problems with the current approach?
Configure production line	<ol style="list-style-type: none"><li>1. Manual database search for instructions and relevant part numbers</li><li>2. Configure machines manually</li></ol>	<ul style="list-style-type: none"><li>• Searches are time-consuming</li><li>• Robot setup requires high learning curve</li><li>• Instructions are English-only</li></ul>
Resolve technical issue	<ol style="list-style-type: none"><li>1. Escalate to company staff</li><li>2. Wait for further guidance</li></ol>	<ul style="list-style-type: none"><li>• Inefficient; staff may not always be available</li><li>• Risk of human error</li></ul>

# The Solution

How will we solve it?

- Describe your new product, and how an LLM will help
  - The AI-powered chatbot will enable a technician to source instructions for setting up the production line through conversational dialogue.
  - The chatbot will replace the manual database search process.
  - The following data sources will be required: database of robot configuration instructions, robot part numbers, FAQs, list of precautions.
  - Configuration instructions may be proprietary information; databases should be secure and protected from cybertheft.
  - Standard cloud-based connectivity is most appropriate given the chatbot's connectivity needs.
  - LLM will enable technicians to rapidly obtain machine configuration instructions and resolve complicated issues in the place of human supervisors.

# Risks

What could go wrong?

Potential risks, operational challenges, and mitigation strategies:

<b>Risk</b>	<b>Mitigation</b>
Faulty instructions or inadequate precautions	Use a robust and diverse training data to ensure that scenarios are captured comprehensively
Instructions that lack basic common sense	Use a high fidelity LLM model like ChatGPT 4, which is trained on 1T parameters
Hallucinating incorrect part numbers	Use a Retrieval Augmented Generation (RAG) vectorbase that provides additional context for part number lookup

# System Details

# System Attributes

What must our product do?

Job to be done for target user:

- Provide clear and comprehensive machine setup instructions

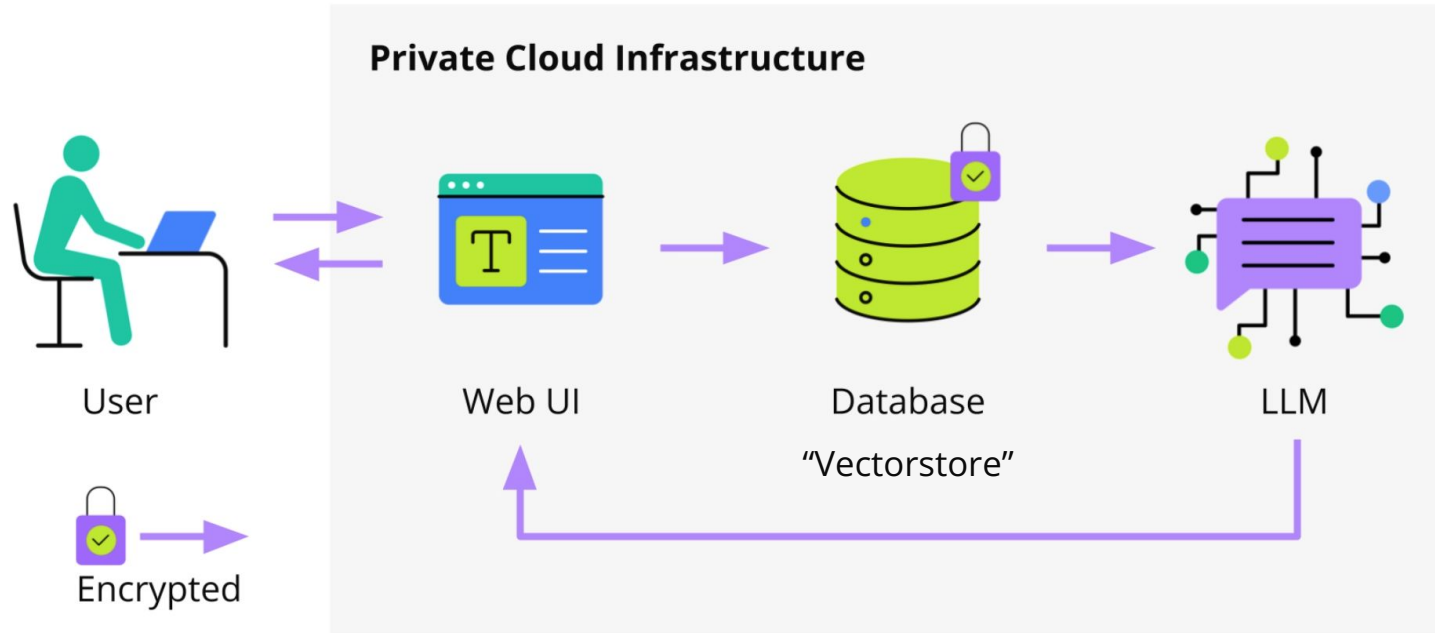
Secondary benefits of solution:

- Reduce time spent on database searches and technical resolutions
- Instructions can be provided in technician's native language, reducing the risk of misunderstanding or misinterpretation



# System Architecture

What type of AI system are we building?



# LLM Configuration

Which properties and settings do we recommend?

Property	Value	Rationale
License type	Commercial API (e.g., OpenAI GPT-4)	Proven, multilingual, easier to integrate and scale
Deployment type	Private cloud (e.g. Azure)	Balances security, scalability, and manageability

Setting	Value	Rationale
Temperature	0.2	Ensures deterministic, consistent responses. Lower creativity = fewer hallucinations.
Top K	20	Balances response quality with safety—prevents rare/unexpected outputs.

# Measurement

# Metrics

How will you know your product is successful?

Metric	Ideal value	Purpose
First Response Accuracy	$\geq 95\%$	Ensures the assistant provides correct and useful answers on the first try.
Task Resolution Rate	$\geq 90\%$	Measures how effectively the assistant helps users complete tasks without human escalation.
Hallucination Rate	$< 1\%$	Tracks the frequency of incorrect or fabricated responses (e.g., wrong part numbers).
Unsafe Instruction Incidents	0	Critical safety metric—tracks any response that could put technicians at risk.