COBOT-AI INTEGRATION

1. Introduction
Integration of an AI-powered chatbot to enhance interaction with the UR-E5 series robot. The entire setup, including the robot, chatbot, and supporting systems, will operate on a local network to ensure complete offline functionality during the expo.

2. Objective of the Demonstration
The goal is to develop a locally hosted AI-based chatbot that enables users to:
- Retrieve comprehensive information and documentation about the UR-E5 robot.
- Access and interact with real-time operational data from the robot.
- Perform data-driven analyses, including querying frames, viewing analytics

This solution is to enhance user engagement at the expo through a local infrastructure.

3. Scope of Work
Chatbot Development
- Develop a user-friendly chatbot interface capable of handling natural language queries related to the UR-E5 robot.
- Integrate the chatbot with backend systems to enable documentation retrieval and real-time data interaction.
- Ensure the chatbot operates entirely on a local network without reliance on external servers or cloud services.

Local LLM Integration
- Deploy a local Large Language Model (LLM) to power the chatbot's conversational capabilities.
- Load and fine-tune the LLM to handle domain-specific queries related to the UR-E5 robot and its data.
- Optimise the local setup to ensure low-latency responses and a seamless user experience during the expo.

Documentation Integration
- Gather all relevant UR-E5 robot documentation and organise it within a RAG (Retrieval-Augmented Generation) system.
- Store the documentation locally, ensuring the chatbot can access and retrieve information without internet connectivity.

Real-time Data Acquisition and Storage
- Set up a data pipeline to capture live operational data from the UR-E5 robot and route it to a local SQL database.
- Ensure real-time data synchronisation for immediate querying and analysis.

4. Expected Deliverables
- Fully operational chatbot with dual functionality: documentation retrieval and real-time data interaction.
- Locally hosted LLM integrated with the chatbot interface.
- Complete RAG backend system containing UR-E5 documentation.
- Real-time data acquisition pipeline feeding into a local SQL database.
- Stable local network infrastructure supporting the entire setup.