

# REQUEST FOR PROPOSAL (RFP)

Harris Ltd

## PROJECT OVERVIEW

Name: Tech Elizabethville Automation Retrofit  
Type: Automation Retrofit  
Location: Port Elizabethville, KS (Factory Complex)  
Industry: Manufacturing  
Value: \$16,063,011  
Complexity: 3/5  
Date: April 09, 2025  
Disciplines: Industrial Automation, Electrical Engineering, Mechanical Engineering  
Regulations: ASME Standards

## SCOPE OF WORK

### Scope of Work: Generic Automation Retrofit Project

**Project Goal:** To upgrade existing manufacturing processes within a factory complex through a targeted automation retrofit, improving efficiency, safety, and product quality. This project focuses on a specific production line (Line X) detailed in Appendix A.

#### 1. Industrial Automation:

\* **Task 1.1: PLC Programming and HMI Design:** Develop a new Programmable Logic Controller (PLC) program using Rockwell Automation's Logix5000 platform to control the automated processes on Line X. This includes programming all input/output (I/O) points, creating a user-friendly Human-Machine Interface (HMI) using FactoryTalk View SE, and integrating with existing SCADA systems. The HMI must incorporate alarm management and real-time process data visualization.

\* **Task 1.2: Robotic Integration and Programming:** Integrate and program two existing ABB IRB 120 six-axis robots for pick-and-place operations on Line X. This involves creating robot programs using RobotStudio software to precisely handle components weighing up to 5 kg, incorporating safety features such as speed and force limiting, and testing the integrated robotic cells to meet cycle time targets of under 10 seconds. All programming adheres to RIA safety standards.

\* **Task 1.3: Vision System Integration:** Integrate a Cognex In-Sight vision system to inspect components for defects during production. The system will be trained to identify defects within  $\pm 0.5\text{mm}$  tolerance using specific lighting conditions and algorithms defined in Appendix B. The system's outputs will trigger automatic rejection of faulty parts, and the integration will include necessary communication protocols (e.g., Ethernet/IP) with the PLC.

#### 2. Electrical Engineering:

\* **Task 2.1: Power Distribution System Upgrade:** Design and implement upgrades to the existing 480V power distribution system to accommodate increased power demands from new automation equipment on Line X. This includes specifying and installing new circuit breakers, cabling (using AWG 12-10 copper), and conduit within the existing infrastructure (subject to Appendix C site constraints). All work will be completed in accordance with NFPA 70 (National Electrical Code).

\* **Task 2.2: Safety System Design and Implementation:** Design and implement a safety system conforming to ANSI/RIA R15.06 for the entire Line X automation. This will include the specification and installation of emergency stop buttons, light curtains, safety relays (PILZ PNOZmulti 2), and interlocks throughout the system, ensuring all safety functions comply with risk assessments documented in Appendix D. System testing will be documented with safety audit reports.

#### 3. Mechanical Engineering:

\* **Task 3.1: Machine Guarding and Safety Modifications:** Design and install appropriate machine guarding (steel and acrylic) around existing machinery and automated equipment on Line X, conforming to OSHA and ANSI B11 standards. This will include risk assessments for each machine and detailed 2D drawings for fabrication and installation. The guarding must provide adequate protection while minimizing interference with operation.

\* **Task 3.2: Conveyor System Integration:** Integrate a new 10-meter long roller conveyor system (30cm wide) into Line X to transport components between work stations. This will include the design, fabrication, and installation of the conveyor using standardized components and adhering to ASME BTH-1 standards. The conveyor will require precise speed control (0-1 m/s adjustable) and integrated sensors for component detection.

#### Cross-Disciplinary Tasks:

\* **Task 4.1: System Integration and Testing:** All disciplines will collaborate to ensure seamless integration between the PLC, HMI, robots, vision system, safety system, power distribution, and mechanical components. This will include a comprehensive system test plan covering all functional aspects of Line X. The final test results will be documented in a comprehensive test report.

\* **Task 4.2: Documentation and Handover:** All disciplines will collaborate to create complete as-built drawings, operating manuals, and training materials for the upgraded Line X. This ensures smooth operation and maintenance after project completion, including detailed schematics, programming documentation, and maintenance logs.

Complexity Impact Note: The complexity rating of 3/5 reflects the integration of multiple systems and the need for careful coordination between different disciplines.

REQUEST FOR QUOTATION

Request for Quotation: Tech Elizabethville Automation Retrofit

Project: Tech Elizabethville Automation Retrofit, Port Elizabethville, KS

Industry: Manufacturing

Date: April 09, 2025

Due Date: May 19, 2025

Project Goal: Upgrade Line X's manufacturing processes via automation retrofit, improving efficiency, safety, and product quality. Details in Appendix A-D (available upon request).

Scope of Work: A comprehensive automation retrofit of Line X encompassing:

- \* Industrial Automation: PLC programming (Logix5000, FactoryTalk View SE), ABB IRB 120 robot integration & programming (RobotStudio), Cognex In-Sight vision system integration.
- \* Electrical Engineering: 480V power distribution upgrade (NFPA 70 compliance), safety system design & implementation (ANSI/RIA R15.06, PILZ PNOZmulti 2).
- \* Mechanical Engineering: Machine guarding (OSHA, ANSI B11), 10-meter roller conveyor system integration (ASME BTH-1).
- \* Cross-Disciplinary: System integration & testing, comprehensive documentation & handover.

Qualifications: Minimum 3 years' experience in manufacturing automation projects, proven regulatory compliance (NFPA 70, ANSI/RIA R15.06, OSHA, ANSI B11).

Proposal Requirements: 1-2 page technical design, detailed cost breakdown.

Evaluation Criteria: Technical Approach (50%), Cost (30%), Experience (20%).

Project Timeline:

- \* RFQ Release: April 09, 2025
- \* Questions Due: May 06, 2025
- \* Proposals Due: May 19, 2025
- \* Project Start: April 29, 2025
- \* Project Duration: 6 months

Contract Type: Time & Materials

Contact: procurement@manufacturing.com

Complexity: 3/5

CONTACT

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TIMELINE

Include key dates such as submission deadlines, inquiry deadlines, and project start dates.