ITC Project with Advanced Finishing USA

Spring 2025

Organization Overview:

Advanced Finishing USA (AFUSA) is a family-owned custom powder coating and finishing company headquartered in Fairview, Pennsylvania, established in 1970. The company has evolved into a regional and national leader in industrial surface treatments, serving diverse industries from aerospace and military to architectural and medical sectors. AFUSA operates from an 80,000-square-foot facility equipped with automated conveyor systems and specialized coating capabilities, handling components ranging from small 1-inch parts to massive 35-foot structures. With annual revenue between $5-6 million and a workforce that scales from 18-100 employees based on demand, AFUSA maintains a commitment to innovation while preserving its family-owned values and community engagement. Under President Jeff Swanson's experienced leadership of over 13 years, the company is actively pursuing digital modernization initiatives to maintain its position as "the most advanced finisher" in North America.

Project Description and Goals:

- Analyze AFUSA's current manual quoting and estimating process, which relies on spreadsheet-based data entry requiring technicians to input numerous specifications including metal type, finish type, part dimensions, pre-treatment status, masking requirements, and other variables.
- Design a user-friendly conversational interface that accommodates the skill level and work environment of production-oriented staff, primarily high school graduates working in manufacturing roles.
- Develop technical specifications for an AI-powered voice-activated quoting system that guides users through specification requirements via spoken prompts and voice responses.
- Create business process optimization recommendations to streamline the quoting workflow and reduce bottlenecks currently affecting two key estimating personnel.
- Design pricing logic integration that accounts for volume-based pricing strategies, distinguishing between ballpark quotes for initial customer inquiries and formal quotes for contract negotiations.
- Develop a comprehensive implementation roadmap that addresses both technical deployment and change management requirements for successful adoption.
- Create training materials and support documentation tailored for non-technical users to ensure smooth transition from current spreadsheet-based system.
- Establish performance metrics to measure time savings, error reduction, and overall efficiency improvements in the quoting process.

- Provide proof-of-concept development and testing framework to validate the voice interface functionality and user experience design.

Project Participants:

This interdisciplinary project will involve 2 students working collaboratively:

- 1 Business student with focus on business process analysis, requirements gathering, and change management strategy
- 1 Engineering student with focus on AI/voice technology implementation, application development, and system integration

Both students will have access to premium AI development tools and will coordinate closely throughout the project to ensure seamless integration of business requirements with technical capabilities.

Project Timeline:

Default timeline is 1 semester (Spring 2025)

Project Outcome:

A successful solution will provide Advanced Finishing USA with:

1. A comprehensive analysis of current quoting process inefficiencies and optimization opportunities.
2. Detailed technical specifications for an AI-powered voice-activated quoting system tailored to their specific workflow and user requirements.
3. A functional proof-of-concept application demonstrating voice interface capabilities and conversational quote generation flow.
4. Business process recommendations for integrating the new system with existing operations and pricing strategies.
5. A detailed implementation roadmap including technical deployment phases, staff training requirements, and change management strategies.
6. User documentation and training materials designed for production-oriented staff with varying technical skill levels.
7. Performance measurement framework with key metrics for evaluating system effectiveness and ROI.
8. Risk assessment and mitigation strategies for technology adoption in a manufacturing environment.
9. Integration planning for connecting the voice system with existing spreadsheet workflows or future ERP systems.
10. Scalability analysis for potential expansion to other business processes within AFUSA's operations.

Out of Scope Items:

- Full production deployment of the AI voice system (project will deliver proof-of-concept and implementation roadmap)
- Integration with proprietary coating formulation databases or confidential pricing information
- Hardware procurement or installation of voice recognition equipment
- Ongoing technical support or system maintenance after project completion
- Training delivery to AFUSA staff (project will provide training materials and recommendations)
- Modification of existing ERP or accounting systems beyond integration planning
- Development of mobile applications or advanced user interfaces beyond the core voice functionality
- Creation of customer-facing quotation systems or external API integrations

Donation Amount:

[To be filled]

Terms of Payment:

[To be filled]

Client Signature:

DATE:
