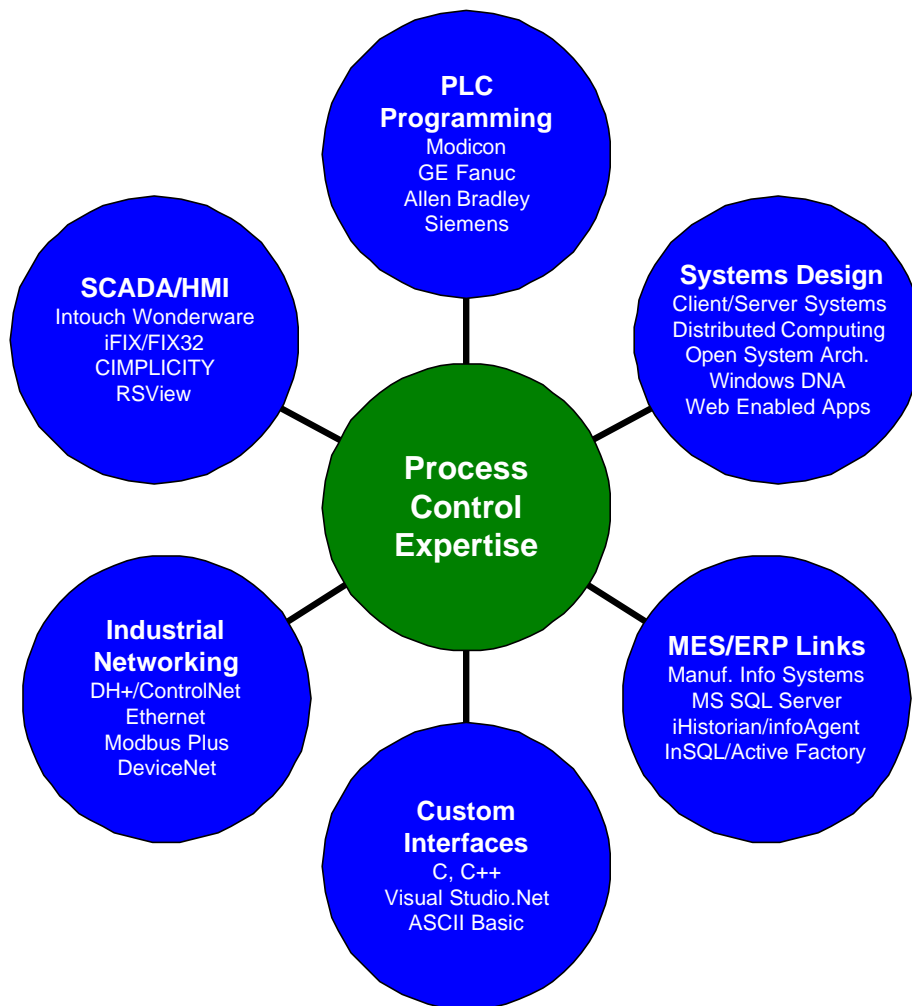




E-Merge Systems, Inc. is an industrial automation solutions provider. We work with customers to optimize system performance through innovative engineering. With many years of combined experience in specifying, designing and implementing industrial automation systems for a wide variety of industries, a key advantage of E-Merge is our ability to provide leadership and technical support for all project phases from conception through startup. The diversity of our skills in the area of process controls is illustrated in the diagram below.



Our Experience Covers the Following Industries:

- **Water/Wastewater - Utilities, Semiconductors, Chemicals, Food Processing, Beverage**
- **Material handling - Conveyors, Pick and Place, Bottling, Case Packaging**
- **Blending/mixing - Tobacco, Textiles, Ink**
- **Corrugation/Printing/Registration**
- **Extrusion - Plastic, Aluminum**
- **Web handling - Film (Plastic and Metal), Paper**
- **Wire - Coating, Twisting, Winding**

Representative Project Summaries:

- Modified and upgraded control systems for two packaging lines running a variety of container shapes and sizes. Various juice products bottled include brand name consumer juice drinks that are widely available on grocery store shelves. Included both bottle and case conveying systems. Supplied 5 new control panels controlling 120+ motors (70+ on VFD's). VFD's on DeviceNet. Integrated 12 new machines, 5 zero pressure combiners for both empty and full bottles (round and non-round) and 4 headspace sterilizers. Also developed controls for 2 innovative laning devices. Results included:
 - Increased line speeds for existing products.
 - Line speed for irregular shaped container more than double that of other lines in the country running same container.
 - Drastic reduction of operator intervention at bottle combiners.
- Implemented a data logging system to monitor chemical effluent discharge for EPA compliance purposes. System utilizes an Allen-Bradley SLC500 PLC and a PC. The PC serves as both the real-time operator interface through InTouch Wonderware and the repository for raw data. Reporting tools using Microsoft Access were developed to automate post-processing of the raw data. Complex data reduction and averaging routines were developed. System generates over twenty reports.
- Reversed engineered monitor and control functions for Solids Handling at a Water Treatment Plant. System has an existing Modicon 984-385 and a Modicon Panel Mate Plus that serves as an Operator Interface for the PLC. Implemented closed loop PID controls and automatic pump start/stop alternation logic. *Improved operational efficiency from 50% to 80%.*
- Assisted in the implementation of a motion control system for high-speed case packaging gantry robot using PLCs, variable frequency drives and servos. Provided programming and startup services. Systems included AB PLC SLC504, AB 1305 VFDs, AB 1394 Servo Controller, AB PanelView 600C, AB R I/O, DH+, RS Logix 500.
- Implementation of an InTouch based SCADA application for a Water Treatment facility. Two redundant InTouch workstations are networked with 30 Modicon PLCs over a Modbus Plus network. Processes monitored/controlled by the system include influent pumps, filters, backwash systems, and chemical feed pumps. The system has over 3500 real-world I/O points. Reporting is performed using *web-enabled* application with MS SQL Server as backend.
- Engineered a radio telemetry system for a mining application. Performed radio site survey. Coordinated with FCC to obtain relevant radio broadcast licenses. The system consists of master radios (450 MHz – licensed) that communicate with a mining unit and several booster stations. System consists of Modicon Quantum PLCs, MDS and MIRI radios, InTouch Wonderware and trending through InSQL/ActiveFactory.

Pictures of some of our projects:

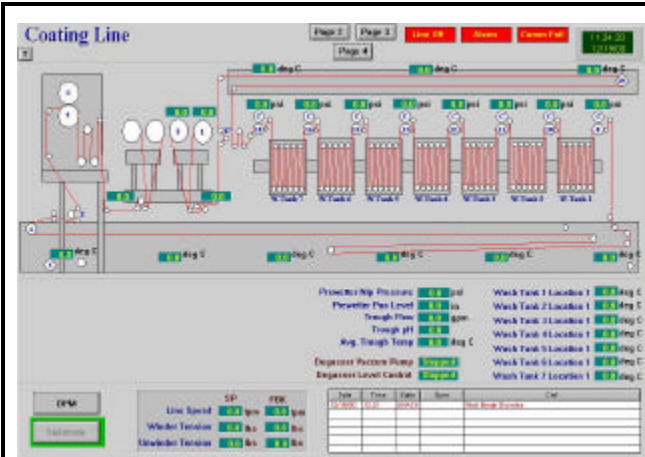


Figure 1 - Coating Line SCADA System



Figure 2 - Automated Seat Tester



Figure 3 - High Speed Bottling Line



Figure 4 - PLC Control Panel



Figure 5 - Large VFD Drive Panel



Figure 6 - PLC Based Control System