



***RECENT RESULTS ENGINEERING
EXPERIENCE IN
INDUSTRIAL NETWORKING AND DATABASE MANAGEMENT***

Project: **Network Database Design and Documentation Project**

Engineering: Required complete field survey of facility fiber-optic and copper network infrastructure. Survey information was entered into a Results Engineering designed Microsoft SQL Server database. Microsoft Access was used as a data entry utility and a full-featured Microsoft Visual Basic graphic operator interface was provided. ADO controls, objects, and structures were used to integrate the database into the VB interface.

Equipment: Facility included 25 fiber network closet locations and more than 3000 Cat_5E drops. Surveyed equipment typically included Cisco 2900 Series switches, Cisco Routers, Process Control network interfaces, and network-based safety systems.

Location: Bucksport, Maine

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Project: **Process Control Network**

Engineering: Project involved the design and commissioning of a multi-switch fabric with associated VLAN's and subnet routing. Design included fiber-optic network layout and specification, design of switch cabinets, coordination of multiple VLAN structures for logical security, and management of routing services between business systems and the process network. Network documentation included active development of a customer designed SQL database, contractor installation specifications, implementation of a formal test plan, and installation testing reports.

Equipment: Network equipment included Baystack 450 switches, APC UPS systems, and a Nortel Passport 8600 Enterprise Switch/Router..

Location: Hinckley, Maine

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Project: **Data Collection with SQLServer, RSSQL, and RSHistorian reporting**

Engineering: Project involved collection of quality and production data on a fully automated assembly system. Quantitative results from test stations as well as assembly success/failure were collected from 17 stations, stored in SQLServer and reports generated by RSHistorian. RFID tags were utilized to communicate pass/fail data to collection mechanism.

Equipment: Rockwell Automation SLC500 family processors, Omron RFID tags, Dell Computers running stated Rockwell software

Location: Portland, Maine

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Project: **Shipping/Inventory control**

Engineering: Project involved design full control system to handle conveying, sorting and inventory checking on a packing line. Boxes of goods with bar coded labels were scanned at 160 ft/min, the lot/part number received was collected by a PC running custom C code, checked against inventory database in offsite mainframe for duplication (i.e. already been scanned) and for destination. Result was available within 10 msec to allow boxes to be sorted into the correct shipping lanes, the first of which was located within 4 feet of the scanner.

Equipment: Rockwell Automation SLC-5/05 Ethernet family processors, Accusort and Symbol Bar code scanners, Dell computers running custom C application to communicate with mainframe.

Location: Biddeford, Maine

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Project: **Production Reporting System**

Engineering: A system was developed to integrate with existing DH+ and Ethernet networks. Required interfacing to a number of Allen-Bradley PLC processors. Software development included routines for accumulating and communicating production run quantities, a number of quality points as well as timeclock information. The gateway processor is connected through Ethernet to a Visual Basic/Access application that provides archiving and reporting of collected data. Client has requested proposal to expand the system and move to a full featured database, such as SQLServer or possibly directly to their new ERP system.

Equipment: Allen-Bradley PLC & SLC programmable controllers, Allen-Bradley DH+ network, and Ethernet. Software included custom data routines in the PLC's, RS Linx, RS Data, and Microsoft Visual Basic and VBA within Access

Location: Auburn, Maine

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Project: **Production Reporting System**

Engineering: System was designed to provide a full accounting of all product produced in a modern tissue converting facility. Required interfacing a network of bar code scanners with Allen-Bradley PLC-5 processors. Software development included routines for accumulating and communicating production counts to a common data gateway processor. The gateway processor is connected through Ethernet to a Visual Basic application that provides archiving and reporting of collected data.

Equipment: Allen-Bradley PLC-5/20E programmable controllers, Accusort Adapta-Scan bar code readers, Allen-Bradley DH+ network, and Ethernet of Fiber. Software included custom data routines in the PLC's, RS Linx, RS Data, and Microsoft Visual Basic.

Location: Old Town, Maine

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Project: **Process Control Network Design**

Engineering: Project involved design of a multi-layer industrial network. Included factory floor upgrades of 230KB DH+, Ethernet PLC subnet design, maintenance terminal interfaces, and a wireless Ethernet network for OSI/PI integration. All networks were commissioned, tested, and documented. Network design included new fiber-optic segments, switch cabinet layout, and Cat_5E distribution.

Equipment: Rockwell Automation PLC-5 Ethernet family processors, Nortel Baystack 450 network switches, Cisco routers, APC UPS systems, and Cisco 1200 wireless access points.

Location: Old Town, Maine

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