

Projects and Responsibilities, Michael C Castle

Texas Instruments (1979-1980)

Houston, TX

- 1) Component level repair of terminal and printer PCB's using both ATS and hot mock-up testers.
- 2) Test, trouble-shooting, and re-programming of TI Bubble Memory Modules.

Texas Instruments (1980-1989)

Dallas, TX

- 1) Programming Ditmaco/Omni-Tester wire scanners.
- 2) Created FORTRAN program to create Omni-Tester programs from wire lists.
- 3) Programmed Fairchild FaultFinder (in-circuit tester).
- 4) Programmed ATS-960 (Automatic Test System powered by TI 960B computer).
- 5) Created programs and procedures to store and retrieve test programs from master database instead of using card decks for program storage.
- 6) Wrote device drivers for custom (in-house) instruments including DMM, Waveform Analyzer, and Function Generator.
- 7) Wrote device drivers for purchased instruments using GPIB communications format.
- 8) Wrote program interface to control instruments from (6 & 7) via ATLAS/990 (A Test Language for All Systems).
- 9) Designed and implemented new BIOS for TI TMS99000 uP. Included FDD, HDD, and Serial Link down-loader.
- 10) Assisted SCM (Software Configuration Management) by writing FORTRAN programs to archive and compare test program versions.
- 11) Wrote CPU interface/simulator to test Tow2 Missile Guidance System CPU modules
- 12) Designed and implemented F18 Laser Guidance Test Station interface. System involved 4 micro computers, one Master, and one each for Pitch, Roll, and Yaw input signals.

Note: Left Texas in 1989 to deal with illness/death in family

SSC Baking Co. (1992-1995)

Youngstown, OH

- 1) Cleaned up boiler system and lowered energy costs by adding steam return lines (all unused steam was previously lost).
- 2) Designed and implemented new burner control system for traveler oven. Oven had 4 burners which previously had no common control).
- 3) Upgraded and replaced many analog/pneumatic controls with digital controls and/or PID controllers.
- 4) Managed all out-source maintenance labor.
- 5) Responsible for day to day operation and maintenance of all equipment.

Youngstown Electric Service (1995-1996)

Youngstown, OH

- 1) Performed field service on all forms of factory equipment including Extrusion Presses, lighting, machine tools, paint lines, and others.
- 2) Programmed Allen Bradley PLC's.
- 3) Repaired DC motor drives and other electronics.
- 4) Repaired and rebuilt AC and DC motors when not in the field.

EASCO Aluminum (1996-1998)

Dolton, IL

- 1) Performed preventive and emergency maintenance as required.
- 2) Added digital length and flow meters and interface to Wagstaff continuous caster.
- 3) Upgraded Extrusion Press PLC program (AB PLC5) to reduce cycle "dead-time" (time needed to load a new billet into the machine for it's next operation). Increased production by 9%.
- 4) Upgraded Homogenizing Oven controller to annunciate alarms, try to over-ride faults, and allow the cycle to continue to run (Modicon 984).
- 5) Taught basic PLC programming for other maintenance personnel.

Avtron Manufacturing, Inc (1998-2005)

Independence, OH

- 1) Performed field service and start-ups on all forms of factory automation including the paper, mining, rubber, and steel industries.
- 2) Setup, installed, and tested DC and AC motor drives (ADD-32, Unico, ABB, and GE).
- 3) Setup, installed, and tested RS485 serial links for automation systems.
- 4) Setup, installed, and tested 802.4 (token-ring) communication networks for automation systems.
- 5) Setup, installed, and tested 802.3 (Ethernet) communication networks for automation systems including switches and routers.
- 6) Designed PLC and HMI systems for Fabric Calendars for Michelin Tuscaloosa and Fort Wayne. Allen Bradley PLC's, Honeywell DCS, CTC and Allen Bradley HMI panels.
- 7) Setup, installed, and tested digital controls to replace analog controls and MG sets for draglines and electric shovels for the mining industry.
- 8) Assisted with analysis and design of system upgrade for Wheeling Pitt Steel Allenport pickle line: replaced existing MG sets with digital drive controllers. Setup, installed, and tested DC motor calibration and configuration, wrote and debugged PLC and HMI software (2 GE 90/70 PLC's, 2 Allen Bradley SLC500's, 2 GE PanelViews).
- 9) Designed and implemented system to monitor the fume scrubber system (EPA compliance) using GE Cimplicity HMI and Microsoft SQL Server to store and analyze data.
- 10) Avtron Performance View: Did initial design and testing of system using GE Cimplicity HMI and Microsoft SQL Server to "snap-shot" system data. This design failed due to the inability of GE/MS to accurately record data at the desired intervals (target was 1 sample every 100 mSec).
- 11) Avtron Performance View: Did final design and testing of system using Vista Controls VSystems running under a custom Linux kernel. This combination recorded data with out fail every 10 mSec for up to 2000 monitored inputs, with data being stored for 30 days.
- 12) Replaced GE Series Six Controller with Modicon Quantum PLC for Georgia Pacific Paper. PLC assumed control of motor drive inputs, outputs, and speed control for 16 sections. Also added up-link to plant DCS system.
- 13) Designed, tested, and installed software to simulate a Jet Engine (basically a dynamometer) for Smith's Aerospace. ADD32 drive to supply the load, CTC smart HMI to control the operator interface via Modicon TCP/IP.
- 14) Assisted with testing and development of Modicon TCP/IP and GE Fanuc Ethernet EGD communications protocols for ADD32 drives.

Castle Engineering Services, LLC (2005-Present)

Parma, OH

- 1) Smith's Aerospace, Dayton: Produced an upgraded Jet Engine test stand adding Ethernet EGD communications, graphic displays, data storage and retrieval, and improved testing. Installed SW on several machines. Rights to this program sold to Avtron Manufacturing in 2009 for use at Boeing Aerospace.
- 2) Westinghouse Specialty Metals, Blairsville, PA: Designed, tested, and installed PLC and HMI software to control 2 cold pilgering mills. GE Fanuc PacSystem PLC, VesaPro logic modules, GE PanelMate HMI(s), ADD32 motor drives for DC motors, and GE servo-motors to replace pneumatics.
- 3) Stora Enso Paper, Port Hawksbury, Nova Scotia: Designed PLC and HMI programs for paper slitter. Allen Bradley PLC5/80 and Control Logix PLC's, RSView32 for HMI's.
- 4) US Steel, Bradock, PA: Updated PLC programs to interface with Avtron Performance View, installed Performance View system on 2 furnaces. Furnace 1- redundant ControlLogix PLC, redundant PLC5/80's, 2 redundant PLC5/20's. Furnace 3- redundant GE 90/70 PLC.
- 5) Smurfit-Kappa Paper, Maracay, VE: Replaced serial link communication network with Ethernet TCP/IP, replaced old OIT with new AB PanelView (note- screens done in Spanish. Reliance AutoMax PLC.