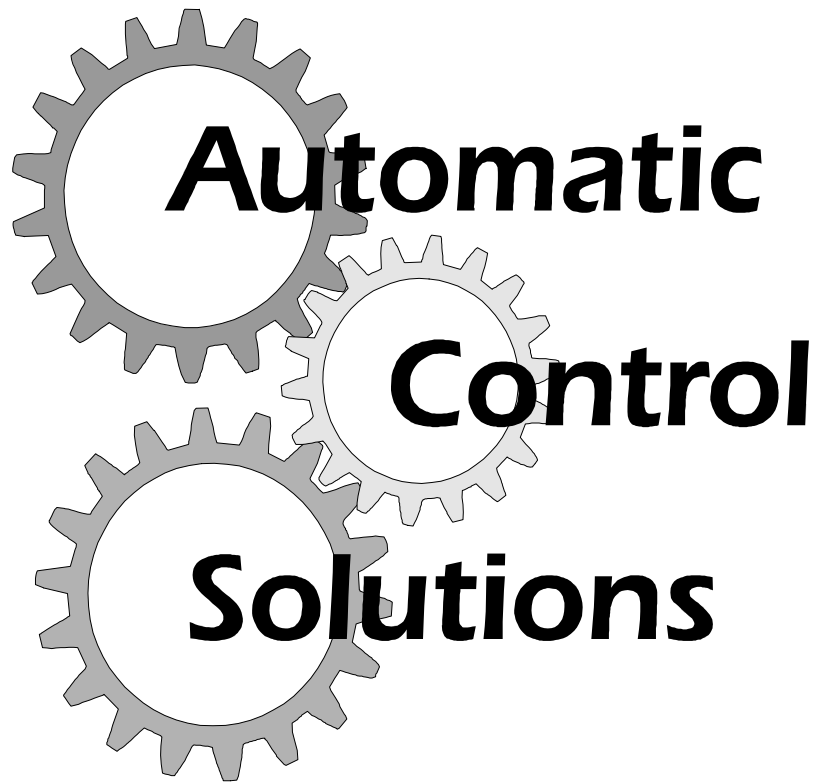


*STATEMENT
OF
CAPABILITIES
AND
PROJECT MANAGEMENT*



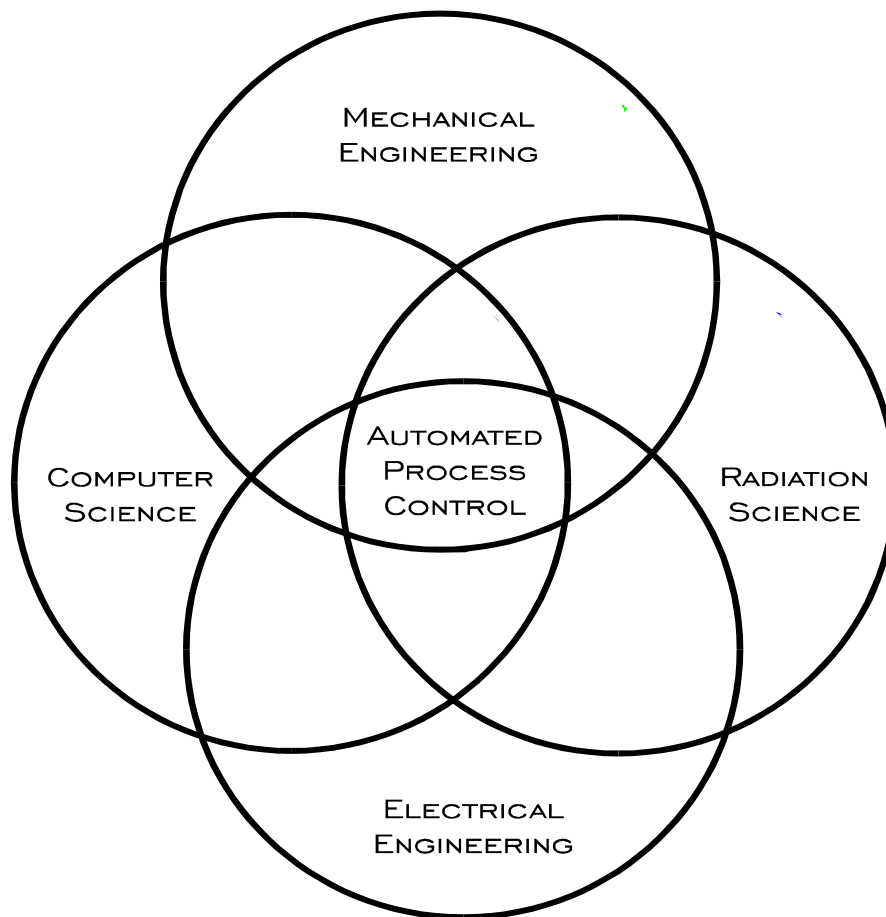
Phone (770) 888-8112 or (770) 888-8113 Fax
<http://www.acsincorp.com>

Capabilities

Automatic Control Solutions is a new class of company dedicated to providing multi-disciplinary expertise for today's high technology clients. Modern business melds facets from many sciences into complex systems. Automatic Control Solutions (ACS) was formed to handle these kinds of problems. Whether you are doing basic research, building a prototype, or bringing new systems on-line, ACS has the talent you need.

ACS can hand pick a team to solve almost any technical difficulty. All of our personnel have experience in many fields. ACS is a small business, motivated to keeping our customers happy. What this means to the clients is exceptional value. Value derived from smart people, low overhead, and effective management.

Customer satisfaction is our highest goal; therefore, we realize that without our clients Automatic Control Solutions cannot exist. Unlike larger firms with bundles of bureaucracy, Automatic Control Solutions takes a refreshing customer oriented approach. You ask for it... we deliver. It is that simple. The way we believe business should be conducted.



As seen in the diagram we concentrate on four main disciplines. All our seasoned professionals have hands-on experience in their field. However, since all of our people are multi-disciplined, we excel where other companies fail. Automatic Control Solutions can provide the same high quality consulting, training, and software development that other firms do, but the area where we *really*



outshine the competition is when systems comprise aspects of mechanization, electronics, and computer hardware and software. We design, build, and implement automated systems for custom applications.

Experience in government and industry; Breadth of knowledge; Customer responsiveness. Let the wealth of experience of Automatic Control Solutions help your company. You will be surprised by our competitive prices, satisfied with our knowledge, and pleased with the quality and results you receive!

In today's demanding business environment, Automatic Control Solutions can be your strategic weapon to find solutions to difficult problems with low cost, high quality work. Take a look at what we have done for clients, and then give us a call. ACS can also be contacted on the World Wide Web at

<http://www.acsincorp.com/>

Project Management

ACS will use proven internal project management methodology coupled with customer objectives for project execution and control. An experienced Project Manager will serve as the point of interface on all Project matters providing optimum communication and convenience to project personnel.

The ACS Project Manager will be responsible for coordinating all elements of the project including, but not limited to, administration, resource scheduling and assuring all deliverables are met in a satisfactory manner.

Project reporting will originate from the Project Manager. Progress reports will be provided on an agreed upon schedule during the Project. The reports will address the status of the project development against milestones as defined in the project schedule.

Project Management tasks include the following:

- **Maintain Communications with Customer Project Manager for each project phase**
- **Prepare Project Schedules and Plans**
- **Manage ACS Project Team Activities**
- **Coordinate all Documentation Preparation and Approval Activities**
- **Ensure Compliance with Customer and ACS policies and procedures**
- **Track Project Progress**
- **Provide Progress Reports to Customer Project Manager**
- **Ensure and Maintain Customer Satisfaction**

It is this whole commitment, vision and attention to detail in every project that ACS undertakes that keeps our clients satisfied and coming back for future needs.

Below gives a brief outline of some of the products, systems and services that ACS can provide. In addition, please find listed a few of the past projects ACS has completed for the clients listed at the end of this document.



PRODUCT OVERVIEW

Systems

Linear Motion Tables
Custom CNC Table Configurations
Multiple axis motion systems
Specialty Machined Products
Prototype systems
Drive systems, sensor based systems
Plant Control and Safety Systems
Industrial non-destructive testing equipment and services
Custom quality monitoring systems
Ozone Monitoring Control Software
Environmental monitoring and control systems
Custom Beam Calibrators and Irradiators
Irradiation Systems
Low Scatter Neutron Calibration Facilities
Pneumatic Transfer Systems
Laboratory Safety Interlock Systems
X-Ray Systems for Calibration Facilities
Touch Screen Operated Computer Controllers
Waste Water Remediation Control Systems
Custom - Distributive Control Systems
Supervisory Control and Data Acquisition Systems
Human Machine Interfaces
Video surveillance and Video Control interfaces

Computers & Software

DOS, OS/2, Windows, Novell NetWare, and Windows NT systems
Custom C/C++, and Visual Basic (**ADO, DAO, SQL**) Programming
ORACLE and ACCESS Database Design and Implementation
Verification and Validation
Instrument Tracking and History Software
OEM for Pentium based processor control systems
Industrial Rack Mount Computer Control Systems (Touch Screen)
Computer Peripheral Devices and products (e.g., printers, software, UPS's, etc.)
Computer network systems (**custom configurations and implementation**)
Network connectivity (**design and implementation**)
On site service and repair work (**computer systems and components**)

Consulting

Mechanical Engineering and Design
Electrical Engineering and Design
Prototype engineering and fabrication
Plant automation (**floor machines and office**)
Plant/ Facility Design and Planning



REPRESENTATIVE PROJECT EXPERIENCE

Environmental Chamber Supervisory Control and Data Acquisition System.

This system was designed for an indoor air quality firm that provides product emissions testing using environmental chamber technology. This state of the art system uses computer controller based object oriented software to capture, in real time, interior and exterior environmental conditions of pressure, air temperature, relative humidity, and airflow. This data is used to analyze product emissions of chemicals as the chamber reproduces the conditions of the environment the product is used in. As the control software is capturing all of this information it is simultaneously reacting to these conditions to achieve constant user prescribed conditions in the chamber. The system uses a series of heat exchangers; water chillers, airflow dampening devices and pressure transducers to achieve the user defined conditions to a tolerance of 1-3%. This control system provides complete data logging and reporting of events, tests and procedure that are taking place. The system is designed to allow for the electronics to be automatically calibrated at prescribed intervals so the system can hold the tight tolerances and react to components that are faulting or wearing due to age.

GUI interface and communication package for a centralized HVAC Controller

Using Visual Basic 6.0, a GUI interface and high level communication package was developed to interface with an existing 68HC16 micro controller. The micro controller was developed in C++, to control the operation of HVAC in large industrial environments. The GUI environment was designed to allow for 3-D graphing of the information captured from the micro controller, report generating and to facilitate precise communication with the Access 2000 database. This database is tapped through VB by use of dynamic SQL calls to extract needed information about a particular controller and or update specific information in the database. The SQL software has to be dynamic as to facilitate multiple interfaces with various versions of hardware and or system configurations. The graphing was carried out by use of a third party graphing package, by TeeMach, interface into VB and reporting is carried out through use of the VB report-generating engine. The communication portion of the software allows for many types of communication, based on the type of controller that is being interfaced. The main type of communication is a proprietary protocol developed by Johnson Controls and the other communications are carried out via RS-232, 488, 422, Modem, LAN and WAN environments.

Linear Motion Control

A multi-axis (X, Y, Z, and rotational) motion system was designed and developed by ACS for use in a production laboratory. This system is designed around AC Servo drive motors and optical encoders with closed loop control to achieve resolutions of at least $\pm 0.5\text{mm}$ of linear movement, and ± 0.5 degrees of rotational movement. The system is designed in "clonable" one-meter sections and can be completely assembled by the customer if needed.



[Pneumatic Neutron Source Transfer Systems](#)

ACS developed a rapid air delivery system for radioactive sources, to be used in calibration laboratories. Fail safe design with cost effective construction. Employs pneumatic valves that are electromechanically actuated to drive a radioactive rabbit from one location to another, through tygon tubing. There are nine sources that can be transferred to any one of four destinations, which are selected by adjusting the diverter valve. This diverter valve is controlled by a stepper motor and optical encoder positioning system that is governed by the controller software. The transfer is monitored by optoelectric sensors that pass data through fiber optic leads to the central controller. Information to where the rabbit is with respect to the flight path and a close loop analysis of the operation is monitored via the central controller.

[Pneumatic Source Transfer Systems](#)

A pneumatically driven radiation source transfer system was developed and produced for the Department of Energy of the United States. This system employed latest technology in servo motor positioning and optoelectric position monitoring within a radiation source transportation system. The system performs precise positioning of nuclear sources to remote locations for use in calibration of radiation measurement instruments and personal dosimeter devices. The system was implemented along with a 16 axis linear and rotational positioning system that achieves 100% repeatable results and an accuracy of +/-0.5mm of movement within the radiation field.

[Client Server Development with ORACLE, VISUAL BASIC, and Windows NT](#)

In conjunction with a gasoline retailer, ACS helped develop and implement an automated logistics system for purchasing fuel at the lowest price, dispatching new loads, pricing the product, and analyzing sales. This project involved sophisticated integer-programming routines and involved the development of a corporate data model in ORACLE for the Visual Basic programs and implemented the ideas. It also involved using Windows NT in a LAN and WAN environment.

[Ground Water Remediation System](#)

Designed and developed a ground water remediation system that extracts contaminated ground water from 10 distributed wells around a chemical production facility (Osiose Wood Preserving, Inc.). The system is designed to extract water at given intervals and for any combinations of well configurations to a chemical holding tank. This system is the first stage of a chemical extraction process that is used to pressure impregnates the chemical into lumber. The system monitors ground water flow, current flow rates, volume, pump activation times and traps hardware failures 24hrs a day, 7 days a week 365 days a year. This data is displayed through a database interface and can be exported to excel for manipulation. This is the first system designed specifically for real-time management and complete control of ground water extraction. The system is designed around a Pentium class computer controller that uses direct memory accessing to monitor and control optically isolated input and output points. The control system traps data and controls the wells from up to a distance of ¼ of a mile from the controller. The total system is a stand-alone operation and can be accessed via modem from anywhere around the world for monitoring and downloading of data and/or changing system operation characteristics.



[Quality Control Based Gauging Systems](#)

Working with the copier industry, ACS helped develop a continuous statistical process control check of deviations in cylindrical drums. The check will hold tolerances of 0.0001", and stop deviations from acceptable standards at an early stage. To meet the tolerances needed linear variable differential transformers are used in conjunction with statistical analysis software to analyze the product. After the analysis, the software passes information to the appropriate I/O concerning pass or fail criteria. The overall process will reduce scrap and rework cost considerably.

[Detail Cost Pricing System and Network Enhancement](#)

Automated a pricing system that priced products based on competition, and to monitor sales and pricing histories. The system was implemented on a corporate level for processing individual outlet stores and implements rule based pricing for an individual store or geographical area. Additionally, a Pentium based Windows NT network system was created by ACS to enhance throughput of data and decrease system maintenance on the server and the network.

[Automated Beta Irradiator](#)

A state-of-the-art irradiator and motion controller was developed for a government client to automate a calibration laboratory. The system used custom designed equipment and software to electronically proceduralize the calibration process.

[Below Grade Pneumatic Transfer System](#)

A rapid air delivery system was developed for radioactive sources to be used in calibration laboratories. Fail safe design with cost effective construction. Employs pneumatic valves that are electromechanically actuated to drive a radioactive rabbit from one location to another through tygon tubing. There are nine sources that can be transferred to any one of four destinations, which are selected by adjusting the diverter valve. A stepper motor and optical encoder positioning system that is governed by the controller software controls this diverter valve. The transfer is monitored by optoelectric sensors that pass data through fiber optic leads and to a central controller. Information on where the rabbit is with respect to the flight path and a closed loop analysis of the operation is monitored via the central controller. The system, controller, and system software was developed, engineered and produced by Automatic Control Solutions.

[Gamma Spectroscopy System](#)

Complete advanced gamma spectroscopy system including shield, Windows® software, and custom hardware. Introduced new concept for data collection and analysis.

[Gamma Irradiator](#)

Using the newest technology of computer control and software, a beam irradiator was created for a government customer. LAN-ready system can be linked to others for remote control.



Safety Interlock System

To meet the requirements of ANSI N543 for irradiation system safety, an interlock system with associated lights and door controls was developed and interfaced to existing facility systems.

Safety Control System

Designed and implemented a safety control system for authorized area entrance and protection. The system consisted of optical door interlocks, motorized actuated doors and lighting systems interfaced into a main computer controller. This system was designed for protection of unauthorized entrance into a high radiation environment, and to log any entrance or breach of interlock.

Policy Procedures Upgrade

Designed and develop a custom controller interface for multiple computer operated milling and lathe machines to enhance the through put of incoming work and aid in developing and prototyping new ideas for future clients of shop. The system was designed around a Pentium class Automatic Control Solutions controller to allow for real time interface and monitoring of the working systems and their operation during production.

Policy Procedures Upgrade

Health physics, environmental management, and quality assurance procedures for a large DOE client were developed in response to implementation of DOE Order 5480.11 and other regulatory changes.

ORACLE Database Development

Databases for records management and instrument tracking were developed on a VAX based system. Interface to network nodes was used for data capture and instrument control. This system is used for instrument history as far as maintenance, use of instrument, history of reoccurring instrument problems, instrument calibration scheduling, and replacement or reevaluation of instrument after life expectancy is achieved.

Review of an External Dosimetry Program

In order to prepare for a DOELAP on-site audit, a review of the external dosimetry program at a DOE site was conducted and recommendations were made based on the DOELAP audit criteria.

Radiation Measurements Assurance Program

Operated a Measurement Assurance Program (MAP) designed to ensure the quality of the radiation fields at the client's calibration facility. Results for the sources showed differences of less than 2%.

Computer maintenance and system provider

Large-scale computer system provider to international firm. Supply network and office computer systems and peripherals to 5 corporate branches in United States, and provide remedial and periodic maintenance to systems and network support services.



Telecommunications Demographics Software

Designed and creates a corporate software package and computer management system for the telecommunications industry for keeping up with maintenance and site demographics of cell towers. This package is in use by the major service carriers in the United States and is currently being marketed internationally to the telecommunications industry. The software package allows field representatives to keep current information on the sites and interface with the corporate system while out in the field.

Private Industry Network Systems

Design and implement corporate network systems with Novell 3.XX through Novell 4.1 operating systems. 10 to 150 user networks developed and system support provided to allow the corporate client to ease their personnel into the new environments. Allow users to dial up into the network from the field and interact with the network. Allow workstations to fax and send data via fax modem through network system to enhance productivity. Also provide network cabling; work station sales and service, peripheral sales and support.

Corporate and Small Business NT Network Systems

Design and implement Windows NT server and workstation network systems for large and small clients. Systems used for client server data base design and implementation, Departmental servers, print sharing and server tasks, multi media development, and corporate accounting systems. ACS is a Microsoft Value Added Reseller and ACS is certified with the products we sell and



Representative Client List

Johnson Controls, Inc.

Osmose Wood Preserving Corporation

Conversion Technologies, Inc.

Air Quality Sciences, Inc.

Brix Racing, Inc.

Racetrac Petroleum, Inc.

Shimizu America Corporation

Hawg Halters, Inc.

Dawson Precision Machining

TELE TEK

City Tel

LAN-hopper Systems

National Institute of Standards and Technology (USA)

Telecommunications Developments & Innovations

EG&G Mound Applied Technologies

US Army Ionizing Radiation Dosimetry Center

Idaho National Energy Laboratory

Alpha Idaho, LLC

Oak Ridge National Laboratory

US Army Redstone Arsenal

US Army Aberdeen Proving Ground Arsenal

Savannah River Site

Boston Edison Co.

Siefert X-RAY Systems

Just to name a few companies

