



spotlight

ICS Triplex ISaGRAF Receives the Prestigious Control Engineering Editors' Choice Award for ISaGRAF 5.0



ICS Triplex ISaGRAF is proud to be the recipient of *Control Engineering* Editors' Choice Award for ISaGRAF version 5.0. The award is presented annually by the *Control Engineering* editors for those products deemed to have made an extraordinary market impact.

"Throughout the year, *Control Engineering* editors cover thousands of products and select from the ones with exceptional market impact, technological advancement, and service to the industry," says Mark Hoske, *Control Engineering's* Editor-in-Chief. "The editors nominate what we believe to be the best products based on those criteria."



Following the Editors' Choice Awards, *Control Engineering's* subscribers are being asked to vote for their own favourites from among the editors' 40 selections to determine the winners of the third annual Engineer's Choice Awards. The winners will be revealed during the Editors' Choice awards ceremony at National Manufacturing Week, March 20-23, in Chicago.

success stories

ICS Triplex ISaGRAF Partner, EKE Supports Award Winning High-Speed Tilt Train Project



In this project, EKE Electronics Ltd designed, implemented and delivered a complete control and monitoring system for two identical high-speed diesel tilt trains.

The trains are operated in Queensland, Australia, between Brisbane and Cairns. The length of the journey is 1600km lasting about 25 hours and having several stops.

All cars utilize the EKE Train Computer with a different number of modules according to interfaces in each car. The Train Computers (cars) are connected to each other using the WTB Train Bus. This bus provides automatic services to maintain the train configuration, providing a means to transmit data between cars.

featured partner



ICS Triplex ISaGRAF Introduces its Newest Distributor, HOLIT Data Systems Ltd.

ICS Triplex ISaGRAF is pleased to welcome HOLIT Data Systems as the principle ISaGRAF distributor in the Ukraine.

HOLIT Data Systems Ltd. was founded in 1991 and today it is one of the leading companies in the Ukraine in the field of industrial systems for measurements, control, diagnostic and automation in industry, science and other applications where data acquisition is necessary. Its main activities are technical consulting, R&D and OEM, as well as distribution of industrial PC-based computer systems, I/O boards, PACs and soft-PLC controllers, HMI's and corresponding system components. HOLIT is a founder and a publisher of a unique periodic technical magazine named "Industrial Measurements, Control, Automation, Diagnostic."

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extras

key advantages of ISaGRAF



ICS Triplex ISaGRAF is celebrating another successful year having surpassed 400,000 ISaGRAF software licenses sold worldwide. This achievement represents a 30% increase over last year.



Cairns Tilt Train Project

Winner of the QLD Project of the Year Award 2003 and Joint Winner of Australian Project of the Year 2003

The following main functions are implemented in the train: Automatic train protection and deadman device monitoring, monitoring and controlling traction engines & transmission, monitoring alternators (power generators), auxiliary power distribution control, circuit breaker indications, battery charger, brake system monitoring, smoke detection system and fire alarm, air compressor control, tilt system monitoring, speed measurement & odometer, door control, air conditioning, lighting control, toilet & water monitoring, passenger emergency call, passenger entertainment system monitoring, destination Indicator control, driver and conductor display, small crew display units in each car, fault and alarm logging, data recorders "black box" and radio link to depot.

Several smaller functions were also implemented (e.g. fuel monitoring, fridges temperature monitoring, etc.). An interesting function in the train is its capability to monitor the track condition.. The condition data is recorded and can be extracted from the log afterwards. The system generates a report indicating track position, time and conditions where an anomaly in the track was detected.

All faults and alarms are displayed to the crew with description and instructions. These events are also logged for maintenance purposes. If needed, maintenance personnel can contact the train using the GPS link and have exactly same realtime view of the system as the onboard crew. Thus maintenance operation preparation can be started even before the train arrives to the next maintenance point.

Passenger comfort is vital on this kind of long journey. This involves automatic controlling of lighting and air conditioning between day and night modes.

For maintenance purposes the train contains several functions. The Train Management System is continuously monitoring about 500 points in each car. These include temperatures, pressures, state of circuit breakers and contactors, voltages, smoke level and alarms, correct operation of all sub-systems, etc. All malfunctions are displayed and logged. The log can be downloaded and analyzed later using any PC.

All applications in the project, including the black box, were implemented using ISaGRAF PRO Workbench. Only the ST and FBD languages were used, FBDs being the most used language. The project was started with ISaGRAF version 4.10 and now version 4.21 is in use. During the whole implementation phase, ISaGRAF PRO environment proved itself as the right choice.

Results:

The Cairns Tilt Train as whole was a very successful project. It received two major awards: "QR Winner of the QLD Project of the Year Award 2003" and "Joint Winner of Australian Project of the Year 2003."

Work on this project continues as systems are further developed according to changing needs. Thanks to ISaGRAF, it is easy to come back to the project, recall design choices and functions that were implemented and make subsequent changes both quickly and safely.

For more information, please visit www.eke.com

ICS Triplex ISaGRAF continues to provide solutions for a wide variety of hardware platforms including, RTUs, Motion Controllers, CNCs, Embedded Controllers, Remote Controllers and PLCs.

ISaGRAF is the preferred software package for hundreds of OEMs and Systems Integrators worldwide for the stability of the ISaGRAF runtime, its hardware and software independence, its compliance with IEC 61131 and IEC 61499 and the portability of the ISaGRAF Kernel.

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ICS Triplex ISaGRAF Partner, Centris Technologies Involved in Energy Efficiency Project in Northern Canada



The Canadian Government's Minister of Natural Resources CETC-Varenes laboratory is running research projects on building energy efficiency. Some of these projects are on buildings in the northern regions of the Canadian territory where conditions are very harsh during the winter months. In this case, a hockey arena was selected in the Kangiqsujuaq Northern Village. This village is located in the northernmost tip of the

province of Quebec, north of the tree line. The precise need was to monitor all operational parameters of the arena, to get a detailed energy consumption profile of the building, to recommend better designs for future similar constructions.

To get an accurate energy profile, all parameters affecting the energy consumption of the building must be monitored in real-time, and archived for later analysis. For example, outside air temperature and humidity, inside air conditions, compressor power consumption, coolant temperatures, lighting demand, heating demand and such must be monitored.

The mandate Centris Technologies received was therefore to install all necessary instruments to monitor these parameters, and bring back, in real-time, this data to a central server in the research lab, located in Montreal, for analysis and permanent archiving.

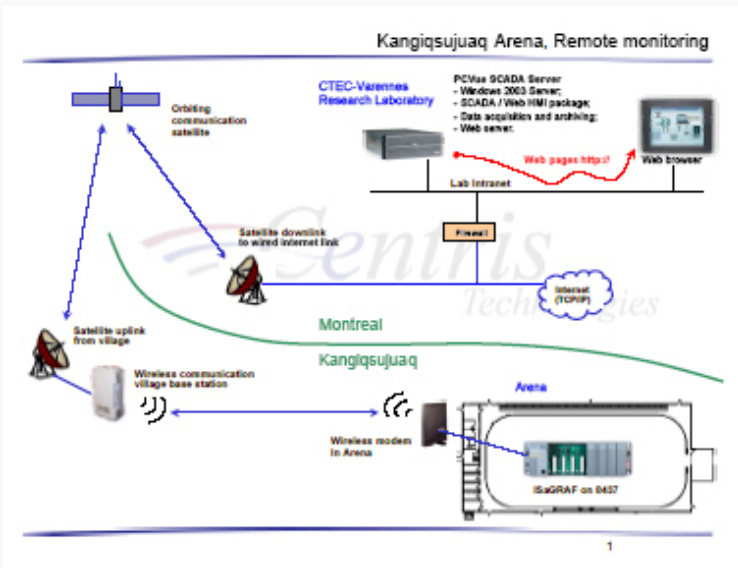
The solution Centris Technologies implemented in the arena used ISaGRAF, installed on an ICPDAS 8437 data acquisition chassis. This chassis reads signals from the various instruments, located all over the arena. Then, from the research lab, a PCVue SCADA station scans in real-time the controller installed in the arena. Communications are transmitted through a satellite uplink to a base communication station in the village, then through a secondary wireless link from the base station to the arena.

The system has been in operation since October 2005. Typical response times to read requests from the lab are under 800 ms.

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For more information on this application, please contact Centris Technologies directly at: (514) 927 6964 or by email at: info@centristech.com

Centris Technologies inc.
www.centristech.com



tech feature



Over the next few newsletter editions, ICS Triplex ISaGRAF will be including several technical notes that are designed to provide further insight into the IEC 61499 industrial standard integral to ISaGRAF 5.0. Here is the first of such technical notes, entitled, "IEC 61499 System Model."

IEC 61499 System Model

Definition

The IEC 61499 standard defines a distributed model for splitting different parts of an industrial automation process and complex machinery control into functional modules called function blocks. These function blocks can be distributed and interconnected across multiple controllers.

System: A collection of DEVICES interconnected and communicating with each other by means of a communication network consisting of segments and links.

Device: An independent physical entity capable of performing one or more specified functions in a particular context and delimited by its interfaces.

Resource: A functional unit having independent control of its operation which provides various services to applications including scheduling and execution of algorithms.

Application: A software functional unit that is specific to the solution of a problem in industrial-process measurement and control. An application may be distributed among devices and may communicate with other applications.

Function block: A software functional unit that is the smallest element of a distributed control system. It utilizes an execution control chart (ECC) state machine to control the execution of its algorithms.

Overview

A system model represents parts included in a measurement and control system. Figure 1 shows the parts of this system model. Many devices (configurations) are connected together with a communication network. The device is self-contained hardware capable of executing a control loop. The device is a controller having a processor and memory devices and may also contain a communication network when used in a distributed application. The devices are PLCs solving the control logic and are seen in intelligent actuators, such as valves and in sensors, such as flow meters. Any fieldbus will do for the communication network, whether Industrial Ethernet, Profibus, DeviceNet or others. Some communication networks are faster while others are more deterministic; therefore, network selection depends on the process to control. Hard realtime and soft realtime applications require specialized communication networks to meet time critical behaviors.

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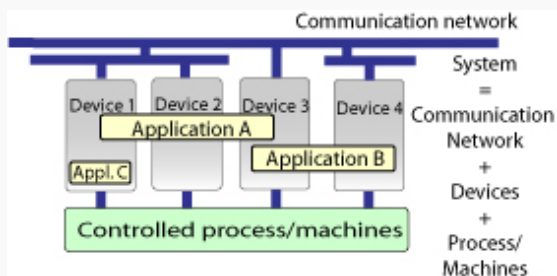


Figure 1: The IEC 61499 system model

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