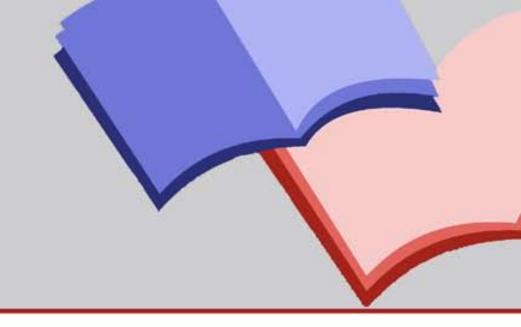## Designing A User-friendly, Touch-screen GUI For A Real-time System

- Usability study conducted for speciality GUI development
- Custom designed control panel
- Significant enhancement in ease of use
- Concurrent development effort

Situation

Our customer manufactured and supplied a wide range of products that worked in a realtime, mission-critical environment. Most operations required operator intervention, increasing the risk of errors. Often control desks had to be modified every time new equipment was installed. While our customer had invested much effort in developing good control systems, the end-users were most interested in the graphical user-interface (GUI), which allowed operators to interact with the equipment and there fore played a crucial role in the success of the overall system.

Our customer wanted Celstream to design a new GUI for their next-generation product that would allow the operators to control the applications in a user-friendly, intuitive manner, with easy access to the hundreds of functions available in the product.

Challenge

Implementing a good GUI required us to go beyond providing users with pull-down menus, icons and a mouse. We had to design an intelligent, integrated user-interface that would enable the user to easily manage the several functions and features offered by our customer's new product in a complex, real-time environment. Celstream's effort was made more complex by the fact that the GUI had to be developed concurrently with the rest of the product with a tough time-to-market deadline.

CELSTREAM

Celstream Response

The Celstream team delivered a high quality, touch-screen based GUI that was an integral part of the customer's new product.

Having understood the product and end-user requirements, our engineers designed and developed the architecture, processes and templates for the GUI. Close coordination with the rest of the customer's engineering team ensured concurrent development.

The GUI worked in real-time, with an intuitive look-and-feel. Celstream'sengineers also developed the ActiveX® custom controls making the look of the interface very attractive. Menus were used in conjunction with the panel controls to configure the system configuration. Custom applications based on features offered by the product could be saved for future or immediate recall, allowing fast and precise control of the product functionality in real-time.

In addition, protocols like TCP/IP and SNMP were added to the GUI for monitoring the health of the system. This unique blend of hardware and software provided operators with the ability to continuously monitor operations using a custom GUI front-end that displayed all kinds of line error conditions and statistics in real-time.

An Integrated GUI

One of the key design requirements was to transform the UI into an integral part of the system rather than a peripheral one.

With Celstream's well-designed, real-time UI, our customer benefited by :

- Enhancing ease-of-use within the overall performance parameters of the system.
- Obtaining increased return on product development through extended product life for the GUI.
- Increasing end-user satisfaction by improved operator efficiency.
- Meeting the tight time-to-market deadline.

Technology

In developing this solution, Celstream used the following key software platforms and technologies:

- Visual C ++®, Visual Basic®
- TCP/IP, SNMP
- ATL, ActiveX®

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