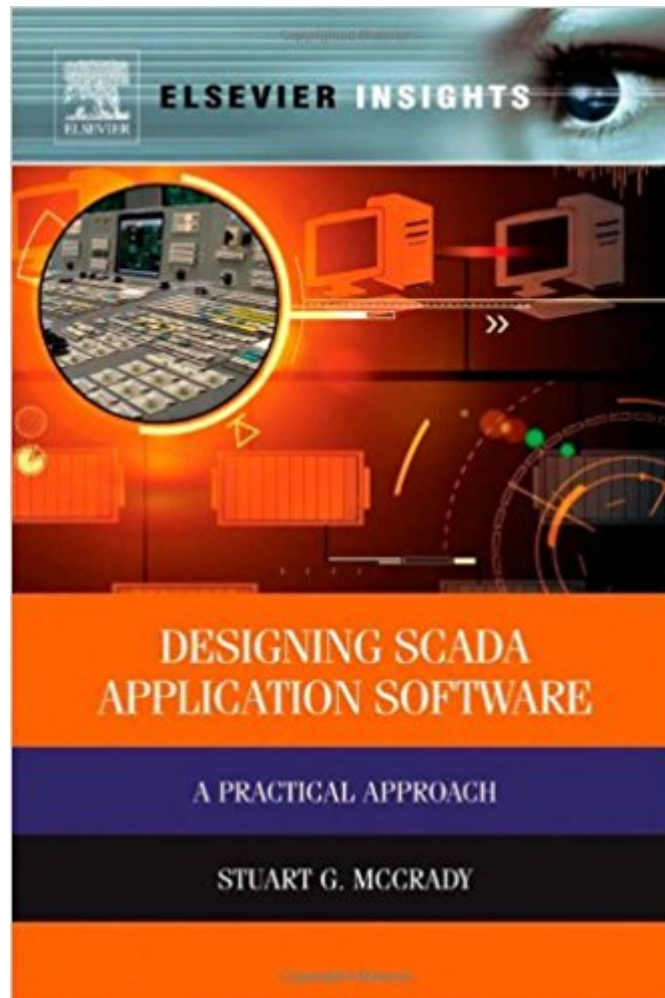




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# Designing SCADA Application Software: A Practical Approach



## Synopsis

Automation systems, often referred to as SCADA systems, involve programming at several levels; these systems include computer type field controllers that monitor and control plant equipment such as conveyor systems, pumps, and user workstations that allow the user to monitor and control the equipment through color graphic displays. All of the components of these systems are integrated through a network, such as Ethernet for fast communications. This book provides a practical guide to developing the application software for all aspects of the automation system, from the field controllers to the user interface workstations. The focus of the book is to not only provide practical methods for designing and developing the software, but also to develop a complete set of software documentation. Providing tested examples and procedures, this book will be indispensable to all engineers managing automation systems. Clear instructions with real-world examples Guidance on how to design and develop well-structured application programs Identification of software documentation requirements and organization of point names with logical naming system Guidance on best practice of standardized programming methods for SCADA systems

## Book Information

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## Customer Reviews

Stuart McCrady is a Certified Engineering Technologist in the field of Electronics and Physics Engineering, as well as a Certified Professional Educator in the field of technical training for adults. He spent the first two years of his career in electronics, installing and servicing both large

mainframe computer systems and small minicomputers. He then shifted to software programming in automation systems. This field of minicomputer programming required developing application software in machine or assembly language, executing at the hardware level. Field devices such as limit switches, pushbuttons, and solenoid valves, were connected to custom designed hardware interface boards installed inside the minicomputers. From the minicomputers of the 1970s to the PLCs and HMIs of today, Stuart has worked with a broad range of technologies using a variety of hardware and software platforms. He was involved in the design and implementation of more than 50 SCADA type projects. As his career progressed, Stuart acquired both more experience and more responsibility in the field of system integration and SCADA systems consulting. Stuart has served as programmer, project leader, project administrator, consultant, department manager, and SCADA system designer. Throughout his career, Stuart strove to establish programming standards and design methodologies that could be applied to any SCADA application. In the mid-1970s, he developed a program design and documentation system which he called FLOCODE, which resembled high level languages such as C, but was written in plain English. The purpose of the system was to allow the programmer to design software using English-like statements using structured programming constructs such as: If-Then-Else and Do-While/Do\_Until. He applied this method to his own programming at both the high level language and the machine level language; this design documentation then became the comments and program description once the program was completed. Later, Stuart was involved in the establishment of a systematic tagging system for signal names which would work both for hardware signals as well as internal software points. In addition, a system of structured descriptions was developed for the PLCs which described the operations in simple English, but referenced key signals and operating parameters; this documentation served as the design document for the PLC programming. Stuart expanded this combination of systems into the complete design and documentation system which is the focus of his book: *Designing SCADA Application Software: A Practical Approach*™. In addition to this book on Designing SCADA Application Software, Stuart has published articles in trade magazines, as well as presented a paper on the application of computer control systems in the water treatment plants at an American Water Works Association convention. In 2006, Stuart made another shift in his career, becoming a full time instructor/trainer. Stuart taught courses at the community college level and at the trade school level; courses included: electronics, residential wiring, digital logic circuits, communication networks, electro-pneumatic control systems, electrical motors and motor control circuits, and PLC programming. Since 2011, Stuart has been traveling throughout Canada and the United States, teaching PLC and HMI programming in cities across both countries. His

extensive experience in the industry has served him well in the classrooms, as he is able to bring real world experiences into the classroom such that the students not only understand the programming material, but also understand how the concepts are applied.

Author is very experienced and also a good writer. Very clear and logical explanations of all the workings of a SCADA system. Would love to experience his classroom teaching style.

A great book

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