

# **Implementation of Automation Projects Using a SCADA Master Plan**

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Automation Project, Integration, Planning, Master Plan, SCADA, Automation, Standardization, Utility, Water, Wastewater, Instrumentation, Control

## **ABSTRACT**

Control System Automation plays a vital role in efficiently managing, operating, and maintaining any industrial entity. Small, medium, and large water/wastewater utilities undergo continuous automation improvements as part of multiple projects by multiple consultants and contractors, each with varying levels of complexities, leading to inconsistencies on automation-related aspects. This presentation is to discuss the SCADA Master Plan that was performed for Polk County Utilities (PCU) to mitigate these concerns. The presentation would also focus on the ease of implementing automation projects at PCU's facilities using the Master Plan report.

One of the tasks of this project was to come up with standards related to PCU's automated control systems. Having a SCADA/instrumentation and controls standards document is important for any end user to not only avoid inconsistency issues during future implementations, but to also effectively manage, operate and maintain an end user's control system, processes, and assets.

A detailed SCADA Master Plan Report was provided at the end of the project that included the Utility's standards for communication, SCADA data access, control system HMI/PLC network architecture, and control system hardware/software. The report also included a spreadsheet that listed and prioritized the major automation upgrades that the County would have to implement over a 5-10 year period.

Two unique aspects led to the success of this SCADA Master Plan project - Critical Success Factors and Consensus through workshops. At the beginning of the project, the SCADA Master planning team requested PCU's Management and Engineering staff to define their critical success factors, which were taken into consideration for each little task within the project. Once the initial surveys were performed for each operational group, the SCADA Master planning team conducted workshops with PCU's Engineering, Operations, and Maintenance Staff to make sure that the decisions made towards standardization were the most optimum for each group.

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## **ABOUT THE AUTHORS**

**Manoj Yegnaraman, P.E.** has over 12 years of experience in Instrumentation and Control System design, specifically for the Water and Wastewater Treatment Industry. He is experienced in developing SCADA Master Plans for large Utilities. He also performs I&C project management and design for Water and Wastewater Projects. Manoj has a B.E. in Instrumentation and Control Engineering from University of Madras, India, and an M.S. in Electrical Engineering from University of Alabama in Huntsville. Manoj is a Senior Member of ISA, and is certified in PROFIBUS DP and PROFIBUS PA by PROFI International. Contact: [myegnaraman@carollo.com](mailto:myegnaraman@carollo.com).

**Norman Anderson, P.E.** has over 12 years of experience in the design and commissioning of Process Control Systems for the Water Sector. Norman has provided secure and reliable PLC, SCADA, and Network hardware and software architecture designs and provided control system automation solutions for a range of facilities. Norman has an M.S. in EE from Iowa State University and an M.S. in Physics from the University of Florida.

**Jeff Martin** has over 27 years of experience in planning, design, project management, strategic planning, and business management in the areas of computer systems, instrumentation, process automation for water, wastewater, industrial, aquaculture, mining and military systems. This includes 10 years of business management and organizational development consulting experience. Jeff is known for his broad industry expertise, client-focused project management, and dedication to quality solutions for operations staff.