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The SCADA system applications in management of Yuvacik Dam and Reservoir

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ABSTRACT

The industrial control systems, which include supervisory control and data acquisition (SCADA) systems, distributed control systems, and other smaller control system configurations such as skid-mounted programmable logic controllers are often used in the industrial control sectors. The SCADA systems are generally used to control dispersed assets using centralized data acquisition and supervisory control. The SCADA systems are also distributed systems that are used to control geographically dispersed assets, which are often scattered over thousands of square kilometers, where centralized data acquisition and control are critical for system operation. They are commonly used in distribution systems such as water distribution and wastewater collection systems, oil and gas pipelines, electrical power grids, and railway transportation systems. In this article, the SCADA system used in the Yuvacik Dam and Reservoir operation, which is located in Kocaeli province of Turkey is reported and the problems associated with the system operation and their solutions are discussed.

Keywords: Water resources; The effective and real time control of water resource; Dam management by SCADA; Problems and solutions

1. Introduction

As we enter the new millennium, population explosion, increasing worldwide water demands, and rapid climate change are now threatening our fragile environment and the future generation's water supplies as at no other time in known history. Currently, more than one billion people are in lack of accessing sufficient, safe, and healthy water. There is an urgent need for research and education to focus on the complex and direct link among water supply, usage, management, and the continuing promotion of transference of water management technologies and its infrastructure improvements from developed to developing countries.

Climate change and global warming is the most significant threat to the living beings on our earth in the twenty-first century. In the last 50 years, radical seasonal changes have shown the effects of climate

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