

Autonomous Coolant Multi Tank Controller Using ATMEGA328 Microcontroller IOT Based

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Abstract: This study presents an automated multiple water tanks control system designed to address the needs of households, industries, and manufacturing processes. It aims to prevent water overflow and monitor chemical levels in overhead tanks, reducing common wastage. Challenges such as system failure rates and various constraints including memory capacity, power consumption, and wireless connectivity are identified. The research compares the performance of Field Programmable Gate Array (FPGA) technology with that of ATmega microcontroller chips for industrial system manufacturing. Practical experimentation in the laboratory utilized ATmega 328 microchips, actuators (stepper motors), buzzers, and other components to demonstrate system functionality. Utilizing Xilinx 14.1 ISE for FPGA design, simulation, and implementation on an IoT Base development board, the study reveals promising results, showcasing system stability and efficiency. Key metrics such as total processing time (4.99s), delay time (6.557ns), and total memory usage (303192 kilobytes) underscore the system's effectiveness..

Keywords: Microcontroller, ATmega328, IoT Integration, Autonomous Control, Multi-Tank System

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