Building a synchronous control system for the fabric winding roller drive motor of the dyeing stage at Hanoi Dyeing Factory.

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Abstract: This topic aims to solve the optimization problem of the fabric roll pulling process in the dyeing stage by building a synchronous motor control system. The practical context shows the necessity of technological improvements to increase productivity and efficiency at dyeing factories in Hanoi. The objective of the research is to design and implement a digital control system to simultaneously manage and optimize the operation of multiple fabric roll pulling motors, thereby improving product quality and reducing operating costs. The method combines both theoretical research and experimentation to ensure the practicality and feasibility of the system. The expected results will bring significant contributions to the Vietnamese dyeing industry by enhancing operational performance and improving product quality.

Keywords: control system, motor synchronization, dyeing stage, process optimization, dyeing plant