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Benefits of an automated electrical equipment control system in elevator complexes

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Abstract. *The work includes an analysis of progressprocesses of automation of control systems of electrotechnical equipment in elevators, and the consequences to which modern automation of the enterprise leads.*
Keywords: *management system,elevator, automatic system, efficiency, human factor.*

Introduction. Grain processing and storage have evolved considerably since the previous century, driven by advances in computer technology and process automation. Modern electronic developments have redefined key aspects of production, including safety, employee training costs, and the efficiency of product handling and storage, giving these factors new significance [1]. As a result, automatic controllers, variable frequency drives, and monitoring systems are now employed to manage inventory, transport grain, regulate storage atmospheres, and enhance the productivity, safety, and cost-effectiveness of grain processing facilities.

The purpose of research. To examine the automation of elevator operations and identify the factors influencing the energy efficiency, productivity, and safety of grain storage and handling.

Result. Operators and automated systems have demonstrated high cost-effectiveness, enhancing workplace safety by preventing errors. They also reduce the need for manual labor, lowering operational costs and improving overall process efficiency. In grain storage, environmental conditions are monitored in real time, allowing immediate adjustments to the aeration system rather than waiting for scheduled inspections. Continuous system monitoring quickly detects equipment issues, further increasing reliability and safety [2,3].

Although manual labor may appear to reduce costs, maintaining a complex automation system requires periodic servicing, often involving specialized electronics or IT technicians to support hardware and software upgrades. Consequently, labor demands are not eliminated but shift toward personnel with different skills. Proper training is also essential for service staff and operators who work intensively with automated systems.

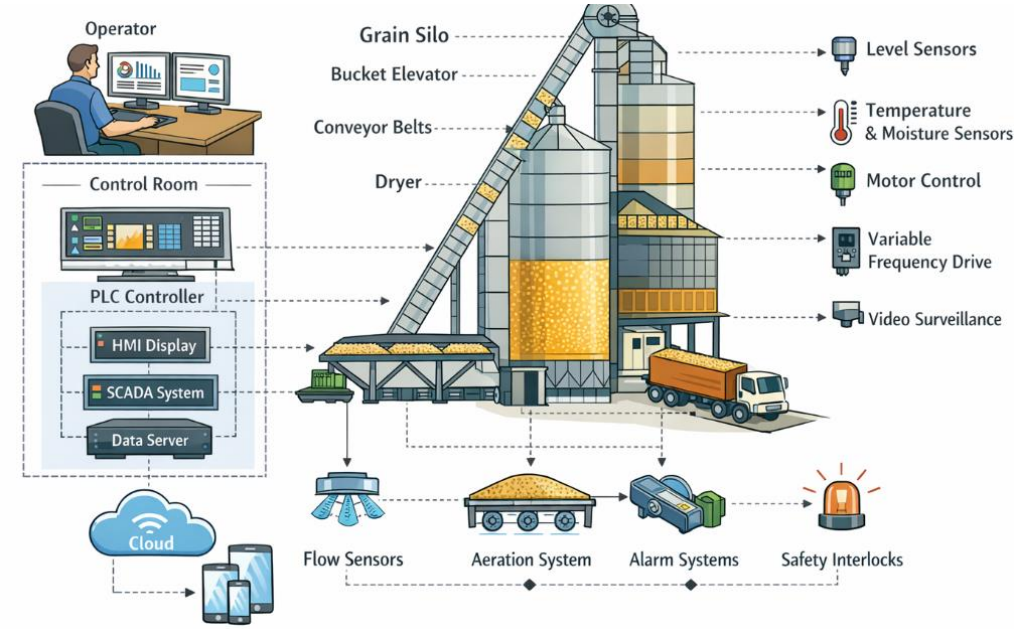

Fig. 1 – Grain elevator automation system

Conclusion. The elevator control, monitoring, and visualization system helps prevent unexpected errors during grain reception, storage, and shipment, reduces operational and production costs, and minimizes unplanned downtime. It enables timely and accurate decision-making by operators or dispatchers, ensures proper control of actions, automatically manages transport tasks by selecting optimal routes, and allows remote monitoring and control of the transshipment complex.

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