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To Develop an Algorithm for Safety Audit Tool for Various Industrial Applications with Live Case Studies

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Abstract: *This paper introduces an Algorithm-based Electrical Safety Audit Tool (ESAT) for various industrial applications to address the limitations of traditional, time-consuming, and labor-intensive methods. The proposed ESAT integrates industry standards and regulations to automatically identify potential electrical hazards and suggest mitigation strategies. It leverages real-time data analysis, risk assessment models, and regulatory compliance checks to automate safety evaluations.*
A case study validation across multiple industrial settings demonstrates that ESAT significantly improves audit efficiency, reduces human error, accelerates report generation, and enhances predictive maintenance capabilities. This research contributes to the development of intelligent safety auditing tools, ultimately aiming for safer and more reliable industrial environments..

Keywords: Safety audit, Algorithm development, Industrial safety, Data analytics, Risk assessment, Standards, Hazard identification. Occupational health and safety, Workplace safety, Compliance

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