

# Streamlining Precision: The Welding and Fabrication Laboratory Information System

**Donald C. Salvador**

Faculty, College of Technology,  
Surigao del Norte State University, Surigao City, Philippines

**Abstract:** *The Welding and Fabrication Laboratory Information System represents a pivotal advancement in enhancing precision and efficiency within the welding and fabrication industries. This study investigates the system's impact by employing a mixed-methods approach that combines qualitative interviews and quantitative surveys to capture insights from technicians, administrators, and clients. The system's streamlined processes, real-time progress tracking, and intuitive user interface have led to significant improvements. Barcode scanning has reduced material identification time by 60%, and progress tracking received a 90% approval rate for enhanced project visibility. Comparing the new system with traditional methods, a 35% reduction in rework costs and a 75% decrease in material stockouts showcase its value. Furthermore, technicians reported an 85% increase in workflow efficiency. The study underscores the transformative potential of the Welding and Fabrication Laboratory Information System in revolutionizing information management, process optimization, and industry competitiveness.*

**Keywords:** Welding, Fabrication, Information System, Streamlining

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