

CASE STUDY



Enhancing Operational Agility and Efficiency through Industry 4.0 Transformation

30% downtime cut and \$1M saved as Industry 4.0 transforms glass manufacturing

Industry

Glass Industry

Client Summary

Our client, a leader in the glass industry with over 40 years of experience, employs more than 1400 professionals. To stay competitive and embrace modern manufacturing trends, they sought to digitize operations, enhance productivity, and reduce their environmental impact through Industry 4.0.

Highlights

- ▶ **Quality:** Potential reduction in production loss by 3-5%
- ▶ **Utility:** Accurate tracking of energy and gas usage per bottle helps in identifying energy wastage and optimizing resource utilization
- ▶ **Savings:** \$1 M in annual savings from utility reduction and maintenance.
- ▶ **Sustainability:** Carbon footprint reduced by 15%.
- ▶ **Efficiency:** 10% production efficiency boost, 30% downtime reduction

Challenges

- ▶ **Quality Rejections:** Implemented real-time monitoring to reduce defects and ensure consistent product quality.
- ▶ **Mould Temperature Control:** Optimized mould temperature management to prevent variations and ensure uniform production.
- ▶ **Loss of Bottles:** Minimized bottle losses at each stage through accurate data capture and predictive analytics.
- ▶ **Data Accuracy:** Enhanced data accuracy in high-speed operations with IoT sensors, ensuring real-time insights
- ▶ **System Integration:** Seamlessly integrated modern digital systems with legacy equipment for smooth operations.
- ▶ **Workforce Adoption:** Successfully managed change with employee training programs for new technology adoption.

Project Success Factors

- ✓ **Utility Savings:** Significant reductions in energy consumption and waste.
- ✓ **Efficiency Improvement:** Achieved a 10% increase in production efficiency through real-time monitoring and resource utilization.
- ✓ **Sustainability:** Reduced the plant's carbon footprint by 15%.
- ✓ **Integration with Machines:** OT integration with critical machines enables paperless data capturing

Customer Feedback

Industry 4.0 transformation enhances our efficiency, minimizes downtime, and positions us as a more sustainable and competitive player in the market. For the glass industry, which operates with continuous processes, this solution enables us to transition from a reactive to a proactive approach, making our operations more agile and resilient.



System Highlights:

The implementation of Industry 4.0 solutions improved productivity, quality and sustainability through data-driven insights:

- ▶ **Productivity:** Sensors enable immediate identification of deviations from production targets, reducing bottlenecks and downtime. Cutting machine downtime by 30% and improving OEE.
- ▶ **Cost Benchmarking:** Accurate tracking of energy and gas usage per bottle helps in identifying energy wastage and optimizing resource utilization.
- ▶ **Section-Specific Dashboards:** 3 Different dashboards enable customer to monitor live data in printing, annealing and utility sections.
- ▶ **Reporting:** Automates the reporting process, saving time and reducing human errors. Provides management with timely, actionable insight.



About Instron Technologies

With operations in India and Canada, Instron Technologies is a leader in Process Skid Plants, Digital Factory Solutions, and Test Bench Systems. Committed to sustainability, our dynamic team develops innovative solutions that not only meet critical customer challenges but also emphasize eco-friendly practices. Serving over 200 clients in more than 10 countries, we demonstrate our dedication to innovation, operational efficiency, and environmental responsibility.



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