



Hitachi Optimized Factory Predictive Quality

Smart Visual Part Inspection Transforms the Assembly Line

To remain competitive, discrete manufacturers are finding new ways to satisfy customers, minimize costs and reduce time to market. But the rapidly increasing pace of manufacturing also increases the potential for producing defective products. Poor quality, in addition to leaving manufacturers vulnerable to later issues, is also costly.

Hitachi's Predictive Quality on Google Cloud automates the identification, classification and prioritization of quality issues. Instead of relying on traditional inspectors to catch product defects and anomalies, the solution uses cameras and sensors to perform visual part

inspections on the assembly line. This data allows manufacturers to pinpoint the root causes and trends of poor quality with advanced analytics. The solution then notifies personnel so they can mitigate quality issues before they become costly.

In addition to improving operations with up to 10-15% reduction in rework levels, Hitachi's Predictive Quality can lower the cost of poor quality (COPQ) by 5-10% and quality assurance labor costs by 10-15%. By addressing defects earlier on the assembly line, our solution can reduce material waste, improve yields and assembly line productivity, and eliminate or minimize inspection errors.

Image Detection to Optimize Quality

Hitachi's Predictive Quality solution can help your team proactively perform root cause analysis to address quality issues and ensure correct manufacturing or accurate product assembly. For example, you can verify that all components have been correctly installed within design tolerances, that the correct label is affixed, or you can detect paint application errors, incorrectly stamped parts, and surface anomalies, including scratches, dents, holes, pits and other defects. Early defect and anomaly detection also reduces the cost to evaluate test or sample products by rapidly mitigating quality issues to minimize waste.

Why Hitachi and Google Cloud?

**HITACHI**
Inspire the Next

- Real-world experience gained from over 100 years in operational technology (OT), over 50 years in IT
- Pioneer in IoT with over 15,000 IoT patents
- Dedicated IoT data science research lab to drive innovation

 Google Cloud

- Enterprise-scale solutions
- Continuous machine learning provides a scalable image and visual analytics platform that delivers low latency and high-accuracy results
- Retractable model provides flexibility to quickly address changes to parts

Together, Hitachi and Google Cloud offer a unique predictive quality solution tailored to your organization's requirements.

Smart Quality Inspection Brings Cost Savings

Hitachi Predictive Quality on Google Cloud

Challenge	Solution	Benefit
<ul style="list-style-type: none"> ▪ Catching product defects late in the manufacturing process or assembly is costlier to address ▪ Excess or unnecessary rework and wasted materials affect manufacturing costs and inventory ▪ Operators, focused on productivity and safety, may not be able to quickly perform a root cause analysis during production or assembly hours 	<ul style="list-style-type: none"> ▪ Uses cameras, sensors, advanced analytics and machine learning for visual part inspection to conduct accurate quality inspections ▪ Provides a powerful, scalable platform for vision-based artificial intelligence (AI) ▪ Accelerates training of manufacturing AI models with Google Cloud AutoML ▪ Delivers fast, real-time response with implementation of edge capabilities ▪ Integrates with SAP for work order details or lot sampling 	<ul style="list-style-type: none"> ▪ Gain early identification of defects to reduce the cost of poor quality by up to 5-10%. ▪ Eliminate or minimize inspection errors and reduce quality assurance labor costs by up to 10-15%. ▪ Create an ideal operating envelope with up to 10-15% reduction in rework. ▪ Reduce projected material waste and improve yield and assembly line productivity. ▪ Proactively identify root causes.

Built with Google Cloud



Cloud AutoML



Cloud IoT Core



Cloud IoT Edge



Cloud Pub/Sub



Cloud Functions



Stackdriver



App Engine

Contact Hitachi Consulting

Hitachi Consulting provides consultants, data scientists, engineers, and manufacturing specialists to work hand in hand with you and to co-create a predictive quality solution to solve your specific problems. We contribute our experience, tools, methodologies, and development environments, while you provide in-depth knowledge of your manufacturing business. Through collaborative creation, we bring thinkers and doers together to innovate for a smarter future. Contact us to get started: info@hitachiconsulting.com

About Hitachi Consulting

Hitachi Consulting is the global solutions and professional services organization within Hitachi, Ltd., a global innovation leader in industrial and information technology solutions and an early pioneer of the Internet of Things. Hitachi Consulting is a business integrator for the IoT era and a catalyst for digital transformation. Using our deep domain knowledge, we strategically collaborate with our clients to help them innovate faster, maximize operational efficiency and realize measurable, sustainable business and societal value. As a consulting-led solutions company, we can help you leverage data as a strategic asset to drive competitive differentiation, customer loyalty and growth. To learn more, visit www.hitachiconsulting.com.