Fujitsu Advanced Image Recognition

Dependency on skilled workers across manufacturing quality control procedures continues to drive high cost and presents a risk to product quality – how can we address this?

Revolutionizing your quality control procedures

Today many manufacturing organizations still depend on skilled workers to undertake repetitive visual inspection across quality control. This adds significant cost to production, in a period where price pressures are ever increasing. Current processes are also susceptible to human error, risking product quality with potential reputational damage. Fujitsu has proven how Artificial Intelligence (AI) can be applied to help organizations respond to these challenges by revolutionizing quality control.

- Achieve an 80% reduction in time required to conduct quality control

- Apply Deep Learning to replicate expert workers' vision and judgement

- Enable agility across quality control, to support expanding product ranges

Applying technology to automate large parts of operation has provided many benefits to manufacturing organizations. Nonetheless, many have a critical dependency on the sight and judgement of skilled workers to undertake physical inspections for assuring product quality. With manufacturers under pressure to react to price pressures, skill shortages, as well as an increasing need to support customization, all while assuring product quality to avoid failures and recalls, there is more need than ever to optimize quality control.

Fujitsu are leading in the application of Artificial Intelligence to deliver a new breed of business outcome focused solutions for our customers. Fujitsu has already proven the potential this offers organizations in achieving the digital transformation needed across manufacturing quality control processes.

Unlocking your high value workforce - getting started

What if skilled workers could be freed up to focus on more 'value-add' activities? What if you could reduce the cost of manufacture, as well as reputational impacts resulting from product defects and recalls? Using skilled workers to tirelessly inspect products as they come off the production line is not only a sub-optimal way of using such resource, but is costly and presents a risk to product quality.

At Fujitsu, we are working with customers to help them apply Artificial Intelligence innovation to overcome such challenges. An example of this is through our Fujitsu Advanced Image Recognition capability which has been proven to replicate the vision and judgement that only workers could previously provide.

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FUJITSU

Fujitsu Advanced Image Recognition:

Fujitsu Advanced Image Recognition is proven to revolutionize any operation involving a visual inspection to identify re-occurring defects. Through applying Artificial Intelligence Deep Learning it delivers greater business insight and flexibility than was possible with previous Machine Vision capabilities.

This is through:

- Training involving simply ingesting a small sample of images which contain examples of the defects to be identified – enabling fast implementation and refinement to support varied and changing product specifications.

- Handling ambiguity in what it is looking for – the solution is not looking for something exact in an image, but something similar to what it has been trained to recognize. This is important for enabling coverage across a wide range of defect types and a high level of accuracy.

Any type of image is supported, for example Ultra-Sound, Infra-Red and Thermal; thus enabling use of the most effective image for each specific type of defect.

Training of the engine involves ingesting images containing defects. By comparing these with images containing no defects, Fujitsu's solution generates a recognition model that is able to identify the difference between the two. This model is then applied to automatically highlight areas of interest across images of all subsequently manufactured items.
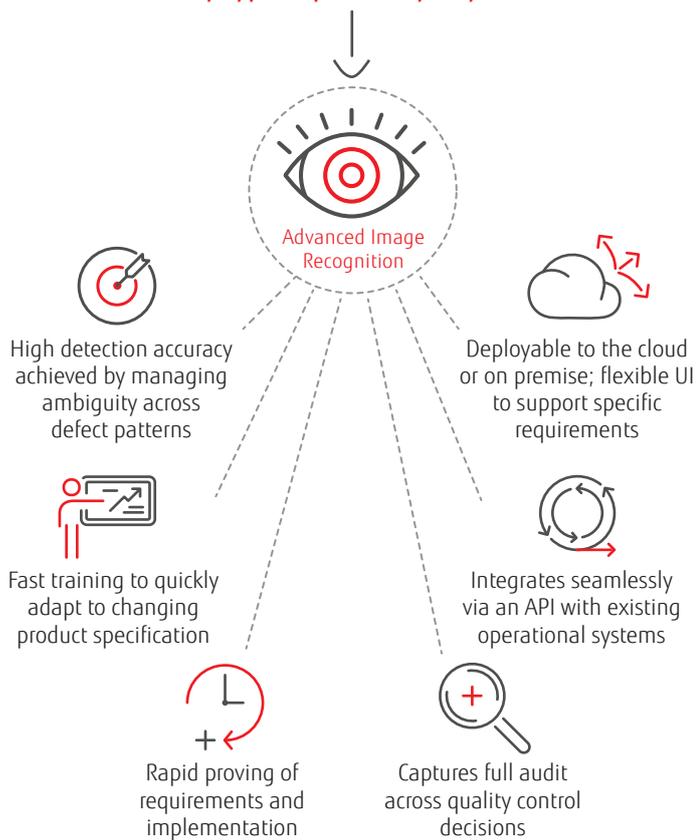
The user interface presents its findings in a format most suitable for the image content being analyzed. For example the image on the right shows an example from analysis of Ultrasound images to identify defects in composite material.

The image recognition platform is designed to adapt to a customer's current environment. It can be deployed on premise or in the cloud, it offers an API to enable integration with existing manufacturing systems, and can easily be extended to accommodate specific requirements. An audit is captured across all quality control findings and decisions, and this is compiled into a PDF report which also contains the actual images of the defects.

A key benefit of Fujitsu Advanced Image Recognition is how quickly it can be proven and then implemented, ensuring a low risk engagement model and fast time to value. Please contact Fujitsu to see how it can be leveraged to revolutionize your manufacturing quality control process.

Defect identification by analyzing images of any type captured by any device

Advanced Image Recognition

High detection accuracy achieved by managing ambiguity across defect patterns

Fast training to quickly adapt to changing product specification

Rapid proving of requirements and implementation

Captures full audit across quality control decisions

Integrates seamlessly via an API with existing operational systems

Deployable to the cloud or on premise; flexible UI to support specific requirements

Case Study: Wind Power Manufacturer

SIEMENS Gamesa
RENEWABLE ENERGY

Turbine blade failure is not an option for Siemens Gamesa so it is imperative that manufacturing defects are avoided. Their assurance process was however time consuming so needed to be accelerated, but without compromising on accuracy or safety in any way. Fujitsu worked with Siemens Gamesa to deliver a solution which successfully applies Advanced Image Recognition to identify all defect types. This is through analyzing Ultra Sound images taken of the surface. Kenneth Lee Kaser, Head of SCM, Siemens Wind Power Blades said: "By adopting Fujitsu's ground-breaking AI technology it takes only a quarter of the time previously required to perform an inspection. We have co-created a solution that not only dramatically cuts the time required for a thorough inspection of turbine blades, but also is able to detect even minor flaws that are invisible to the human eye. Now, only a fraction of each blade must be inspected manually, ensuring that our engineers can concentrate on any areas of concern already flagged by the system."

For further information on
Fujitsu Advanced Image Recognition:
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