

Industrial robots access AI via the cloud

Mitsubishi Electric has developed a cloud-based solution for pro-active maintenance based on the AI platform within IBM Watson, which enables the smart analysis of operational data to predict and highlight future maintenance requirements.

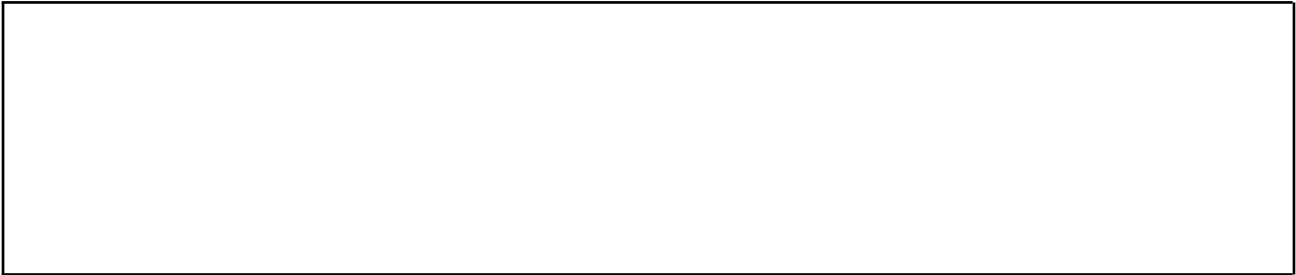
The theory is that sometimes service schedule requirements for robots are inadvertently missed which, despite the extended duty-cycles and the general reliability of modern robots, is not a healthy situation for continuous plant operation. By using an innovative predictive maintenance method however, users are engaged with their robots, receive operational and maintenance data and thereby keep them healthy via planned maintenance schedules, reducing operational costs, increasing asset productivity and improving process efficiency.

Putting predictive maintenance on the digital agenda

Today many companies are still caught by surprise when machine failures occur. They tend to fix problems during enforced downtime, or implement preventative maintenance based on set schedules or numbers of operational hours. However, using predictive maintenance techniques production problems can be highlighted long before they result in unplanned downtime or impact on yield. Maintenance personnel can take corrective action before failure or before degraded machine performance results in sub-standard products being manufactured.

The additional benefit of predictive maintenance is that by potentially avoiding some fixed-schedule maintenance tasks you don't service equipment when it isn't required, rather on-demand, therefore saving time and expenditure.

This latest solution from Mitsubishi Electric offering predictive maintenance for robots utilises the AI platform within IBM Watson to assess actual maintenance requirements and then suggest actions to take in an efficient and timely manner. The platform uses predictive maintenance models, digital simulation and extrapolation of trends to provide maintenance information based on actual usage and wear characteristics. This is particularly pertinent to robots, where users don't always appreciate that periodic maintenance is a mandatory requirement.



There are a number of moving parts within SCARA and articulated arm robots, depending on the type and model they include servo motors, gears, ball-screws, belts, bearings and seals. Items will experience wear over time and require eventual replacement while others will need fresh lubrication and a service check on belt tensions etc. Considerations such as duty cycles, operating environment and loading can all play a part in dictating service requirements, so being able to visualise components with a live status and then receive considered advice tailored to that particular machine will match servicing closely to requirement.

Voice commands for industrial robots

The system also demonstrates how the speed and efficiency of any necessary maintenance activities taking place can be enhanced using voice commands. An augmented reality platform is used to create a visual overlay which provides live information in real-time interactive screen graphics. Siri for example can then be used to issue simple commands based on the knowledge gleaned from the screen. Increased visibility of live status information is expected to provide opportunities for significant reductions in downtime.

Augmented reality provides additional support for maintenance

Using this, system maintenance activities can also be optimised through the use of smart glasses, where the operator receives guidance on what tasks need to be performed. The glasses can show CAD drawings of the various robot parts, superimposed over the robot itself. The glasses can also show the maintenance manual and individual instructions.

This type of next generation human / machine interaction works well with the latest safety solutions that can do-away with the traditional interlocked cage in many instances, relying on smart proximity sensors and Mitsubishi Electric's MELFA SafePlus feature to manage robot movement safely in the presence of humans.

Image captions:

Image 1: Considerations such as duty cycles, operating environment and loading can all play a part in dictating service requirements, so being able to visualise components with a live status and then receive considered advice tailored to that particular machine will match servicing closely to requirement.

[Source: Mitsubishi Electric Europe B.V., Getty Images]

The image(s) distributed with this press release are for Editorial use only and are subject to copyright. The image(s) may only be used to accompany the press release mentioned here, no other use is permitted.

All third party trademarks and/or registered trademarks are the property of their respective owners and are acknowledged.

Note to Editor: if you would like the text in another language please contact Carolin Heel at DMA Europa – carolin@dmaeuropa.com.

About Mitsubishi Electric Corporation

Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,444.4 billion yen (in accordance with IFRS; US\$ 41.9 billion*) in the fiscal year ended March 31, 2018.

Mitsubishi Electric Europe, Industrial Automation – UK Branch is located in Hatfield, United Kingdom. It is a part of the European Factory Automation Business Group based in Ratingen, Germany which in turn is part of Mitsubishi Electric Europe B.V., a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

The role of Industrial Automation – UK Branch is to manage sales, service and support across its network of local branches and distributors throughout the United Kingdom.

**At an exchange rate of 106 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2018*

Further Information:

Website: gb3a.mitsubishielectric.com

Email: automation@meuk.mee.com

Facebook: www.facebook.com/MEUKAutomation

Twitter: twitter.com/MEUKAutomation

YouTube: www.youtube.com/user/MitsubishiFAEU

LinkedIn: [www.linkedin.com Mitsubishi Electric - Automation Systems UK](http://www.linkedin.com/Mitsubishi%20Electric%20-%20Automation%20Systems%20UK)

Editor Contact

DMA Europa Ltd. : Carolin Heel

Tel: +44 (0)1562 751436

Web: www.dmaeuropa.com

Email: carolin@dmaeuropa.com

Company Contact

Mitsubishi Electric Europe B.V. Automation Systems Division : Garry Lewis, Manager - Marketing & Communications

Tel: +44 (0) 1707 288769

Fax: +44 (0) 1707 278695

Web: gb3a.mitsubishielectric.com

Email: automation@meuk.mee.com