



FARO solution significantly reduces operation time through automation. FARO® Vantage Laser Tracker and FARO® BuildIT Metrology Software improve robot accuracy through unique measurement method

Panasonic Smart Factory Solutions Co., Ltd. (Located at Toyonaka, Osaka, Japan, hereinafter referred to as Panasonic Smart Factory Solutions) caters to electronic component mounting and welding machines for various manufacturers including those in the automotive industry and has established the reputation of its integrated production system by utilizing its group capability. For example, one of its main products in the thermal processing business is the laser welding/cutting robot system equipped with the industry-first Direct Diode Laser (DDL) specification, where laser processing head & oscillator, controllers and robots are all developed and manufactured by itself.

The strength of the “All Panasonic System” is to get an advantage in terms of manufacturing cost, delivery and after services etc. Other competitors’ products that use different equipment and devices from various manufacturers for each system cannot emulate easily what Panasonic Smart Factory Solutions is able to do. Currently, their thermal processing business has mainly 6-Axis articulated arc welding robot, TAWERS and remote laser welding/laser cutting robot system LAPRISS and has developed its business targeting the wide range of manufacturing industries. It is FARO’s 3D measurement devices and software that support its R&D.

www.faro.com/user-stories/sg

Industry

- Robotics

Applications

- Inspection

Benefits

- Time saving by automatic measurement
- Support for measurement of large size robot
- Easy to use software for data analysis

Easily collect 1,000 data per second

Panasonic Smart Factory Solutions first showed interest in FARO products at the International Welding Show at Intex Osaka in April 2016 and started to receive product demonstration by FARO in November and subsequently conducted continuous evaluation. Finally, in June 2018, Panasonic Smart Factory Solutions adopted a portable 3D measurement device FARO Vantage Laser Tracker as well as inspection software FARO® BuildIT Metrology. The thermal processing business is engaged in development of the element components relating to the basic performance of robots. One of the important tasks is to measure the accuracy of the robot arm's trajectory. Panasonic Smart Factory Solutions has used other brand products before FARO solutions but had a disadvantage of limited measurement points due to constraint in the operation range caused by mechanical issues. This happened especially when the clients requested for a bigger or higher performance robot, where there were some points which were difficult to measure, thus obstructing the work flow.

Also, those measurement tasks are normally repetitive and simple if conducted in a traditional way. So, they needed to accelerate the automation of such tasks to improve their production efficiency. They had tried various automation methods but software or signal problems relating to information communication made it difficult to materialize them. Based on these conditions, they introduced FARO solution. "The main premise was to meet the same or achieve more than the previous system performance such as 1,000 data collection per second. FARO solution employs a different type of measurement principle yet is versatile in its



FARO Vantage and BuildIT Metrology Software accurately measure the trajectory of the robot arm.

application. We look forward to this future approach. We found it attractive that we could effortlessly automate the tasks thanks to the flexible software". Mr. Ryosuke Yamamoto, Robotics Engineering Section of Welding & Robotics Solution Engineering Department mentioned on the decisive factor of FARO products in their final selection.

Automation helps to reduce time and optimize performance

As mentioned above, Panasonic Smart Factory Solutions was primarily focused on accelerating automation when introducing the new system. "The best benefit was time reduction. Previously we spent almost all our time at the site. We started the software to operate the robot and when the robot stopped, we stopped the software. But, with the FARO system, we don't have to do anything except pushing the start button when we start work till the end of the day. When we prepare the night before, the work is done by the next morning, hence our working time is significantly reduced. It is a big advantage to allocate the time saved from this automation to other primary technical works." (Mr. Yamamoto)

As Mr. Yamamoto pointed out, the time obtained by the automation can be utilized to enhance essential performance. Since the FARO system can measure points that the previous system could not do due to its mechanical problems, it is another advantage to utilize the robots' performance. They can try out various operation conditions that could not be done with the previous system. It means that the high precision required for robots can be achieved in the new processing field using laser. If performance of the robots improves, it will directly lead to the enhancement of its competitiveness with other competitors.

Regarding the response of FARO solution, Mr. Yamamoto evaluated by saying, "With the previous system, we could only measure relative positions. However, with the FARO Vantage, we can measure the arm position as an absolute position.



Measurement of the pedestal of a medium-sized versatile robot manipulator LA-1800. Arm gauge SMR (retro reflector) for measuring marks is also attached.

Since BuildIT Metrology software is point base measurement, it is easy to analyze data compared to the element base measurement software.” Above all, he emphasized the good relationship with FARO regarding BuildIT Metrology software. “As we know exactly what we want to do, we requested FARO to reflect our requests and challenges to the software development when we conducted training in July 2018 before the full-scale operation, so we could smoothly move into it. After that, we continued cooperating together to solve problems. FARO always responded to our requests in a timely manner.”



Trajectory of robot arm displayed on BuildIT Metrology software. It can be obtained not by relative position but by absolute position.

FARO system proved to be better than the previous system

Currently, Panasonic Smart Factory Solutions operates the FARO system and everyone can feel the benefit of automation. “If the new system is not better than the previous one, there would not be a need to replace it. But FARO solution proved otherwise. More importantly, we could make efficient use of the time that we could significantly save through the automation” Mr. Yamamoto said. In fact, it also helped to reduce mental burden for each staff by eliminating time spent by someone having to stand by the system the entire day. For the ROI of the FARO solution, Mr. Yamamoto mentioned, “As only half a year passed since full-scale operation started, we cannot confirm the value yet. However, if we could increase the sales volume due to the robot performance improvement, it will be the proof. Accuracy determining quality of the welding components will improve 4 times more by replacing the traditional arc welding to laser such as LAPRISS.”

FARO solution consisting of FARO Vantage Laser Tracker and FARO BuildIT Metrology are now utilized 24 hours and it is not uncommon to operate them for 10 days in a row. “We are very satisfied with both hardware and software such as data collecting capability and automation that we were looking for” added Mr. Yamamoto. In particular, the capability of FARO BuildIT Metrology as well as FARO’s close support met the company’s requirements which lead to a smooth work flow.

Besides the automotive industries, a wide range of industries and their manufacturing sites including farm machines, construction machines, shipbuilding and two-wheel vehicles, need the welding and cutting systems that Panasonic Smart Factory Solutions provides. Those systems need to address

new manufacturing processes and various materials. At the same time, demand to improve processing speed and accuracy are also increasing. Panasonic Smart Factory Solutions is committed to focus on their product development and is utilizing FARO Solution to meet the tough demands from their end users.

The company provides FA systems and welding machines for various manufacturers including the automotive industry. It also provides solutions to improve work efficiency and product quality for clients by mainly using their core robot systems such as TAWERS and LAPRISS. Recently, it started to engage in product development focusing on environment activities to provide products to reduce environmental load for the clients.

About FARO

FARO is the world's most trusted source for 3D measurement and imaging solutions. The Company develops and markets computer-aided measurement and imaging devices and software for the following vertical markets:

- 3D Manufacturing - High-precision 3D measurement, imaging and comparison of parts and complex structures within production and quality assurance processes
- Construction BIM - 3D capture of as-built construction projects and factories to document complex structures and perform quality control, planning and preservation
- Public Safety Forensics - Capture and analysis of on-site real world data to investigate crash, crime and fire, plan security activities and provide virtual reality training for public safety personnel
- 3D Design - Capture and edit part geometries or environments for design purposes in product development, computer graphics and dental and medical applications
- Photonics - Develop and market galvanometer-based laser measurement products and solutions

FARO's global headquarters is located in Lake Mary, Florida. The Company's European regional headquarters is located in Stuttgart, Germany and its Asia-Pacific regional headquarters is located in Singapore. FARO has other offices in the United States, Canada, Mexico, Brazil, Germany, the United Kingdom, France, Spain, Italy, Poland, Turkey, the Netherlands, Switzerland, India, China, Malaysia, Thailand, South Korea, Japan, and Australia.

Featured Product



FARO Laser Tracker

A Breakthrough in Productivity and Portability. Vantage^S: Short-to-long range measurement applications up to 80 m. Vantage^E: Short-to-medium range measurements up to 25 m.

For more information www.faro.com/LaserTracker/sg

FARO Singapore Pte Ltd

No. 3 Changi South Street 2, #01-01 Xilin Districentre Building B, Singapore 486548

Tel: +65.65111350 Fax: +65.65430111

Email: asia@faro.com URL: www.faro.com/sg

To find out more, visit www.faro.com

© 2019 FARO Technologies Inc. FARO and the FARO logo are registered trademarks and trademarks of FARO Technologies Inc. All Rights Reserved. This customer's results depend upon its unique business and environment, the way it used FARO products and services and other factors. These results that you read from the article may not be typical; your results may vary.