Epson to unveil autonomous dual-arm robot that sees, senses, thinks, and reacts

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Autonomous dual-arm robot

Seiko Epson Corporation has developed an autonomous dual-arm robot prototype that expands the range of tasks that can be automated on the production floor. Equipped with vision and force sensing functions, this robot can autonomously execute tasks by recognizing objects, making decisions, and adjusting the amount of force applied, on the fly. Epson plans to make a commercial version of the robot available within the 2015 fiscal year (ending March 2016). The robot prototype will be unveiled at International Robot Exhibition 2013, to be held from

November 6 to the 9 in Tokyo, Japan.

Epson, with the top share*1 of the global market for industrial SCARA robots and a strong lineup of high-performance six-axis robots, has long contributed to automation in a wide range of production environments. Epson knew from talking with customers that manufacturers often have to rely on manual labor due to the task difficulty or cost constraints.

Eyeing a solution to this problem, the company harnessed its unique technological strengths*2 to develop and combine a wealth of new and existing advanced technologies in areas such as vibration-control, image processing, software, and robotics to develop an autonomous dual-arm robot equipped with visual and force sensing functions.

Epson's autonomous dual-arm robot is able to accurately recognize the position and orientation of objects in three-dimensional space, much like the human eye. The two robot arms are equipped with newly developed force sensors that give the robot human-like control over the force exerted by the arms, enabling the robots to transport and assemble objects without damaging them. The robotic arms will come standard equipped with a multipurpose end effector that can grasp, clamp, and insert objects of various shapes and sizes. The robot can be made to perform a wide range of tasks simply by teaching it objects and task scenarios.

The autonomous dual-arm robot was developed not to be integrated into a system and anchored in place to perform tasks like an ordinary industrial robot but to independently perform simple tasks such as assembly and transport in place of human workers.

"Epson has leveraged its unique technologies to continuously drive advances in the performance and usability of its SCARA and six-axis robots, all of which are known for their speed, accuracy, compactness

and light weight," said Hideo Hirao, chief operating officer of Epson's Industrial Solutions Operations Division. "In the future, a commercial version of this autonomous dual-arm robot will make it possible to easily automate a wide range of tasks that previously had to be performed by hand. With a strong lineup of robotic products, Epson is committed to serving the automation needs of a wide range of users now and into the future."

Provided by Seiko Epson Corporation