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MEDIA RELEASE

Multi-directional Wheels... The Mover In The Next Wave Of Robotic Mobility.

Industrial robots are moving out of the cage, and service robots into our homes and workplaces, working side by side with people. Their ability to undertake even the most complex of tasks is becoming both enticing and commercially viable for both consumer and business.

At present robots generally fall into one of two categories, the lighter mobile robots for simple functions and smart interactive electronic pedestals, or stationary robots with complex physical task capability and little or no mobility, rarely are we seeing them with both.

ReThinks' robot, "Baxter" represents a big step forward in affordable technology and can work side by side with people without risk of injury. He can already memorize a broad range of tasks; imagine if Baxter could also move about with the same care and finesse as a person, undertaking different tasks in different locations within our workspace.

According to Transparency Market Research, **"Mobility promises to be the next frontier in flexible robotics..."**. (Global Mobile Robotics Market Industry Analysis), and Kuka robots believes **"Unlimited freedom is key if we are to bridge the gap between today's industrial robots and tomorrow's service robots."** (KUKA youBot – promoting corporate science and teaching).



While we can actually replicate much of human mobility, most activity within the home and workplace is undertaken on level surfaces, making this technology beyond the need of most enterprises.

The current approach to horizontal mobility is to use fixed drive wheels and swivel casters. Although this can be effective on light or less complex robots, the inability to move directly sideways or diagonally and the need to allow for rotation about the swivel offset can be limiting. 360-degree capability and fluidity is likely to be an essential element in allowing larger, more sophisticated robots to work autonomously and interactively amongst people.



The wheel technology to do this has existed for some time and is regularly used in education, hobby and toy robotics in two forms. One is commonly referred to as an Omni-wheel, and the other a Mecanum wheel. Although somewhat different, they both use rollers on the outer perimeter of the wheel to allow movement in any direction. Essentially they have wheels within a wheel, and can be used to drive the robot in any direction.

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Until more recently the ride quality and load capacity of these types of wheels had failed to provide a viable solution for heavier, more complex robots.

An Australian company Rotacaster Wheel has developed a floor capable omni-wheel and German company KUKA has been doing some amazing things using Mecanum wheels, both opening the door to full 360 degree mobility for both industrial and service robotics. These could well be the enablers to this next wave of robotic mobility.

Mecanum wheels are currently more capable of extremely heavy loads, Omni-wheels provide greater flexibility in application as they can both emulate the functionality of a mecanum wheel, while acting independently providing a direct alternative to the swivel caster and ball transfer units.

Rotacaster Wheel has recently achieved success internationally with their selection to provide wheels for [Festos' Robotino^R](#) (Germany), [Zuta Labs' Robotic Printer](#) (Israel) and [Esclatecs' Estel Wheel Chair](#) (Spain).

"It was obvious in the number of AGV manufacturers exhibiting at Promat and Automate 2015 compared to past years, the potential for growth in this sector alone, and the importance of autonomous mobility for robots. This is going to be an exciting space to watch." Said Rotacaster's CEO Peter McKinnon



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