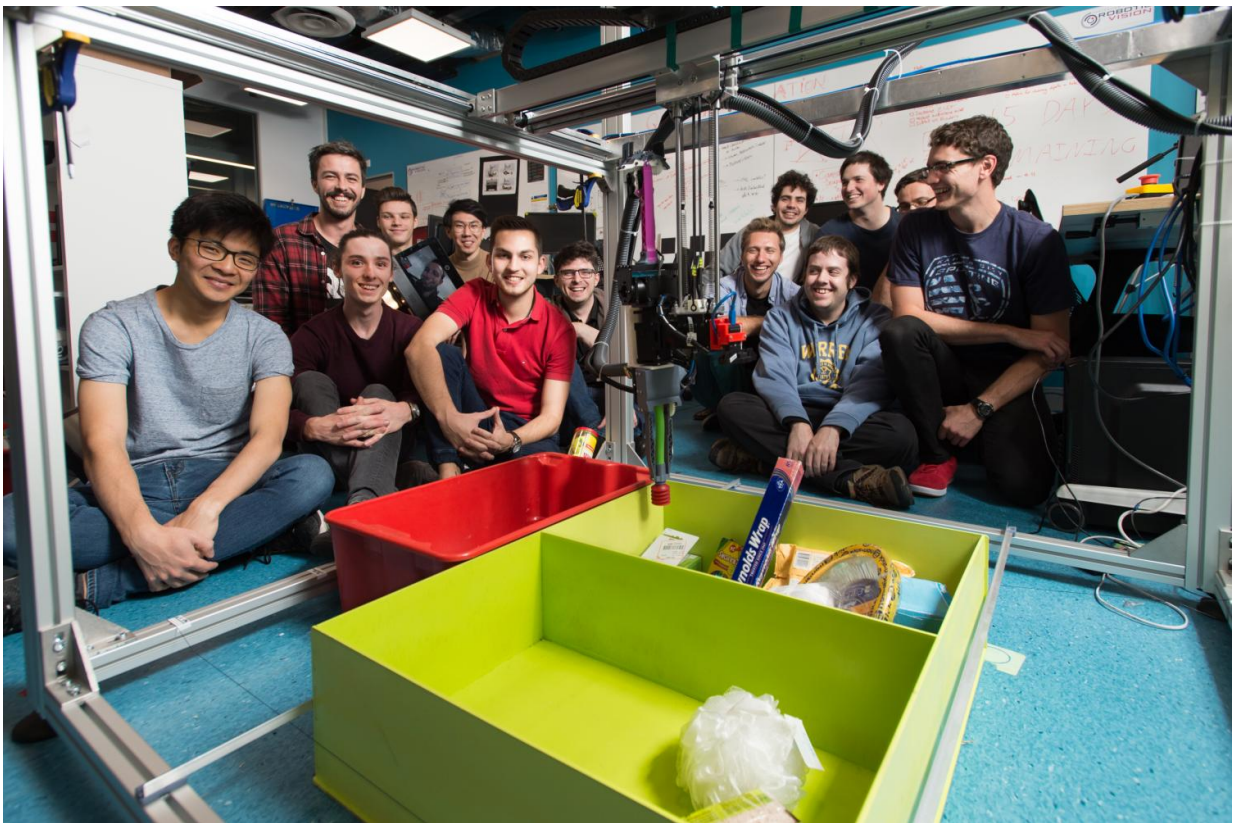


Will this Aussie robot be Amazon's 'pick' of the bunch?

July 24 2017



The Australian Centre for Robotic Vision team contesting the Amazon Robotics Challenge. Credit: Anthony Weate, QUT

It's the competition that could save Amazon.com billions in logistics - and QUT's custom-built robot may be the winning solution.

Built by a team of roboticists from the Australian Centre for Robotic Vision (the Centre), headquartered at QUT, 'CartMan' the logistics [robot](#) will pit its item-picking skills against 15 other international robots in the third annual Amazon Robotics Challenge, part of RoboCup 2017 in Nagoya, Japan, on Thursday 27 July.

And with a prize pool of US\$250,000 for teams that successfully complete the task of picking and stowing objects from a storage system, team leader Dr Juxi Leitner said competition will be fierce.

"Our robot has a vision system to recognise specific items in a crowded container, and a mechanical system to retrieve and stow that item into a shipping box," said Dr Leitner, a roboticist from QUT.

"You won't believe how hard is it to teach a robot to see a clear bottle of water among a bunch of groceries, or teach it the best way to pick up a bag of marbles.

"We opted to build our own robot from scratch - a three-axis Cartesian robot that acts much like a gantry crane you see at ports. With six degrees of articulation and both a claw and suction gripper, CartMan gives us more flexibility to complete the tasks than an off-the-shelf robot can offer."

The Centre's team of 27 roboticists from QUT, The University of Adelaide and the Australian National University has invested more than 15,000 hours into the project.

Despite placing sixth in last year's challenge - a significant achievement in this highly competitive field - the team is not resting on its laurels.

"We are world leaders in [robotic vision](#) and we're pushing the boundaries of computer vision and machine learning to complete these tasks in an

unstructured environment - we won't even be told which items CartMan must pick and stow until just before our heats," Dr Leitner said.

"But I think we stand a good chance - the robot is robust and tackles the task in an innovative way we hope will give us the advantage."

Unlike traditional bricks-and-mortar retailers that use warehouses and distribution centres to ship products to stores, online retailers such as Amazon focus on fulfilment centres - facilities full of shelving, from which human workers literally pick and stow individual items in order to fill customer orders.

While Amazon has mastered using robots to move products around its fulfilment centres, picking and stowing items is the glaring gap in its automated logistics system.

The global giant is banking on the challenge to unearth open-source solutions.

QUT retail and logistics expert Associate Professor Gary Mortimer said that could be a game changer for Amazon's anticipated move into the Australian market next year.

"Amazon, in its current form, isn't likely to make a massive impact on Australia's retail market because we only buy about seven per cent of our goods online, and because geographical distances and higher wages increase logistics costs," Professor Mortimer said.

"If Amazon can reduce the cost of doing business in Australia by automating the picking and stowing process, it could very well increase its market penetration."

The Centre's team is sponsored by the Australian Centre for Robotic

Vision, Amazon Robotics, Osaro and QUT.

The Amazon Robotics Challenge runs 27-30 July.

Provided by Queensland University of Technology

Citation: Will this Aussie robot be Amazon's 'pick' of the bunch? (2017, July 24) retrieved 23 April 2024 from <https://phys.org/news/2017-07-aussie-robot-amazon-bunch.html>

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