

VERSABALL gripper to play ball and cup game at CES

January 4 2015, by Nancy Owano



(Phys.org)—This year's CES 2015 will draw technology watchers,

including industry vendors, buyers and technology media; many in the media will be asked by their publications to keep their focus on booths and events representing the product mainstream—tablets, PCs, phones, smartwatches, automobile apps, connected home devices—avoiding distraction from displays of fun gadgets way out in futureland. We will need some disobedient media watchers, though, because some fun displays will introduce important breakthroughs and practical applications to come. Wandering eyes will want to check out a little robot tool slinging pingpong balls into cups.

Empire Robotics is to present a demo where human challengers will take on the company's product [VERSABALL](#) in a game of beer pong where the tool will grip and propel ping pong balls. Aside from the special event, an open challenge is to be offered to CES attendees. Beyond fun, there is a company purpose in staging this event. People will encounter "a new industrial robotic gripper archetype," said the company, a gripper tool that has precision, a gentle touch, and is capable of safe human interaction.

Founded in 2012, Empire Robotics promotes its expertise with its team of soft robotics experts, materials scientists, and automation engineers serving agile manufacturing automation and robotics. The company is a Cornell University technology spinout that promotes its VERSABALL as an easy-to-program gripper that enables agile manufacturing processes for small and large companies. What the upcoming demo will show is VERSABALL's ability to handle objects with precise grip and release performance; the tool can consistently shoot a ball into a small cup. As important, the demo will be showing the company's core principle behind VERSABALL, described as the jamming phase transition of granular materials. The company explained that the ball has "a squishy balloon membrane full of loose sub-millimeter particles." The soft ball gripper easily conforms around a wide range of target object shapes and sizes.

According to Empire Robotics, "Using the process of granular jamming, air is quickly sucked out of the ball, which vacuum-packs the particles and hardens the gripper around the object to hold and lift it. The object releases when the ball is re-inflated. VERSABALL comes in multiple head shapes and sizes that use the same pneumatic base." A key selling point is VERSABALL's versatility as a robotic tool for agile manufacturing. The company said that automating production involves frequent reprogramming and retooling. That means expense. "For many companies, the final solution often combines expensive mechanical, vacuum, and magnetic grippers into a complex end-of-arm tool that is highly specific to the application and not easily adaptable or reusable." The team designed VERSABALL to be capable of picking and placing parts that vary such as ceramics and parts with different orientations.

In August last year, David Pescovitz of Bloomberg Businessweek wrote about Empire's work on its VERSABALL, and described "a balloonlike bag of grainy matter that contours to the shape of whatever object the arm is trying to pick up and can clench without crushing. Physicists call this the jamming transition; think vacuum-packed bags of coffee that remain hard as a rock until you break the [seal](#)."

More information: — empirerobotics.com/

— [www.businesswire.com/news/home ... 2005347/en/VERSABALL
%C2%AE-Robot-Gripper-Challenges-Beer-Pong-
Champions#.VKh3citd0vM](http://www.businesswire.com/news/home/20150347/en/VERSABALL-%C2%AE-Robot-Gripper-Challenges-Beer-Pong-Champions#.VKh3citd0vM)

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