DARPA's two-armed robot handles tools at less cost

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(Phys.org) —DARPA (Defense Advanced Research Projects Agency) is getting closer to its goal of securing robotic hands that mimic the hand's finer movements, at an affordable cost. A research project has been under way to develop artificial hands; the main goals have been of an economic as well as technical nature; DARPA has been looking for robotic hand systems that offer not only optimal dexterity but can also come at a lower cost than in the past. The high costs associated with effective robotic hands have been $10,000 and up.

A report in *The New York Times* now points to signs of progress in achieving robotic hands at a lower cost.. DARPA and partners have evolved into a third phase of the robotic hand project, now toward producing robotic hands for less than $3,000.

One of the hands under development comes with three fingers; the other model has four fingers. The project teams think it is indeed feasible to make hands that can accomplish a variety of tasks that will cost less than $3,000. DARPA's partners in helping to lower costs are iRobot, of Bedford, Massachusetts, and the Sandia National Laboratories in New Mexico.

(Last August, Sandia made news with its robot hand in partnership with Stanford. Interestingly, the fact they could produce a hand costing $10,000 was received as good news. Sandia's press release said that was less than other commercially available robot hands with similar independently actuated degrees of freedom. In the news release of August 12 last year, Sandia National Laboratories said their DARPA-funded hand was cost effective. They had partnered with Stanford for the hardware. The Sandia Hand offered 12 degrees of freedom, for about $10,000 in low-volume production. The cost reduction was considered a breakthrough.)

Last month, however, the Pentagon, with its continued efforts toward lower cost artificial hands, released a video of a two-armed robot using a tool to change a tire. Experts were impressed that the hand could mimic finer movements, and were also impressed that the creators had been working with a more modest budget.

DARPA hopes to accomplish hand movements with the dexterity that can detect an IED by touch. The scenario in its vision is for the robotic hand to open a bag and recognize such objects by touch.