

DARPA robotic hand prototype shows advanced moves (w/ video)

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(Phys.org) —Robotic hands designed and engineered for versatility and dexterity in handling harmful, harmless, small, large, light, and heavy objects tease robotics teams today. The US government's DARPA (Defense Advanced Research Projects Agency) is getting attention this month in its steps forward to develop robotic hands that can do the jobs

of the human hand's advanced movements, but capable of being built at less prohibitive costs.

A recently released DARPA video reveals how far robotic hands have come in manipulative mastery. The three-fingered hand, hardly human-like in appearance, nonetheless excels in function, as it is shown picking up objects from keys to transit cards to basketballs and heavy (50 pound) weights. The DARPA-funded work was conducted by iRobot of Bedford, Massachusetts, with support from Harvard University and Yale University. The hand prototype is part of DARPA's Autonomous Robotic Manipulation (ARM) project, on DARPA's ARM-H program track that looks at dexterous hands at a reasonable cost.

The [GRAB Lab](#) site at Yale reported that "We have developed a new hand design for the DARPA ARM-H program, in collaboration with iRobot Corporation and researchers at Harvard University. This hand is underactuated, but retains critical in-hand manipulation capabilities such as reorienting grasped objects, and picking up small objects such as keys and pens. Of the three designs submitted to DARPA, our hand was selected for distribution to all participants in the DARPA ARM-S program."

The government program is specifically interested in lower-cost robot manipulators that can handle things with less human control. The interest is also in finding autonomous manipulation systems that can surpass the performance level of remote manipulation systems that are controlled directly by a human operator.

The [iRobot](#), Harvard and Yale effort has resulted in a hand advanced enough to perform maneuvers that call for precision at a cost that makes a difference. According to reports, the prototype could be made at \$3,000 per unit in batches of 1,000 or more, in contrast to the \$50,000 price of current technology.

More information: [www.darpa.mil/Our_Work/DSO/Pro...
obotic_Manipulation %28ARM%29.aspx](http://www.darpa.mil/Our_Work/DSO/Pro...obotic_Manipulation%28ARM%29.aspx)

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