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# University of Dayton, Ohio (url: <http://www.udayton.edu/index.php>)



## Ramping Up

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A University of Dayton researcher has teamed up with a Dayton, Ohio-based small business, RomiTech, to improve U.S. Navy amphibious vehicles similar to those patrolling the Persian Gulf by making them faster, more agile and able to carry more payload for longer distances.

Elias Toubia, an assistant civil engineering professor, and his group are working on ways to improve the ramps of the Landing Craft Air Cushion (LCAC) hovercraft the U.S. Navy uses to transport troops and equipment from ship to shore.

"We will use durable composite materials that won't corrode or crack like the current aluminum ramp, and a design unlike the current welded design that's difficult to repair because you need to tear up the decking to inspect it," Toubia said. "We are working on these improvements as well as reducing the weight of these ramps by 20 to 30 percent."

A lighter ramp means more payload and fuel savings for the military, according to Toubia. It also means a faster vehicle that can travel longer distances.

Currently RomiTech is in Phase I of the Small Business Innovation Research (SBIR) project.

Successful completion of the design effort in Phase I may lead to a larger, multi-year Phase II project to build and test a prototype ramp.

Congress established the SBIR Program in 1982 to provide opportunities for small businesses to participate in federal government-sponsored research and development.

The ramps would have commercial applications as well.

"Commercial ferries, cargo ships, trucks and railcars that load and unload vehicles and heavy equipment would benefit from durable, lightweight ramps," Toubia said.

RomiTech and Toubia's group at the University of Dayton are also in the third phase of a Navy SBIR project to develop personnel transport modules for hovercraft. RomiTech and Toubia's group developed a watertight, fireproof, rapid assembly shelter to transport personnel on the hovercraft deck. Toubia said these shelters are similar to the ones used on the US Navy hovercraft that evacuated Americans from Beirut in 2006.

The University of Dayton performs more federally funded materials research than any other university in the nation and more materials research than all but one university.

***For more information or interviews, contact Mike Sheppard of RomiTech at 937-416-8185 or Shawn Robinson, University of Dayton associate director of media relations, at 937-229-3391.***