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By: Gabriel Gache, Science News Editor



Image of the crab-robot developed by Gage University of Bath

[Lego Crab-Robot to Facilitate Underwater Studies](#)

Robot developer gets inspiration from nature

The crab-like robot prototype was invented by University of Bath postgraduate student Charles Gage as part of a project to develop an exploration independent underwater vehicle which would enable maritime companies, such as those in the oil and gas industry, to have better access to underwater equipment. The robot can operate both on land and underwater and is based on the anatomy of crabs. "Nature knows what works best and can be a source of inspiration for engineering design. Crabs are perfect models for the kind of robot we want because they are 'tried and tested' amphibious vehicles. We studied the way crabs walk, their posture, gait and stride length. Then we applied this information on a model robot," writes Gage in a press release published on the website of the University of Bath. Gage says that he chose to copy the features of crabs mostly because of their leg configuration disposed on either half of the body, which gives it a very stable biomimetic design that allows easy changes in direction and prevents reciprocal interference with each other. Four legs on either side of the body also help changing walking speed by maintaining the same motor speed. "This unique approach makes this robot very energy-efficient. We tested the crab robot on the Minehead Beach in Somerset, England, in early September 2007. The robot performed exceptionally well and tackled the beach, scrambling over pebbles and small stones easily. The prototype was built with Lego Technic bricks to ensure simplicity," explains Gage. He also believes that his clean design would be able to attract future investors willing to expand the project beyond the prototype stage and maybe even to market the robot in the near future. "There are a few toy robot on the market that look a lot like real crabs, but this robot is very different because it is built like a crab and walks like one," he said. For now, the prototype is only able to operate on land; however, it will also acquire amphibious capabilities and enhanced stability once it is perfected.