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New robotic fish detect harmful pollutants

By [Kelsie Thompson](#) | Originally Published: 15 hours ago | Modified: 15 hours ago | [No comments](#)



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Program presenter-on-call John Thon demonstrates the functionality of robotic fish at the Engineering Building. Developed by MSU associate professor Xiaobo Tan, a robotic fish mimics nature and can detect oil and pollutants in water.

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In a 15-foot-long tank holding 6,000 gallons of water in the basement of the Engineering Building, a group of robotic fish swim in sync to help the environment thanks to a team of MSU researchers and students.

The research began as a program to build interest among children in the fields of science and engineering through demonstrations with robots, but soon became a much more serious project, said Xiaobo Tan, an associate professor of electrical and computer engineering.

After realizing robotic devices potentially could be used to detect pollutants, oil and other harmful bacteria in natural water sources, Tan, along with a group of MSU researchers and students, started a project to develop a robotic fish that can function in a real environment while collecting important data.

“We realized there were a lot more serious applications for these robots,” Tan said. “(We) were driven to look at how to design and coordinate them so they could function well in a real environment.”

The robotic fish are engineered to take on similar behaviors as real fish said Phil McKinley, a computer science engineering professor who is working on the project.



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Equipped with tail fins, which use electrical currents to mobilize the fish, the robotic fish are able to swim with the precision and agility of a real fish, McKinley said.

“Until recently, we haven’t had the technology to study this,” McKinley said. “I think our team is definitely on the forefront in the development of these robotic fish.”

Tan said the fish have been tested at a lake south of campus, but the team still has work to do.

The project received a \$100,000 grant from the National Science Foundation, according to its website and Tan said the project also has received funding through the Office of Naval Research.

Chemical engineering junior Victoria Snoblen said having advanced research on MSU’s campus is something to be proud of.

“It’s incredible,” Snoblen said. “Our technology is growing here, and it’s exciting to be a part of it.”

Ideally, the robots will be used to detect traces of crude oil and toxic bacteria, which can be harmful to aquatic life and humans, Tan said. If everything goes as planned, the fish will be able to collect useful information and transmit it wirelessly to computers, human operators and even other robotic fish, which then can be used in future research, Tan said.

“We’ve realized that if we do things right, this prototype is going to make a huge impact,” Tan said.

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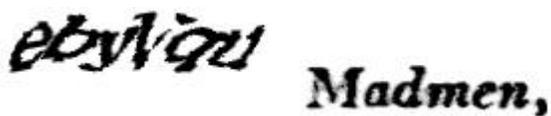
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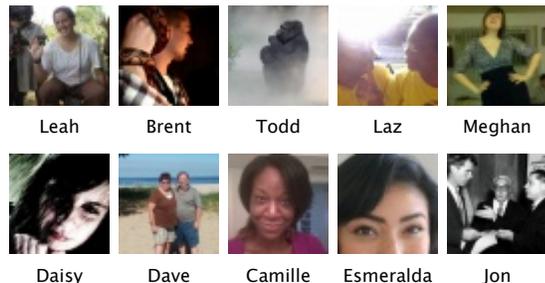
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