

NASA Sensor Technology Helps Recreational Boaters Make Waves

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(PhysOrg.com) -- NASA-developed wireless sensor technology is giving recreational boat owners safer and more accurate readings of how much fuel is in their tanks.

As summer approaches, NASA-developed wireless [sensor technology](#) is giving recreational boat owners safer and more accurate readings of how much fuel is in their tanks. The NASA-developed magnetic measuring system also has potential use in planes, trains and automobiles.

Senior scientist Stan Woodard of NASA's Langley Research Center in Hampton, Va., and Bryant Taylor, an ATK Space Division electronics technician at Langley, created a wireless fluid-level measurement system. It eliminates the need for any electrical component or circuit to be in contact with combustible fuel or fuel vapors. The wireless measurement system is simple to use and install. It is already in use by commercial and recreational boaters.

"This fundamental technology could be used to design an unlimited number of sensors for a variety of measurements," Woodard said. "Just think about anything that you would want to measure. Don't be surprised when you see this technology commercially available in your home or cars."

Originally developed by NASA to retrofit aging aircraft with safety equipment, the technology is a spinoff for designing and using sensors without the shortcomings of many commonly-used liquid storage

measurement systems.

Traditional marine fuel-gauge float systems can provide inaccurate readings because of a boat's movement. A vessel's pitch and roll in open waters can create a "seesaw" effect on fuel gauges. This new wireless fluid-level measurement system has two stationary pieces of conducting material located in the fuel, connected to an inductor on the outside of the tank.

A unique safety feature of the system allows the sensors to be completely enclosed, so the fuel level can be measured without contact with any electrical components. This eliminates the potential for fires as a result of combustible fuel vapors being ignited by arcing from damaged or exposed electrical wires or panels. This design feature also allows the system to be used with fluids like acids or other harsh chemicals.

Another important aspect of the wireless fuel-level sensor system is the design can be modified to detect water -- a major concern for recreational boaters. It also can be modified to detect other non-fuel liquid contaminants in a tank. While this particular system is for a marine application, it easily could be modified for other uses.

NASA approved a partially-exclusive license agreement for [wireless sensor](#) technologies between the agency and Caplan Taylor Enterprises LLC, doing business as Tidewater Sensors. Located in Newport News, Va., Tidewater Sensors markets and sells the units internationally.

Provided by JPL/NASA

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