

**The Opportunity**

Algonquin Scientific, LLC has developed a novel low-cost non-contact fluid sensing system that can measure the depth of a fluid in a vessel (gas tank) without an internal battery (risk of spark) and without having to pass connecting wires through the vessel (with resulting hydrocarbon leakage). It can also measure the fuel type, which is particularly important in today's flex-fuel environment where fuel for internal combustion engines may contain varying proportions of gasoline and ethanol. It is important for fuel injection timing and engine combustion management to know what type of fuel is in the tank. Standard unleaded gasoline is typically 10% ethanol, but E-85 is 85% ethanol.

**Technology**

Algonquin's fluid sensor utilizes a simple, low cost, passive system based upon patented technology operating at Very Low Frequencies. The long wavelength at these frequencies allows the electromagnetic waves to propagate through steel mesh, plastic, rubber, glass, fiberglass, wood, and a number of other materials. The signal's transmission capability is not diminished by the medium being transmitted through, as the information is frequency based and not amplitude based. The strength or weakness of the signal received does not distort the information. The sensor itself uses electromagnetic induction instead of a float. It has no moving parts. It is sensitive to the dielectric properties of the fluid, which allows it to sense fuel type.



**Automotive Applications**

Because of its unique performance, the system has the potential to revolutionize several different industries. Some additional automotive applications are:

- Fluid levels for oil, windshield washer, brake fluid, etc.
- Shock absorber stress sensing
- Embedded security systems
- Gasoline-Ethanol proportions in underground tanks
- Back-up proximity sensors
- Tire ID tags

**FLUID SENSING SYSTEM:  
FUEL LEVEL + FUEL TYPE**



**Non-Automotive Applications**

The technology is adaptable such that its sensitivity to external materials can be controlled to eliminate or to enhance their influence on the circuit. It is possible to increase this sensitivity for other applications of the base technology to detect specific materials and generate a signal to indicate their presence. The system can also be used in many non-automotive and even non-fluid applications, including:

- Implantable blood pressure monitors
- Implantable insulin monitoring systems
- Disposable intestinal sensors
- Personal identifiers (blood type, allergies, etc.)
- Security and access tags
- Anti-theft devices
- Critical shipments tracking

**Intellectual Property**

The innovative system is protected by US Patent 6,335,690, "Fluid Sensing System". Patent claims cover the use of both inductive and capacitance sensing, and the communications between the sensor and indicator components.

**For More Information**

We are seeking a qualified organization to bring this innovative new fuel gauge technology into commercial use.

For more information, contact:

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