

TechBriefs

Savannah River National Laboratory

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At a glance

- > Encrypted data
- > Multi-party segregation
- > Ability to connect direct to a sensor
- > Functionality over the Internet
- > Authenticity schemes to ensure validity of data
- > U.S. Patents 9,961,108 B2 and 9,473,300 B2

Contact Information

Partnering Opportunities

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Authenticated Sensor Interface Device

Researchers at the Savannah River National Laboratory (SRNL) have developed a device to read data, encrypt the information and distribute it electronically to multiple locations, providing one-way data pathway which segregates each destination to prevent cross-party data manipulation.

Background

Previous “data diode” devices employ computer based communication channels such as fiber-connected data cards between sender and receiver. No integrated data authentication is performed and data is sensitive to external attack and manipulation.

The ASID (Authenticated Sensor Interface Device) has minimal intrusion points and robust data privacy. ASID permits authentication, transmission, and sharing of data collected from many industrial processes, sensors, monitors, or data collection devices securely and at low-cost due to operating system free embedded microprocessors. With input types to include digital data streams, voltage levels, 4-20mA, RTDs and thermocouples, and various others, this device has uses in any field requiring data sharing in “business sensitive” or agency oversight applications such as process or material monitors, electrical power grid data sharing and usage, network backbone throughput and cost-sharing data sources.



How it works

The ASID (Authenticated Sensor Interface Device) allows for the secure collection of data using electrically isolated circuitry and accepted methods of authentication and encryption. One-way communication from the sensor interface components to the data transmission components reduces the vulnerability to outside influence to the collected sensor data. Authenticating the sensor data takes place within the sensor interface components which is before the one-way communication to the data transmission components further securing the data from external attack. The ASID utilizes opto-isolated data diode, encryption, authentication and tamper



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Technology transfer

The Savannah River National Laboratory (SRNL) is the U.S. Department of Energy's (DOE) applied research and development laboratory at the Savannah River Site (SRS).

With its wide spectrum and expertise in areas such as homeland security, hydrogen technology, materials, sensors, and environmental science, SRNL's cutting edge technology delivers high dividends to its customers.

The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC. SRNS is responsible for transferring its technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

indicating enclosure (TIE) to provide for a secure means of collecting data from a trusted sensor and transmitting it securely into a system where it is vital to secure the information from external attack.

Stage of development

This technology has been developed and tested with a field sensor. A second generation ASID is under development. A patent has been filed with the U. S. Patent and Trademark Office.

Partnering opportunities

SRNS invites interested companies with proven capabilities in this area of expertise to develop commercial applications for this process or product under a cooperative research and development agreement or licensing agreement. Interested companies will be requested to submit a business plan setting forth company qualifications, strategies, activities, and milestones for commercializing this invention. Qualifications should include past experience at bringing similar products to market, reasonable schedule for product launch, sufficient manufacturing capacity, established distribution networks, and evidence of sufficient financial resources for product development and launch.

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