OAK RIDGE NATIONAL LABORATORY

SPaCES

Smart Packaging for Critical Energy Shipment

Revolutionary smart packaging incorporates multiple sensing technologies into packaging materials and uses them to monitor and display package content status. However, smart packaging has not been sufficiently used when shipping and managing radioactive and nuclear materials.

VISION

Researchers at Oak Ridge National Laboratory are working on a method to embed edge computing devices and a suite of sensors on each shipment of sensitive material for real time tracking and monitoring. The Smart Packaging for Critical Energy Shipment, or SPaCES, allows communication from the package to the cloud via telematics.

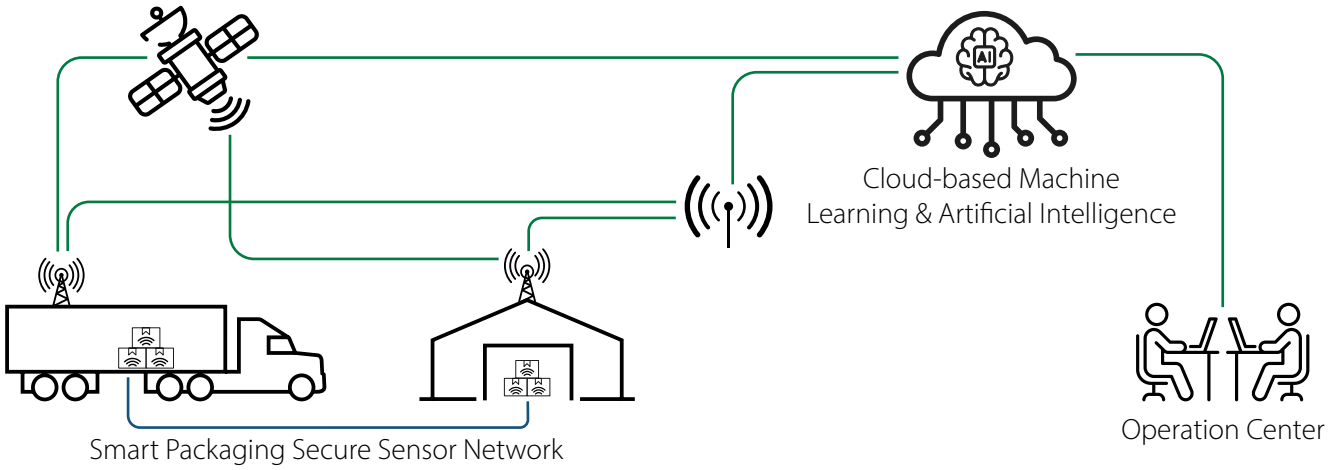
BENEFITS

- Enables system wide remote monitoring and situation awareness for radioactive and nuclear cargo transport, security, and storage management
- Enhances the Department of Energy's cargo transport security and safety

APPROACH

Integrate state-of-the-art sensors and additive manufacturing technologies that use radioactivity, pressure, vibration, and GPS into container management and operations. Through a cloud connected telematics unit, SPaCES enables remote monitoring and alerting of undesired package properties. Real-time alerts are sent to security operations centers in the event of an attack or anomaly.

This project leverages ORNL's Global Evaluation, Analysis, Research, and Security facility and Manufacturing Demonstration Facility for prototyping and testing.



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