# Intrinsic Use Controls

## Cybersecurity & Anti-Counterfeiting for Electronic Devices

**TRL:**
5

**Dual Use:**
Yes

**Existing License:**
No

**IP Protection:**
- U.S. Patent #10,102,382
- U.S. Patent #10,867,079

### PROBLEM ADDRESSED

Currently, many electronic technologies are secured using encryption. Verification that a device can be used typically is performed by authenticating the user using passwords, biometrics or similar solutions. However, user verification protections have proven compromises, and the device components may themselves be compromised. Security is usually layered according to risk, with more valuable systems generally secured with multiple layers of increasing security – a costly and potentially frustrating experience for valid users. Unfortunately, even systems deemed very secure can be compromised by "bad actors" with sufficient dedication, time, and resources.

### TECHNOLOGY SOLUTION

LLNL's IUC system protects electronic systems from tampering and protects the electronic system's components from unauthorized use. Using the IUC concept, components can be initialized and made secure during assembly using unique identifiers only known to the system. Any anomaly in verifying a protected component, such as tampering or unauthorized removal, could cause all protected components in the system to be unusable. Advantages of the IUC include: 1) substantially lower risk of any undetected compromise compared to current solutions; 2) controls within the device to minimize the "insider threat risk", 3) tailorable functions if a device or component fails verification or if a verified operator wants to change device settings, and 4) centralized secure system management.

### DEPLOYMENT PATH

LLNL has demonstrated its IUC prototype and is supporting an operational use. Custom development is necessary to tailor the IUC system for application-specific needs, integrate it with specific electronic devices and systems, or program it with special control functions.


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