

TWC: Small: Hardware Security for Embedded Computing Systems

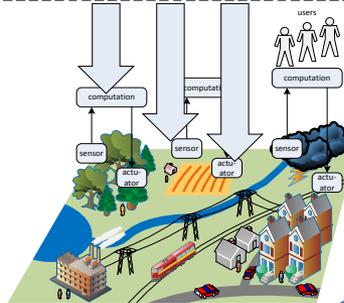
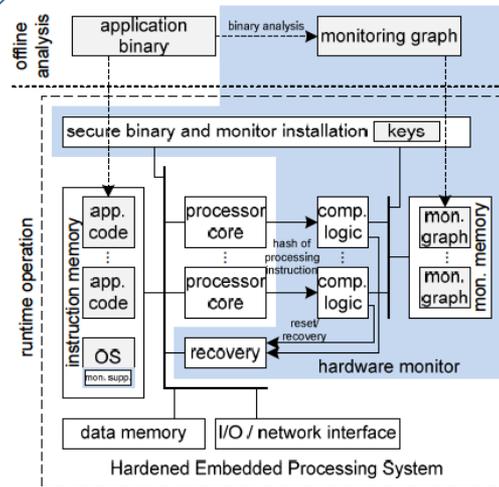


Challenge:

- Embedded systems are widely used and vulnerable to hacking attacks
- Existing defenses (e.g., malware scanner) are not suitable for resource-constrained systems

Solution:

- Hardware monitoring system added to embedded processor
- Hardware monitor can detect attacks



Scientific Impact:

- Any attack (even zero day) can be detected immediately
- Embedded systems can be hardened without software overhead

Broader Impact:

- Internet of Things can be made more secure
- Denial-of-service attacks in IoT infrastructure can be prevented
- Students are trained to understand embedded system security

PI: Tilman Wolf, Co-I: Russell Tessier
Department of Electrical and
Computer Engineering
University of Massachusetts Amherst
wolf@umass.edu, tessier@umass.edu