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GridSec2025 Symposium on "Cybersecurity in Operational Technologies"
Theme: Hardware Security

Date: 23rd May 2025
Venue: Department of Electrical Engineering, [IISc]

Welcome Address
The symposium commenced with a welcome address by the Chairman, [Prof. Udaya Kumar], who highlighted the importance of secure hardware and robust cybersecurity frameworks in critical OT infrastructure. The Chairman stressed on collaborative approaches among academia, industry, and government agencies.

Team Effort and Coordination
The event's success was the result of efficient teamwork by various organizing committees, including technical, logistics, speaker coordination, hospitality, and documentation. Regular inter-committee coordination ensured smooth execution of sessions and effective engagement with participants.

Group-wise Discussion Summaries

Group 1 – *Secure Hardware Development and Automation*
Chairperson: Prof. Haresh Dagale
Venue: Room 304

Highlights:
- Emphasis on firmware security, early integration of security during design phase.
- Proposed central security certification body aligned with IEC 62443 standards.
- KPTCL and BEL focused on practical deployment and cryptographic algorithm development.
- Semiconductor sector presented latency challenges in 5G/NTN systems.
- Academia explored anomaly detection and hardware protection.

Key Recommendations:
- Define national-level certification guidelines.
- Develop a reference architecture based on the Purdue Model.
- Promote joint research between academia and industry.
- Use Manthan platform for collaborative innovation.

Group 2 – *Trusted Supply Chain*
Chairperson: Dr. Gurunath Gurrala
Venue: Room 306

Highlights:
- Focus on traceability and trust at component and system levels.
- Adoption of NIST CSF and IEC 62443-4 standards for lifecycle security.
- Proposed MoUs with suppliers for trust validation.
- Advocated UID integration in Factory Acceptance Tests.

Key Recommendations:
- Establish trust mechanisms at component and integrated system levels.
- Enforce certification and traceability for OT supply chains.
- Implement three-phase secure supply chain validation

Group 3 – *Cybersecurity in Operational Technology (OT) Systems*
Chairperson: Mr. Bhargav N
Venue: Room 303

Highlights:
- Advocated for practical retrofitting of TLS (IEC 62351) in OT protocols.
- Recommended layered security including RBAC and application-level controls.
- Emphasized on balancing security with OT system uptime and latency constraints.
- Discussed SDN, MagSec, sandboxing, and localized authentication mechanisms.

Key Recommendations:
- Integrate TLS in legacy protocols.
- Design OT architectures with RBAC and IDMG.
- Align OT cybersecurity with national privacy laws.
- Drive adoption of NIST lightweight cryptography and Purdue layering.

Group 4 – *Secure Hardware Testing and Cybersecurity Audit*
Chairperson: Dr. TV Prabhakar
Venue: Room 308

Highlights:
- Covered preparation, R&D, and capacity building for secure OT hardware testing.

- Labs like CPRI emphasized vulnerability assessments and compliance testing.
- Academia and startups suggested datasets, IED model analysis, and embedded software testing standards.
- Industry emphasized audit frameworks and reference architectures.

Key Recommendations:

- Establish testing ecosystems and audit labs.
- Embed security throughout hardware design and deployment.
- Utilize standards like IEC 62351, IEC 62443, and ISTQB.
- Address APTs and legacy system vulnerabilities.

Concluding Remarks

The symposium effectively brought together experts from diverse sectors to address challenges and opportunities in secure hardware and OT cybersecurity. It laid the groundwork for actionable strategies and long-term collaboration across academic, industrial, and governmental boundaries.

List of attendees present in the below mentioned group

Group 1	
Name	**Company**
Shreenivas Hegde	SecureMachines
Ravi HK	SIT
ANAND .C	Karnataka Power Transmission Corporation Limited
George Jacob	Semicon Design Technologies Pvt Ltd
Guduru Jahnavi	Bharat Electronics Limited
Bharadwaj Satchidanandan	Indian Institute of Technology Madras
Thirth Ramesha	Schneider
Arshid Shyam Kumar	Siemens Technology and Services pvt ltd

Group 2	
Name	**Company**
Shruthi kalyani	CNSS
Sadhana Nagarajan	NFIA
Balaji Venkatraman	Netherlands Foreign Investment Agency
Chandramohan	NCIIPC
Babu S	Anna University
Prashant Kadloor	Siemens Technologies and Services Pvt Ltd

Group 3	
Name	**Company**
Shivakumar V	CPRI
Gaurav Gupta	Central Power Research institute
Shivaprasad Mynahalli	TelcoSolve B.V
Saurabh Samanta	Central Research Lab, Bharat Electronics Limited
GUMUTCH MISHRA	Bharat Electronics Limited Bemgaluru
Snigdha Mukherjee	BEL
Gaurav Shanbhag	Belden
Murad ali	Fuzzy labs Pvt. Ltd
Dr. Astha Chawla	Siemens
Soubhik Baral	Central Research Laboratory, Bharat Electronics Limited
Tejas Gupta	BEL
Tejas Narayana	Globals Inc
ThamaraiSelvan M	Netskope
Vigya	CDAC

Group 4	
Name	**Company**
T Srinivas	GRID-INDIA
Shiv Kataria	Siemens Technology and Services pvt ltd
Shivbihari Pandey	Cyethack Solutions Private Limited
Dr. Amit Jain	CPRI
Subhojeet Mukherjee	Hitachi India
RITESH KUMAR KALLE	Hitachi India
Srinivas Kancharla	PSA
Anand Shankar	POWERGRID
Nariyappan Nedaiyandi	Schneider Electric
Bharati Patil	Schneider
Pratiksha Pawar	Chipspirit Technologies Pvt. Ltd.
Dr. Ghanshyam S. Bopche	National Institute of Technology Tiruchirappalli
Halale Pradep	Secure Machines
Anujna Suvarna	Secure Machines
Krishna Kumar B	CERT-In