

HARDWARE SECURITY RESEARCH LAB

Hardware-Security Lab is a premier destination for cutting-edge consultancy services in hardware security. With state-of-the-art facilities and a team of experienced faculty members, this lab is committed to provide comprehensive solutions tailored for all the security needs. This lab facilitates from threat analysis to secure design methodologies, and offer guidance and support to help mitigating risks and protect the system.

VISION STATEMENT

- To be a globally recognized leader in hardware security research, driving innovation and shaping the future of secure hardware systems through groundbreaking research, collaboration, and excellence.

MISSION STATEMENT

- To advance the state-of-the-art in hardware security through cutting-edge research, interdisciplinary collaboration, and knowledge dissemination. We are committed to developing robust security solutions, empowering organizations to protect their assets and build trust in an increasingly interconnected world. Through our research, education, and industry partnerships, we strive to create a safer and more secure digital ecosystem for all.

FACILITIES

Nexys 4 DDR Artix-7 FPGA Trainer Boards: Benefit from our extensive collection of 10 Nexys 4 DDR Artix-7 FPGA trainer boards, enabling rapid prototyping and development of secure hardware solutions.

Xilinx Vivado Systems Edition: Access Xilinx Vivado Systems Edition, featuring a floating license for up to 25 users. Leverage this powerful software suite for design, synthesis, and implementation of advanced security features on FPGA platforms.

High-Performance Workstations: Utilize Intel® Core i5-8400 workstations, equipped with 8th Generation processors, 8GB RAM, 2TB HDD, and 22" monitors. These workstations provide the computing power and resources necessary for complex security analysis and development.

Laser Printers: Enhance the workflow with two laser printers, facilitating the printing of documentation, schematics, and design layouts with precision and efficiency.

Spartan 7 Board: Explore the capabilities of the Spartan 7 board, offering additional resources for prototyping and testing hardware security implementations.



Artix-7 FPGA XILINX Spartan 3

XILINX Spartan 7



HIGHLIGHTS

Security Assessment

Leverage the lab's advanced tools and methodologies to assess the security posture of any hardware systems. We identify vulnerabilities, assess risks, and provide recommendations to strengthen the defenses against potential threats.

Secure Design and Implementation

Work with our team to design and implement robust security features into the hardware solutions. Whether it's cryptographic algorithms, secure boot mechanisms, or hardware-based authentication, we ensure that all the systems are protected against unauthorized access and tampering.

Training and Workshops

Enhance your team's skills and knowledge with various training and workshop programs focused on hardware security. From fundamental concepts to advanced techniques, our faculty members offer hands-on sessions to empower any team with the tools and expertise needed to address security challenges effectively.

WHY TO CHOOSE US?

State-of-the-Art Facilities: Benefit from the cutting-edge facilities, including FPGA trainer boards, software tools, and high-performance workstations, designed to support your security initiatives.

Tailored Solutions: This lab works closely with the clients to develop customized solutions that address all the specific needs and objectives.

Commitment to Excellence: Quality and excellence are at the core of everything we do with this lab. From consultancy services to training programs, we strive to deliver solutions that exceed expectations and drive positive outcomes in consultancy.

GOVT. FUNDED PROJECTS SUCCESSFULLY COMPLETED

1. UBA-GARAM VYAPAAR APP- Grant received Rs. 1 Lakh.
2. DRDO Project- “ A Comprehensive Study on Hardware – Trojans-Challenges and Solutions”- Grant received Rs 9.9845 Lakhs.
3. TNSCST-SPS scheme-Completed successfully a project titled “Driver drwosiness detection and alerting system”



DR. L.K.Hema, Professor and head Received Rs. 98,000/- for 8 Months Under Unnat Bharat Abhiyan for Developing Gram Vyaapaar App – Digital Marketing In Rural Area. The Project Has Been Implemented At Arunkundram Village, Kanchipuram District



Dr. L. K.Hema, Professor and Head Received Rs. 9.9845 Lakhs for 6 Months Funded By Defense Research Development Centre, Delhi Titled “Comprehensive Study on Hardware Trojans- Challenges and Solutions

Inter-institutional collaborative project- National collaboration

S. No	Name of the Project	Collaboration with Institutes
1.	Alarm Pillow(Wired)	Aarupadai Veedu Medical College, Puducherry
2.	Alarm Pillow(Wireless)	Aarupadai Veedu Medical College, Puducherry
3.	Smart Home System for Physically challenged	Aarupadai Veedu Medical College, Puducherry
4.	Bio Amplifier	Aarupadai Veedu Medical College, Puducherry

INDUSTRIAL INTERACTION

- IGCAR, Kalpakkam
- CVRDE, Chennai
- CSIR-CEERI, Chennai
- HITACHI, Japanese Township, Paiyanoor
- Salcomp

- AGADA Hospital, Chennai
- RTTC, Chennai
- Perfint Healthcare, Chennai
- Biovision, Chennai
- Global Hospital, Chennai
- AarupadaiVeedu Medical College and Hospitals, Pondicherry

CONSULTANCY PROJECTS WITH INDUSTRY

SL.NO	PROJECT TITLE	INDUSTRY
1	“Embedded Systems”	Ohmtronixs,
2	“Advanced Communication Systems”	Ohmtronixs,
3	“Prediction of Lung cancer using Machine learning Models”	ABE Semiconductor Designs
4	“Solar and Wind Energy Generator Training System”	Ohmtronixs,

FACULTY DETAILS

NAME OF THE FACULTY	AREA OF SPECIALIZATION
Dr.L.K.Hema	Wireless Sensor Network, IoT, Hardware Security
Mr.R.Karthikeyan	Renewable Energy
Mrs.R.Mohana Priya	Image & Signal Processing
Mr.J.Vijay	Renewable Energy
Mr.Rajat Kumar Dwibedi	VLSI
Mrs.V.Vanitha	Wireless Communication and Antenna Design