

TARGETED TECHNOLOGIES

SMART CITY IMPLEMENTATIONS

SOLAR PANEL
SMART HOUSE
SMART MOBILITY

TRANSPORTATION INFRASTRUCTURES

ROADS
RAILWAYS
PORTS AND AIRPORTS

INDUSTRIAL CONTROL SYSTEMS

PLC, RTU, HMI, SCADA
PLANT
PROCESS
FIELD

AUTOMOTIVE TECHNOLOGIES

OBD, ECU, INFOTAINMENT SYSTEMS
WINDSHIELD WIPERS
INDICATORS

MEDICAL AND HEALTHCARE DEVICES

BLOOD PRESSURE MONITORS
BLOOD GLUCOSE MONITORING

SMART HOME

AUTOMATIC GARAGE DOOR OPENERS
HEATING / AC MECHANISMS
ELECTRONIC SHUTTERS
FIRE ALARMS

CONNECTED WHITE GOODS

REFRIGERATORS
STOVES
WASHERS

WEARABLES AND HEARABLES

EARBUDS
SMART WATCHES
SMART GLASSES

CONSUMER ELECTRONICS

CAMCORDERS
LAPTOP
TABLETS

No Unified Protocol Security

Lack of standard for security protocol for the IoT

Problem of Access Control

Controlling access to a network, configuring and applying an **identity** to the device. Using **authentication** mechanisms to ensure the appropriate security policies

Hardware Security Issues

What types of secure hardware can be applied that fit to **small and power-constrained devices**? Lightweight and not too resource-intensive but still provide adequate security

Functional Safety Demands

Critical safety: the **safety of human lives**

IP Connectivity New Vector

Device connecting to the Internet and to all the **malware, viruses, worms, trojans**, and other crimeware that exist online

Consumer Protection Questions

The protection of **consumer** information as they use smart products. This information could be about **behaviour, location, habits**, etc

VULNERABLE TECHNOLOGIES

PROTECTING OPERATION TECHNOLOGIES

IoT SECURITY DEVELOPMENT

The Big Push - what's going to happen first? Hardware, Gateways, and Applications will be secured first. Then the rest will follow.



SECURE ELEMENT AS EMBEDDED IN THE DEVICE



THE SECURE GATEWAY



SECURITY AT APPLICATION LEVEL

SECURE THE THINGS AT ALL THE LAYERS

- Secure Design and Product Development
- Source Code Review, Bug Testing, and Pen Testing
- Embedding Security, Trusted Computing
- Network Security (IPS / IDS, SIEM, FW) including wireless
- Encryption Key Management, PKI
- Trust Management and Secure OTA

- Authentication, Access Control
- Security Protocols
- Audits and Security Assessments
- Regulatory Compliance and Certification
- Data Protection and Privacy Guarantees
- Product Security Lifecycle Management



APPLICATIONS

HARDWARE

GATEWAYS