



abinsula

We build **custom projects** for your
services

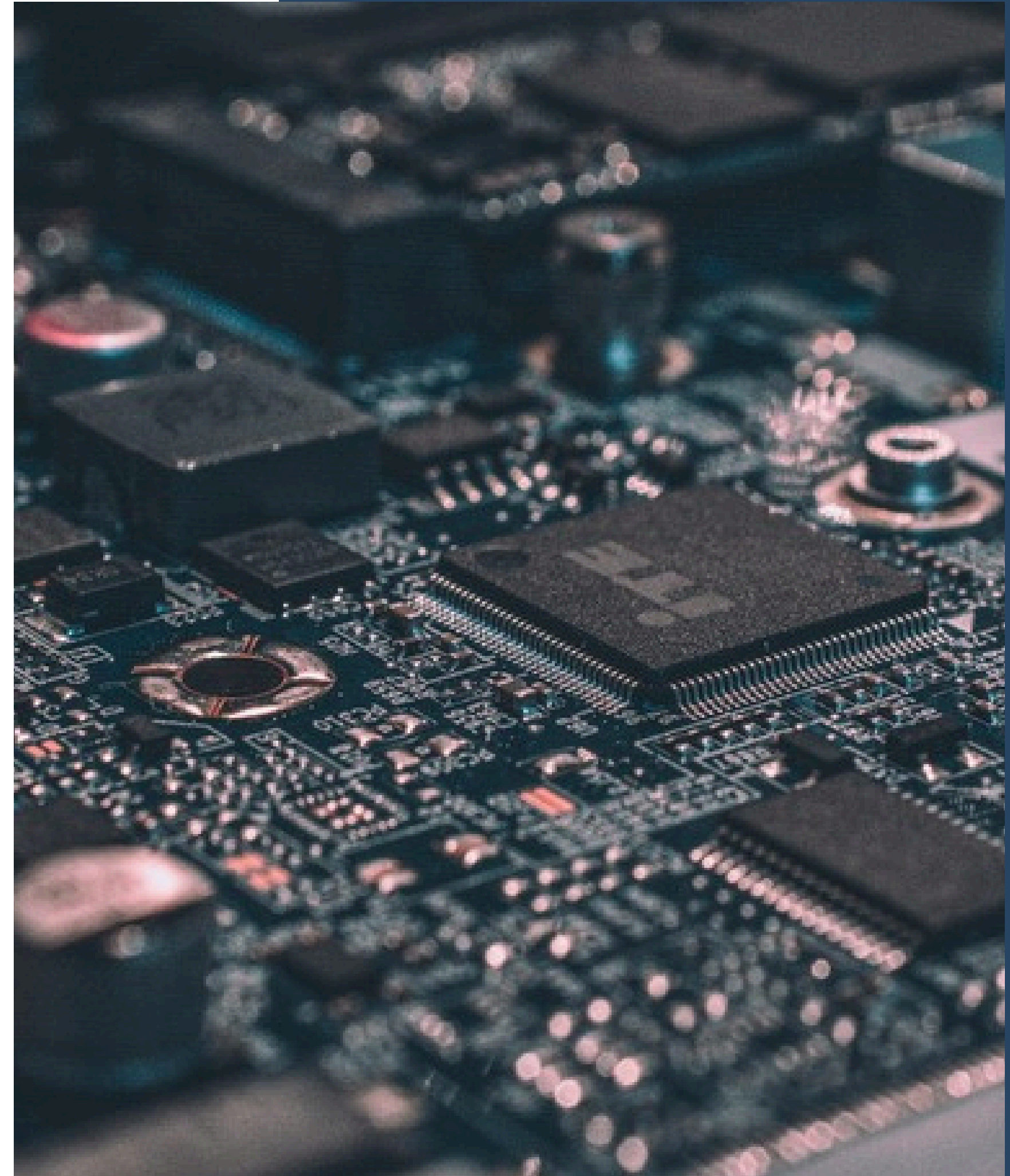


K O A N
abinsula group

Mission

Innovating to improve the lives of people and businesses

At Abinsula, we are committed to developing **innovative technological solutions** that not only help our clients achieve their business goals, but also improve people's lives and contribute to the progress of society as a whole.



The Abinsula Group

Abinsula is structured as a true ecosystem, made up of a diverse network of specialized companies operating across different sectors:



⤵ IT company



⤵ Consulting



⤵ Web/mobile development



⤵ Internet of Things



⤵ AI - Edge Computing



⤵ Data Analysis



⤵ Digital Agriculture



⤵ Embedded Solution



⤵ Cybersecurity

Abinsula in a Nutshell

With a growing international presence and a network of operative offices across Italy and Spain, Abinsula has built a strong team of engineers and successfully delivered hundreds of projects over the last 14 years, supporting clients in different industries with scalable and innovative solutions.



Engineers



Operative Offices

SASSARI - ITALY
CAGLIARI - ITALY
TURIN - ITALY
MILAN/BERGAMO - ITALY
REGGIO EMILIA - ITALY
BARCELONA - SPAIN



Projects

OVER THE LAST 14 YEARS

Abinsula - “from the island” to the world



€ 11M

Value of
production



34% Automotive

Revenue by
Market (%)



24% Industrial

Revenue by
Market (%)



17% Agritech

Revenue by
Market (%)



25% Digital

Revenue by
Market (%)

Our industries

Abinsula's work focuses primarily on four areas, driving innovation and providing valuable solutions for our clients:



Automotive



**IoT, Edge and
Physical AI**



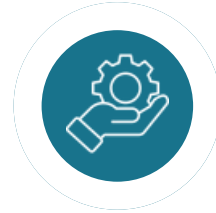
Agritech



Cybersecurity

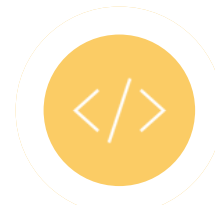
A full range of Services

Engineering Consulting



Hardware Design, System Architecture, Software Architecture, Software Development, Validation, Security, and more.

Development



BSP Development, Improve boot time, Custom Driver Development, SDK, OS custom images

End-of-Line Software



Product Test Specification, Product Validation Specification, EOL Software Development, Integration

Turnkey development



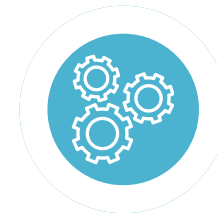
Custom SW/HW development, Android APP, iOS APP, Web APP, 3rd party integration

CyberSecurity



Secure Boot, FOTA, RED-DA & CRA support, Vulnerability Assessment, Penetration Testing.

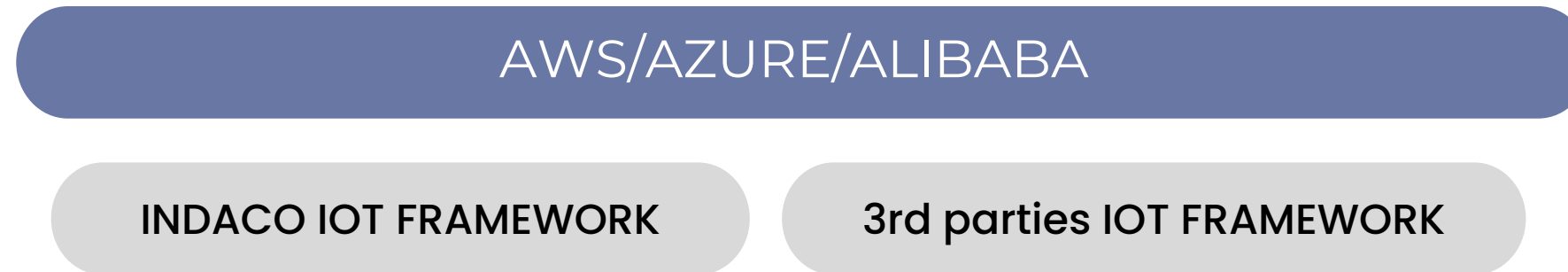
Training



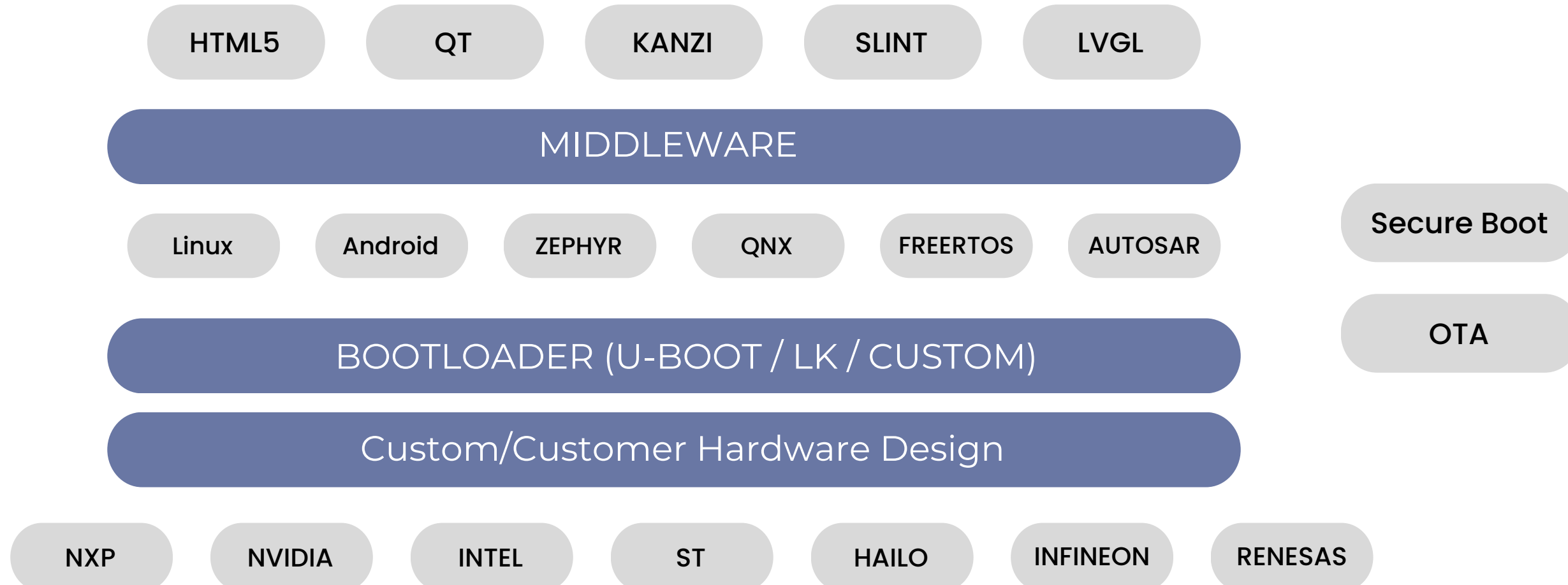
Yocto training by a certified Yocto Ambassador

Your **End-to-End** Technology Partner

Cloud



Edge



How We Work

Our workflow is built on a structured, **end-to-end engineering process** that combines hardware and software design, agile development, security by design and continuous support. This ensures reliable, secure and scalable solutions throughout the lifecycle.

1

Design

Requirements collection
HW/SW Architecture
Definition Security By Design

2

Development & Testing

Agile Metodology
Test and Quality Assurance

3

CyberSecurity

Secure Boot
RED-DA Support
CRA Support
Certification Support

4

Production

Long Term Support
OTA Updates
CVE/Vulnerability Checks

Turn Key Projects

More productivity. Less headache.

We manage the entire project through a single point of contact, coordinating multidisciplinary teams across hardware, software, cloud, and cybersecurity. A seamless approach to reduce complexity and accelerate delivery.



Project Manager
(Main Point of Contact)



Development Team

Hardware

Embedded

Web App

Mobile App

Cloud

Architects



Support & Quality

Cybersecurity

Testers

DevOps

Q&A

UX/Designer

IoT, Edge and Physical AI

By utilizing its **own hardware** and software solutions, as well as leveraging **hardware available on the market**, Abinsula is capable of supporting its clients, whether they are large enterprises or small to medium-sized businesses, in the digital transformation process. Abinsula can also integrate its solutions within complex systems and ensure seamless harmonization of their operation.

Internet of Things

Development of IT applications and platforms designed specifically to integrate devices into daily life.

Abinsula is working on a special project called **Ab-IoT**. It is an open-source platform called Ability (Abinsula Linux for ubiquity) that allows different devices to be connected together. This platform facilitates communication between devices using different ways to communicate.

+ MOBILE APP

+ CONNECTED CARS

+ NETWORK PROTOCOLS (IPHONE AND ANDROID SDK)

+ APPS FOR SMART TV'S

IoT - Embedded Abinsula Activities

+ BSP DEVELOPMENT

- Bootloader (U-boot, LK, Redboot, custom)
- Custom Device Drivers (Linux, RTOS, Android, etc)
- Linux Custom Distributions (Yocto, Buildroot, LFS, custom)
- Porting from RTOS to Linux and vice versa
- Inter Micro Communications (SPI, UART, USB)

+ SYSTEM TUNING

- Fastboot (SystemD, InitV, Custom Boot Sequence)
- Low Power Consumption
- Hibernation
- Hardening
- Cyber Security (Firewall, IDS, TPM, eFUSE, CryptoFS, etc)

IoT - Embedded Abinsula Activities

+ MIDDLEWARE DEVELOPMENT

- Custom system services
 - Audio Manager
 - IPC
 - Media
 - External Devices Management
 - OTA
 - Connectivity (BT, WiFi, LoraWAN, NBLoT, etc)
-

+ HMI

- HMI Design (UX, UI)
 - Custom HMI Development (Qt5/6, HTML5, KANZI, ALTIA, OpenGL, custom)
 - Mobile Application (iOS, Android, Flutter, etc)
-

+ CLOUD

- Communication Protocols (MQTT, WebServices, etc)
- Digital Mirrors
- Dashboards
- Remote Device Management

IoT - Embedded Abinsula Technologies

Custom Hardware developed to meet specific customer requirements.

Web Services



Cloud Platforms



Operating Systems & Programming Languages



Connectivity



IoT Devices



Certification & Partnerships

Together. Stronger.



Cybersecurity

From the beginning, in 2012, Abinsula believed in the importance of cybersecurity within embedded devices and was among the first companies in Europe to invest in these themes with an internal team. As client demands for security activities grew, both in implementation and validation, it was deemed necessary to separate the tasks of implementing security from those of attack and validation. The former remained the responsibility of Abinsula, while the latter were channeled into a new company, Abissi.

Cybersecurity & **CRA / RED Compliance** for Connected Products

Cybersecurity and regulatory compliance are becoming key requirements for connected products and embedded systems. Abinsula supports companies in integrating security-by-design practices and managing cybersecurity throughout the entire product lifecycle, ensuring compliance with European regulations such as the Cyber Resilience Act (CRA) and the RED Directive.

Security-by-Design

Regulatory Compliance

Cybersecurity Engineering

Automotive Security

Project Experience

- + **TECHSIGNO** - ANDROID CUSTOMIZATION FOR MEDICAL EMBEDDED BOARD

- + **TWS** - ANDROID CUSTOMIZATION FOR EMBEDDED NAUTICAL DEVICE (FISH FINDER)

- + **FITNESS CLIENT**
ANDROID OS CUSTOMIZATION FOR EMBEDDED BOARDS;
EXTENSION OF ANDROID LATINIME WITH SUPPORT FOR ASIAN LANGUAGES;
AUTOMATED INTEGRATION TEST SYSTEM FOR QA

AUTOSAR Competencies

+ SOFTWARE DEVELOPMENT

- Development of Basic Software (BSW) modules
- Development of MCAL modules
- Development of Software Components (SWC)
- Bootloader development
- Development of Complex Device Drivers (CDD)

+ SYSTEM CAPABILITIES

- Functional safety
- Cybersecurity
- Lifecycle management
- Power distribution

+ COMMUNICATION & DIAGNOSTICS

- CAN communication
- Ethernet communication
- LIN communication
- Network management
- Diagnostics

RTOS Competencies & Activities

+ EMBEDDED SOFTWARE DEVELOPMENT

- Development of hardware validation and test applications
- Bring-up of new hardware boards

+ LOW-LEVEL HARDWARE INTERACTION

- ADC management
- PWM control
- GPIO control
- SPI communication
- I2C communication

+ RTOS PLATFORMS

- FreeRTOS
- OSEK
- Zephyr Project OS
- Mbed

QNX Competencies & Activities

+ SYSTEM INTEGRATION

- BSP integration
- Driver integration

+ SYSTEM CUSTOMIZATION

- Startup script customization
- Security policies configuration

+ SOFTWARE DEVELOPMENT

- Development of low-level modules
- Development of high-level modules
- Development in Vector Adaptive environment

+ ADDITIONAL ACTIVITIES

- QNX QOS 2.2.x / 8.x hardening and safety conformance
- Project-level io-sock migration

Linux & Android Competencies

+ LINUX / EMBEDDED SYSTEMS

- BSP integration
- Driver integration
- Embedded Linux system customization

+ APPLICATION DEVELOPMENT

- Design, development and testing of native Android applications
- Delivery of Android applications for embedded environments

+ ANDROID OS CUSTOMIZATION

- System Services development
- API layer extensions
- Build system customization

+ YOCTO PROJECT CUSTOMIZATION

- Custom layer creation
- Components integration in the target OS
- MACHINE and DISTRO customization

Our Customers

we have worked with in the past 24 months

