ENGINEERING, DESIGN AND PRODUCT DEVELOPMENT

Fides Electronica designs, manufactures, commercializes and offers turnkey solutions for different sectors and guarantees the incorporation of the latest technologies. The combined experience of the different departments of Fides Electronica offers the necessary flexibility and technical capability that allows us to develop advanced solutions and transform good ideas into reality for the benefit of our customers.

Our know-how is focused in customized design of cost optimized solutions for different sectors: white-good applications and home appliances in general (based on 8/32-bit micro controllers), Medical equipment, Industrial, Telecommunication equipment, Embedded computer with customized carrier board, motor control for Induction, brushless, and brushed DC.

We have been active in home appliances market for more than 20 years. Among the most representative products you can find washing machine, dryer, oven and kitchen hood control circuit, including different types of user interface boards, such as LCD (alphanumeric or graphic), LED, 7-segment display with mechanic or touch keyboards, and TFT display.

✓ New Product Planning, Development and Introduction
✓ Comprehensive Lifecycle Support
✓ Multi-Disciplined Engineering Teams
✓ Co-located Manufacturing Capabilities
✓ Single Source for Engineered Products & Solutions

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CAPABILITIES

**System Engineering and Requirements Management**
- Analysis of Alternatives
- Risk Management
- Conceptual Design
- R&D and Proof-of-Concept

**Qualification**
- Internal capabilities to perform verification and qualification tests of the system.
- Certification. We are prepared to assist our customers during the certification process of the product or to complete all certification process, according to the customer needs.
- Experience in different approvals & markings: CE, IEC, FCC, UL, CCC...

**Electrical, Mechanical and Software Engineering**

**CREATIVE MULTI-DISCIPLINED DESIGN TEAMS**
- Analog/Digital Electronic Hardware Development
- Mechanical 3D Modeling, Design, and Packaging
- Drafting - Drawings and Technical Data Packages
- Firmware/Software.
- Embedded Computer ARM9, Cortex A8, Cortex A5.
  - GNU/Linux embedded operating system
- Schematic Capture/PCB Layout Design Services with different SW platforms: Altium, Cad star, Pcad.
- Design simulation using software tools that allow us to simulate the circuit behavior before assembling the prototype.
- Communications : SPI, UART, I2C, LIN, CAN, GSM/GPRS, Bluetooth, Zigbee...

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Fides Electronica promotes technological innovation with a team of engineers working on customized solutions for our customers. Our R&D department can implement solutions in a wide range of fields: Home appliances, Power Electronics, Telecommunications. Fides is currently immersed in developing industrial research and experimental development projects in future strategic areas with potential international presence. We can highlight the following:

- Embedded computer: providing embedded computer systems based on ARM architecture. Developing a wide range of modules with ARM9, Cortex A5, and Cortex A8 processors, that will allow cutting the development time and time to market.

- Motor control: Low-cost drivers for ACIM (single-phase or three-phase). PMSM, BLDC and DC motors. The topologies we are more familiar with are: phase control, three-phase inverter, DC chopper.

- Battery systems: We are capable of developing not only the electronics, but also the pack of batteries, including the BMS and the battery charger.

- Electrical vehicles: Fides Electronica takes part in the Research of new innovative products that allow using electronic controls incorporated in electrical motors for bicycles. The aim is to incorporate efficient, ecological and competitive pedaling assistance systems in bicycles.

- Solutions in the “Internet of Things” area. The growing development of the Information and Communications Technologies makes it possible for increasingly more electronic products to connect to Internet: a vehicle, a washing machine, an oven, connection to web services. Fides develops state-of-the-art products.

Design Tools:

- Schematic Capture, PCB/PWB Design
- PSpice Circuit Simulation and Analysis
- Solidworks Professional – 3D CAD Modeling and Simulation.
- Virtual prototyping
- Compatible with and experienced in CATIA and Pro/Engineer
- AutoCAD
- Microsoft Visual Studio
- National Instruments Development Suite
- Multiple Embedded Firmware Platforms

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Test Capabilities

- In house Custom Test Equipment-Design and Fabrication
- In-circuit test: JetSystem
- In-circuit test: Checksum
- Facilitate EMS/EMC
- Earned Value Management (EVM)

Software Skills

- C and Assembly languages for microcontrollers
- Communication routines
- Self-programming libraries
- User's interface routines (LCD, Led 7-segments, etc.)
- Analog signal measurement as thermocouples RTD, NTC, pressure sensors, strain gauges, hall sensor, voltage and currents sensing devices, PID regulation algorithms with digital sampling, PWM, phase control, self-testing routines and software encryption routines.
- Visual Basic
- Visual C#
- QT, Java
- XML/XSLT
- LabVIEW and TestStand