



**POLITÉCNICA**



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UNIVERSIDAD  
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**R&D&i Centres**



**Centro de Electrónica  
Industrial**

# CENTER OF INDUSTRIAL ELECTRONICS (CEI)

## CENTER OF INDUSTRIAL ELECTRONICS (CEI)

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### Organizations collaborating with CEI

Ansoft	Infraestructuras Ferroviarias
Enpirion	INTEL
CRISA	Métodos y Tecnología (MTP)
INDRA	SEDECAL
EADS	SENER
FAGOR	TECNOBIT



The Center of Industrial Electronics (CEI) is a research and technology center at the Universidad Politécnica de Madrid that was created to promote synergy around industrial electronics.

CEI activities revolve around the design of industrial electronic devices used in various sectors such as aerospace, industry, medicine, defense or communications.

The Center takes part in different competitive public funding projects (Framework Programme and National Plan) and also collaborates directly with the industrial sector.



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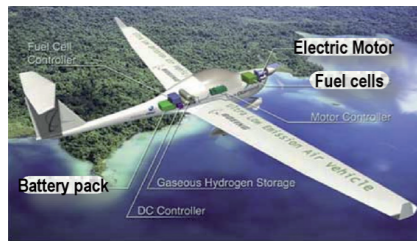
# CENTER OF INDUSTRIAL ELECTRONICS

## RESEARCH LINES

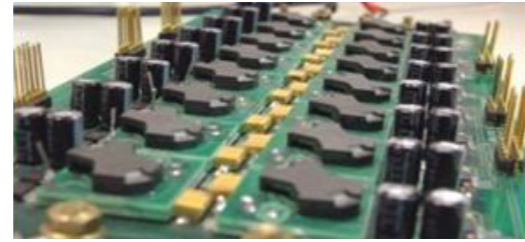


### POWER ELECTRONICS

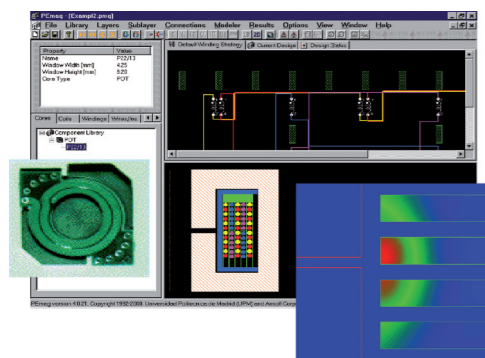
- Design of power supplies
- Modelling and simulation of systems and electronic devices
- Design and application of digital control



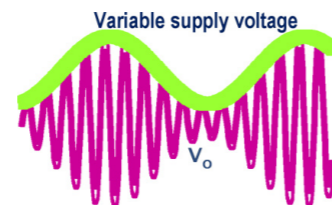
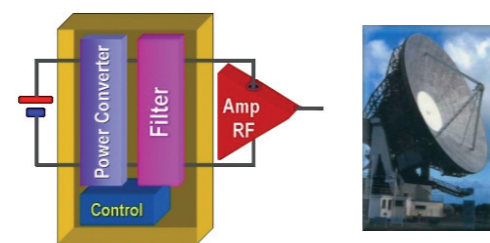
- Power converter for power distribution in the first manned fuel cell-propelled aircraft.



- Multi-phase converters (16/36 phases) with digital controller implementation based on a FPGA.



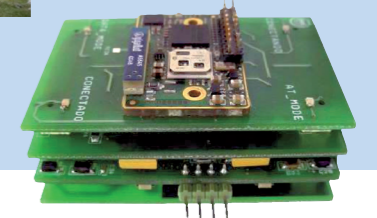
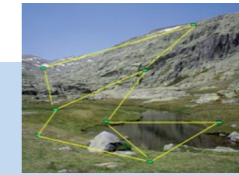
- Development of CAD tools to aid in the design of electronic circuits.
- Modelling and design of electronic systems and components (magnetic components, flat devices, electronic subsystems, ...)



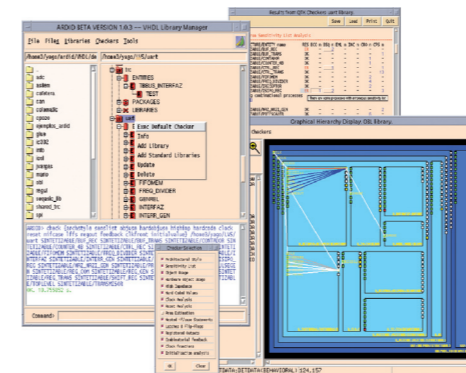
- Design of the power converter for a radiofrequency (RF) transmitter based on a multi-phase solution with variable voltage.

### DIGITAL SYSTEMS

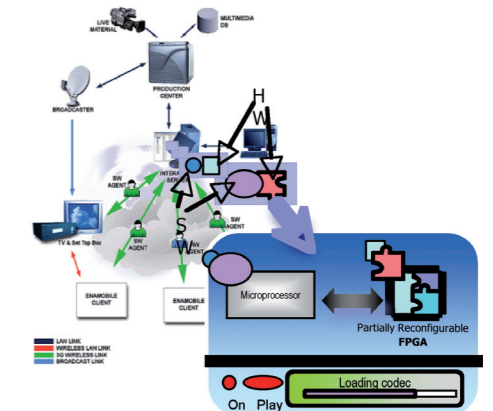
- Embedded intelligent systems
- Wireless sensor networks
- Reconfigurable systems
- Power estimation



- "Cookies". Modular platform for wireless sensor networks. Ability to easily combine different combinations of energy supply, types of sensors and communications.



- ARDID is a tool to analyze the VHDL code quality from a hardware point of view. It helps the designer in the VHDL-based complex systems design flow.



- Development of a mobile platform (EnaMobile) with hardware partial reconfiguration for multimedia applications. Hardware configurations can be downloaded from a server together with multimedia content.

### POWER QUALITY

- Power electronics in power systems
- Analysis of harmonics, unbalance and flicker