

## IDF Automoción - Design and Manufacturing Institute for Automotive Industry

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### Organisation profile

The Institute is a non-profit research association promoted by some of the most important automotive industries of the region. The Institute constitutes a specialized technological center to conduct research within the industries which are mainly involved in the automotive sector, through national and inter-

national projects. In this sense, IDF is establishing itself as a recognised partner for carrying out R&D projects and awarding for business companies. In addition, the Institute hosts COMPO-Networking, an association of some of the most important European producers of polymer materials.

### Main Green Cars activities: Products and Projects

**Product Design:** supports a wide range of services such as design management, auditing, and evaluation; assesses scenarios and also provides methodologies for creating new products and services, opportunity detections, modelling, prototypes and visual communication of the product. Extensive use of CAD/CAM/CIM systems is made for the design of new products.  
**Manufacturing:** high-speed machining using robot arms (CAD/CAM/Robotics) as well as research in resin transfer moulding numerical simulation, monitoring and control for mould filling and resin cure; and manufacturing with thermoplastic matrix composites (GREEN-COMPOSITE).

**Robotics and Automation:** industrial solutions in terms of monitoring, diagnostics, control and communication systems, in addition to teleoperation and remote control systems, sensor fusion, smart sensors, etc. for mobile robots and vehicles.

**New Energies:** research area in opto-electronics specialises in the structural, electrical and optical characterisation of compound semiconductor materials for optoelectronic applications such as solar panels and photoemitting devices. The synthesis of fine nanostructured layers of binary and ternary is obtained by electrochemical techniques.

**Information Technologies:** knowledge management and information auditing, standardization and e-learning, multimedia development, user-friendly interfaces based on virtual reality; design and implementation of Human Machine Interfaces (HMI) including functionality, ergonomics and usability.

**Projects:** Solar and electric vehicles with driving facilities (PROMETEO Project 2009-2013); Car-body inspection systems based on artificial vision (PROFIT); Production process design using composites for car bodies (IMPIVA); Advanced design of moulds for resin transfer moulding (RTM) (MEC Project); CAD/CAM/Robotics for manufacturing large dimensional objects (IMPIVA); EGNOS Technology evaluation for civil transportation (MCIT); Design, synthesis and characterization of efficient solar materials (MCI); Hybrid solar cells by low temperature electrochemical techniques (AECL); Low-cost solar cells based on nanostructured semiconductors (IMPIVA); Agricultural vehicles control based on sensor fusion (MCIT); Design and manufacture of walking robots (MCIT); Driver training and assessment using interactive evaluation tools and reliable methodologies (European Project); Autonomous underwater inspection vehicles for oceanography (MCI).