



Signo Motus, in the name of movement

Signo Motus

SIGNO MOTUS is a research intensive Italian SME established in 1994 with Headquarters in Messina, (IT) and a Technical Unit in charge of ICT deployment in Pisa, (IT). The Company aims at representing a bridge between bioengineering and medicine. The core business is represented by R&D and industrial applications in: robotics, smart materials, assistive technology and ICT. Signo Motus has acquired an important experience in the management of National and European R&D projects, both from technical and administrative points of view. The Company played the role of scientific and administrative Coordinator for public bodies, such as Istituto Superiore di Sanità (IT) and Regione Toscana (IT) in R&D Projects.

Mission: to take advantage of research and innovative solutions covering the gap, “in signo motus” (in the name of movement), between modern bioengineering and their real clinical applications. Precompetitive advantage is achieved through basic and applied research oriented to the aforesaid fields. A multidisciplinary R&D team with several years of experience provides innovative solutions and services.

Company dimension: 10 people, 1 M€ turnover

Main facilities: dedicated software tools and hardware for 3D modelling, simulation and FEM analysis (Autodesk Inventor: Member of the Autodesk® Developer Network as Research Centre); control software development kits (National Instruments LabView®); laboratories for electronics, manufacturing and testing of mechanical prototypes, equipped with tools for design, analysis, and control system development SW; electromechanical characterization instruments for smart materials (electrorheological fluids) and related devices.

Core business: it mainly revolves on research and development around the following three axes:

- ✓ **eHealth, Telemedicine and Home-Care** – to design and to develop information systems for healthcare. The mission is to provide better healthcare at lower costs. In 2009, the **HABILIS Europe®** initiative has been launched to produce a low-cost/high efficiency concept for tele-rehabilitation in Europe (www.habiliseurope.eu). Starting from specific needs our team is able to deliver complete ICT solutions and services to end-users in the field of assistive technologies. The whole development process is managed in compliance with the applicable ISO standards for medical devices (ISO 27000 series, ISO 13485, ISO/IEC 62304, ISO 14791). Signo Motus also acts as exclusive Italian distributor of Pixel Technology s.c. RIS (Radiological Information System), PACS (Picture archiving and communication system) and teleradiology software. Signo Motus offers support in the design, implementation, maintenance and technical assistance of innovative solutions dedicated to digital imaging and diagnostic facilities applied to radiology.
- ✓ **Robotics and Automation** – to provide advanced robotic solutions, including design, programming, sub-systems assembly, testing and validation of robotics systems prototypes. The typical engineering services provided include mechanical and electrical system analysis, design, drawings & diagrams production, technical specifications definition related to electromechanical system and subsystems, control system and software design and implementation. Our engineers and technicians have extensive experience in designing (CAD 3D) and simulating (structural and thermal FEM analysis) systems for robotics, automation and control domains, particularly in medical robotics, measurement systems, sensors and data acquisition systems. Signo Motus also acts as distributor and integrator of Yaskawa Motoman industrial robots and robotic automation systems (www.motoman.com). The Company offers support in the design, implementation, maintenance and technical assistance of industrial robotics stations.
- ✓ **Smart Materials** – to design and develop innovative devices and subsystems based on such technologies, in particular on Electro Rheological Fluids (ERFs). In such a domain, advanced testing methods and equipments for the electromechanical characterization of ERFs have been developed. The Company has also a worldwide partnership with Research Centres having top-level experience on synthesis, functionalization and physical-chemical characterization of both inorganic and organic particles and nano structures. Such activities feed consistently the development of robotic devices for the rehabilitation and health domains as well as industrial applications (like shock absorbers, dumpers, clutches). In such domains Signo Motus is currently running focused researches benefiting of the experience acquired in the robotic field where non linear motion control techniques are applied to complex systems as well as of the experience acquired in mechanical modelling and simulation of electromechanical devices.

Signo Motus has a consolidated experience in research and development projects being involved in several **EU and national projects since 1994**, among which the most recent, led by Signo Motus as coordinating partner, are:

- ✓ **“HELLO DOC”** 2005-2008 (EU – Programme eTen) – An eTen project aimed at validating a home-care service by which upper limb rehabilitation is continued at home under hospital supervision. Market acceptability of the service will be tested in 3 Member States.
- ✓ **“CLEAR”** 2008-2012 (EU - Programme ICT-PSP “Pilot B”) – An ICT-PSP “Pilot B” for large scale validation of tele-rehabilitation protocols for patients affected by stroke, COPD, orthopaedic injuries and cognitive diseases.
- ✓ **“RICHARD”** 2010-2013 (EU – Programme FP7 - Regions of Knowledge) – A Regions of Knowledge FP7 project for the definition of ICT models for the management of chronic diseases.
- ✓ **“IESS”** 2010-2015 (IT – Programme F.I.T. - Fondo per l’Innovazione Tecnologica) – An Italian Research project (Fondo per l’Innovazione Tecnologica - F.I.T.), aimed at implementing an ICT based platform for the provision of innovative services of primary care and Integrated Home Care (IHC), focused on elderly, disabled and patients with chronic diseases.
- ✓ **“ADHERE”** 2010-2016 (IT – Programme P.N.R.M. - Piano Nazionale di Ricerca Militare) – A National project co-funded by the Italian Ministry of Defence to design, prototype, test and validate innovative electromechanical devices driven by smart materials (ERFs).
- ✓ **“DI-ASD”** 2015-2018 (IT – Programme POR FESR 2014-2020) – An Italian Research project (POR FESR 2014-2020 Tuscany Region) for the design and development for the assessment and monitoring of autism in the diagnostic phase.
- ✓ **“VITA NOVA”** 2016-2018 (IT – Programme FAR FAS 2014) – An Italian Research project (FAR-FAS 2014 Tuscany Region) aimed at developing an adaptive ICT service for cardiovascular and metabolic risks reduction in premenopausal and menopausal women.
- ✓ **“ERXOS”** April 2016 - September 2016 A H2020 - SME-Instrument Phase I project aimed at assess the complete viability of innovative semi-active exoskeleton devices based on ERFs.
- ✓ **“ERXOS”** October 2017 - SME Instrument Pj. N. 801680: ERXOS ElectroRheological fluid based eXOSkeleton devices for physical upper limb rehabilitation. The project has been awarded with the “Seal of Excellence” by the European Commission.

Know more at: www.signomotus.it

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