COMPANY PROFILE OF ARC - CENTRO RICERCHE APPLICATE S.R.L. (APPLIED RESEARC CENTER)

Description of the organisation

ARC – Centro Ricerche Applicate s.r.l. is a company based in Padova (Padua, Italy) with focus on coordination and development of research, development, and innovation projects in the fields of industrial sensors and biosensors. ARC design thinking and fast prototyping skills enable the implementation of proof-of-concepts functional demonstrators to prove the feasibility of companies and entrepreneurs' innovation ideas.

ARC main technology expertise is related to sensors design and development: from the tailoring of a specific detection strategy based on customers' constraints, to the scouting of off-the-shelf sensing devices that fit the customers' application, ARC can provide both technological know-how and project management skills to integrate with the partners' workflow to reach the activity goals with a risk's reduction approach.

Company activities

- Development of affinity biosensors with different kinds of probes (enzymes, aptamers, DNA strands) for liquid samples analysis (Legionella, lactate concentration, C reactive protein) with different read out strategies (electrochemical, optoelectronic, colorimetric).
- Design and development of optoelectronic and electrochemical sensors for multiplexed analysis of gas samples to detect volatile molecules.
- Design and development of functional pre-industrial prototypes of sensorized innovative products for industrial companies and entrepreneurs.
- Fast prototyping, hardware scouting and critical software development.
- Manufacturing and commercialization of plasmon resonance (SPR) sensors based on ARC patented manufacturing process.
- Manufacturing and commercialization Patented smart instrument for the application of SPR sensors to market spectrophotometers (SPECTRA).

Experience

Partner profile

ARC technology core is focused on design and development of sensors and biosensors. As these elements are ubiquitous in industrial applications, ARC know-how can be applied to several different development areas.

- Patented mass manufacturing process of surface plasmon resonance (SPR) sensors based on modified CD/DVD moulding and sputtering machines.

- Patented smart instrument for the application of SPR sensors to market spectrophotometers (SPECTRA).

- Design and development of functional pre-industrial prototypes of sensorized innovative products (examples from 2018-2022):
    - brain-computer interface for rehabilitation training sessions;
    - fish-eye cameras for IA-assisted recognition of products in vending machines;
    - compact Non Dispersive Infra Red (NDIR) spectrometer for automotive engines gas sensing;
    - remote sensing and monitoring integrated system for dump tyres internal pressure;
    - ultrasound sensors for exact dosimetry of flavours in advanced beverages plugs;
    - optical profilometers and algorithms for bending radius evaluation for innovative calendering machines;
    - laser-based system for remote assessment of dust on solar panels for day and night monitoring;
    - e-textile electrodes for ocular high-frequency stimulation with electromagnetic patterns for the dry-eye syndrome therapy.

- Optoelectronic sensors and data processing software as electronic nose for multiplexed analysis of gas samples to detect several explosives molecules families in the same sample for airport security applications.

- Engineering of read out system for innovative explosive trace detectors for border and airport security checks.

Relevant previous projects

- POSEIDON project (H2020-ICT-2014/H2020-ICT-2014-1; Grant Agreement: 644669) Plasmonic-based autOmated lab-onchip SEnsor for the rapid In-situ Detection of LegiONella.

- PATENT: "PROCEDIMENTO PER REALIZZARE UN SUPPORTO NANOSTRUTTURATO DI UN SENSORE PER MISURAZIONI MEDIANTE RISONANZA PLASMONICA DI SUPERFICIE"- patent revised and accepted number: 102016000038388

- PATENT: "PROCEDIMENTO PER REALIZZARE UN SUPPORTO NANOSTRUTTURATO DI UN SENSORE PER MISURAZIONI MEDIANTE RISONANZA PLASMONICA DI SUPERFICIE"- patent revised and accepted number: 102016000038407

- Registered Community Design of one possible SEMTEX embodiment; No 002974121-0002 (OHIM – OFFICE FOR HARMONIZATION IN THE INTERNAL MARKET).

Partner profile

- Involvement in development activity of "UB-SENSOR": Urban Security Nanostructured Sensors": Grant Agreement HOME/2009/ISEC/AG/201 – submitted under the Programme "Prevention Of And Fight Against Crime".
- INTERVENTO AGEVOLATIVO IN FAVORE DELLE MICRO, PICCOLE E MEDIE IMPRESE PER LA VALORIZZAZIONE DEI DISEGNI E DEI MODELLI (DISEGNI+3)- Spectra
- INTERVENTO AGEVOLATIVO IN FAVORE DELLE MICRO, PICCOLE E MEDIE IMPRESE PER LA VALORIZZAZIONE DEI DISEGNI E DEI MODELLI (DISEGNI+3)- SENEX
- POR FESR 2014-2020- Axis/Pillar 1-. Action 1.1.4- Call 2017- EXIN Project
- POR FESR 2014-2020- Axis/Pillar 1-. Action 1.1.1- Call 2019- IXD Project
- POR FESR 2014-2020- Axis/Pillar 1-. Action 1.1.1- Call 2017- Spectre
- POR FESR 2014-2020- Axis/Pillar 1-. Action 1.1.1- Call 2016- Sensgas
- UNIMPRESA-UNIPD-EXA Project – 2017

Contact details

web site: www.arc-projects.it

Matteo Scaramuzza: matteo.scaramuzza@arc-projects.it (www.linkedin.com/in/matteoscaramuzza)

Erica Cretaio: erica.cretaio@arc-projects.it