Profile Status: Published

Technology Request

A Dutch multinational is looking for innovative sensing solutions to help their demanding chemical processes to be 100% resource efficient.

Summary

A Dutch company is a major producer of speciality chemicals, supplying essential ingredients worldwide. To improve their productivity, the company needs a complete understanding of the processes. To achieve this, they need innovative sensors which continuously monitor the chemistry in each process as well as the behaviour of the factory equipment. They are seeking companies or universities to foster and co-develop new technologies via research or technical cooperation agreement.

Creation Date	20 December 2018
Last Update	07 January 2019
Expiration Date	08 January 2020
Reference	TRNL20181220001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/e6bc48f7-befb-4894-8a7e-2611962005c5

Details

Description

A Dutch multinational is a speciality chemicals leader supplying essential chemistry to markets worldwide. The company has spent decades optimizing the performance of their chemical plants, making them more efficient, sustainable, and safer along the way. However, to make a step change in productivity, the company needs a more complete understanding of the processes. To achieve this, they need innovative sensors which continuously monitor the chemistry in each process as well as the behavior of the factory equipment. This requires novel sensors that can withstand the corrosive environment of their plants.

In order to achieve this the following issues should be considered:
The company uses and produces highly reactive and corrosive chemicals such as ethylene oxide, chlorine, hydrochloric acid, monochloracetic acid, and sodium chlorate. This puts specific and challenging requirements on any equipment used in their production environment. In addition to this, some of the processes result in strong fouling of the equipment which is put in-line with the product streams, hampering measurement accuracy.
The company is looking for cost-effective solutions. Any new probe or sensor needs to provide a clear cost/efficiency benefit over what is currently used in their factories.

The company has two main fields of interest:

1. Understanding and monitoring the chemistry that is happening in their processes:
This will improve the output and safety of their plants and help them to steer each process closer to the optimum from a raw materials, energy, and product quality point of view.
2. Close monitoring of their production assets:
This will allow them to optimize maintenance planning, minimize downtime, help avoid unnecessary maintenance, and make the plant safer by preventing accidental machine breakdown, e.g. by detecting corrosion.

The company is looking for cooperation with partners that can help them implement these new sensors and is looking for in-line/on-line measurement approaches. Solutions that require physical sample-taking are out of scope. Cooperation with partners such as institutes, universities and companies would be in the frame of a research or a technical cooperation agreement.

The company is not looking to develop new sensors from scratch, but if they can bring together sensors and chemical protection approaches, they are happy to step in as a partner. For soft-sensor solutions they are looking for companies that have implemented example cases, within or outside the chemical industry. Finally, the company is not trying to find or develop new chemical processes, nor are they looking for algorithms on their own.

IMPORTANT NOTE: This technology request is an innovation challenge and is published on an open innovation platform from the 8th of January until the 8th of March 2019. If an organisation does express interest in cooperation with this firm before closing date, it will be guided towards this open innovation platform on which one can get in touch with the company experts. Mind that posts on this platform are not confidential.
Beside open discussions on the platform, sharing of confidential information will be made possible on demand. After that, the firm will select the SME's with whom they would like to cooperate in the development of a solution. Once the challenge is closed, EOI's for this technology request will be treated in the traditional
way.

Technical Specification or Expertise Sought

Potential solutions include:
• Completely new sensors measuring key process parameters like pressure, temperature, pH, or chemical composition (e.g. very low levels of cationic and anionic impurities in brine) in challenging chemical environments. Besides sensors with greater sensitivity, new sensors with improved selectivity and low operational costs (non-invasive, not requiring chemicals, low maintenance) are also of interest.

• Solutions that drastically reduce fouling risk, e.g. for the purpose of reliable automatic detection of phase separation.

• Protection mechanisms that enable them to use existing sensors in the demanding reactive environment of our plants, including methods which prevent or tackle sensor/probe fouling.

• Soft sensors which make use of new/ existing sensors in combination with modeling algorithms to allow them to monitor process parameter(s) which cannot be directly measured.

Further criteria:
• Solution can be applied in, or complements, their existing manufacturing processes.
• More than just an idea: in pilot stage or an early stage with a clear proof of concept.
• Fit to the current technologies and markets of the company.
• Impact of the idea in the short term (revenue, quality, scalability, time to market, etc.)
• Quality and maturity of the team.

Stage of Development

Available for demonstration

Comments Regarding Stage of Development

Since this request is subject of an open innovation challange also other stages of development are possible.

IPR Status

Patents granted

Comment Regarding IPR status

Since this request is subject of an open innovation challenge the IPR status will be taken into account and be discussed.

The technology could be patented in a wide range of possible countries/regions, with their eligibility for this call available for discussion

Keywords

Technology

02003001	Process automation
02003002	Manufacturing plants networks
02003005	Information processing & Systems, Workflow
02007006	Fine Chemicals, Dyes and Inks
09003	Electronic measurement systems

Market

08001001	Plastic fabricators
08001007	Coatings and adhesives manufactures
08001017	Industrial chemicals
08001018	Polymer (plastics) materials
08001019	Speciality/performance chemicals

NACE

C.20.1.2	Manufacture of dyes and pigments
C.20.1.4	Manufacture of other organic basic chemicals
C.20.1.6	Manufacture of plastics in primary forms
C.20.1.7	Manufacture of synthetic rubber in primary forms
C.20.5.9	Manufacture of other chemical products n.e.c.

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Relevant Sector Groups

Aeronautics, Space and Dual-Use Technologies
Bio Chem Tech
ICT Industry and Services
Nano- and Microtechnologies

Client

Type and Size of Organisation Behind the Profile

Industry >500

Year Established

0

Turnover

>500M

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Dutch
German

Client Country

Netherlands

Partner Sought

Type and Role of Partner Sought

Type of partners:
SME's, universities and other innovators with a focus on the research & development of new approaches and technologies enabling innovative sensing solutions to help the demanding chemical processes to be 100% resource efficient.
Type of partner collaboration:
The Dutch multinational wants to work together as equal partners, under shared-IP conditions, this could be in the form of:
Technical cooperation agreement or Research agreement
Or any other kind of agreement that suits the purpose.

Type and Size of Partner Sought

SME 11-50,University,R&D Institution,SME <10,251-500,SME 51-250

Type of Partnership Considered

Technical cooperation agreement
Research cooperation agreement

Profile Status: Published

Technology Offer

Procedure for the association of imaging information obtained following non-destructive, non-invasive investigations conducted with photonic techniques

Summary

A team of Romanian researchers has developed a visualization technology for the investigation of data obtained on the surfaces of the work of arts. This technology delivers a series of visual data, in digital format, associated with a 3D replica of the investigated surface; the data is presented as textured images on the surface of the 3D model. The Romanian research team is looking for SMEs, universities and research institutions for services and/ or research cooperation agreement.

Creation Date	10 December 2018
Last Update	13 December 2018
Expiration Date	14 December 2019
Reference	TORO20181127001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/50bfbbd3-d3d5-480f-9d05-89e711e7e48f

Details

Description

A group of Romanian researchers active in the field of fundamental and applied research in optoelectronics has developed an unified complex digital model. The digital package of data visualization of complementary investigations is actually a 3D online interactive graphic interface based on a procedure for the association of imaging information obtained following non-destructive, non-invasive investigations conducted with photonic techniques.
Currently, there are methods and algorithms for obtaining 3D digital representations by using stereoscopic photographs as well as methods for overlaying 2D digital images with 3D digital models used in texturing 3D graphics in the multimedia industry. But there was no unitary model of simultaneous viewing, on a digital replica of a 3D surface, of the multi-layer imaging information provided by several photon investigation techniques. The Romanian team solved this technical problem by developing an unified complex digital model; thus, the digital support of the 3D replica of the object or surface studied allows the hidden details of the paintings to be found on any kind of support and detachments or "hidden" defects under the layers of paint or even plaster. Plus, the digital replica can also be studied in detail in other locations outside the site or museum (e.g. in laboratory or classrooms) and there is no need to have a team of experts on site. In conclusion, the invention relates to a procedure for the association of imaging information generated by non-invasive and non-contact photon techniques of investigating the quality of multi-layer surfaces of art objects.
The investigation and diagnosis techniques contained in the present visualization technology

are: 3D laser scanning, LIF Scanning (Lase Induced Fluorescence Spectroscopy), LDV scans (Laser Doppler Vibrometry), multispectral & hyperspectral imaging, thermal imaging, colorimetry and microscopy.
The investigation devices deliver data as images representing specific characteristics of the investigated surface. Having such a collection of different data types from different devices may be confusing for some investigators. Therefore, instead of looking at several distinct data images and a digital 3D model of an investigated area, the digital model contains all the available data of the studied surface. In this respect, the researchers have developed a method of correlating all the imagistic data results on the surface of a work of art with its 3D digital representation. The resulted models are accessible via the Internet in a virtual interactive environment that allows the viewer to study the investigated surface with all the needed data overlapped on the areas where they were collected.
The overtone of the results with the 3D model is made based on the matrices of the investigated areas, by associating every pixel of the 2D recorded images as intensity distribution maps with the vertex group corresponding top that pixel, from the 3D digital model of the scanned area. Based on data correlations, the 3D model of the area will be created and it will be glued to the other areas so as to create the final 3D digital replica of the object.
The Romanian team is looking for SMEs, university or R&D centres etc. for collaboration based on services or research cooperation agreement.
Via services agreement the Romanian researchers are offering professional services related to the digital model to universities, museums, local authorities, SMEs, R&D institutes etc. that are seeking for a specific partner able to perform the complex procedures of the visualization technology.
The results that the Romanian team expects to achieve via research cooperation are the improvement of the digital model capacities and further development of ideas associated to this visualization technology by cross-disciplinary approach. Thus, the research cooperation has the potential to discover new openings in the area of optoelectronics & related fields.

Advantages and Innovations

A first advantage of this procedure is that it uses high-precision non-contact and non-destructive photon techniques to record information on the quality and condition of the surface preservation and hidden layers of an artifact, which may be fragile to mechanical contacts of any kind.
A direct benefit of the Romanian unified complex digital model thus obtained is the fact that it offers specialists in the field of preservation and restoration of art works, historians, insurers, curators, extremely useful information about the following aspects:
- the integrity, quality and relief of the surface of the investigated object, at a high level of precision;
- the conservation status and possible biological attacks, with the mapping of their intensity distribution on the investigated area;
- the differences between pigment compositions that may belong to subsequent interventions;
- the history of the restoration of the work of art, by highlighting any retouches or even detachments in the hidden substrates
This information is available simultaneously, without the need of the specialist in the field, being able to access and view the digital model in the laboratory or at home, requiring only a personal computer and, more importantly, without involving the physical manipulation of the object.

Stage of Development

Field tested/evaluated

IPR Status

Patents granted

Comment Regarding IPR status

Patent granted by the Romanian State Office for Inventions and Trademarks.

Profile Origin

National or Regional R&D programme

Keywords

Technology

005006003	Laser Technology
01005001	Cultural Heritage
05003002	Optics
11005	Infrastructures for social sciences and humanities

Market

07005006	Other consumer services (including photo processing)
09003001	Engineering services
09003006	Media related services
09003007	Other services (not elsewhere classified)

NACE

M.72.1.9	Other research and experimental development on natural sciences and engineering

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Open for EOI : Yes

Dissemination

Relevant Sector Groups

Tourism and Cultural Heritage

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

1992

Turnover

<1M

Already Engaged in Trans-National Cooperation

Yes

Certification Standards

ISO 9001

Languages Spoken

English

Client Country

Romania

Partner Sought

Type and Role of Partner Sought

The digital model can be necessary in carrying out the activities within universities, museums, local authorities, SMEs, R&D institutes etc.; thus, there is a wide range of potential partners who could be interested in the professional services offered by the group of Romanian researchers. As the use of the visualization technology for the investigation of data obtained on the surfaces of the work of arts requires a high level of expertise and technical ability, the partner sought should be interested in contracting these services for a mid to long term partnering services (on the basis of a services agreement). The particular aspects of the visualization technology services are to be agreed between the Romanian researchers and the potential partner, depending on the specific requirements of the latter.
Research cooperation agreement is also envisaged with international SMEs, university or R&D institutions active in the same or a related field of activity, which could be interested in working together with the Romanian researchers for the future development of the digital model. Furthermore, by combining different fields of research, the research co-operation can lead to innovative solutions related to the association of imaging information, which will then be available for use in different fields of business and public organizations.
The potential future development should be directly discussed with the Romanian partner based on foreign new ideas.

Type of Partnership Considered

Services agreement
Research cooperation agreement

Attachments

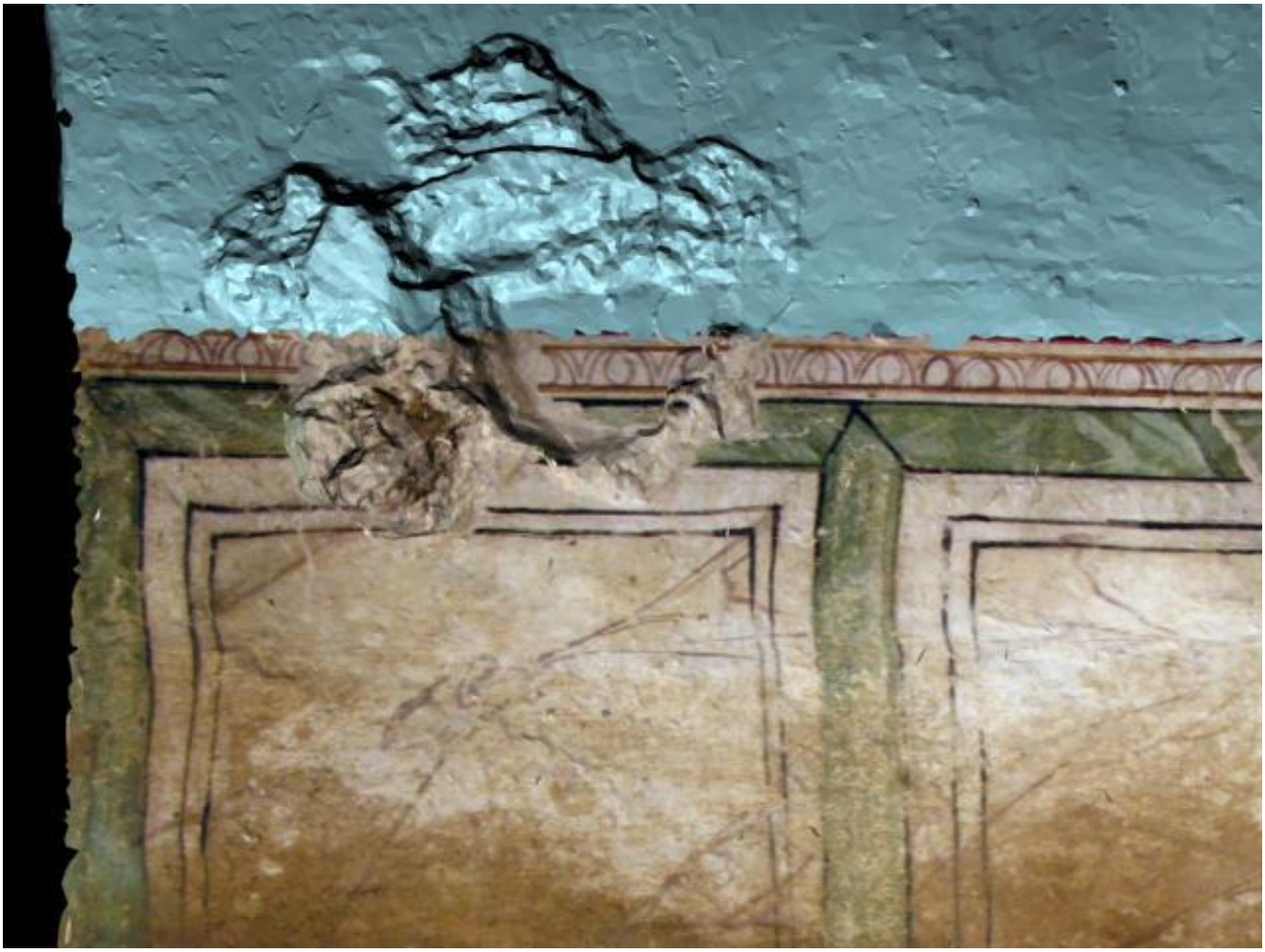
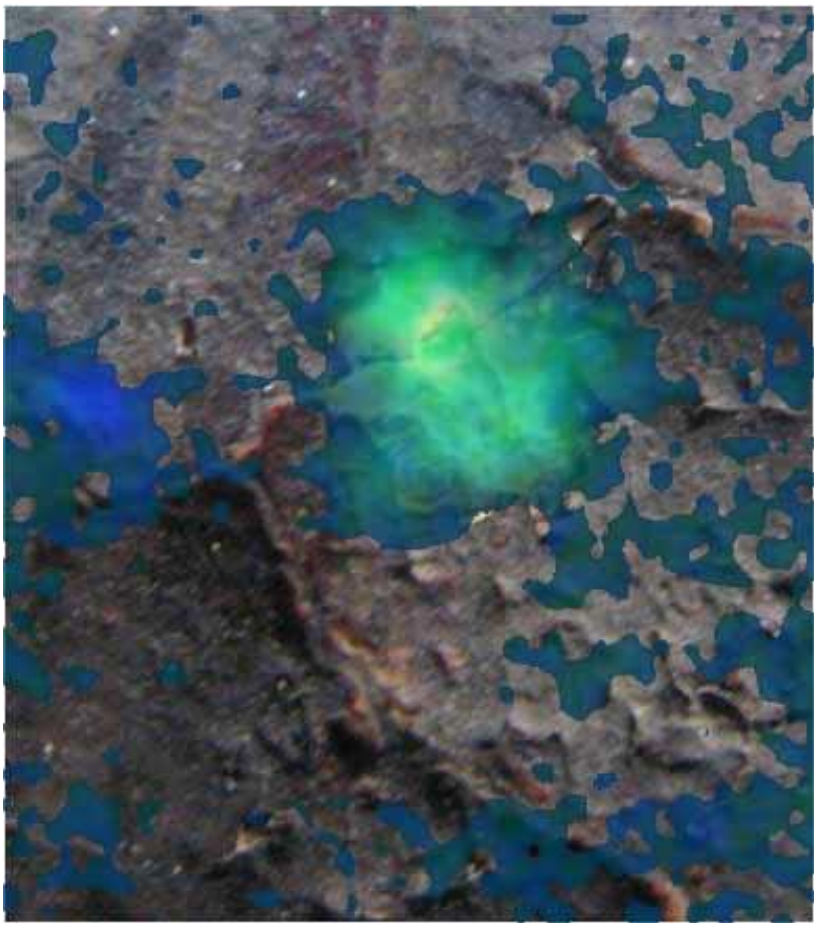


Photo overlay in visible with the intensity distribution map for laser-induced fluorescence scanning



Association of a sub-zone of a 3D replica with the image in the visible mode

Profile Status: Published

Technology Request

The Ukrainian company is searching for technology for wooden magnetic levitation toy

Summary

The Ukrainian company is looking for the partner for developing a children's wooden toy, which includes the option of magnetic levitation. As magnetic levitation, the SME understand the technology or the method of lifting and fixing the object at a certain height using only a magnetic field. The company interested in partners for technical, manufacture or research cooperation.

Creation Date	27 November 2017
Last Update	28 December 2018
Expiration Date	29 December 2019
Reference	TRUA20171106001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/c3d98813-a679-41a5-b042-98f16103e721

Details

Description

The Ukrainian SME is seeking for partners with the expert knowledge in a magnetic technology. The company's core business is games for children. The SME wants to create the new toy. Concept of this game: board game with wooden figures of different types of birds, which are flying above the board surface (fields of competition), and their movement in the air from place to place takes place according to the rules of the game for the competition of two players with each other.
The company studied examples and counterparts (described below) of toys and levitation products. However, none of those methods of achieving the magnetic levitation is acceptable for the described wooden toy, which is intended for children from the age of six years and should be safe during exploitation.
The company is looking for partners for technical, manufacturing or research cooperation through contracting, consequently, of the technical, manufacture or research agreements.

Technical Specification or Expertise Sought

The company is searching for the technology or a way to use magnetic levitation, which will allow achieving the levitation of a bulky piece of solid wooden toys over the surface from wood, without the use of electromagnetism.
An additional challenge is a search for alternatives (other than magnetic levitation) how to use the phenomenon of magnetism for children's wooden toys.

Stage of Development

Under development/lab tested

Comments Regarding Stage of Development

The company has investigated such technologies (methods) and examples of the application of magnetic levitation:
• levitation of pyrolytic carbon plates (diamagnetism)
• quantum levitation (Meissner effect)
• maglev or magnet plane – train on a magnetic suspension, which is driven and guided by magnetic forces
• levitron – a dipper that rotates, which able to "hang out" in the air over a special magnetic base of neodymium magnets
• a table lamp and pots with the option of electromagnetic levitation, developed by the Swedish company
• board game «Hoverkraft levitating construction challenge», which for the staticity of the flying plate applied an additional vertical fastening

IPR Status

Other

Keywords

Technology

01002006	Magnetic and superconductor materials/devices

Market

07001003	Toys and electronic games

NACE

C.32.4.0	Manufacture of games and toys

Network Contact

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Open for EOI : Yes

Dissemination

Relevant Sector Groups

Creative Industries

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

2015

Turnover

<1M

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Russian

Client Country

Ukraine

Partner Sought

Type and Role of Partner Sought

The company is offering a partnership to producers and inventors of games and toys in a form of manufacturing, research or technical agreement. The company is interested in cooperation with foreign partners so that the toys based on the company's ideas could enter into mass-production and be introduced in the market. The idea and basic mechanics of the toys have been worked out by the company, a partner just has to develop the technology of the products and manufacture them.
For each type of agreement:
• Type of partner sought: manufacturers or inventors of children's entertainment products (partner who is looking for new technology or a way to use magnetic levitation, companies which are searching for alternatives (other than magnetic levitation) how to use the phenomenon of magnetism for children's wooden toys, companies which have experience in production such kind of toy)
• Role of partner sought: to develop offered concepts of the toys, and produce their final variant.

Type and Size of Partner Sought

Inventor,R&D Institution

Type of Partnership Considered

Manufacturing agreement
Technical cooperation agreement
Research cooperation agreement