Technology Offer

Enhanced vehicle wiper blade system

Summary

A Bulgarian research team has developed an enhanced wiper blade cleaning system designed to remove rain and debris from windshields and headlights without freezing even in the harshest winter conditions. The innovative technology is compatible with all vehicle types, which ensures a large marketing potential. The researchers are interested in signing financial, joint venture or license agreement.

Creation Date	05 November 2014
Last Update	21 November 2014
Expiration Date	21 November 2015
Reference	TOBG20141105001

Details

Description

A team of researchers, based in Bulgaria, has developed an innovative vehicle wiper blade cleaning technology comprising of an integral high-pressure washer fluid dispensing system, ensuring efficient cleaning and removal of stubborn stains, and a fluid heating element, allowing operation at temperatures as low as -40 ºC. The device includes a plurality of nozzles along with a valve which regulates the flow and enables a hammering action upon activation.

The technology can be implemented in the automotive industry, but also is adaptable for application in the marine and the building cleaning sectors. The new way of cleaning, the compatibility with all vehicle types and the possible types of wiper motion (pendulum, pantograph, straight-line) assert the considerable marketing potential of the device.

The researchers are looking to sign a financial, joint venture or license agreement.

Advantages and Innovations

The wiper blade cleaning system has a wide range of applications. The design of the device does not allow neither water jet nor fluid film to be seen during the cleaning process, thus leaving the windshield surface clean without any driver distractions. It has been estimated that the hammering action enabled by the flow-regulating valve leads to 30-40% cleaning solution savings compared to conventional systems. The adjusting valve also allows accurate control of time and pressure inside the cleaning blade. The heating element of the system vaporizes (when is needed) the cleaning fluid before application thus enabling steaming for defrosting and cleaning the heavily polluted windshields.

Stage of Development

Prototype available for demonstration

IPR Status

Patent(s) applied for but not yet granted

Comment Regarding IPR status

This U.S. Patent Application is related to and claims priority to the :

- Patent Application from the Patent Department of Republic of Bulgaria

- U.S. Provisional Application

- U.S. Patent Application

Profile Origin

Private (in-house) research

Keywords

Technology

002002001	Cleaning (sandblasting, brushing)
002009001	Design of Vehicles

Market

009001005	Motor vehicles, transportation equipment and parts

NACE

C.28.1.5	Manufacture of bearings, gears, gearing and driving elements
M.72.1.9	Other research and experimental development on natural sciences and engineering

Dissemination

Send to Sector Group

Automotive, Transport and Logistics

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

0

Turnover

<1M

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English

Client Country

Bulgaria

Partner Sought

Type and Role of Partner Sought

The research team seeks financing to complete the technical development of the product and also looks to sign a financial, joint venture or license agreement with a large automotive manufacturing or heavy machinery company, which is expected to support the production and boost the export of the product.

Type and Size of Partner Sought

251-500,>500

Type of Partnership Considered

License agreement
Financial agreement
Joint venture agreement

Technology Offer

Ship propulsion system based on an oscillating wing enabling cleaner, quieter and more cost efficient shipping

Summary

A Dutch techno start-up company with a strong base in maritime industry has developed a patented ship propulsion system where an oscillating wing is used instead of a propeller. This propulsion is very attractive for shallow waters. It offers substantial fuel savings and is very quiet. An inland ship demonstrator is available. The company is looking for lead customers in new market segments for technical cooperation, subcontracting and is open for a financial agreement.

Creation Date	12 November 2014
Last Update	20 November 2014
Expiration Date	20 November 2015
Reference	TONL20141111001

Details

Description

A Dutch techno start-up SME with a strong base in maritime industry has developed a patented ship propulsion system.

In the maritime industry there is a continuous drive for cost savings and improving sustainability, also because of stricter laws and regulations for specific shipping areas. In order to improve fuel efficiency, the company has developed a highly efficient propulsion technology based on a wide moving wing. The up and down movement of the wing, including tilting, is achieved with a robust crankshaft mechanism, driven by an electric engine.

The propulsion technology is applicable for short sea and inland shipping. The initial design has been done for inland shipping.

The expertise and know-how of the company comprises:
• shipbuilding and more specific ship propulsion in general
• developing, multi disciplinary engineering and testing ship propulsion technology with computer simulations, scale models and a full scale demonstrator.
• deployment of the propulsion technology in inland shipping.
• cooperation with other technology supplying partners, the ship owner and knowledge institutes

The company is looking for shipowners or shipbuilding companies that are interested to integrate this

efficient propulsion technology in a new ship, within the framework of a technical cooperation or subcontracting. Maritime system suppliers could also play this role of lead customer. To strengthen the development of this technology more in general, the start-up company is also open to financial agreements with investors.

Advantages and Innovations

The unique innovative aspect of this patented ship propulsion system is that it uses an oscillating wing instead of a propeller. It functions the same way as a dolphin's tail (bio mimicry). By utilizing the ship's width a bigger propulsion surface is available than for a propeller. The wing is moved up and down in a specific way by a crankshaft mechanism. The mechanisme is driven electrical enabling hybrid or full electric operation.

The primary advantage of this propulsion technology is that it has the potential to save up to 50% fuel. Because fuel costs are one of the mayor cost items in the shipping sector it substantially contributes to cost efficient shipping and more profitable business operations. It will also support the modal shift from road and rail transport to transport by ship. Less fuel consumption reduces the environmental impact of transport and contributes to a cleaner and more sustainable society.

Another advantage compared to a propeller is that the wing propulsion produces little to no noise pollution and gives very little disturbance of the riverbed in shallow water.

Stage of Development

Prototype available for demonstration

IPR Status

Patents granted

Profile Origin

National R&D programme

Keywords

Technology

002009005	Shipbuilding
002009006	Traction/Propulsion Systems

Market

009001007	Other transportation

NACE

H.50.1.0	Sea and coastal passenger water transport
H.50.2.0	Sea and coastal freight water transport
H.50.3.0	Inland passenger water transport
H.50.4.0	Inland freight water transport

Dissemination

Send to Sector Group

Maritime Industry and Services

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

2010

Turnover

<1M

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 partner sought:
Companies active in the maritime industry.

- Specific area of activity of the partner:
Ship owner or shipbuilding company in inland or short sea shipping. Maritime system supplier for the shipping industry. Investor.

- Task to be performed by the partner sought:
Ship specification by the ship owner or ship builder. Cooperate closely during the integrated ship design. For system suppliers: deliver complementary system knowledge
Invest in the techno start up company.

Type of Partnership Considered

Financial agreement
Technical cooperation agreement

Technology Offer

Autonomous On-line Active Vibration/Noise/Flow Control Systems

Summary

A Greek company has developed an advanced application that enables the online creation/operation of systems for active control/reduction of vibration/noise/flow. The developed technology, requiring no expertise and model-independent, has applications in equipment, environmental control systems, structures, engines, transport/vehicles (aviation, automotive, marine, rail), manufacturing and construction. The company seeks research cooperation, technical cooperation and/or joint venture agreement.

Creation Date	19 November 2014
Last Update	26 November 2014
Expiration Date	26 November 2015
Reference	TOGR20141003004

Details

Description

The development and implementation of active control / reduction systems, further to multi-disciplinary expertise, depends upon a number of requisites (i.e., application information, experiments, as well as the development of system model(s) and their simulation), in order for efficient & effective solutions to be produced. In the absence of the former, methods that enable on-site / on-line systems development (with as few resources as necessary) are required. The developed technological offering comprises the following features/modules:

• Signal Acquisition - Frequency Analysis - System Excitation: Data Acquisition parameters set-up, Acquisition and identification of the characteristics of the ‘primary’ field, System stimulation/excitation sequences (random), i.e., 'secondary' field, Acquisition of the ‘combined’ field (i.e., 'primary' + 'secondary'). All data sets that are generated during this first phase are to be utilized as exemplar patterns for the next sequence.

• Actuator(s) - Sensors system modelling: A system behavioural model, based on Artificial Neural Networks (ANNs), is generated, whereas the actuator-sensor system’s Transfer functions are also determined.

• System Controller: A system controller, based on Evolutionary Algorithms (EAs), is generated. The system controller (in combination with the ANN-based system model) determines the optimal parameters / control actions to be applied to achieve best possible reductions in vibrations, noise, T-S instabilities (flow transition), etc.

The developed methodology and technology is applicable for the in-line production or the retrofit application of systems for Active Vibration Control (AVC), Active Structural Acoustic Control (ASAC), Active Noise Control (ANC), Structural Health Monitoring (SHM - active or passive), Active Flow Control (AFC), or simultaneous / parallel active-control and/or system-monitoring combinations.

The Greek company is seeking other interested companies (SMEs/industries in the fields of ICT, Transport, Healthcare, the Environment, Energy, or Construction) for a joint venture agreement, and/or research bodies in the above fields for a possible research cooperation agreement (e.g., H2020, JTIs) or technical cooperation agreement.

Advantages and Innovations

• Specific scientific or engineering expertise is not required.

• The user is not required to have, or have developed, relevant models (e.g., Finite Element Method (FEM), Computational Fluid Dynamics (CFD), etc.) or simulations, nor is it necessary for controllers to have been developed.

• Several functions are executed online: the controller generation functions, as well as behavioural modelling, and the computation of sensing/control network (sensor-actuator network) transfer functions.

• The majority of the application's operations are automated.

Stage of Development

Available for demonstration

IPR Status

Secret Know-how

Profile Origin

Private (in-house) research

Keywords

Technology

001002024	Environmental and Biometrics Sensors, Actuators
002006017	Construction maintenance and monitoring methods & equipment
002009025	Interior equipment
002010001	Aeronautical technology / Avionics
005006009	Vibration and Acoustic engineering

Market

002003	Specialised Turnkey Systems
008002007	Other industrial automation

009001001	Airlines
009001005	Motor vehicles, transportation equipment and parts
009007008	Manufacture of construction materials, components and systems

NACE

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

Dissemination

Send to Sector Group

Automotive, Transport and Logistics

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

1995

Turnover

<1M

Already Engaged in Trans-National Cooperation

Yes

Experience Comments

In the EU Framework Programmes for Research, the Greek company has participated to approx. 30 research initiatives (FP4 - FP7) in areas including Aeronautics & Surface Transport, ICT. Public-Private-Partnerships (e.g., Factories of the Future, etc. PPP topics), Energy & Environment, and Security.

Languages Spoken

English
Greek

Client Country

Greece

Partner Sought

Type and Role of Partner Sought

The Greek company is seeking other companies, e.g., SMEs, Clusters, Industrial (OEMs, Tier-level supplier, Operators) entities in the fields of Transport (aeronautics/aviation, maritime, automotive, rail), Manufacturing, Construction, Energy, Appliances, Interiors, and Occupational Health & Safety, for joint venture agreement (e.g., incorporation of the offered technology in their products/systems, joint services/product promotion, industrialization towards new products/services, or other possibilities). The company also seeks research, experimental, prototyping (products, mock-ups, etc) bodies or entities in the above fields for a possible research cooperation agreement (e.g., H2020, JTIs, International) or for technical cooperation agreement for the further developments/adaptations/integration (components, systems) w.r.t. the offered technology or technological fields that are addressed.

Type and Size of Partner Sought

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

Type of Partnership Considered

Technical cooperation agreement
Joint venture agreement
Research cooperation agreement