Smart waste management tool based on real-time data.

Summary

A Southern Spanish SME, active in the field of Telecom, has developed a tool for optimising collection routes by constantly monitoring the content level of waste containers. By installing sensors in the containers, it´s possible to be alerted for collection based on container content level or temperature variation. They are seeking IT companies, Research Centers and Public Administrations for different types of agreements: commercial with technical assistance, technical/research cooperation.

Creation Date	03 November 2016
Last Update	15 February 2017
Expiration Date	15 February 2018
Reference	TOES20161028001

Details

Description

Treatment and management of garbage are one of the most important issues that any Public Administration (mostly Local) has to deal with.

It involves large expenditures (investment costs, operational costs and environmental costs) and shows a high impact on the quality life of citizens and in the environmental conditions.

Planning the collection of solid urban waste is based on predefined routes and experience, causing unnecessary costs and underuse of equipment. Often empty containers are collected and full containers overloaded, causing an increase in cleaning costs.

A Southern Spanish SME, very active in the field of Telecommunications and settled in a Technology & Science Park, has developed a novel waste collection, monitoring system to plan, monitor and select the optimal route for garbage trucks based on real time traceability data.

This system optimizes collection routes by constantly monitoring the content level of waste containers.

By installing sensors in the containers, it is possible to receive real-time alerts for collection based on container content level or for temperature variation (fires) enabling a reduction in damage liability and response time.

This innovative solution applies innovative concepts in this field, making it more dynamic and adapted to technologies that have been developed in laboratories such as WSN (Wireless Sensors Network) and GPS (Global Positioning System) and some other communications technologies which are rising right now in IoT (Internet of Things) like Sigfox, Lora, Narrow Band.

The system is made of 2 components:

1. The monitoring device installed inside the containers. It is responsible for gathering real-time data turning every container into an active and intelligent element. Each sensor is capable of measuring the filling level of the container autonomously, the interior temperature or detect a sudden movement. Each device can be configured remotely via client-enabled website.

2. Online management platform (Software as a Service (SaaS) model) with the following features:

Cloud data repository.
Dashboard and remote configuration of devices.
Web application developed with latest technologies.
Monitoring information.
Alerts.
Reports.

The key fact in this solution is having information about the replenishment level at each bin and therefore, based on this information, reorganize the collection route, the containers´ location, change the time of the collection… to optimize the management in order to save energy, fuel and avoid people inconveniences related to waste collection (noise, smells, traffic collapses...).

This system is specially adapted to inorganic garbage like papers or glasses, packaging, clothes among others.

Current and Potential Domain of Application:
- Garbage management in Smart Cities.
- The solution can be applied to many other contexts like management of stock or supplier chains.

The Spanish SME is interested in getting in contact with several types partners. Collaboration to be approached would depend on the partner needs or type:

a) Final users (Public Administrations - areas of Cleaning and waste management), are sought for commercial agreements with technical assistance according to their needs.
b) ICT services and/or sensoring firms will contribute via technical cooperation or commercial agreement with technical assistance.
c) Research Centres are sought for collaborative Research projects.

Advantages and Innovations

Advantages:
1. Improve routing and changes collection frequency.
2. Avoid containers overfilling.
3. Fuel and staffing cost-saving.
4. Contributes to maintain the cities healthier and cleaner: reduction of traffic congestion and CO2 emissions reduction.
5. Helps to decrease waste collection expenditures and contributes to the protection of the environment.
6. Citizen awareness: Increased visibility of the service provider through publication of bin fill status and location data in web platforms and multiple channels (corporate web, cellphone, tablet...). This service next to web and mobile services and apps also stimulates citizen participation; in the end, thus increases citizen satisfaction with public services related to waste collection
7. Helps to sustain the environment for future generations by developing Green IT.

Innovations:

1. Provides real time information and dynamic route planning in order to calculate the optimal and smartest route in terms of number of bins and collection frequency and therefore, a reduction in fuel and human resource costs.
2. Detection alerts for waste decomposition through temperature sensor installation and also fire alarm capacity
3. Application of ICT concepts to a quite different field as it is garbage collection. Bring together many different technologies into one project taking advantage of existing synergies between them.
4. Increase possibilities to recycle garbage.

Stage of Development

Already on the market

Comments Regarding Stage of Development

This tool is under a continuous development.

IPR Status

Copyright

Profile Origin

National or Regional R&D programme

Keywords

Technology

01003022	Smart Appliances
01003024	Cloud Technologies
01003025	Internet of Things
01006008	Satellite Technology/Positioning/Communication in GPS
10003	Waste Management

Market

06010002	Energy for the community/public sector
08004003	Water treatment equipment and waste disposal systems
09001	Transportation
09008002	Water, sewerage, chemical and solid waste treatment plants

NACE

J.62	Computer programming, consultancy and related activities

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group
ICT Industry and Services

Client

Type and Size of Organisation Behind the Profile
Industry SME 50-249

Year Established
2008

Turnover
1 - 10M

Already Engaged in Trans-National Cooperation
Yes

Certification Standards
ISO 9001
ISO 14001

Languages Spoken
English
German
French

Client Country
Spain

Partner Sought

Type and Role of Partner Sought

Type of partners sought:
Companies, SMEs, Research Centres, Public Administrations.

Specific area of activity of the partner:
a) ICT services and/or sensoring in case of companies, SMEs or Research Centre.
b) Cleaning or waste management in case of Public Administrations.

Tasks to be performed by the partner sought:

a) In case of final users (Public Administrations), the partner sought will provide his specific needs for customisation and implementation of the technology by the Spanish SME or any other technical partner. They would contribute to dissemination of the technology as a best practice of route optimization services. Commercial Agreements with technical assistance are sought for this type of partner.

b) ICT services and/or sensoring firms will contribute via technical cooperation or comercial agreements with technical assistance in terms of: dissemination, technical consultancy, technical support, maintenance and join upgrading of the technology (if necessary)

c) Research Centres will cooperate in terms of collaborative research projects that might contribute to dissemination or upgrading the technology.

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

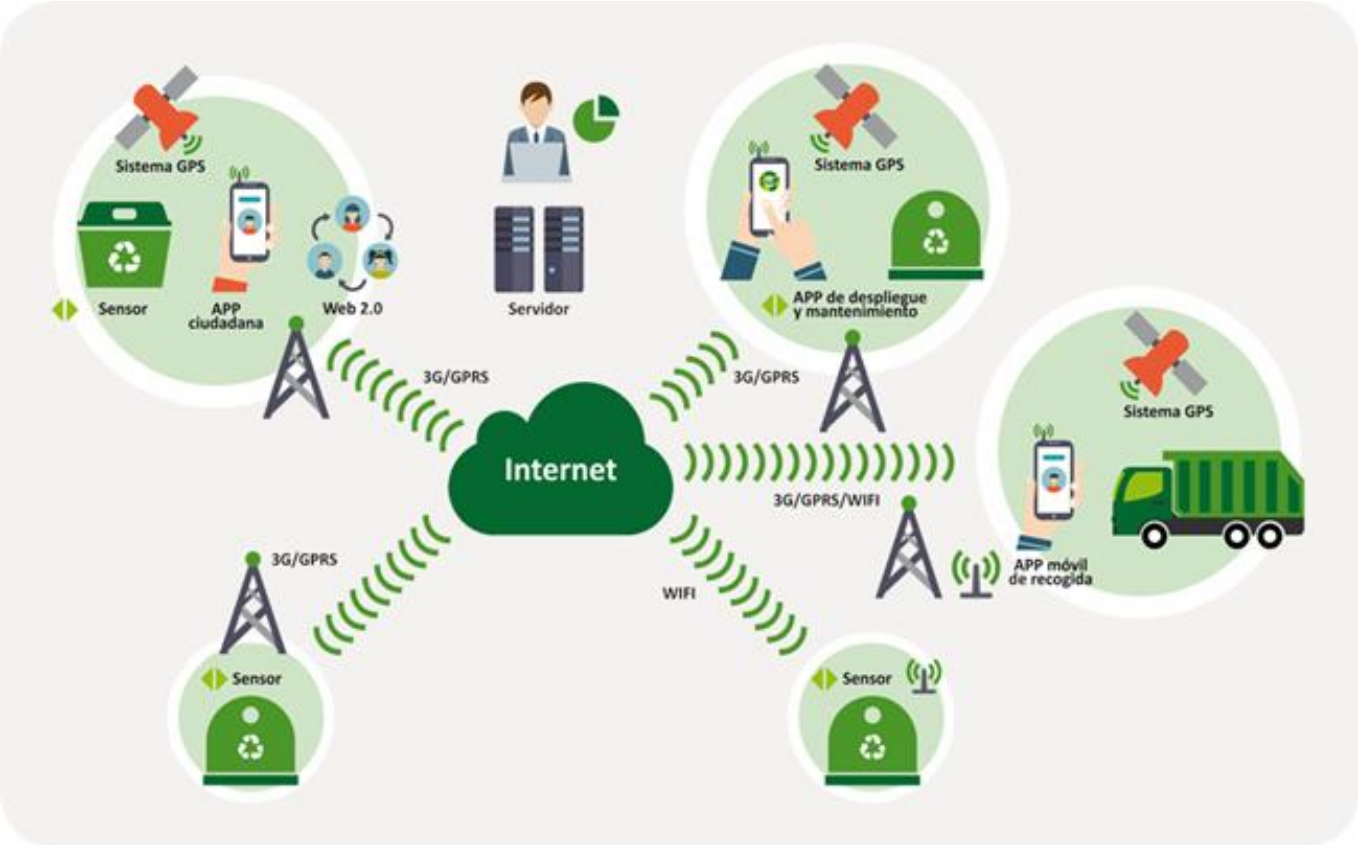
Commercial agreement with technical assistance
Technical cooperation agreement
Research cooperation agreement

Attachments

where to install.png



garbage tool.jpg


Sistema GPS
Sensor
APP ciudadana
Web 2.0
Servidor
Sistema GPS
APP de despliegue y mantenimiento
3G/GPRS
3G/GPRS
Internet
3G/GPRS/WIFI
Sistema GPS
APP móvil de recogida
3G/GPRS
WIFI
Sensor
Sensor

Polish independent inventor offers concepts of two educational toys for toddlers and school-age children, improving their communication abilities and grasp of algebra, respectively

Summary

A Polish inventor of children's entertainment products is offering concepts of two new educational toys. The first one improves communication between babies/toddlers and their parents. The second one helps to teach school-age children basics in algebra, giving them a better understanding of equation-solving through fun and play. Cooperation in the form of commercial agreement with technical assistance or license agreement is offered to producers of toys and games.

Creation Date	12 April 2017
Last Update	18 April 2017
Expiration Date	18 April 2018
Reference	TOPL20170328001

Details

Description

An independent inventor of games and toys from the North West Poland has developed and is offering concepts of two educational toys.

The first of the toys is intended for babies and toddlers (age of up to 2 years). At that stage of development, a child usually neither speaks nor communicates in any other way. Such situation is often a source of frustration for both sides, child and its parents. The former would like its needs to be promptly met, the latter desires to recognise them as soon as possible (so that baby stops crying). Moreover, most parents prefer their child to start speaking (communicating) sooner rather than later. So far the only solution has been to teach them a baby sign language. As that requires knowledge, patience and is a time-consuming activity, not many parents undertook it, and even less were successful. The inventor has developed alternative, more accessible solution – a toy that allows a child to communicate its basic needs in a manner clear and comprehensible to the parents. It acts as a sort of an intermediary, a conduit of information between the two.

The second toy is dedicated for school-age children (6 to 12 years young) and its aim is to teach them elementary algebra. Children at that age are taught formulas, mechanics of solving equations (e.g. a multiplication table). As a result, kids may know 'how' to solve them but they lack understanding of 'why' (inner workings, logic) behind the formulas. Moreover, things learnt in such a manner (by heart) are considered by specialists as hard to absorb and easy to forget. To tackle those problems, the inventor came up with an idea for the toy that teaches children algebra and equations solving through practical experiments. They learn, i.a. which operations

are allowed and which are prohibited (and why), while they play and have fun. Positive emotions reinforce gained knowledge and create warm connotations with algebra (or mathematics in general).

The inventor is offering a partnership to producers of games and toys in a form of commercial agreement with technical assistance or licensing agreement. He is interested in cooperation with foreign partners so that the toys based on his ideas could enter into mass-production and be introduced in the market. Principal element and basic mechanics of the toys has been worked out by the inventor, a partner just has to develop final design of the products and manufacture them.

Advantages and Innovations

The main advantage of the offered toys is that they tackle problems that so far have been unanswered or overlooked by other designers/manufacturers of children's entertainment products. Available educational toys for babies and toddlers have been teaching them things of secondary importance, such as shapes or sounds made by animals, but have ignored their vital, most essential needs. In contrast, the first of the offered products helps them communicate those needs in a manner understandable to their parents. The second toy is unique and better than its competitors because it both teaches and explains (gives comprehension of) equations solving methods, while similar products are focused only on the 'teaching' part.

Stage of Development

Concept stage

IPR Status

Secret Know-how

Profile Origin

Private (in-house) research

Keywords

Technology

11002	Education and Training
11009	Creative products

Market

07001003	Toys and electronic games
09004008	Other manufacturing (not elsewhere classified)

NACE

C.32.4.0	Manufacture of games and toys
M.74.1.0	Specialised design activities

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Restrict Dissemination to Specific Countries

Austria, Belgium, Bulgaria, Croatia, Cyprus, CzechRepublic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UnitedKingdom,

Client

Type and Size of Organisation Behind the Profile

Inventor

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

Poland

Partner Sought

Type and Role of Partner Sought

For both commercial agreement with technical assistance and license agreement
• Type of partner sought: manufacturers of children's entertainment products
• Role of partner sought: to purchase/license offered concepts of the toys, develop their final design and introduce the products in the market

Type and Size of Partner Sought

SME 11-50,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Commercial agreement with technical assistance

Attachments

Ultra-scalable database technology

Summary

Spanish start-up has developed an ultra-scalable operational OLTP (OnLine Transaction Processing) database technology. It scales out linearly from 1 to 100s of nodes and incorporates a data warehouse engine that provides OLAP (On-Line Analytical Processing) capabilities over the operational data. The company is looking for commercial agreements with technical assistance.

Creation Date	15 February 2016
Last Update	18 December 2017
Expiration Date	26 February 2018
Reference	TOES20160212001

Details

Description

The technology developed is an operational OLTP (OnLine Transaction Processing) database that is full ACID (Atomicity, Consistency, Isolation and Durability) and full SQL (Structured Query Language).
It provides linear scalability of OLTP(OnLine Transaction Processing) database from 1 to 100s of nodes.

This technology also includes a data warehouse engine that processes analytical queries over the operational data in an online manner. In this way it provides the basis to build real-time big data analytics by enabling data analytics framework such as Spark to access the operational data.

It has polyglot integration with MongoDB, HBase and Neo4J. The integration enables to perform queries across SQL and all these NoSQL data stores combining SQL for the part of the query across data stores and subqueries written in the native query language/API. It also provides global transactions across data stores guaranteeing data consistency when storing data in multiple data stores.

The development also integrates with data streaming/CEP(Complex Event Processing) technology. Currently, it integrates with Storm and provides a Storm bolt that enables to run arbitrary SQL for each event being processed which allows to correlate events with the operational data and/or modify the operational data with the content of the event.

The company is looking for partners or clients willing to reach a commercial agreement with technical assistance.

Advantages and Innovations

-The key differentiator against existing databases is that it can scale out linearly from 1 to 100s of nodes and it is the only database technology able to match the throughput of mainframes on

commodity hardware.

- Combination of OLAP and OLTP that enables to avoid ETLs (Extract, Transform and Load) by having a single database that handles the operational database and analytical queries.

- Polyglot integration, like no other technologies, enabling:
 -Queries across SQL, MongoDB, HBase and Neo4J.
 -Global transactions across SQL , MongoDB, HBase and Neo4J.

- Integration with data streaming/CEP enabling real-time correlation of data streams with operational data and/or update of operational data based on the processing of data streams.

- Demonstrated linear scalability over 500 cores running the TPC-C (Transaction Processing Performance Council) benchmark.

Stage of Development

Already on the market

IPR Status

Patents granted

Comment Regarding IPR status

Patent granted in Europe by the EPO (European Patent Office). Currently, choosing on which European countries to enter.

Profile Origin

Other EU programme

Keywords

Technology

01003010	Databases, Database Management, Data Mining

Market

01004008	Other data communications
02006007	Databases and on-line information services
09002003	Banking

NACE

J.62.0.1	Computer programming activities

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group
ICT Industry and Services

Client

Type and Size of Organisation Behind the Profile
Industry SME 11-49

Year Established
2014

Turnover
<1M

Already Engaged in Trans-National Cooperation
Yes

Languages Spoken
English

Client Country
Spain

Partner Sought

Type and Role of Partner Sought
- Type of partner sought:

System integrators willing to use and integrate this database technology in their client projects.
Telco software companies.
Clients using large databases but lacking of some functionalities that can be fulfilled through this ultrascalable database technology: Banking, telco companies, logistic companies, e-commerce companies,...

- Specific area of activity of the partner:

System integrator developing applications on top of databases middleware.
The partner sought should be integrating and selling solutions to the following market sectors: telco, banking, logistics, e-commerce, e-adverttising, airlines; the partner must have a deep knowledge in one or more of theses sectors

- Task to be performed:

System integrator: must sell and adapt this technology to exiting databases.
Banking, telco companies, logistic companies: must integrate this technology into their existing IT system
The developer will provide the necessary technical assistance to the partner under a commercial agreement.

Type of Partnership Considered

Commercial agreement with technical assistance

Attachments

Looking for a technical solution for the recycling of of laminated glass/Windshields particularly the PVB

Summary

A Brussels based professional organization of glass recyclers is looking for a technical solution to allow for the recycling of laminated glass/Windshields, particularly the PVB (polyvinylbutyral) fraction. The organisation is looking for companies or universities with an expertise on materials in order to develop and demonstrate them with a technical agreement. This demonstration could take place in the framework of Horizon 2020 projects.

Creation Date	22 January 2018
Last Update	23 January 2018
Expiration Date	23 January 2019
Reference	TRBE20171219001

Details

Description

Based in Brussels, the non-profit European organization represents recyclers of any kind of glass in European (EU and non-EU Member States) and non-European countries. These recycling companies have great expertise in the selective collection and sorting of glass in order to separate the non-glass fractions.
The association is looking for new solution to develop technical cooperation agreement for the recycling of laminated glass/windshields.
Due to the processes used for flat glass recycling, the recycled PVB often (1) is contaminated by various concentrations of glass, (2) has been exposed to natural UV-light and (3) contains variable percentages of water.
In particular the PVB (polyvinylbutyral) in combination with glass in the building and the automotive sector represents a significant potential of secondary raw material for the circular economy and it is one of the major remaining by-product of their sorting activity of flat glass.

PVB is used notably in
- laminated glass as construction materials
- Windshields of cars
More than 90% of the sorted glass is sold as product with a European End of Waste status. The organisation is therefore looking for a technical solution for its members to be able to recycle this PVB fraction.

The ideal solution would be the reuse of recycled PVB in the production of laminated glass. Alternative applications in the textile or polymer industry, whether or not in combination with other polymers, seem more realistic on a shorter-term basis.

The organisation is looking for companies or universities with an expertise on materials, operating the materials treatment and offering solutions ideally already at TLR 5 in order to

further develop and demonstrate this technical solution under a technical agreement.

Under one option, this demonstration could take place in the framework of Horizon 2020 projects for the following topics :
- CE-SC5-07-2018-2019-2020: Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes (IA)
- CE-SPIRE-10-2018 : efficient recycling processes for plastic containing materials (IA)

Technical Specification or Expertise Sought

The PVB used in combination with glass in the building and the automotive sector represents a significant potential of secondary raw material for the circular economy.
As the specifications for the raw PVB-material required by the glass industry are very high and specific (e.g. specific plasticizers), it is common practice to use virgin PVB.

Due to the processes used for flat glass recycling, the recycled PVB often (1) is contaminated by various concentrations of glass, (2) has been exposed to natural UV-light and (3) contains variable percentages of water.

Nowadays, available outlets for recycled PVB are rather limited and do not generally fully exploit the specific characteristics and properties of PVB. As a consequence, recycled PVB is generally used in low-profile production of SRF (solid recovered fuel) or even landfilled.

Glass recyclers are prepared to upgrade the present purity grade of recycled PVB if well-defined specifications are set by potential users of such well-sorted PVB.
In other words, the glass recyclers are prepared to invest in specific sorting and storage facilities if a demand for a well-defined quality of PVB at an acceptable price can be guaranteed for a significant yearly volume.

Ideally, recycled PVB should be in the production of laminated glass with the collaboration of universities or companies operating the materials treatment.
However on a short term basis, it would probably be more realistic to foresee alternative applications in the textile or polymer industry, in combination or not with other polymers.

If possible, the solution should be already at TRL 5. Ideed, should the option of a Horizon 2020 be pursued, the following TRL are required :
- Toppic CE-SC5-07-2018-2019-2020 requires the achievement of TRL 6-7 at the end of the project
- Topic CE-SPIRE-10-2018 requires the achievement of TRL 7 at the end of the project.

Keywords

Technology

02006001	Materials, components and systems for construction
02006007	Management of construction process & life
02007007	Glass
02007014	Plastics, Polymers
10003004	Recycling, Recovery

Market

08001018	Polymer (plastics) materials
08004004	Other pollution and recycling related

09001005	Motor vehicles, transportation equipment and parts
09007002	Manufacture of construction materials, components and systems

NACE

E.38.3.2	Recovery of sorted materials

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group

Environment

Client

Type and Size of Organisation Behind the Profile

Other

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Dutch
French

Client Country

Belgium

Partner Sought

Type and Role of Partner Sought

Partners would be charge with the demonstration of this technical solution. A technical cooperation agreement could be foreseen with universities or compagnies operating the materials treatment.

Should funding be needed for this cooperation, the demonstration could be envisaged in the framework of a Horizon 2020 project. The Brussels-based organisation has identified with its NCP the following topics :
- CE-SC5-07-2018-2019-2020: Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes, and more specifically for the following subtopics:
b) Recycling of raw materials from end-of-life products (2018, 2019)
d) Recycling of raw materials from buildings (2018-2019)
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-sc5-07-2018-2019-2020.html
CE-SPIRE-10-2018 : efficient recycling processes for plastic containing materials (IA).
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-spire-10-2018.html
For such a project, both other partners and a coordinator would be needed.

Type and Size of Partner Sought

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

Type of Partnership Considered

Technical cooperation agreement
Research cooperation agreement

Attachments