

Boletín VT

REDES DE SENsoRES INALÁMBRICAS

43

3.er trimestre 2020

Vigilancia Tecnológica

Desde su aparición, los campos de aplicación de las redes de sensores inalámbricas se han ido ampliando de forma constante. La posibilidad de crear extensas plataformas de gestión integrada para la monitorización, captura de datos, y control remoto y en tiempo real mediante estas redes sensoriales, ha proporcionado una poderosa herramienta para el desarrollo de aplicaciones y servicios en sectores económicos tan diversos como el agrícola, el industrial o el de la administración pública.

El presente boletín, elaborado por la Unidad de Información Tecnológica de la Oficina Española de Patentes y Marcas (OEPM), pretende revisar la evolución de la innovación, en el marco de las patentes de las tecnologías TIC en relación con algunas de las aplicaciones más relevantes abordadas por las redes de sensores

inalámbricas, tales como: su uso en entornos agrícolas (gestión de cultivos, plagas, invernaderos, regadíos), su uso en entornos urbanos o públicos (seguridad ciudadana, infraestructuras, gestión de información medioambiental, polución, residuos) o su uso para la detección y gestión de incendios.

De este modo, el boletín, de periodicidad trimestral, recogerá las publicaciones más recientes de solicitudes internacionales de patente (solicitudes PCT) publicadas en el trimestre inmediatamente anterior a su elaboración. Se ha restringido el ámbito de este boletín a solicitudes PCT por considerarse que al ser estas solicitudes con las que las empresas pretenden proteger sus invenciones en distintos países, se corresponden con invenciones de una cierta relevancia tecnológica.

CONTENIDO:

- [Redes de sensores para entornos agrícolas](#)
- [Redes de sensores para entornos urbanos o públicos](#)
- [Redes de sensores para detectar incendios](#)
- [Otras referencias](#)

NIPO: 116-19-015-9



Oficina Española de Patentes y Marcas, O.A.
UnidadInformacionTecnologica@oepm.es

Solicitudes de Patente Publicadas

Los datos que aparecen en la tabla corresponden a una selección de las solicitudes de patentes PCT publicadas durante el trimestre analizado. Se puede acceder al documento completo haciendo clic sobre el mismo.

REDES DE SENSORES PARA ENTORNOS AGRÍCOLAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO 2020127467	SOUNDALKS NV	Method for intelligent monitoring of one or more commercial sites for livestock animals
WO 2020127448	SOUNDALKS NV	Device for monitoring the status of a livestock facility
WO 2020126211	AGCO INT GMBH	Grain cleaning system and method of controlling such
WO 2020139652	HILLS PET NUTRITION INC	System and method for associating animal behaviors with animal health
WO 2020126308	AGCO INT GMBH	Grain cleaning system and method of controlling such
WO 2020126307	AGCO INT GMBH	Grain cleaning system and method of controlling such
WO 2020127449	SOUNDALKS NV	Method for monitoring a livestock facility and/or livestock animals in a livestock facility using improved sound processing techniques
WO 2020138526	FOODYWORM INC	Insect breeding control device and method
WO 2020139305	SVISTUNOV OLEKSII	Controllable led system and method for supplementary lighting of plants in greenhouses
WO 2020136618	SISSPRE SOC IT SISTEMI E SERVIZI DI PRECISIONE S R L	Equipment for aiding the traceability of agri-food products
WO 2020126309	AGCO INT GMBH	Grain cleaning system and method of controlling such
WO 2020141456	INESC TEC INSTITUTO DE ENGENHARIA DE SIST E COMPUTADORES TECNOLOGIA E CIENCIA	Device and agricultural device for measuring water present in vegetation and operation method thereof
WO 2020175857	AGRICULTURAL CORP MANNA CEA CO LTD	Carbon dioxide pest control system
WO 2020124174	IMPERIO ASSESSORIA EM INFORMACOES LTDA	Automatic grain processing apparatus; and load monitoring and tracking system
WO 2020141406	UNIV DEGLI STUDI PADOVA	Device and method for measuring the water content of the ground, vegetation and snow
WO 2020120516	BESTER IAN	Livestock management system
WO 2020132453	CLIMATE CORP	Utilizing spatial statistical models for implementing agronomic trials
WO 2020170939	UNIV CHIBA NAT UNIV CORP	Artificial light-type plant factory cohort phenotyping system
WO 2020140023	CAPILLARY CONCRETE LLC	Aerification system
WO 2020141978	YOR INNOVATION B V	Climate controlled stable
WO 2020185647	CLIMATE CORP	Real-time agricultural recommendations using weather sensing on equipment
WO 2020162321	DENSO CORP	Sensing system and data structure used therein
WO 2020120889	YNSECT	Facility for farming insects, comprising an automated sensor-equipped guided vehicle
WO 2020145141	SONY CORP	Reception device and method, and transmission device and method
WO 2020164833	ZAHNRADFABRIK FRIEDRICHSHAFEN	Control of an agricultural machine on the basis of the detection of the course of a border in agricultural usable areas
WO 2020160548	THE BEE CORP	Systems and methods for measuring beehive strength

WO 2020161035	ZAHNRADFABRIK FRIEDRICHSHAFEN	Device and method for safely operating an autonomously operable agricultural machine
WO 2020133249	CHANGZHOU GLOBE CO LTD	Method for controlling operation of garden equipment and battery pack
WO 2020146557	OSRAM GMBH	Horticultural luminaire with lidar sensing
WO 2020146944	ADVANCED INTELLIGENT SYSTEMS INC	System and method for automated farming of potted plants
WO 2020162745	NEDAP NV	System and smart tag for animals
WO 2020167869	THE TRUSTEES OF THE STEVENS INSTITUTE OF TECH	Wood boring insect detection system and method
WO 2020159494	GROW SOLUTIONS TECH LLC	System and method for normalizing tank pressure
WO 2020165055	ZAHNRADFABRIK FRIEDRICHSHAFEN	Device and method for safely operating a tool mounted adjustably on an agricultural machine that can be operated autonomously
WO 2020161566	PREC PLANTING LLC	Systems, apparatuses, and methods for monitoring soil characteristics and determining soil color
WO 2020111922	INDOVSKI PETAR	Probe for measuring the penetration time of water through the soil layers and the vertical moisture profile of the soil
WO 2020159492	GROW SOLUTIONS TECH LLC	Systems and methods for testing an industrial cart in a grow pod
WO 2020160025	BAYER CROPSCIENCE LP	Animal trap detection system using a glue board
WO 2020146453	TRIMBLE INC	Optical tunning for plant detection
WO 2020165818	BASF SE	Method and apparatus for determining an amount of nitrogen-stabilizing additive
WO 2020173592	HUSQVARNA AB	Antenna for soil sensors
WO 2020178781	ZERO SRL	A vertical farm system for the cultivation of vegetable products and method for producing a vertical farm system
WO 2020146036	STRONG FORCE IOT PORTFOLIO 2016 LLC	Methods, systems, kits and apparatuses for monitoring and managing industrial settings
WO 2020164834	ZAHNRADFABRIK FRIEDRICHSHAFEN	Trajectory determination for agricultural machines using grid maps
WO 2020153885	SONY CORP	Methods for controlling and updating a processing scheme of an electronic device, related server devices and related electronic devices
WO 2020170056	EXOTIC SYSTEMS	Device and method for monitoring bins
WO 2020178858	MAHINDRA & MAHINDRA LTD	Methods and system for integrated sensing and self-charging in agricultural implements
WO 2020132364	INNERPLANT INC	Sensor plant and method for identifying stressors in crops based on characteristics of sensor plants
WO 2020167145	AGRESEARCH LTD	Ground surface condition sensing in irrigation systems
WO 2020150430	UNIV OF FLORIDA RESEARCH FOUNDATION	Remote detection of pre-determined termite feeding activities in soil
WO 2020158290	TOPCON CORP	Growth information management device, growth information management system, growth information management device control method and growth information management program
WO 2020158975	LEE BONG HAK	Smart farm system for raising insects and operating method
WO 2020164835	ZAHNRADFABRIK FRIEDRICHSHAFEN	Control of agricultural machines on the basis of a combination of a distance sensor system and a camera
WO 2020160643	FARMERS EDGE INC	Shadow and cloud masking for agriculture applications using convolutional neural networks
WO 2020162926	INGENUEERING LLC	Insect and creature monitoring system
WO 2020146609	HI FIDELITY GENETICS INC	Method and device for non-invasive root phenotyping
WO 2020172546	CANNAGRI BLOCKCHAIN INC.	Machine vision sensor system for optimal growing conditions
WO 2020142043	YULUG AHMET OMER	Smart irrigation by monitoring the ground water level
WO 2020154249	CANYON JAMES	Method and system of determining soil-water properties
WO 2020161787	NEKKOYA INC	Agricultural house environment adjusting system

WO 2020148998	OMRON TATEISI ELECTRONICS CO	Model integration device, method, and program, and inference, inspection, and control system
WO 2020160605	UNIV MELBOURNE	Soil moisture estimation
WO 2020160641	FARMERS EDGE INC	Shadow and cloud masking for remote sensing images in agriculture applications using multilayer perceptron
WO 2020150732	UNIV NORTHEASTERN	Zero-power wireless system for crop water content monitoring
WO 2020150739	WATERBIT INC	Remote sensor system
WO 2020161360	AGTAG LTD	Bovine motion sensor tag
WO 2020127467	SOUNDALKS NV	Method for intelligent monitoring of one or more commercial sites for livestock animals
WO 2020127448	SOUNDALKS NV	Device for monitoring the status of a livestock facility
WO 2020126211	AGCO INT GMBH	Grain cleaning system and method of controlling such
WO 2020139652	HILLS PET NUTRITION INC	System and method for associating animal behaviors with animal health
WO 2020126308	AGCO INT GMBH	Grain cleaning system and method of controlling such

[...ver más](#)

REDES DE SENSORES PARA ENTORNOS URBANOS O PÚBLICOS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<u>WO 2020135897</u>	GALVEZ RENDON WALTER ROLANDO	Universal device for the wireless real-time capture of data from traffic light signals, solar-powered and self-contained
<u>WO 2020131497</u>	NAVIO INT INC	Edge intelligence powered security solutions and other applications for a smart city
<u>WO 2020139553</u>	CONTINENTAL AUTOMOTIVE SYSTEMS INC	Stabilization grid for sensors mounted on infrastructure
<u>WO 2020141682</u>	ACI CHEMICALS ASIA INC	System and method for controlling collection of domestic waste compression containers
<u>WO 2020148409</u>	VINCI CONSTRUCTION	Automated system for transporting goods
<u>WO 2020123131</u>	ASTEC INC	Road sensor system
<u>WO 2020120977</u>	PENTAIR PLC	Residential device feedback system and method
<u>WO 2020142548</u>	RAO SANJAY K	Autonomous routing system based on object ai and machine learning models
<u>WO 2020139206</u>	SIGNALTON TEKNOLOJI LTD STI	System and method of live human detection for disaster emergency search and rescue
<u>WO 2020160981</u>	ELEKTROBIT AUTOMOTIVE GMBH	Determination of the driving context of a vehicle
<u>WO 2019175686</u>	RATTI JAYANT	On-demand artificial intelligence and roadway stewardship system
<u>WO 2020160301</u>	MORGAN STANLEY SERVICES GROUP INC	Chaotic system anomaly response by artificial intelligence
<u>WO 2020153883</u>	ERICSSON TELEFON AB L M	Network node and method performed therein for handling data of objects in a communication network
<u>WO 2020168037</u>	FB GLOBAL PLUMBING GROUP LLC	Fluid usage monitoring and control system
<u>WO 2020150246</u>	STEGEMAN JOHN T	Systems and methods for improved municipal illumination

[...ver más](#)

REDES DE SENSORES PARA DETECTAR INCENDIOS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO 2020123356	CARRIER CORP	Kitchen fire suppression aiming systems and methods
WO 2020123156	CARRIER CORP	Calibration of an optical detector using a micro-flow chamber
WO 2020124067	CARRIER CORP	Alarm management system with blockchain technology
WO 2020146927	POLE GRAHAM	An ember detector device, a bush/wild fire detection and threat management system, and methods of use of same
WO 2020185033	KOREA HYDRO & NUCLEAR POWER CO	Safety cover structure of nuclear facility
WO 2020144231	CENTRE SCIENT ET TECHNIQUE DU BATIMENT CSTB	Vision accessory in sub-ceiling layer for an infrared detector
WO 2020144445	BAILEY SAMUEL GERARD	Monitoring cooking appliances
WO 2020148625	ASE ADVANCED SAFETY ENGINEERING SOC A RESPONSABILITA LIMITATA	Apparatus for detecting symptoms of thermal and/or mechanical anomalies that can lead to the ignition of a fire
WO 2020144232	CENTRE SCIENT ET TECHNIQUE DU BATIMENT CSTB	Infrared detector for sub-ceiling layer
WO 2020174387	3M INNOVATIVE PROPERTIES CO	Sensor-enabled respirator fit-test system with context-based remedial recommendations
WO 2020128952	3M INNOVATIVE PROPERTIES CO	Negative pressure reusable respirator system for safety event detection
WO 2020174318	3M INNOVATIVE PROPERTIES CO	Sensor-enabled wireless respirator fit-test system
WO 2020119875	EL TONSY HUSHAM HASSAN MOHAMED HUSSIN	Integrated smart, healthy and safe cooking oven (pressure oven).
WO 2020126812	MARIOFF CORP OY	Sprinkler self-diagnosis
WO 2020146766	DRIFT NET	Security system for detecting hazardous events and occupants in a building
WO 2020180953	ENG CORROSION SOLUTIONS LLC	Liquid sensing valve for a fire sprinkler system
WO 2020120904	ARIANEGROUP SAS	System adapted for extinguishing a battery fire
WO 2020162954	JOHNSON CONTROLS FIRE PROT LP	Capacitive switch detector addressing
WO 2020146484	EUBANKS DANA	Carbon monoxide purge system for a property
WO 2020156582	SIEMENS AG	Fire-fighting robot and control method thereof
WO 2020173471	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Container-type energy storage system and environment control method therefor
WO 2020161643	AAI ADVANCED AUTOMOTIVE INNOVATIONS INC	Device and method of anti-inflammation capsule
WO 2020171166	HAGUKUMI INC.	Fire extinguishing sheet which spouts fluorinated carbon-based fire extinguishing agent, method for producing same, and application of same
WO 2020152730	HOCHIKI CO	Fire alarm system and booster
WO 2020167950	VIRGA SYSTEMS LLC	End of line protection

[..ver más](#)

OTRAS REFERENCIAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO 2020138623	LS ELECTRIC CO LTD	Switchboard monitoring system and operation method of same
WO 2020136386	CLIM8	An electrical active assembly and a clothing assembly comprising the same
WO 2020118630	SHENZHEN ROYOLE TECHNOLOGIES CO LTD	Flexible sensor debugging system and method
WO 2020127677	PGS GEOPHYSICAL AS	Removing electromagnetic crosstalk noise from seismic data
WO 2020131388	MICROSOFT TECHNOLOGY LICENSING LLC	Generating space models from map files
WO 2020184535	TOPPAN PRINTING CO LTD	IoT APPARATUS CREDIBILITY CALCULATION DEVICE, IoT APPARATUS CREDIBILITY CALCULATION SYSTEM, METHOD OF USING IoT APPARATUS CREDIBILITY CALCULATION DEVICE, IoT APPARATUS CREDIBILITY CALCULATION METHOD, RECORDING MEDIUM, IoT DATA PLATFORM, AND IoT DATA PROCESSING METHOD BY IoT DATA PLATFORM
WO 2020136475	ATLAS COPCO AIRPOWER NV	Method for detecting leaks in a gas network under pressure or under vacuum and gas network
WO 2020128685	ABB SCHWEIZ AG	Condition monitoring device and method for monitoring an electrical machine
WO 2020139889	LOCIX INC	Systems and methods for determining locations of wireless sensor nodes based on anchorless nodes and known environment information
WO 2020119918	DIEHL METERING SYSTEMS GMBH	Method for collecting data in a network, sensor, consumption meter, data collector and network
WO 2020131474	PROCTER & GAMBLE	Apparatus and method for operating a personal grooming appliance or household cleaning appliance
WO 2020119920	DIEHL METERING SYSTEMS GMBH	Method for collecting data in a network, sensor, consumption meter, temporary receiver and network
WO 2020119574	QINGDAO HAIER REFRIGERATOR CO LTD	Food freshness determining device and refrigerator comprising food freshness determining device
WO 2020132367	PAYPAL INC	Automated data tokenization through networked sensors
WO 2020153955	HEWLETT PACKARD DEVELOPMENT CO	Particle monitoring
WO 2020180108	LG ELECTRONICS INC	Mobile robot and method for controlling same
WO 2020131187	SOFAR OCEAN TECH INC	Ocean weather forecasting system
WO 2020172163	IOWA STATE UNIV RESEARCH FOUNDATION INC.	Resonant sensors for wireless monitoring of cell concentration
WO 2020128726	SAFECERTIFIEDSTRUCTURE TECNOLOGIA S P A	A sensor device for monitoring structural elements, a clamping element, an examination unit and a method for constructing said sensor device
WO 2020142614	MAGSEIS FF LLC	Connector for lanyard attachment of seismic node to cable
WO 2020150130	SIEMENS INDUSTRY INC	System and method for simulating system operation conditions
WO 2020174606	MITSUBISHI ELECTRIC CORP	Sensor information collection system, sensor information collection method, data acquisition terminal, and program
WO 2020124503	SCHAEFFLER TECHNOLOGIES AG	Detection system and wind driven generator
WO 2020141321	SPORTABLE TECH LTD	Sports pad with force sensors
WO 2020149240	NEC CORP	Establishing a secure connection between a user equipment and a non-public network
WO 2020174546	NEC CORP	Control device, data acquisition method, and non-transitory computer-readable medium

WO 2020128733	3M INNOVATIVE PROPERTIES CO	Insulator for overhead power line conductors
WO 2020130946	BOSCH GMBH ROBERT	Transistor comprising a ceramic and an ionogel
WO 2020132525	ECOLAB USA INC	Adaptive route, bi-directional network communication
WO 2020148329	BSH HAUSGERAETE GMBH	Preparation of a foodstuff by means of an accessory of a foodstuff treatment device
WO 2020126036	ESSITY HYGIENE & HEALTH AB	Detecting a filling status of a dispenser for a consumable
WO 2020178096	SCIOSENSE B V	Sensor device and method for operating a sensor device
WO 2020161431	ENGIE	Measurement device, in particular for detecting hydrogen in the soil of a region
WO 2020152031	BRITISH TELECOMM	Wireless sensing method
WO 2020171335	MIRO CO.LTD.	Intelligent humidification control method
WO 2020165505	KEMIRA OYJ	Method and arrangement for cleaning a sensor
WO 2020130235	KOREA ELECTRONICS TECHNOLOGY	Automatic control system for artificial intelligence-based smart home air conditioner
WO 2020141214	ENOCEAN GMBH	Device for sensing the activity of people or the status of infrastructures or objects influenced by people
WO 2020179164	SONY CORP	Information processing device, information processing method, and program
WO 2020138574	KOREA ELECTRICAL SAFETY CORP	System and method for analyzing deterioration of electrical equipment on basis of climate information
WO 2020149797	NAT UNIV SINGAPORE	Pipeline analysis systems
WO 2020161659	MIND SRL	Artificial intelligence system for smart home
WO 2020156631	WACKER CHEMIE AG	Sensors based on dielectric silicon layers
WO 2020173751	SIEMENS AG	Pressure control in a supply grid
WO 2020150212	MSA TECH LLC	Fall protection compliance system and method
WO 2020176499	VON KRIES KARL	Systems and methods for altering rotation of a solar rotational manufacturing system
WO 2020154080	PROJECT CANARY INC	Apparatus and methods for reducing fugitive gas emissions at oil facilities
WO 2020153038	SONY CORP	Information processing device and information processing method
WO 2020172852	SIEMENS SCHWEIZ AG	Computing resource scheduling method, scheduler, internet of things system, and computer readable medium
WO 2020176992	HONEYWELL LTD	System and method for monitoring changes in process dynamic behavior by mapping parameters to a lower dimensional space
WO 2020181292	UNIV UTAH RES FOUND	Systems and methods for imaging of moving objects
WO 2020157355	UNIV CASTILLA LA MANCHA	System for the diagnosis of wind turbines of a wind generator and method of diagnosis of a wind turbine
WO 2020164661	HARTING ELECTRIC GMBH & CO KG	Sensor-monitored plug-in interface in a feedthrough housing
WO 2020173809	FOS4X GMBH	Wind turbine, sensor kit for a wind turbine, system comprising a wind turbine and an online-based memory and server service, and method for transmitting data from a wind turbine to an online-based memory and server service
WO 2020152546	BIOLOGICAL INNOVATION AND OPTIMIZATION SYSTEMS LLC	Bio-dimming lighting system
WO 2020167322	SOTER TECHNOLOGIES LLC	System and method for notifying detection of vaping, smoking, or bullying
WO 2020170235	GALOOLI LTD	Integrated battery monitoring circuit
WO 2020159961	APTIV TECH LTD	Detecting road anomalies
WO 2020157582	AEROQUAL LTD	Method for calibrating networks of environmental sensors
WO 2020170009	3M INNOVATIVE PROPERTIES CO	Systems and methods for monitoring the condition of a fall-protection safety system
WO 2020172459	MECHOSHADE SYSTEMS LLC	Maintenance and operation of a window shade system

<u>WO 2020154790</u>	ERIA SMART TECHNOLOGIES INC	Storage system with remote monitoring and management capabilities
<u>WO 2020166026</u>	MITSUBISHI ELECTRIC CORP	Management device, management system, management method, and program
<u>WO 2020167013</u>	SAMSUNG ELECTRONICS CO LTD	Time synchronization method, ue, base station, device and computer readable storage medium
<u>WO 2020163951</u>	HER MAJESTY THE QUEEN IN RIGHT OF CANADA AS REPRESENTED BY THE MINI OF NATURAL RESOURCES CANADA	Radio frequency wireless sensing device

¡¡Por sólo 500€ añada 150 especialistas* a su Equipo de I+D!!



Los ITPs** de la OEPM nos proporcionan información imprescindible para decidir la priorización óptima de proyectos de I+D en los que invertir.

Gamesa



LANZAMIENTO



Los ITPs** de la OEPM nos han ahorrado horas de revisión bibliográfica para definir el punto de partida de nuestros proyectos de I+D.



GRIFOLS 75



Los ITPs** de la OEPM detectaron solicitudes de patente relevantes cuando estábamos a mitad del proyecto y gracias a ello pudimos re conducir nuestra investigación.

CSIC

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



Gracias a los ITPs** de la OEPM hemos podido decidir la mejor forma de protección de nuestros resultados de I+D y redactar adecuadamente nuestras solicitudes de patente.

Real Casa de la Moneda
Fábrica Nacional de Moneda y Timbre



* La OEPM cuenta con más de 150 examinadores de patentes especializados en los diversos sectores tecnológicos y en la búsqueda de información científico-técnica.

** Los Informes Tecnológicos de Patentes o ITPs son estudios a la medida que incluyen una búsqueda de patentes y de literatura científica con un análisis en profundidad de los documentos más relevantes. Su coste es de 440 euros más IVA.



Oficina Española de Patentes y Marcas, O.A.
UnidadInformacionTecnologica@oepm.es