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Safetop Innovative Protection designs new digital connectivity and control system for PPE

Safetop Innovative Protection SL is a company specialising in personal protective equipment founded in 1989 with headquarters in Oleiros (A Coruña, Spain) and with international commercial activity. Safetop designs, manufactures and distributes a catalogue of over 1,500 products with the highest certification and quality standards, including gloves, fall protection harnesses, safety footwear, respiratory protection, eye protection, hearing protection, helmets and workwear, among others.

The company has recently completed the development of Safetop Connected (Pat. Pending), a technological system with NFC connectivity that allows its Personal Protective Equipment (PPE) to be connected to a cloud management application via mobile devices, providing functions such as access to technical information and product certificates, user identification and revision management, among others.

Brief history of Safetop

Safetop's journey began over 30 years ago, when its founders, Enrique García and Ismael Losada, set up a company in small premises in A Coruña, dedicated entirely to selling work wear, gloves and other protective equipment.

Aware of the possibility of improving the range of products on offer in the then emerging PPE market, in 1990, the SAFETOP brand was registered to manufacture and market personal protective equipment under its own brand. Since then, the company has been characterised by developing products based on the requirements and needs of professionals in the industry. The understanding and close collaboration with the needs of the professional user are the basis of new designs that have been adapted to the new demands derived from the evolution of industrial activity. The company has been especially active in height protection equipment, which is intended for professional activities in high-risk environments and therefore requires special attention when it comes to PPE products such as harnesses, lifelines, height helmets or connectors, suitable for each user and situation.

Safetop's strategic vision is focused on offering value-added solutions to the products and services it offers its customers, seeking constant improvement in protection, comfort and personal safety, a priority when it comes to guaranteeing working environments adapted to the highest demands.

Since 2017 the company has been operating from its headquarters in Oleiros (A Coruña) with more than 5,000 square metres of logistics platform.

Image 1. Safetop Innovative Protection warehouse in Oleiros, A Coruña

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Safetop Connected: IoT empowered safety

Managing the control and maintenance of PPE is a critical task for correct compliance with regulations, sometimes very time-consuming, as it requires rigorous control of its condition, expiry, use and maintenance. In many companies, occupational risk prevention control teams or end users do not always have the software or the means to make their control and consultation automatic and, above all, free of errors that can lead to sanctions by regulatory bodies or, more seriously, directly affect the safety of users in the case of certain critical PPE subject to mandatory periodic review such as, for example, harnesses for work at heights. The active safety provided by PPE is only really achievable if companies manage the passive safety that provides the correct conformity and compliance between the risks of a given professional activity and the most suitable PPE for it.

Within this vision, technological advances have made it possible to improve, streamline and minimise the administrative tasks of PPE lifecycle management. Due to the considerable progress of IoT (Internet of Things) connectivity technologies, and the ability to connect safety equipment with cloud systems, we find ourselves in an environment in which smart PPE is a reality, albeit still in its infancy. They combine traditional elements designed for each area of safety (helmets, fall protection harnesses, etc.), with digital (management software) and electronic elements (usage sensors, automatic danger alerts, etc.) that facilitate their use, maintenance and increase user protection in a proactive manner.
As a result of these developments and the aim to take the next step in the integration between the physical product and the management system, Safetop decided in early 2023 to invest, with the support of Luceiro Capital, in a new research and development project to create its first generation of smart PPE with connectivity functionality.

Through collaboration between Safetop's product development team and Indata's software developers, the company has completed the development of a first production version of a system comprising NFC (near-field communication) connectivity hardware compatible with several of its products, and a cloud-based PPE management software, Safetop Connected, which can be used via mobile device.

Image 2. Home screen of the Safetop Connected App

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Safetop Connected: IoT empowered safety

Safetop Connected was created with the aim of automating the connectivity between the active safety provided by PPE products and the passive safety provided by the correct management of certifications, revisions and conformity between the PPE and the industrial activity in which it will be used.

Its operation is simple: it is based on the reading of an NFC tag, using a mobile device. The tag is incorporated into the PPE and scanning it provides the user with direct access to technical information such as: data sheet, declaration of conformity and PPE manual, facilitating the review and management of all PPE subject to mandatory reviews or periodic technical inspections, as well as providing the end user with a medium on which to store relevant information on the use of safety equipment in digital format.

The NFC technology integrated as standard in Android/IOS mobile devices establishes short-range wireless communication between devices that are within 10 centimetres of each other. This technology was developed and is better known for "contactless" payments, but has the potential for broad industrial applications. The use of NFC enables data exchange, object identification, device synchronisation, automation of actions and many other functions between devices, or in this case, between a physical smart PPE and a mobile phone.

In the case of Safetop Connected, the device to be read is a passive label integrated in the PPE, very robust, not subject to wear and tear or deterioration like barcodes, QR or other printed types and without any type of external power supply, resistant from -80º to 150º, water, all types of vapours and gases, including explosive and high abrasion environments. In this way the PPE can maintain the contactless chip connection to the software carrier even in industrial working environments where it is subjected to high wear and tear or adverse weather conditions.
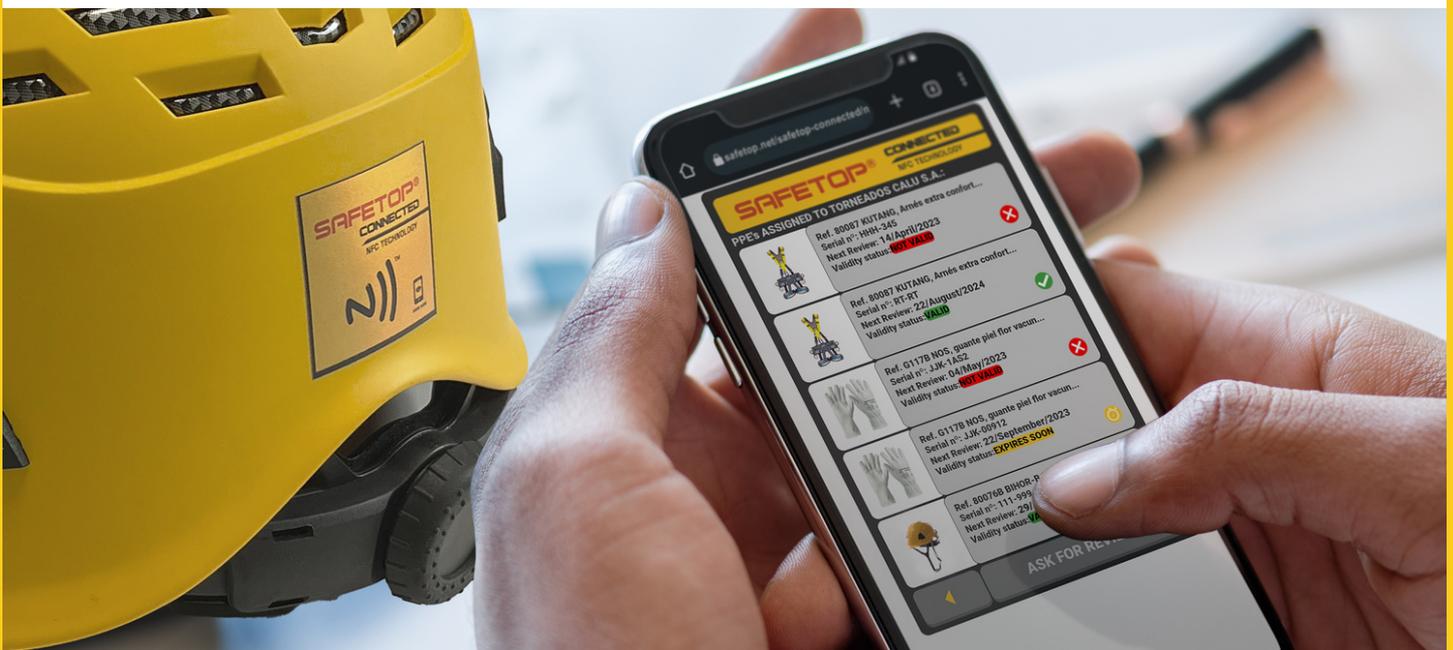

Image 3. EPIS listing screen

By scanning the NFC tag with a commercial mobile phone, without the need to purchase high-cost industrial readers as in the case of RFID, or install any APP, the work protection manager or the end user will instantly have access through the web browser to the relevant information of the PPE, its current revision status, technical documentation, or protection level. This allows the end user to request PPE revisions, make notes on hours and conditions of use, or quickly contact the manufacturer for queries, with a much more effective traceability of the product on which the query is made (reference, date of activation, etc.), avoiding the loss of relevant information.

However, Safetop Connected is not only a consultation application, but also a tool that facilitates the control and organisation of Safetop PPE. With this platform, users can register each piece of equipment they acquire with a simple scan, from any commercial mobile phone, without the need to purchase special equipment, thus generating a list of the safety equipment they have, which they can consult at any time or place. This is especially relevant for companies with a large number of employees, where the individual user or safety manager can have a real time image of their PPE portfolio, who is using them, whether they are up to date, and whether they comply with current regulations. The system itself also allows the user to record information about the use of the PPE, such as when, where and by whom it has been used, thus using the system as a "log-book of the PPE, much more powerful than other current identification methods such as analogue stickers with serial numbers, where there is a disconnection between the product and the analogue information about it.

From the menu of functionalities, the company places special emphasis on the automation of the revision management process. After scanning the equipment to identify it, the user can proceed to request a technical inspection and servicing of it from their mobile phone in a matter of seconds, speeding up the process of collection and delivery of the product to the manufacturer or service manager by a transport company. Once the service is completed, it is automatically updated in the system's database, and generates an email to the user or the company's safety manager with the corresponding service legal certificates, or on the contrary, warning them in the event that the PPE is no longer fit for use.
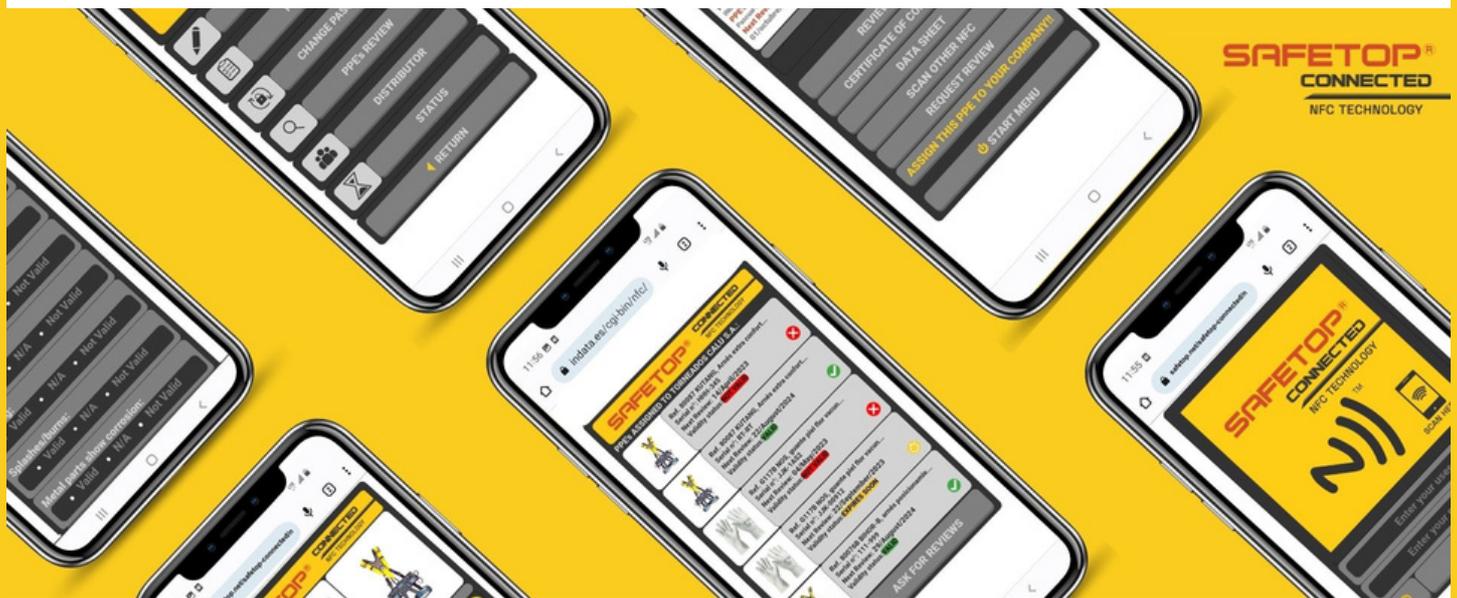
From Safetop, the company believes that some of the advantages of using Connected technology include:

1.Increased Safety and Compliance: The company using the PPE control application ensures a higher level of safety for its workers by ensuring that personal protective equipment is in good condition and complies with established safety regulations. This reduces the risk of workplace accidents caused by inadequate or poorly maintained PPE, and possible penalties for non-compliance.

2.Traceability and Efficient Maintenance: The application allows a detailed record to be kept of each PPE, including its date of manufacture, date of sale, date of next revision and validity status. This facilitates the traceability of equipment, resulting in more efficient and timely maintenance. In addition, the use of technologies such as NFC scanning enables fast and accurate tracking of equipment.

3.Cost Reduction: By having proper control of PPE, the company can avoid loss or deterioration of equipment, resulting in long-term financial savings. In addition, by complying with safety regulations, potential fines and penalties are avoided, which also contributes to cost reduction.

4.Increased Operational Efficiency: The PPE control application allows the company to have quick and easy access to information on each piece of equipment, such as certificates of conformity, technical data sheets and revision files. This streamlines management processes and facilitates informed decision making.

5.Corporate Responsibility: The use of a PPE monitoring application demonstrates the company's commitment to the safety and protection of its workers. This can enhance the corporate image and build trust among employees, customers and suppliers alike.

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Cross-product usability and ease of operation for the user

Another feature of Safetop Connected is its transversal application to a wide range of PPE. Safetop Connected can be incorporated into any PPE that, due to its size, allows the installation of the NFC chip.

However, in this initial phase of the technology, the manufacturer will encourage its use in devices that require greater control and revision, in particular Category 3 PPE, due to its nature as equipment of vital importance to the user, and typically linked to activities of greater risk for the professional.

In this sense, their use in retractable devices, tripods and other climbing and/or descending equipment or accessories, harnesses and helmets is of great utility, as these products are some of the most frequently required technical inspections and revisions, and also because they are products with a higher added value and economic investment by professional users.

Image 4. Safetop Connected device on a Kutang harness

In fall arrest systems approved to use Safetop Connected, such as the KUTANG harness (Ref. 80087), a high quality, high performance and resistant Velcro system has been used for the attachment of the chip holder, so that the user can quickly identify the location of the device and that it does not interfere with the usability of the harness.

In the case of retractable reels such as the ROLTEX (Ref. 80230-N), ultra-resistant stickers with a holographic finish have been incorporated, providing, in addition to great security against breakage and scratches, ease of reading and identification of those retractable units equipped with Connected technology.

Image 5. Safetop Connected device in a harness

This first production version of Safetop Connected is a step forward in the integration between active safety through the product and passive safety through its correct management, but the company considers that it is just one more step in the process of technological development in PPE, and that the field of information technologies must be explored to continue improving safety in the field of occupational risk prevention through the new possibilities that technologies such as the IoT allow. The company expects to continue to invest and expand its collaboration with technology partners to provide the industry with further technological improvements that will impact on its goal of ensuring maximum safety for professionals using Safetop equipment.

For more information:

All information about the products and the latest news can be found on the brand's website: www.safetop.net

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