

SYSTEM FOR MONITORING THE UTILIZATION OF PERSONAL PROTECTIVE EQUIPMENT BY WORKERS IN THE WORKPLACE

Main Technological Area → Information and Communication Technologies

Keywords → PPE | Personal Protection Equipments | Safety | Prevention | Rfid

The proposed solution relates to a system for monitoring the use of personal protective equipment (PPE / PPE) by workers in areas presenting potentially dangerous situations. The system is composed of a central control unit, connected with sensors which monitor the presence of the worker and his correct use of PPE. Each work area can be characterized by a specific level of hazard and consequently requesting adequate and specific protective equipment.



TECHNICAL SPECIFICATIONS

The patented solution consists of a set of electronic modules associated with each PPE to be used in the workplace, and is configured to store the PPE information and its correct placing once worn. In addition, the system includes a master electronic device worn by each worker which identifies him and contains the equipment of the PPE used by him. The master device communicates with a series of sensors located at the entrance and inside working areas, to check the presence and the continuous usage of the correct safety equipment required for each worker.

A central control and monitoring system allows to verify the correct safety equipment for each work area, allowing access according to the equipment safety worn. The central control is able to give warning to staff in charge of safety in case that a worker has disposed of one or more PPE, or when a worker is in proximity of the working area of an operating machine. In addition to preventing accidents at work, the system strengthens the workers' perception of their need for safety equipment. Next, the system presents a high degree of scalability and configurability according to the different application needs and the number of workers involved.

Another advantage of the solution is the adoption of parts already present on the market (RFID, active sensors, communication networks, bluetooth and WIFI). When an accident occurs, the system allows a safe detection of the location of workers in the affected area. Recording of the phases preceding an incidental event is also available.

INNOVATION/ADVANTAGES

The solution allows integrated surveillance of construction sites presenting a high degree of danger, monitoring presence and real-time dislocation of workers and the effective usage of adequate protective devices, in order to prevent any accident or, if necessary, to raise safety alerts.

Initially, the solution was dictated by needs in the building sites and road construction, but it can be easily extended to other contexts only by changing or adding the type of suitable devices according to the risks.

Main advantages:

- Reduction of risks for workers
- Centralization of the surveillance system
- Flexibility and scalability according to specific needs
- Possibility of identifying workers in case of an accident
- Possibility to track the dynamics of accidents

FIELDS OF APPLICATION

Constructions	Building sites, galleries
Maritime	Shipyards, dry docks, ports
Railways	Railway yards
Oil&Gas	Oil & natural gas extraction platforms, onshore & off-shore, refineries
Metallurgical	Foundries, steel mills
Minerary	Pit mines
Public Safety	Firefighters, crash site operations, evacuations, CBRNe emergencies

PATENT INFORMATION

Priority Date - 21/05/2010

Priority Code – TO2010A00426

IPC Codes – G08B21/24

Active worldwide applications

EPO - EP2388755B1; filing date: 23/05/2011; grant date: 05/09/2012

National Extensions: Italy – Belgium - Germany – France – United Kingdom – Poland - Switzerland

USA - US8842019; filing date: 20/05/2011; grant date: 23/09/2014

Leonardo internal code

LDO-0439