SAFESTAR

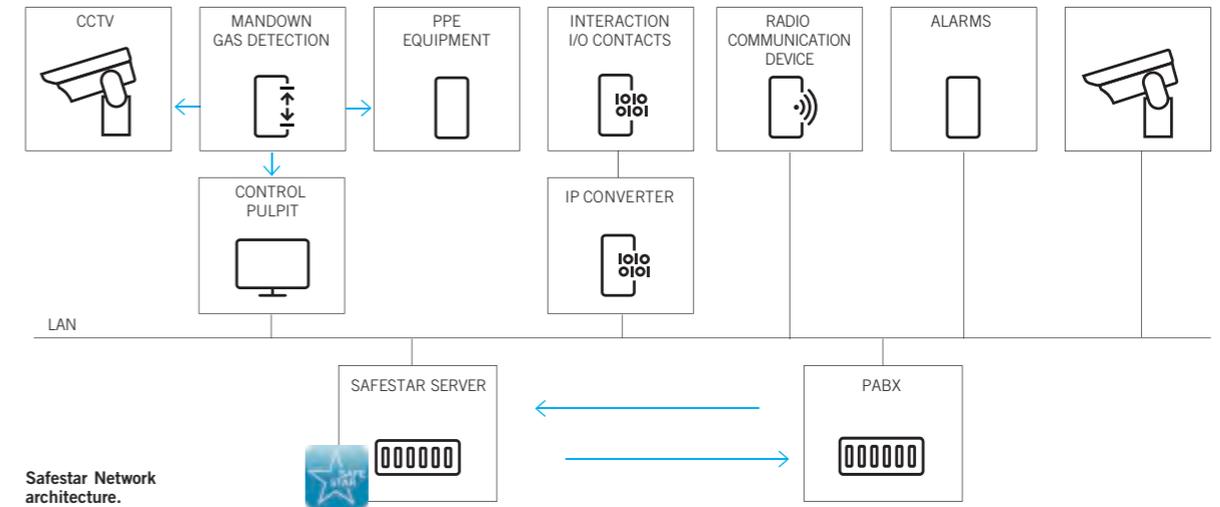## Integrated communication system for safety supervision

BENEFITS

SAFESTAR is a software platform, capable of integrating any type of mobile or fixed terminal, regardless of the network

It can be installed on any type of computer or it can run as a virtual platform

Thanks to its capability for full integration into existing communication systems, considerable savings in terms of investment costs are achievable

All technical events can be sent directly to maintenance staff, reducing response time considerably and benefiting production

Safestar Network architecture.

PROCESS

SAFESTAR is an innovative and integrated geo-localization and communication system for safety supervision, permitting the identification and position determination of all operators inside a defined production area, covered by WiFi / GSM-GPRS-UMTS / Bluetooth / ZigBee networks and monitored by a CCTV system.

Safestar System has been developed to increase safety conditions inside the plant: operators are localized in the plant area and it automatically detects any problem, and initiates an alarm.

The main features of the system are hands-free radio communication using WiFi/ GSM units (i.e. smartphones) and radio localization.

In case of access on a restricted area, or man-down situation or emergency call, an alarm will be sent immediately to the main control pulpit, to be managed by safety team.

The system is designed to integrate or replace existing analog communication devices, with IP-based digital technology, and it can be installed on any type of computer or it can run as a virtual platform, with considerable savings in terms of investment costs.

SAFESTAR implements in same network infrastructure:
> Radiolocation system for all operators equipped with special hardware, cropping up emergency alarms
> Audio communication system, allowing integration of all devices related to voice transmission
> Integration of video surveillance system, to monitor all the areas covered by the system
> Digital intercom system, integrating audio communication by digital intercom devices.

EQUIPMENT

Each operator, provided with a special helmet each (including headset and microphone), as well as a WiFi/GSM-COM device, (approx. the size of a typical smartphone), together with a microwave belt tag for position determination via radio, can talk using a point-to-point link or in conference-call with the shift supervisor and/or co-workers.
In order to achieve operator's localization, are utilized the following technologies:
Indoor localization: standard Zigbee protocol (IEEE 802.15.4) or ANT/Bluetooth technology
Outdoor localization: GPS technology
Possible hardware for indoor localization is implemented through following devices:
> Access Point Master Zigbee;
> Access Point Slave Zigbee;
> Zigbee belt device;
> Emergency alarm transmitter.
In case of outdoor tracking access points are not necessary and operator position is detect through GPS signal receiving via rugged smartphone
SAFESTAR completes is application with integrated communication system for voice and data transmission, either inter-operator or between operator and control pulpit. In a single software platform the system integrates different technologies: GSM-GPRS-UMTS, WiFi, DECT, Zigbee.

System can integrate every existing device using TCP/IP or WiFi protocol.
Devices can be integrated in the communication network via:
> Operator helmet with integrated microphone
> Rugged smartphone
> Voip phone
> DECT device
> Digital intercom device.

PERFORMANCE ACHIEVEMENTS

ABS LUNA finishing mill – SAFESTAR radio-location features No. 15 operators for a coverage area of indoor 4,000 sqm indoor and 40,000 sqm outdoor.
Emergency calls based on the area of interest. Operator position showed by HMI in case of: man-down, no movement (threshold is set to fifteen minutes) and illness (by the pressing of a push button).

Angola Steel Project - SAFESTAR radio-location and voice transmission service. Operator data showed by HMI in case of man-down, no movement and illness (by the pressing of a push button).
Voice transmission (access for operators equipped with SAFESTAR hardware to the main gate is logged on the database).