Use case of the SENSECOM-IDH series

Regular inspections of conveyor belt stations

Case

Supervision and regular inspections of the technology in the open cast mining area are among the daily important tasks of Severočeské Doly a.s. employees. There is a risk of not only possible fires, but also various cave-ins, belt deflection from conveyor belts, etc.
The worker is obliged to regularly perform both mechanical and electrical inspection of the conveyor belt drive stations twice per shift to minimize the possible risk of an accident.

How it was done in the past

The previous status was that after performing a drive station check, the checker contacted dispatch and made a report of the time, equipment status, and name of the worker who performed the check. This was a very time consuming and administratively complex process in terms of the number of drive stations and workers.

What it looks like today

Each drive station has been equipped with an operationally robust communication device for reading RFID attendance cards that allows:

- place the device at a specific control station
- to keep a record of the employee who regularly confirms electronically his/her activities in the control process
- automated detection of whether the control interval has been exceeded since the last notification
- to be able to easily identify the reporting officer (by using his/her access card, which he/she carries with him/her at all times)
- to have the recording device independent of both the mains power supply and the data cables. Both could be inoperable in the event of a failure or accident of the mining technology (i.e. a battery-powered version with wireless communication independent of the mine's communication technology is used)
- have this detector in a design that can withstand very dusty and outdoor conditions (in an IP67-rated housing with a robust push button).

All these parameters were incorporated in the development of the RFID input card reader using low-power operation and the SIGFOX IoT network adapted to it. Thus, the worker has a reader available in the vicinity of the controlled technology to which he attaches his input card. By pressing a button on the device, he then simply activates its reading and sending it over the wireless network to the tracking center. Once the

message is sent, the device goes back to sleep, saving energy to the point that even a monocell-sized battery (size "D") can last 5 or more years in operation without replacement.

Conclusion

Severočeské doly a.s. already uses over 100 SENSECOM-IDH1 sensors, which help to increase the safety of workers in hazardous areas of mines and automate the evaluation of periodic inspections, the output of which is visualized in the company application.

Use of the equipment in other areas

SENSECOM-IDH and IC series devices are used in many other areas, e.g. for vigilance monitoring or monitoring the work of workers in isolated workplaces and remote locations. The IDH2 model has 2 read activation buttons to distinguish the purpose of the read, e.g. arrival/departure, start/end of activity, etc.

The SENSECOM-IC has, in comparison to the IDH models, a BARC (barcode) reader. In this combination, the devices are used, for example, to read maintenance work orders code together with the input cards of the maintenance crew at the entrance of a specific workplace. This makes it possible to simplify and refine the recording of the start and end of work and to link it to the record of the workers who participated in it, or to trigger a control or rescue action if there is no record of leaving the workplace at the scheduled time.

These devices are not designed or adapted for reading entry cards at entry gates or in places where multiple workers are registered at the same time. The typical use of these readers is to record 2-5 workers with 1-6 arrivals and departures from a given workplace per day. The card code read is sent online, and the device can run on a single battery for many years.