A wearable system for worker risk detection

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This study reports on a novel wearable system for monitoring physiological and behavioural signs of workers for the assessment of the level of risk into a workplace. The whole system is a body area sensor network which includes a smartphone, an artificial intelligence algorithm for risk assessment, and a set of sensor-nodes integrated into a textile substrate.
The prototype is composed of a gradient humidity sensor, a gradient temperature sensor, an Ultraviolet (UV) sensor, a body temperature sensor, and a body impedance sensor. Signals are acquierd in real-time and sent to a smartphone where a dedicated interface show them over time. Morever, after the first processing stages into the smsartphone the signals are sent to a cloud for further analysis. The system is developed within the framework of the Italian National Funded Project Sense-Risc. The project aims at developing new smart clothes able to prevent physical and psychological injures of workers during their working-life through continuous risk level assessment.