

Wearable Systems based on nanomaterials for Health and Safety

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The Joint Lab of Innovative Technologies and Wearable Sensors for Human and Environmental Monitoring aims to promote and support applied research and technology devices in the field of wearable sensors for monitoring physiological and environmental parameters for applications in HSE, Sports. The research conducted by the JL is derived from the BRIC ID-10 'Sense Risc' project, which concluded in 2020. During this project, a t-shirt equipped with innovative sensors for physical, chemical and biological agents, based on nanotechnologies and nanomaterials, was developed. This t-shirt allows for the monitoring and prevention of potential risk situations for the individual worker through the use of a wireless communication protocol and a bio-operational algorithm. The system has been subjected to laboratory validation, achieving a Technology Readiness Level (TRL) of 4/5.



Figure 1 - wearable t-shirt with Bluetooth systems for physiological monitoring

The objective of the Joint Lab is to utilize the developed cluster of sensors and wearable systems to attain technological maturity at TRL 8 by proposing the smart t-shirt system in workplaces comprising approximately 100 employees. This will serve to validate the technological solution and enhance the computational capabilities of the bio-operational algorithm.

Acknowledgements:

The authors would like to thank INAIL for funding the project and all Partners

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