Automated Monitoring System to Support Investigation of Contributing Factors of Work-Related Disorders and Accidents

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Abstract : Work-related illnesses and disorders have been a constant aspect of work. Although their nature has changed over time, from musculoskeletal disorders to illnesses related to psychosocial aspects of work, its impact on the life of workers remains significant. Despite significant efforts worldwide to protect workers, the disparity between changes in work legislation and actual benefit for workers’ health has been creating a significant economic burden for social security and health systems around the world. In this context, this study aims to propose, test and validate a modular prototype that allows for work environmental aspects to be assessed, monitored and better controlled. The main focus is also to provide a historical record of working conditions and the means for workers to obtain comprehensible and useful information regarding their work environment and legal limits of occupational exposure to different types of environmental variables, as means to improve prevention of work-related accidents and disorders. We show the developed prototype provides useful and accurate information regarding the work environmental conditions, validating them with standard occupational hygiene equipment. We believe the proposed prototype is a cost-effective and adequate approach to work environment monitoring that could help elucidate the links between work and occupational illnesses, and that different industry sectors, as well as developing countries, could benefit from its capabilities.

Keywords : Arduino prototyping, occupational health and hygiene, work environment, work-related disorders prevention
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