

Using Wearable Technology to Monitor Workers' Stress for Construction Safety: A Conceptual Framework

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Abstract : The construction industry represents one of the largest industries in the United States, yet it continues to face several occupational health and safety challenges. Many workers on construction sites are suffering from extended exposure to stressful situations such as poor and hazardous work environments and task complexity. Stress can be commonly defined as a feeling of emotional or physical tension, which can easily impact construction safety and result in a higher rate of job-related injuries in the construction industry. Physiological signals transmitted from wearable biosensors can be used to detect excessive stress. Therefore, workers' stress should be detected and mitigated to prevent any type of serious incident or accident proactively. By doing this, construction productivity, as well as job satisfaction, would also be improved in the construction industry. To establish a foundation in this field of research, a conceptual framework for using wearable technology for construction safety has been developed for continuous and automatic monitoring of worker's stress. The conceptual framework will serve as a foothold in future studies on the application of wearable technology for construction safety.

Keywords : construction safety, occupational stress, stress monitoring, wearable biosensors

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