



TECHNOLOGY

Device and Cloud-Based System to Reduce Lower Back Injury in the Workforce

OVERVIEW

Background:

A solution to lower-back pain in the workplace needs to be addressed. Lower-back pain is the most common cause of job-related disability and a leading contributor to missed workdays. In fact, the total direct costs of chronic lower-back pain related health care utilization are estimated to be about \$100 million a year (Mehra, 2012) and an estimated 186 million work days are lost each year due to lower back pain alone (AAOS Now, 2009). Although there are many causes of back-pain, such as aging and lack of exercise, this design specifically addresses lower-back pain caused by poor lifting form.

Innovation:

Researchers at the University of Maryland have developed a Personal Wearable Device and Cloud-Based System for reducing lower back injury. This sensor is equipped with an inertial measurement unit (IMU) giving nine degrees of freedom data. When the user starts a lifting motion, the proprietary on-board algorithms identify this motion and records the data. This data is then periodically uploaded to a remote server where it is further processed by algorithms to evaluate the user's performance while lifting, carrying, or lowering items. A report is then generated based on this data and is sent electronically to the user or the appropriate safety or ergonomic officer in the workplace who could recommend retraining or shift the worker to another task based on information in the report.

APPLICATIONS

- Lower back pain monitoring

ADVANTAGES

- Analysis Report,
- Lower Back Injury mitigation,
- Automated movement analysis,
- Cloud-based database analysis,
- Easily scaled for more users

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Additional Information

INSTITUTION

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PATENT STATUS

Pending

CATEGORIES

- Devices
- Sensors/Monitors

EXTERNAL RESOURCES

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