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Design and Development of an Ergonomic Trolley-Lifter for Sheet Metal Handling Task: A Preliminary Study (Article) (Open Access)

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Abstract

Background: There have been some concerns related to manual handling of large items in industry. Manual handling operations of large sheet metal may expose workers to risks related to efficiency as well as occupational safety and health. Large sheet metals are difficult to move and burdensome to lift/transfer, and handling the sharp sheet edges may result in contact stress and/or cut injuries on the workers. Methods: Through observation, interview, and immersive simulation activities, a few problems related to current handling of sheet metals were identified. A sheet metal trolley-lifter was then designed and fabricated to address these issues. A pilot study on the use of the developed trolley-lifter for handling sheet metals was conducted to compare between the new and traditional handling methods. Results: The pilot study of the trolley-lifter showed promising results in terms of improving the cycle time, manpower utilization, and working postures compared with the traditional handling method. Conclusion: The trolley-lifter offers an alternative solution to automation and a mechanized assistive device by providing a simple mechanism to assist the handling of sheet metals effectively and safely. © 2019 The Authors

SciVal Topic Prominence

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