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Design and Implementation of a Model to Prevent Hazards and Injuries when using a Straight Knife Fabric Cutting Machine in Ready-Made Garment Factories

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Abstract:
This study aims to design and implement a protective cover for the Straight Knife Fabric Cutting Machine to reduce hazards and injuries in ready-made garment factories. The research highlights the challenges faced by cutting workers due to the sharp blades and high speeds of the machine, as well as the limitations of traditional protective gloves. A transparent fiberglass cover was designed and experimentally tested in 15 factories with 75 cutting workers. The survey results demonstrated significant improvement in safety, comfort, and usability. More than 90% of workers reported easier machine handling, enhanced vision, and improved personal safety after using the cover. Additionally, 100% of the participants confirmed the absence of injuries during the trial. The cover also addressed the common drawbacks of protective gloves, including discomfort and performance limitations. The results confirm that protective cover is a viable safety solution that enhances worker protection without compromising productivity or comfort.

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