

Design and Fabrication of Indoor and Outdoor Attachment for Handicap Wheel Chair

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Abstract: The project “Design and Fabrication of Indoor and Outdoor Attachment for Handicap Wheelchair” focuses on developing a multifunctional accessory system that enhances mobility, safety, and comfort for wheelchair users across diverse environments. Conventional wheelchairs often face limitations when transitioning between smooth indoor surfaces and uneven outdoor terrains.

To overcome these challenges, this project introduces an innovative attachment that can be easily fixed to a standard manual wheelchair, providing adaptability for both indoor maneuverability and outdoor stability. The attachment integrates features such as a front-ray detachable front-drive mechanism, shock-absorbing wheels, adjustable support frames, and an ergonomic locking system. These components collectively reduce physical strain on the user, improve through surfaces, and ensure seamless movement through narrow indoor spaces.

The design emphasizes lightweight materials, cost-effectiveness, and user-friendly operation, making it suitable for daily use. This project aims to empower differently-abled individuals with increased independence, extended mobility, and improved quality of life by offering a practical solution that bridges the performance gap between indoor and outdoor wheelchair use.

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